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DRAFT
Environmental Impact Statement

Appendix 15

Fertilizer and Pesticide Risk Assessment

The Belleayre Resort at Catskill Park

Fertilizer and Pesticide Risk Assessment

For

The Big Indian Country Club

And

Highmount Golf Club

At

The Belleayre Resort at Catskill Park

Prepared For:

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REVISED NOVEMBER 2002

Belleayre Resort at the Catskill Park
Fertilizer and Pesticide Risk Assessment

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ERRATA

This document has been revised to incorporate comments/concerns raised during the original completeness review of the DEIS. In particular, revisions have been made as to what pesticides may be used and will not be used on the proposed golf courses. These changes are as follows.

- Cyproconazole was registered for use on turf in New York State at the time that the original DEIS was written. Cyproconazole is no longer registered for use in New York and is no longer proposed for use. All references to cyproconazole use on the proposed golf courses have been eliminated from the DEIS.

- Because of the Department's concern with mancozeb metabolites, particularly ETU, mancozeb is no longer proposed to be used on the proposed golf courses. The DEIS has been amended to reflect this.

- The fungicide trifloxystrobin has been added to the DEIS as a substitute for mancozeb. Trifloxystrobin was just recently recommended for use on commercial turfgrass in New York State (Cornell Cooperative Extension's *2002 Pest Management Guidelines for Commercial Turfgrass).* Trifloxystrobin has been evaluated using the same procedures used for the other active ingredients analyzed in this Fertilizer and Pesticide Risk Assessment. For the five soil series profiles analyzed, there was zero trifloxystrobin leaching from three of the soil series. The maximum undiluted leachate concentration from the other two soil series profiles was 0.0068 mg/l. This undiluted concentration is almost 10 times less than an actual drinking water health standard of 0.050 mg/l. For the runoff portion of the analysis, when trifloxystrobin was present in runoff, it was at undiluted concentrations less than the LC_{50} values for rainbow trout and *Daphnia.* (LC_{50} is the ocncentration that is lethal to 50% of the organisms in a toxicity test) Undiluted concentrations of trifloxystrobin in runoff ranged from 0.0001 mg/l to 0.0026 mg/l. These are well below the LC_{50} values of 0.014 mg/l for rainbow trout and 0.025 mg/l for *Daphnia.* The DEIS has been amended to include the option of using trifloxystrobin to treat leaf spot, pink snow mold, and pythium.

- Very recently the manufacturer of products containing metalaxyl adjusted the chemical structure of metalaxyl to form a slightly different compound. The new stereoisomer of metalaxyl is known as mefenoxam, and mefenoxam is now the active ingredient in products that formerly contained metalaxyl. The *2002 Pest Management Guidelines for Commercial Turfgrass* published by Cornell University now includes mefenoxam, and no longer includes metalaxyl. Metalaxyl is no longer proposed for use on the golf courses and the DEIS has been amended to reflect this.

Because mefenoxam has a slightly different chemical structure than metalaxyl, mefenoxam also has slightly different characteristics that affect its potential to leach to groundwater. Mefenoxam has a slightly higher water solubility, but a much higher K_{oc} value than metalaxyl. The vapor pressure and soil half-life for the two compounds are similar. Mefenoxam is more efficient in controlling the target pythium fungus, so much so that

mefenoxam label application rates are half of what they formerly were for metalaxyl products.

Behavior of mefenoxam on the proposed golf courses was modeled in the same way the other pesticides were modeled in this Fertilizer and Pesticide Risk Assessment. At no time did the undiluted leachate concentration from any of the five soil profiles simulated come close to exceeding the MCL for an unspecified organic compound of 0.05 mg/l. The highest undiluted leachate concentration was 0.0234 mg/l. Mefenoxam can be used safely on the proposed golf courses.

In addition to mefenoxam, the ITM plan (Appendix 14) continues to recommend etridiazole and propamocarb for pythium treatment. Also, fosetyl-Al has been added to the list of pesticides to treat pythium. Fosetyl-Al did not have any use restrictions as a result of the Risk Analysis, and was recently added to potential pesticides recommended by Cornell to treat pythium.

The DEIS, including this Appendix and Appendix 14, "Integrated Turf Management Plan", have been edited to remove metalaxyl from the list of potential products that could be used on the golf courses. Additionally, the DEIS has been edited to add mefenoxam and fosetyl-Al as products available to safely treat pythium.

- Isofenphos is no longer be proposed to be used. Spinosad, acephate, ethoprop, and bendiocarb are still proposed to be used to treat insect pests. The Cornell Recommendations for Commercial Turfgrass was recently revised (2002 edition) for the pest spectrums for these four products. Ethoprop is now also recommended for cutworms. Ethoprop and bendiocarb are now recommended for webworms and bendiocarb is now also recommended for chinch bugs. The ITM plan has been amended to reflect these changes.

- Additionally, Cornell's *2002 Pest Management Guidelines for Commercial Turfgrass* includes three new pyrethrin insecticide active ingredients; bifenthrin, lambda-cyhalothrin, and deltamethrin. These three active ingredients were analyzed using the same analyses contained in the Fertilizer and Pesticide Risk Assessment. Two of the new active ingredients, bifenthrin and lambda-cyhalothrin, did not leach through any of the modeled soils, nor did they appear in runoff from the simulated 18th fairway. Deltamethrin did not leach through any of the modeled soil profiles, but did appear in runoff from the simulated 18th fairway. When it did appear in runoff, deltamethrin concentrations ranged from 0.0001 mg/l to 0.0014 mg/l. The LC50 value for deltamethrin and rainbow trout is 0.001 mg/l to 0.010 mg/l. Deltamethrin is not proposed for use on the golf courses because its runoff concentration at times exceeded its LC50 for fish.

The Fertilizer and Pesticide Risk Assessment has been amended to include these findings. Additionally, the Integrated Turf Management Plan (Appendix 14) has been amended to include bifenthrin as another option for treating cutworms, sod webworms, and chinch

bugs. Lambda cyhalothrin will likewise be added to the list of options available for treating cutworms and sod webworms.

- The Integrated Turf Management Plan (Appendix 14) states that 2,4-DP could be used on the proposed golf courses as part of a "combination product" with other broadleaf herbicides. As an example, the product Super Trimec® (EPA registration number 00217-00758) contains 2,4-DP as one of its active ingredients, and is currently registered for use in New York according to the Department's listing of currently registered pesticides.

- DCPA is not listed in the recently issued *2002 Pest Management Guidelines for Commercial Turfgrass* issued by Cornell Cooperative Extension, and is no longer proposed for use on the proposed golf courses The DEIS has been amended to reflect this.

It is expected that the 2003 version of the Cornell Recommends will be issued some time in the Spring of 2003 and any changes in the status of pesticides proposed for use on the project golf courses will be reassessed at that time.

Section 1 Introduction

This report contains the results of the site-specific analyses of the potential for adverse environmental impacts that could potentially result from the use of turf fertilizers and pesticides on the two (2) golf courses proposed as part of the Belleayre Resort at Catskill Park project. The analysis was undertaken in order to address concerns pertaining specifically to the impact of golf course management practices on surface water and ground water resources both on and off the project site. Analysis of impact potential consisted of subjecting pesticide and fertilizer applications to rigorous computer modeling in order to estimate overland (runoff) transport and vertical (leaching) transport of nutrients and pesticide active ingredients. Model-generated data were then compared to applicable drinking water standards, published toxicology values, and other standards. Use of conservative assumptions throughout the modeling process insured that worst case scenarios were used to generate output data and these data were used to form the basis for fertilizer and pesticide use recommendations for the proposed golf courses.

Modeling results were in agreement with published scientific literature. The potential for negatively impacting surface water and groundwater resources via a properly implemented fertilizer program and pesticide applications on the proposed golf courses was found to be low. Results of the risk assessment analysis indicate that a fertilizer program which uses up to four (4) pounds of nitrogen per thousand square foot per year (4 lbs. N/M/yr.) can be implemented without adversely impacting groundwater quality or surface water quality. Results of this risk assessment have been used to set limits on fertilizer phosphorus application rates in order to protect water quality. Also, based on runoff and leaching modeling results, suitable pesticides can be used, when necessary, to treat each individual pest of the potential pest spectrum without adversely impacting local surface water, aquatic biota, groundwater, and potable water supplies. (See DEIS Appendix 14, "Integrated Turf Management Plan for a full description of potential pesticide use on the proposed golf courses.) Some of the pesticides analyzed in the risk assessment are not recommended for use on the proposed golf courses because of the results of the worst-case risk assessment modeling.

Section 2 Methodology

Assessment of soil, water, and pesticide and fertilizer practices prior to their use provides an excellent opportunity for cost-effective and environmentally sensitive soil and water management. Computer simulation models provide logical mechanisms to integrate the complex factors influencing water quality, fate and persistence of chemicals, and the environmental effects of different management practices (Donigan and Rao, 1986). There is a large difference between the perceived risks and actual risks attributed to turf management at golf courses (Durborow et al., 2000). The results from field or watershed-scale golf course water quality monitoring studies are encouraging, but somewhat limited (Cohen et al., 1999). One tool that is available to extrapolate results to different points in time and space, e.g. other golf courses, is computer simulation modeling (Durborow et al., 2000).

Models of water resources and environmental impacts are most useful in analyses of current and anticipated conditions. Substantial progress has been made in the last ten years in the development of quantitative and qualitative software technology used for analysis of water resources and fate of chemicals in the environment. Computer models are currently being used by the US Environmental Protection Agency (USEPA), state regulatory agencies, and private consulting companies for assessment of environmental impacts and regulation of pesticides, fertilizers, and hydrocarbon contamination of soil (Balogh and Walker, 1992). In fact, the State of New Jersey Department of Environmental Protection Pesticide Control Program drafted a manual in 1993 entitled "Guidance Manual for Siting, Design and Maintenance of Golf Courses", in which they recommended the use of computer models to predict the impact of pesticides on surface water (Brunnell and Meyer, 1996).

Simulation models are also used to predict or screen the mobility and persistence of new pesticides currently under development or approved pesticides considered for use on a particular site. Another major use of simulation models is by agricultural, forestry, and turfgrass managers in designing effective and environmentally sound plant, soil, water, and chemical management plans (e.g. Crowder et al., 1985; Leonard et al., 1987). Simulation models can be used to identify agricultural or turfgrass management practices with potentially favorable or adverse effects on the environment. Computer simulation is used to (1) evaluate alternate management practices; (2) select alternate compounds for pest and nutrient control and; (3) design optimum water, cultural, and chemical management strategies to meet turfgrass and environmental quality goals.

Three distinct computer modeling approaches were used to predict the environmental fate of pesticides and fertilizers which could be applied to golf course turf at the proposed golf courses. The Windows Pesticide Screening Tool (WINPST) developed by the US Department of Agriculture National Resources Conservation Service's National Water and Climate Center was employed as an initial screening tool for overall pesticide mobility. "LEACHM", the Leaching Estimation and Chemistry Model (Waganet and Hutson, 1987) was used to screen pesticides and fertilizer products based on their propensity to leach to groundwater. "GLEAMS", "Groundwater Loading Effects of Agricultural Management Systems" (Knisel and Davis, 2000), modeling provided predictions of surface runoff of simulated applications of pesticides and fertilizers.

2.1 WINPST Modeling

The Windows Pesticide Screening Tool allows the user to simulate applications of specific pesticides on specific soil series. Within the model there are databases of pesticides and their characteristics that affect their potential for runoff or leaching. The characteristics include such things as water solubility, half-life, partition coefficients, etc. The soils database component of the model includes the soil series of the entire State organized by Counties, as well as characterization of each of the soil series in terms of their particle size distribution, organic matter, profile thickness, depth to rock and seasonal high groundwater, slopes, etc. Other factors incorporated into the model include residue management, irrigation, and pesticide application method and rate.

Attachment 1 of this report, "Sample WINPST Report", shows an example WINPST Loss Potential and Hazard Ratings Report for Halcott soils and various pesticides. The loss potential for leaching, solution runoff and adsorbed runoff are all rated on a scale that ranges from Very Low (V) to Extra High (X). (See the end of Attachment 1 for an explanation of the loss potential codes.) Loss potential from the different routes is then translated into hazard potential for humans and fish, again rated from Very Low to Extra High. Hazard potential is based upon toxicological data in an internal WINPST database.

Unlike the LEACHM and GLEAMS modeling described below, the WINPST model does not have a component that allows for the input of locally collected actual climatological data. However, rainfall can be simulated, and was done in a conservative manner in the modeling done for the proposed golf courses. Simulated rainfall was five events of 3.5 inches per day every other day and then one inch of rain per day, every other day at least four times during the half-life of the pesticides. Rainfall was applied starting on the day of pesticide application. In addition to the very large amounts of rainfall applied, large amounts of pesticide application were also modeled. Pesticide applications were so large that they could be considered unrealistic. Pesticides were applied 16 days, then 8 days, then 4 days, and then 2 days prior to the initial simulated rainfall in addition to an application on the day of the first 3.5-inch rainfall. Model simulations were performed using the following soil series; Elka, Halcott, Lewbeach and Vly.

While the WINPST does provide a relative ranking of hazard potential, it does not provide numerical results that can be directly compared to other standards. For this reason the WINPST tool was used solely for the purpose for which it was intended, an initial screening model. LEACHM and GLEAMS modeling were used subsequent to the WINPST screening to generate the numerical data used for comparison to water quality parameters.

2.2 LEACHM Modeling

LEACHM was developed by hydrologists and agronomists at Cornell University. The computer model integrates site-specific soil, water, and climatological parameters with simulated applications of pesticides (LEACHP) and fertilizers (LEACHN) and their

Table 1 Potential Pests of the Proposed Golf Courses
(* indicates those pests most likely to occur)

Diseases	Weeds	Insects
Anthracnose	Crabgrass	*Grubs
*Brown Patch	Barnyardgrass	*Black Ataenius
Yellow Patch	Foxtails	Bluegrass Billbug
Copper Spot	Panicum	Sod Webworm
Damping-off	Goosegrass	*Black Cutworms
*Dollar Spot	*Annual Bluegrass	Chinch Bugs
Fairy Rings	Yellow Nutsedge	Hyperodes Weevil
Leaf Spots	Orchardgrass	
Necrotic Ringspot	Quackgrass	
Nematodes	Wild Onion	
*Pink Snow Mold	Wild Garlic	
Powdery Mildew	Star-of-Bethlehem	
Pythium Blight	Chickweed	
Pythium Root Rot	Henbit	
Red Thread	Deadnettle	
Smuts	Speedwell	
Summer Patch	Knotweed	
Take-all Patch	Oxalis	
*Typhula Blight	Spurge	
	Black Medic	
	Burdock	
	*Clover	
	Dandelion	
	Dock	
	Healall	
	Mallow	
	Plantain	
	Sorrel	
	Spurge	
	Yarrow	
	Buckhorn	
	Hawkweed	
	Moneywort	
	Shepherdspurse	
	Thistle	
	Wild Carrot	
	Yellow Rocket	
	Moss	

chemical character to provide a mass balance of applied products. Mass balance output accounts for applied products including surface residues, soil concentrations, and losses via the routes of volatilization, degradation, plant uptake, and leaching below the simulated soil profile. Data such as daily rainfall amounts and intensities, irrigation water inputs, soil character, soil temperature, evapotranspiration, depth to water table, chemical characteristics, and dates and amounts of chemical applications are inputted by the user to best simulate the character of the system receiving treatment and the hypothetical treatment itself. An example of LEACHM input and output files are included as attachments 2 and 3 of this report.

LEACHM provides a very conservative modeling approach to potential vertical transport. There is no horizontal component to LEACHM. No runoff is simulated, thus maximizing the percolation of water and potential vertical transport of fertilizers or pesticides.

Specifics of the input data used in the LEACHM modeling performed for the proposed golf courses were as follows.

2.2.1 Simulation Period

For the purpose of assessing potential impact, LEACHM was used to simulate a complete maintenance season typical for the region. The great majority of maintenance activities on the proposed golf courses will be performed from April to October, the turf "growing season" for this region.

In order to determine the potential impacts of pesticide and fertilizer applications, particularly as they pertain to persistence, a full one-year simulation was performed. This allows the soil/moisture/plant relationships to equilibrate prior to any addition of fertilizers or pesticides and also allows for the continued monitoring of leaching following the last applications in a maintenance season.

2.2.2. Climate Data

In order to provide a conservative estimate of off-site movement potential, the year chosen to be simulated was 1996. The year 1996 was chosen since precipitation, and hence the potential for leaching and runoff, was significantly greater than the 30-year average precipitation amount. Precipitation measured at Arkville in 1996 was eighteen inches above the 30-year average. Average precipitation at the Arkville monitoring station is 38.5 inches, and in 1996 there was a total of 57.8 inches, a full 50% increase over the annual average. This included the storms that cause widespread flooding in the region. There were storm events resulting in more than three inches of rainfall in each of the months of October, November and December. One such storm on November 10 produced almost four inches of rain in 24 hours.

In addition to 1996 daily precipitation input data, daily air temperatures (daily maximums and minimums), daily soil temperature and daily pan evaporation for the area around the project site were obtained from bulletins published by the National Oceanic and Atmospheric Administration (NOAA). As mentioned above, daily precipitation data was from the station in Arkville. Temperature data for 1996 were collected at Slide Mountain. The closest station where daily pan evaporation data is collected is Lansing Manor, New York. However, there was very limited data collected in 1996 at this station. Therefore,

pan evaporation data from Cornell University was utilized in the modeling. Likewise the Cornell University monitoring site was the closest location for soil temperature data.

2.2.3 Irrigation Inputs

Irrigation water inputs were simulated by generating additional precipitation events based upon rainfall and pan evaporation data. Efficient water use and turf health are both maximized by "irrigating by replacement". Irrigation timing and amounts of water applied are dictated by the difference between water naturally supplied in rainfall and that lost to evaporation and plant transpiration (evapotranspiration). When a deficit situation arises, irrigation water is applied to supply the deficit quantity.

Even though a surplus of precipitation occurred for the overall simulation period, irregular rainfall distribution over the course of the year-long simulation period required additional water input from irrigation. For those weeks of the simulation period where evapotranspiration, as predicted by pan evaporation data, exceeded precipitation, irrigation was added in 0.5 inch per day increments until the water deficit was eliminated. Adding irrigation in half inch increments is another conservative factor in the modeling, since daily irrigation amounts typically applied on golf courses is less than half an inch per day.

2.2.4 Soils

Profiles of those soil series that occur on the proposed golf course sites were characterized and analyzed in LEACHM simulations. Soils were identified and mapped by The LA Group soil scientist. A map of the site's soils were previously illustrated in DEIS Section 3.6, "Soils". The soil series used in the LEACHM analyses were the Elka, Halcott, Lewbeach, Vly and Willowemoc series. These are the soil series mapped for areas where the golf courses have been designed on the project site.

Characterization of soils in the modeling consisted of specifying the total profile thickness and the thickness of distinct segments in the profile, describing segments in terms of percent sand, silt, clay, and organic matter, percolation rate, depth to water table and distribution of the root system within the soil profiles. Soil characteristics inputted for simulations were taken directly from Greene County Soil Conservation Service publications as well as primary characterization data available from the National Resources Conservation Service (NRCS).

2.2.5 Pesticide Products and Application Rates

Compiling a list of insect pests, weeds, and fungal diseases which are known to occur on golf courses in the region was the starting point for developing the list of pesticide active ingredients to be analyzed. Potential pests were identified using the "2002 Pest Management Recommendations for Commercial Turfgrass" ("Cornell Recommends") published by Cornell Cooperative Extension, as well as other published literature sources such as "Advances in Turfgrass Science, Managing Turfgrass Pests" (Watschke et al., 1995). This list of potential pests is attached as Table 1, "Potential Pests of the Proposed Golf Courses". Based on this list of potential pests, candidate pesticide active ingredients were identified after meeting the following three criteria:

(1) all candidate pesticides are registered for use on turf by the US Environmental Protection Agency (USEPA),

(2) all candidate pesticides are registered for use on turf in New York State, and

(3) all candidate pesticides are recommended as being particularly effective for a specific pest in the 2002 "Cornell Recommends".

Also taken from the "2002 Cornell Recommends" was the general time period during which each potential pest could occur on the proposed golf courses. The "Cornell Recommends" also gives application rates for herbicides and insecticides. A copy of pertinent portions of the 2002 Cornell Recommends is included as Attachment 4 of this report. This information was combined with label directions from New York State registered formulations of each active ingredient that listed the amount to apply for each target pest. Maximum label rates for target pests were used. Most of the insecticides and the broadleaf herbicides modeled would typically only be used once in any given year, if they were to be used at all in any given year. For modeling purposes two applications of these products were simulated. Some of the fungicides that were modeled could potentially be applied more than once in a given year, and as such were modeled with three applications. The repetitive applications were made in the shortest re-treatment interval allowed by the product label. This maximized the amount of products within the soil profile at a particular given time, thus providing opportunity for increased concentrations in leachate as predicted by the LEACHM model.

2.2.6 Pesticide Characteristics

In order to predict a chemical's behavior on the proposed golf courses it was necessary to quantify those physical/chemical characteristics that affect its movement. Parameters used in LEACHM analyses included water solubility, vapor density (used for volatilization calculations), organic partition coefficient (a measure of a compound's tendency to adsorb to soil organic matter), soil half-life, and if the compound is taken up by plants (systemic product) or if it is a contact product. Data for these parameters were taken primarily from peer-reviewed scientific literature as synthesized in Balough and Walker (1992). Other sources used to fill data gaps included "Agrochemicals Desk Reference, Environmental Data" (Montgomery, 1993), the "Herbicide Handbook of the Weed Science Society of America" (Humburg et al. 1989), NRCS databases including the database within the WINPST model, and USEPA reports. Manufacturers' technical bulletins and MSDS were used only when independent sources indicated a data gap that needed to be filled. Table 2, "Pesticide Characteristics", contains a list of the analyzed pesticide active ingredients and the characteristics used in the computer modeling.

2.2.7 Fertilizer Program

The fertilizer program that was analyzed for the golf courses included applications that totaled four pounds of nitrogen per thousand square feet. The fertilizer program is the same that was proposed and analyzed as part of the environmental review of the Hanna Golf Course in Middletown. Table 3 "Fertilizer Program" lists the types of fertilizers used, when fertilizer applications were made, and the amounts of nitrogen and phosphorus applied. The majority of the fertilizer applied was from an organic fertilizer product known as Sustane®. Fertilizer applications in the spring and fall simulated applications of an inorganic product manufactured by the Scotts Company. Information describing the fertilizer products is included in Attachment 5.

Table 2
Pesticide Characteristics

Fungicides												
	Water	Vapor	Molec.	Vapor			Soil	Degradation	Applic. Rate		Foliar	Washoff
	Solubility	Pressure	Weight	Density	Koc	Systemic?	T1/2	Rate	lb/ac	mg/m2	T1/2	Fraction
azoxystrobin	6	1.00E-13	403.4	2.20E-12	23	no	11	0.02		61	-	-
chlorthalonil	0.6	1.3	265.9	18.9182	3500	no	52	0.029		1635	5	0.5
chloroneb	8	4.00E-01	207.1	4.533756	1159	no	135	0.006		917	30	0.5
etridiazole	100	1.30E-02	247.5	0.176091	2700	no	20	0.035		854	30	
fenarimol	14	2.10E-05	331.2	0.000381	815	yes	360	0.007		283	30	0.6
flutalonil	6.5	4.87E-03	323.3	0.086169	972	yes	240	0.003		500	-	0.4
fosetyl Al	120000	1.30E-04	354.1	0.002519	20	yes	1	1.386		1951	0.1	-
iprodione	13	2.50E-02	330.2	0.451788	900	yes	18.5	0.061		1220	5	0.95
mefenoxam	26000	2.50E-05	279.3	3.82E-04	1299	yes	73.5	0.014	0.6	182	5	0.4
propamocarb	850000	4.00E-01	224.7	4.919048	1000000	yes	30	0.023		406	15	
propiconazole	105	5.60E-05	342.2	0.001049	767	yes	116	0.006		174	30	0.95
quintozene	0.44	6.70E-03	295.3	0.108282	5000	no	21	0.048		84	4	0.7
thiophanates	3.5	1.30E-05	342.4	0.000244	1830	yes	10	0.069		305	5	0.4
thiram	30	1.00E-03	240.4	0.013157	670	no	15	0.046		572	8	0.4
triademefon	70	1.10E-04	293.8	0.001769	73	yes	17	0.07		152	8	0.5
trifloxystrobin	0.61	3.40E-06	408.4	7.60E-05	2709	yes	1	1	0.34	38	0.5	0.5
vinclozolin	0.003	-	-	1.60E-05	43000	yes	20	0.035		252		
Insecticides												
	Water	Vapor	Molec.	Vapor			Soil	Degradation	Applic. Rate		Foliar	Washoff
	Solubility	Pressure	Weight	Density	Koc	Systemic?	T1/2	Rate	lb/ac.	mg/m2	T1/2	Fraction
acephate	790	1.70E-06	183.16	1.7E-05	5.00E+06	yes	3	0.231	1-5	560	2.5	0.7
bendiocarb	40	6.90E-04	223.2	0.008429	570	no	12	0.132	3	336	3	0.85
bifenthrin	0.1	1.81E-07	422.9	4.19E-06	216500	no	26	0.0385	0.05	5.6	7	0.4
carbaryl	40	1.80E-04	201.2	0.001982	230	no	7	0.1	8	896	7	0.55
chlorpyrifos	2	2.30E-03	350.6	0.044132	6000	no	30	0.0315	1-4	448	-	-
deltamethrin	0.002	2.00E-08	505.24	5.53E-07	6291	no	25	0.04	0.13	14.52	5	0.008
ethoprop	750	4.90E-02	242.3	0.649782	120	no	38	0.03	5	560	-	-
imidacloprid	510	1.50E-09	255.7	2.1E-08	369	no	60	0.012	0.4	44.8	-	-
lambda cyhalothrin	0.005	1.00E-99	444.9	1.00E-99	180000	no	30	0.033	0.061	6.77	5	0.02
trichlorfon	154000	1.00E-03	293.8	0.016079	6	no	15	0.1285	8	896	3	0.95
halofenozide	12.3	1.00E-07	330.8	1.70E-06	250	no	129	0.0078	1.5	168	30	0.5
UNITS	(mg/l)	(Pa)	(g)	(mg/dm3)	(l/kg)	(yes/no)	(days)	(days-1)	(lb/ac)	mg/m2)	(days)	(%)
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Table 2
Pesticide Characteristics

Herbicides												
	Water	Vapor	Molec.	Vapor			Soil	Degradation	Applic. Rate		Foliar	Washoff
	Solubility	Pressure	Weight	Density	Koc	Systemic?	T1/2	Rate	lb/ac	mg/m2	T1/2	Frac.
2,4-D	900	1.00E-04	221	0.00121	20	yes	20	0.046	1-1.5	168	5	0.45
2,4-DP	0.71	1.00E-04	235.1	0.001287	1000	yes	10	0.0693	1	112	9	0.45
benefin	0.1	1.00E-02	335.3	0.183507	10700	no	2	0.335	2	224	10	0.2
bensulide	15.3	1.20E-04	397.5	0.002611	5370	no	105	0.0135	6.5-12.5	1400	30	0.4
bentazon	0.05	1.00E-07	240.3	1.32E-06	35	yes	20	0.0347	1-2	224	2	0.6
chlorosulfuron	2.8	4.60E-06	357.8	9.01E-05	40	no	160	0.0043	0.125-0.25	28	30	0.75
dicamba	80000	4.90E-01	221.4	5.937337	2.2	yes	119	0.093	1/8-3/8	42	9	0.65
dithiopyr	0.7	4.00E-06	401.4	8.79E-05	5000	yes	39	0.018	0.25-0.5	56	-	-
ethofumesate	80	6.50E-04	286.3	0.010185	340	yes	25	0.029	1-2	224	10	0.65
fenoxaprop	0.09	1.90E-08	361.77	3.76E-07	9490	yes	9	0.077	1/8-3/8	42	5	0.2
glyphosate	12000	0	169.1	0	2640	yes	7	0.009		275	2.5	0.6
MCPA	5	2.00E-04	243.7	0.002667	1000	yes	39	0.05		70	7	0.95
MCPP	660000	1.30E-05	214.6	0.000153	20	yes	21	0.033	1	112	10	0.95
MSMA	985000	0	183.9	0	200000	no	1000	0.001	1.5-4	448	30	0.95
oxadiazon	0.7	1.30E-04	345.2	0.002456	3241	no	105	0.0135	1.5-4	448	20	0.5
paclobutrizol	35				400	no	200	0.003	1/3-3/4	84	-	-
pendimethalin	0.5	3.00E-03	281.3	0.046186	5000	no	244	0.044	1.5-2	224	30	0.4
prodiamine	0.013	2.50E-08	350.3	4.79E-07	5000	no	120	0.006	0.65-0.75	84	-	-
siduron	18	8.00E-04	232.3	0.010171	655	yes	90	0.008	6-12	1344	30	0.7
triclopyr	23	3.25E-03	357.7	0.063624	780	yes	46	0.015	0.375-0.5	56	15	0.7
trifluralin	12.3	1.50E-02	335.3	0.27526	10000	yes	137	0.02	2	224	3	0.4
halosulfuron	1650	1.00E-06	434.8	1.00E-06	94	yes	25	0.04	7	884	30	0.95
UNITS	(mg/)	(Pa)	(g)	(mg/dm3)	(l/kg)	(yes/no)	(days)	(days-1)	(lb/ac)	mg/m2)	(days)	(%)
				Page 2 of 2								

Table 3 Fertilizer Programs

1. TEN APLICATION PROGRAM

Date	Product	N-P-K	lb N/1000 ft2	% slow release N	lb P/1000 ft2
4-May	Hi Maint.(1)	31-3-10	0.225	6.7	0.0225
19-May	Hi Maint.	31-3-10	0.225	6.7	0.0225
1-Jun	Sustane(2)	5-2-4	0.5	4	0.2
18-Jun	Sustane	5-2-4	0.5	4	0.2
1-Jul	Sustane	5-2-4	0.5	4	0.2
15-Jul	Sustane	5-2-4	0.5	4	0.2
1-Aug	Sustane	5-2-4	0.5	4	0.2
15-Aug	Sustane	5-2-4	0.5	4	0.2
3-Sep	Hi Maint.	31-3-10	0.225	6.7	0.0225
18-Sep	Hi Maint.	31-3-10	0.225	6.7	0.0225

2. FIVE (5) APPLICATION PROGRAM

Date	Product	N-P-K	lb N/1000 ft2	% slow release N	lb P/1000 ft2
4-May	Hi Maint.	31-3-10	0.45	6.7	0.045
1-Jun	Sustane	5-2-4	1	4	0.4
1-Jul	Sustane	5-2-4	1	4	0.4
1-Aug	Sustane	5-2-4	1	4	0.4
3-Sep	Hi Maint.	31-3-10	0.45	6.7	0.045

3. HALF RATE PROGRAMS

Same as the 10 application and five application programs above, but half the amount of N and P.

(1) Hi Maint. = Scotts ProTurf 31-3-10 Hi Maintenance Fertilizer
(2) Sustane = Sustane 5-2-4 All Natural Organic Fertilizer

The overall fertilizer program uses more fertilizer than would likely be used on the proposed golf courses. The fertilizer program developed for the Hanna course was developed for bentgrass. Bentgrass has higher fertilizer requirements than the fescue and about the same as the Kentucky bluegrass proposed for the two Belleayre Resort golf courses. The fertilizer program is the operational high end of the range recommended for golf course fairways (2-4 lbs. N/M/yr. is recommended).

2.3 GLEAMS Runoff Modeling

The GLEAMS model was developed by the USEPA to predict runoff and leaching losses from different agronomic situations. GLEAMS analysis was used to integrate site-specific characters and simulated maintenance treatments to determine the potential for surface runoff of pesticides and fertilizer from treated areas.

GLEAMS modeling has two components, horizontal transport in runoff and vertical transport in leaching. Since the more conservative LEACHM model was used to predict vertical transport, only the GLEAMS results pertaining to runoff were utilized in this Risk Assessment. GLEAMS was originally developed to model agricultural situations, but the ability to use GLEAMS to accurately model turfgrass has been substantiated by field research (Durborow, et al., 2000; Brunell and Meyer, 1996)

Much of the same input data used in LEACHM analyses was also used in the GLEAMS modeling. The precipitation and air temperature databases were the same for the two models. All of the pesticide characteristics used in LEACHM modeling were also used in GLEAMS with the additional characteristics of foliar half-life and wash-off fraction also inputted into GLEAMS runoff modeling.

Soil profiles were characterized vertically in a manner similar to LEACHM input, but additional input was required for runoff calculations. In GLEAMS the area being modeled was also described in terms of its length, width, area, slopes, SCS curve number, soil erodibility factor, and Mannings "n" for overland flow. The particular area of the proposed golf courses chosen for GLEAMS modeling was the 18th fairway on the Big Indian Country Club golf course. This area was chosen for GLEAMS modeling because of the long slope and flow path (+/- 1,690 feet). Slopes on this area range from 5.7% to 22%. For modeling purposes the fairway was divided into five segments which had different slope characteristics. Three areas are where most play would occur and had slopes of 8.1% 5.7%, and 12%. The other two areas had slopes of 22% and 19.5%.

Pesticide application rates and timing were identical to those used in LEACHM simulations. An example of GLEAMS input files is not included as an attachment since there are no labels on the spreadsheet format input files to describe input data. A sample of a GLEAMS output file is contained in Attachment 6 of this report.

2.4 Application of Modeling Results

The concentrations of nutrient and pesticide residues in leachate and runoff were compared to New York State drinking water standards, NYSDEC guidelines, as well as published aquatic toxicology values to form the basis of the risk assessment and aid in the identification of acceptable management practices for the proposed golf course turf. Both the LEACHM and GLEAMS models generated residue and water losses. LEACHM output was on a weekly basis and GLEAMS output was on a storm event by storm event interval. Pollutant concentrations were either calculated within the modeling (GLEAMS)

or calculated for each interval using solute and water losses (LEACHM). Maximum concentrations generated from the simulations were used as the point of comparison for all health and toxicology standards.

It is extremely important to realize that the application of model-generated data involved comparing maximum undiluted leachate and runoff concentrations to other standards and parameters. The reduction of nutrient and pesticide concentrations that would occur under field conditions due to dilution by surface water and groundwater was not taken into account. For example, the pesticide leaching risk assessment consisted of assessing the potential health effects of drinking undiluted leachate from directly under the simulated profiles. The tremendous dilution that would occur upon leachate interaction with the underlying groundwater resource was not even considered in the analysis of impact and risk assessment.

Similarly, undiluted pesticide runoff concentrations were compared to toxicology values for fish and aquatic invertebrates to assess potential impact to aquatic biota. The dilution that would occur from existing base flow in receiving waters and runoff from untreated areas, and the subsequent reduction in transported runoff concentration was not considered in the analysis.

These factors allowed for a truly worst case risk assessment and provides a very adequate margin of safety for the recommended pesticide maintenance practices and fertilizer program implemented on the proposed golf courses.

Sections 3 Results of Modeling Simulations

Simulations demonstrated that the proposed golf courses' fertilizer and pesticide applications can be made without having significant adverse impacts on surface water and groundwater quality when proper materials and practices are used.

The simulated fertilizer program can be instituted without risk of compromising the suitability of local groundwater as a potable water source. Some pesticides had undiluted leachate concentrations that exceeded New York State health standards for drinking water. However, alternative pesticides that did not exceed drinking water standards for their undiluted leachate concentrations will be available to safely and effectively treat target pests. Worst-case runoff simulations produced undiluted pesticide concentrations for some active ingredients that exceeded published LC_{50} toxicity values for either rainbow trout or aquatic invertebrates. Use restrictions and alternative products are recommended to avoid and mitigate potential surface water pesticide impacts. Nutrients in runoff will not impact drinking water quality (nitrates) or the trophic status of receiving surface waters (phosphorus) under the proposed fertilizer program and its restrictions on phosphorus application rates.

3.1 Fertilizer - Groundwater Risk Assessment

Groundwater quality will not be impacted as a result of turf fertilization on the proposed golf courses. This conclusion is based upon the comparison of federal and state drinking water standards for nitrate with maximum undiluted leachate nitrate concentrations from a fertilizer program that is at the upper limit of what is recommended for turf in this area.

Both the Federal (USEPA) and the New York State Maximum Contaminant Level (MCL) for Nitrate (as N) in public drinking water supplies is 10.0 milligrams per liter (mg/l) (The units milligrams per liter and parts per million are equivalent). Maximum Contaminant Level is the maximum permissible level of a contaminant in water which is delivered to any user of a public water supply. The 10.0 mg/l standard for nitrate-N has withstood several critical examinations, and evidence suggests the nitrate standard provides reasonable protection to newborns against methemoglobinemia (National Research Council, 1978). This 10.0 mg/l standard was compared with undiluted leachate concentration from a four (4) pounds nitrogen per thousand square feet per year (4 lb N/M/yr.) fertilizer program. Leachate concentrations used for comparison with the MCL are those that were predicted occur immediately below the simulated Lewbeach soil series which is the best drained soil series mapped where the golf course areas are proposed on the project site.

At no time did undiluted leachate concentration exceed the state and federal standard of 10.0 mg/l under the 4 lb N/M/yr. fertilizer program. Figure 1, "Leachate Nitrate Concentrations With and Without Fertilization (10 mg/l)," illustrates nitrate leachate concentrations in relation to the 10 mg/l drinking water standard. At no point during the two-year simulation did nitrate concentrations even exceed 1 mg/l, much less the 10 mg/l drinking water standard.

For comparison purposes the Lewbeach soils were also modeled without any fertilizer applications. The assessment of leachate without fertilizer application was performed for comparison due to the fact that nitrate is present in fairly substantial amounts in rainfall.

The no-fertilizer simulation provides a prediction of what background nitrate concentrations can be expected in leachate.

Figure 2, "Leachate Nitrate Concentrations With and Without Fertilization (1 mg/l)", presents the same data in Figure 1 but on a compressed scale. This figure more precisely illustrates the nitrate concentrations in leachate with and without fertilizer applications. With the exception of periods during the late fall, nitrate leachate concentrations with and without fertilizer applications were very similar. Even with the fertilizer applications totaling four pounds per thousand square feet per year, nitrate leachate concentrations never exceed 0.5 mg/l, which is only 5% of the drinking water standard of 10 mg/l. The relatively higher leachate nitrate concentrations seen in the late fall are a result of two factors. Precipitation in one week prior to the sharp rise in nitrate concentrations was nearly 4.5 inches, including one storm that produced three inches in one day. The second factor affecting the late fall slight increases in nitrate leaching is that the grasses are slowing their nutrient uptake, and there is still some fertilizer nitrogen remaining in the soil profile from the last fertilizer application in September.

The following conservative factors used in the modeling provide an added degree of safety in the risk assessment:

- The fertilizer program analyzed was at the upper end of the recommended range (4 pounds per thousand analyzed, 2-4 pounds is likely to be applied).
- Undiluted nitrate leachate concentrations were compared with federal and state drinking water standards of 10 mg/l.
- The best drained soils on the proposed golf courses were modeled.
- Rainfall data from 1996 that total 19 inches above the thirty year average was used in the modeling.
- In the LEACHM model there is no surface runoff. The modeling assumes flat ground and that all rainfall and irrigation is available to move into the soil profile. This is obviously not the case in many situations where rainfall intensity exceeds the soils infiltrative capability and runoff occurs.

3.2 Pesticide - Groundwater Risk Assessment

Analysis of the potential risk of groundwater impact from the use of turf pesticides on the proposed golf courses was performed in a manner similar to that for nitrates as described above. Leachate concentrations of pesticides were compared to New York State Department of Health (DOH) Part 5 drinking water standards. Part 5 is not specific for any of the maximum contaminant levels (MCL) of the pesticides analyzed except for the herbicide 2, 4-D (MCL=0.05 mg/l) which is listed as a Group I Contaminant.

Other standards that were compared to predicted leachate concentrations were NYSDEC's surface water and groundwater Quality Standards and Groundwater Effluent Standards (6NYCRR Part 703), as well as NYSDEC's Division of Water Technical and Operational Guidance Service (TOGS) Number 1.1.1 (reissued June 1998). Ambient standards and guidance values were found for ten active ingredients that were being considered for use; benefin, carbaryl, chlorthalonil, 2,4-D, dicamba, glyphosate, pendemethalin, PCNB (quintozene), thiram, and trifluralin.

For all other active ingredients not specified in Part 703 or Togs 1.1.1 a 50 parts per billion (ppb) Standard was applied consistent with the value provided for unspecified organic contaminants (DOH Part 5).

A total of 310 pesticide/pest/soil scenarios were modeled by LEACHM, including a total of 53 different pesticide active ingredients. A total of 177 out of the 310 scenarios modeled by LEACHM produced no leaching of pesticide through the simulated Elka, Halcott, Lewbeach, Vly, and Willowemoc soils. The number of pesticide/pest/soil type scenarios that had some leaching, but where maximum undiluted leachate concentrations were within drinking water standards, was 100. Only 33 of the 310 scenarios modeled had maximum undiluted leachate levels in excess of drinking water standards, and these consisted of 13 of the 53 pesticide active ingredients modeled.

Table 4, "Maximum 1996 Leachate Concentrations by Soil Type as Predicted By LEACHM", gives the maximum concentrations of pesticides in leachate for the pesticides/pests/soils analyzed. Bold numbers in Table 4 are those concentrations that exceeded the Part 5 drinking water standards and Part 703/TOGS 1.1.1 standards. These concentrations are undiluted leachate concentrations.

Any pesticide that produced undiluted leachate in excess of standards for drinking water will not be used on the proposed golf courses. The following products are not recommended for use due to leaching data generated by LEACHM;

- azoxystrobin
- carbaryl
- chlorsulfuron
- chlorthalonil
- dicamba
- fenarimol
- halofenozide
- imidacloprid
- paclobutrazole
- thiophanate
- thiram
- triademefon
- trichlorfon

The following conservative factors used in the modeling provide an added degree of safety in the risk assessment:

Table 4
Maximum 1996 Leachate Concentrations By Soil Type As Predicted By LEACHM

run.product #	active ingredient	elka	halcott	lewbeach	vly	willowemoc	STANDARD
1.1	**azoxystrobin**	**0.167**	**0.187**	**0.097**	**0.186**	0.049	0.050
1.2	chloroneb	0.000	0.000	0.000	0.000	0.000	0.050
1.3	chlorthalonil	0.000	0.000	0.000	0.000	0.000	0.005
1.4	cyproconazole	0.032	0.024	0.025	0.026	0.017	0.050
2.1	**fenarimol**	**0.059**	**0.250**	0.036	**0.125**	**0.056**	0.050
2.2	iprodione	0.000	0.000	0.000	0.000	0.000	0.050
2.3	propiconazole	0.003	0.026	0.005	0.012	0.010	0.050
2.4	quintozene	0.000	0.000	0.000	0.000	0.000	0.050
3.1	**thiophanate**	0.004	**0.103**	0.017	0.029	0.009	0.050
3.2	**thiram**	0.000	0.001	**0.003**	**0.003**	0.000	0.0018
3.3	**triademefon**	0.004	0.024	**0.051**	0.014	0.002	0.050
3.4	vinclozolin	0.000	0.000	0.000	0.000	0.000	0.050
4.1	etridiazole	0.000	0.000	0.000	0.000	0.000	0.050
4.2	fosetyl al	0.000	0.004	0.000	0.000	0.000	0.050
4.3	metalaxyl	0.000	0.000	0.002	0.007	0.000	0.050
4.4	propamocarb	0.000	0.000	0.000	0.001	0.000	0.050
5.1	benefin	0.000	0.000	0.000	0.000	0.000	0.035
5.2	bensulide	0.000	0.000	0.000	0.000	0.000	0.050
5.3	dithiopyr	0.000	0.000	0.000	0.000	0.000	0.050
6.1	fenoxaprop	0.000	0.000	0.000	0.000	0.000	0.050
6.2	msma	0.000	0.001	0.004	0.005	0.000	0.050
6.3	oxadiazon	0.000	0.000	0.000	0.001	0.000	0.050
6.4	pendemethalin	0.000	0.000	0.000	0.000	0.000	0.005
7.1	prodiamine	0.000	0.001	0.004	0.004	0.000	0.050
7.2	siduron	0.000	0.000	0.000	0.000	0.000	0.050
7.3	trifluralin	0.000	0.000	0.000	0.000	0.000	0.035
8.1	2,4-d	0.004	0.022	0.004	0.022	0.005	0.050
8.2	2,4-dp	0.000	0.000	0.000	0.000	0.000	0.050
8.3	**dicamba**	0.000	**0.003**	0.000	**0.012**	0.000	0.00044
8.4	mcpp	0.000	0.000	0.000	0.000	0.000	0.050
9.1	bentazon	0.005	0.038	0.011	0.028	0.036	0.050
9.2	mcpp	0.000	0.024	0.008	0.020	0.008	0.050
9.3	triclopyr	0.000	0.000	0.000	0.000	0.000	0.050
9.4	halosulfuron	0.000	0.005	0.005	0.005	0.004	0.050
10.1	**chlorsulfuron**	0.016	**1.099**	**2.07**	**0.975**	**0.437**	0.050
10.2	ethofumesate	0.000	0.001	0.000	0.001	0.000	0.050
10.3	glyphosate	0.005	0.008	0.006	0.022	0.002	0.700
10.4	**paclobutrazole**	0.016	**0.124**	0.000	**0.188**	**0.059**	0.050
11.1	bendiocarb	0.000	0.000	0.000	0.000	0.000	0.050
11.2	**carbaryl**	0.000	**0.067**	0.006	0.006	0.011	0.029
11.3	chlorpyrifos	0.000	0.000	0.000	0.000	0.000	0.050
11.4	ethoprop	0.000	0.013	0.002	0.012	0.001	0.050
12.1	**halofenozide**	0.032	**0.169**	**0.239**	**0.238**	**0.087**	0.050
12.2	**imidacloprid**	0.000	0.015	0.042	0.308	**0.056**	0.050
12.3	isofenphos	0.000	0.000	0.000	0.004	0.000	0.050
12.4	**trichlorfon**	0.000	**1.122**	0.003	0.079	0.017	0.050
13.1	acephate	0.000	0.000	0.000	0.000	0.000	0.050
14.1	**azoxystrobin**	0.016	**0.272**	**0.143**	**0.139**	**0.261**	0.050
14.2	**chlorthalonil**	0.000	**0.913**	**0.764**	**0.595**	0.016	0.050
14.3	cyproconazole	0.000	0.000	0.000	0.000	0.000	0.050

Table 4
Maximum 1996 Leachate Concentrations By Soil Type As Predicted By LEACHM

14.4	**fenarimol**	0.011	0.043	0.005	**0.077**	0.018	0.050	
15.1	flutalonil	0.000	0.001	0.001	0.001	0.000	0.050	
15.2	iprodione	0.000	0.000	0.000	0.000	0.000	0.050	
15.3	mancozeb	0.000	0.000	0.000	0.000	0.000	0.0018	
15.4	propiconazole	0.003	0.013	0.011	0.022	0.005	0.050	
16.1	quintozene	0.000	0.000	0.000	0.001	0.000	0.050	
16.2	thiophanate	0.000	0.043	0.004	0.014	0.002	0.050	
16.3	thiram	0.000	0.000	0.000	0.000	0.000	0.0018	
16.4	triademefon	0.000	0.003	0.000	0.001	0.000	0.050	
98.1	cyfluthrin	0.000	0.000	0.000	0.000	0.000	0.050	
98.2	spionsad A	0.000	0.0026	0.000	0.000	0.000	0.050	
98.3	spisosad D	0.000	0.0056	0.000	0.000	0.000	0.050	

- Higher than anticipated use of individual pesticides was modeled, including multiple applications of insecticides, and using the shortest re-treatment intervals allowed for the fungicides simulated.

- Undiluted pesticide leachate concentrations were compared with federal and state drinking water standards.

- All of the soils mapped on the proposed golf courses were modeled, and results from the soils showing the highest concentration of pesticide in leachate were applied on a site-wide basis.

- Rainfall data from 1996 totaling 19 inches above the thirty year average was used in the modeling.

- In the LEACHM model there is no surface runoff. The modeling assumes flat ground and that all rainfall and irrigation is available to move into the soil profile. This is obviously not the case in many situations where rainfall intensity exceeds the soils infiltrative capability and runoff occurs.

3.3 Pesticide - Surface Water Risk Assessment

Like the LEACHM modeling used to predict potential for groundwater impact, the GLEAMS modeling produces export quantities of water and pesticide residues at specified regular intervals. The results from the GLEAMS modeling of the long and relatively steep eighteenth fairway were compared with aquatic toxicology values to form the basis of this portion of the risk assessment. GLEAMS produced storm-by-storm concentrations of pesticides in runoff, and these undiluted concentrations were compared with the LC_{50} values for fish (most often rainbow trout) and aquatic invertebrates (preferably stonefly or mayfly larvae if available, but usually the water flea *Daphnia*). Rainbow trout and *Daphnia* are commonly used when performing toxicology tests. The LC_{50} value is the concentration that is lethal to 50 of the test organisms over the duration of the toxicology test. More toxic substances have lower LC_{50} values. Most LC_{50} determinations are made over a 96-hour test period.

LC_{50} values were primarily taken from scientific literature reports as compiled in Balough and Walker (1992). Other sources for LC_{50} values included a USFWS database of toxicity of freshwater animals (Mayer and Ellerseick, 1986), "Agrochemicals Desk Reference, Environmental Data" (Montgomery, 1993), and the "Herbicide Handbook of the Weed Science Society of America" (Humburg et al. 1989). Manufacturer's Technical Bulletins or MSDS were used only to fill data gaps not filled by other sources.

There were a total of 141 days where precipitation fell or irrigation was applied when 1996 was simulated. There was some runoff from the edge of the modeled 18th fairway on 46 days. The maximum number of days when any one particular active ingredient was present in runoff was 25 days. The average rainfall on these days was over an inch.

A total of 53 products and their runoff potential were analyzed using GLEAMS. As expected, based upon previous WINPST modeling, runoff potential varied. All products except two were present in runoff in varying degrees at some time during the simulated worst case conditions. However only eight of the 53 active ingredients modeled had

maximum undiluted runoff concentrations that exceeded the lower LC_{50} value for rainbow trout or aquatic invertebrates.

Table 5, "Comparison of Maximum Runoff Concentrations and Toxicology Values," presents the different products analyzed, the maximum concentration found in runoff, and toxicology data for each product. The last column of Table 4 compares the maximum runoff concentration to the toxicology of the more sensitive test organism. Using the highest concentration generated from worst-case modeling in conjunction with the most sensitive toxicological data introduces an additional conservative measure into the risk assessment.

A total of 8 products; 5 insecticides (carbaryl, chlorpyrifos, deltamethrin, trichlorfon, cyfluthrin), 2 fungicides (thiram, iprodione) and 1 herbicide (pendemethalin) had maximum undiluted runoff concentrations that exceeded the lowest LC_{50} value for that product.

As a result, the following products will not be used on the proposed golf courses.

- carbaryl
- chlorpyrifos
- trichlorfon
- thiram
- iprodione
- pendemethalin
- cyfluthrin
- deltamethrin

Among the products not recommended for use are cyfluthrin and deltamethrin. Cyfluthrin and deltamethrin are two of the products from a category of compounds known as pyrethrums. Pyrethrums are compounds derived from the chrysanthemum plant, or what could be considered an "organic" product. Cyfluthrin is by far the most toxic to aquatic invertebrates of all the pesticides analyzed. This illustrates that not all organic pest controls pose less of a threat to non-target organisms than their inorganic counterparts.

As shown in Table 5, the other 45 products had maximum runoff concentrations that were a very small fraction of the lowest LC_{50} value and can be used safely on the proposed golf courses without impacting aquatic life in on-site and off-site surface water.

The following conservative factors used in the modeling provide an added degree of safety in the risk assessment:

- Higher than anticipated use of individual pesticides was modeled, including multiple applications of insecticides, and using the shortest re-treatment intervals allowed for the fungicides simulated.

Table 5
Comparison of Maximum Runoff Concentrations and Toxicolgy Values

Active Ingredient	Max. Runoff Concentration	Fish LC50	Aquatic Invert. LC50	Lowest LC50	Ratio of Max. Concentration To Lowest LC50
Benefin	0.0010 mg/l	0.8-1.0 mg/l	1.1 mg/l	0.8 mg/l	0.0013
Bensulide	0.0128 mg/l	0.7-0.72 mg/l	1.4 mg/l	0.7 mg/l	0.0183
Trifluralin	0.0160 mg/l	0.01-0.21 mg/l	2.8-3.0 mg/l	0.01 mg/l	1.6000
Dithiopyr	0.0056 mg/l	0.5 mg/l	>1.1 mg/l	0.5 mg/l	0.0112
Fenoxaprop	0.0013 mg/l	8.2-17.3 mg/l	0.35-7.4 mg/l	0.35 mg/l	0.0037
MSMA	0.0027 mg/l	>100 mg/l	>100 mg/l	>100 mg/l	<.0.000027
Oxadiazon	0.0121 mg/l	1.4-3.2 mg/l	data gap	1.4 mg/l	0.0086
Pendemethalin	0.0380 mg/l	0.138 mg/l	data gap	0.138 mg/l	**0.2754**
Prodiamine	0.0130 mg/l	9-70 mg/l	data gap	9 mg/l	0.0015
Siduron	1.3545 mg/l	117 mg/l	895 mg/l	117 mg/l	0.0116
Halosulfuron		>131 mg/l	>107 mg/l	>107 mg/l	
2,4-D	0.0865 mg/l	3-7,000 mg/l	1-240 mg/l	1 mg/l	0.0865
2,4-DP	0.0479 mg/l	3-7,000 mg/l	1-240 mg/l	1 mg/l	0.0479
Dicamba	0.0212 mg/l	28-135 mg/l	110 mg/l	28 mg/l	0.0008
MCPA	0.0929 mg/l	25-117 mg/l	11 mg/l	11 mg/l	0.0084
MCPP	0.1297 mg/l	25-117 mg/l	11 mg/l	11 mg/l	0.0118
Triclopyr	0.0697 mg/l	117 mg/l	895 mg/l	117 mg/l	0.0006
Bentazon	0.0500 mg/l	190 mg/l	data gap	190 mg/l	0.0003
Chlorsulfuron	2.5118 mg/l	>250 mg/l	data gap	>250 mg/l	<0.0100
Glyphosate	0.0191 mg/l	120-240 mg/l	780 mg/l	120 mg/l	0.0002
Paclobutrazole	0.2404 mg/l	120 mg/l	165 mg/l	120 mg/l	0.0020
Ethofumesate	0.3193 mg/l	>180 mg/l	data gap	>180 mg/l	<0.0022
Azoxystrobin	0.0094 mg/l	1.1 mg/l	0.259 mg/l	0.259 mg/l	0.0363
Chloroneb	1.0852 mg/l	4,200 mg/l	5.9 mg/l	5.9 mg/l	0.1839
Chlorthalonil	0.2880 mg/l	7.6-17.1 mg/l	7,800 mg/l	7.6 mg/l	0.0379
Fenarimol	0.2059 mg/l	4 mg/l	6.8 mg/l	4 mg/l	0.0515
Iprodione	0.0627 mg/l	6.7 mg/l	0.4 mg/l	0.4 mg/l	0.1568
Propiconazole	0.1880 mg/l	0.9 mg/l	3.2 mg/l	0.9 mg/l	0.2089
Quintozene	0.1190 mg/l	3.8-40 mg/l	data gap	3.8 mg/l	0.0313
Thiophanate	0.0038 mg/l	3.2-15.7 mg/l	16 mg/l	3.2 mg/l	0.0012
Thiram	0.2892 mg/l	0.13 mg/l	0.39-1.01 mg/l	0.13 mg/l	**2.2246**
Triademefon	0.0985 mg/l	1.4 mg/l	1.6 mg/l	1.4 mg/l	0.0704
Vinclozolin	0.0016 mg/l	85 mg/l	data gap	53 mg/l	1.882E-05
Etridiazole	0.3087 mg/l	2 mg/l	data gap	2 mg/l	0.1544
Fosetyl-Al	0.0006 mg/l	428 mg/l	300 mg/l	300 mg/l	0.000002
Propamocarb	0.0001 mg/l	410 mg/l	data gap	410 mg/l	2.439E-07
Azoxystrobin	0.0334 mg/l	1.1 mg/l	0.259 mg/l	0.259 mg/l	0.1290
Chlorthalonil	0.5693 mg/l	7.6-17.1 mg/l	7,800 mg/l	7.6 mg/l	0.0749
Fenarimol	0.3011 mg/l	4 mg/l	6.8 mg/l	4 mg/l	0.0753
Flutalonil	0.4219 mg/l	5.4 mg/l	data gap	5.4 mg/l	0.0781
Iprodione	0.3804 mg/l	6.7 mg/l	0.4 mg/l	0.4 mg/l	**0.9510**
Propiconazole	0.3006 mg/l	0.9 mg/l	3.2 mg/l	0.9 mg/l	0.3340
Quintozene	0.4400 mg/l	3.8-40 mg/l	data gap	3.8 mg/l	0.1158
Thiophanate	0.3819 mg/l	3.2-15.7 mg/l	16 mg/l	3.2 mg/l	0.1193

Table 5
Comparison of Maximum Runoff Concentrations and Toxicolgy Values

Thiram	0.8773 mg/l	0.13 mg/l	0.39-1.01 mg/l	0.13 mg/l	**6.7485**
Triademefon	0.3044 mg/l	1.4 mg/l	1.6 mg/l	1.4 mg/l	0.2174
Vinclozolin	0.0169 mg/l	85 mg/l	data gap	85 mg/l	0.0002
Bendiocarb	0.0576 mg/l	1.55 mg/l	1.1 mg/l	1.1 mg/l	0.0524
Carbaryl	1.1540 mg/l	0.9-6.3 mg/l	0.007-3.3 mg/l	0.007 mg/l	**164.8571**
Chlorpyrifos	0.0147 mg/l	0.007-0.51 mg/l	0.88 mg/l	0.007 mg/l	**2.1000**
Ethoprop	0.4856 mg/l	13.8 mg/l	data gap	13.8 mg/l	0.0352
Trichlorfon	0.4219 mg/l	1.4 mg/l	0.011-0.189	0.011 mg/l	**38.3545**
Imidiacloprid	0.5804 mg/l	5.09 mg/l	2.65 mg/l	2.65 mg/l	0.2190
Halofenozide	0.5583 mg/l	>8.6 mg/l	3.6 mg/l	3.6 mg/l	0.1551
Acephate	0.4400 mg/l	1.3-1,110 mg/l	>50 mg/l	1.3 mg/l	0.3385
cyfluthrin	0.0001 mg/l	0.00068-0.022	0.00000014	0.00000014	**714.286**
spinosad A	0.0065 mg/l	5.9-30 mg/l	92.7	5.9	0.0011
spinosad D	0.0061 mg/l	5.9-30 mg/l	92.7	5.9	0.0010
mefenoxam	0.1106 mg/l	>100 mg/l	24.3 mg/l	24.3	0.0046
trifloxystrobin	0.0026 mg/l	0.014 mg/l	0.025 mg/l	0.014	0.1857
bifenthrin	0 mg/l	0.00015 mg/l	0.0016 mg/l	0.00015	0
lambda c	0 mg/l	0.00024 mg/l	0.00036 mg/l	0.00024	0
deltamethrin	**0.005 mg/l**	**0.001 mg/l**	**data gap**	**0.001**	**5**

- Comparisons of undiluted runoff concentrations with the most sensitive aquatic toxicology values were used as the basis of accepting or rejecting a pesticide.

- The steepest slopes on either of the two golf courses was modeled and results from these conditions were applied to all areas on both proposed golf courses.

- Rainfall data that totals 19 inches above the thirty year average were used in the model.

3.4 Fertilizer - Surface Water Risk Assessment

The loss of nitrate and phosphorus in runoff from the sloped 18th fairway of the Big Indian Country Club golf course was analyzed using the GLEAMS model. Nitrate was analyzed to assess potential health effects in the event runoff water ends up as groundwater used as drinking water. Phosphorus was analyzed because it is the nutrient that most often limits biological productivity in surface waters. Significant increases in phosphorus loading could accelerate eutrophication of receiving waters such as the Ashokan and Pepacton Reservoirs.

Nutrient export as a result of fertilization was examined for a number of potential fertilizer programs, including the program described previously in Section 3.1, "Fertilizer – Groundwater Risk Assessment," and detailed in Table 3, "Fertilizer Program". In addition to this total of four ponds of nitrogen per 1,000 square foot per year split over 10 applications, a four pound per thousand square feet was also simulated using five applications. This was done to analyze the effects of applying the same 4 lb./M/yr. of fertilizer program, but using fewer applications. A two pound per thousand square feet program was also simulated to determine the effect of lower fertilizer application rates on nutrient export. The reduced application rate was also simulated two ways, splitting the two pounds per thousand square feet into 10 applications and five applications.

Phosphorus application rates varied with the different programs described above. The amount of phosphorus applied was dictated by the types and amounts of the different fertilizers applied. The two fertilizers that were used vary in their relative amounts of phosphorus.

The ratio of nitrogen to phosphorus to potassium in fertilizers (N:P:K ratio) describes the relative amount of these three elements in a particular fertilizer. For example, the Sustane ® product used in the modeling has a 5:4:2 N:P:K ratio. This means that for every five ponds of nitrogen applied in Sustane® 4 pounds of phosphorus is applied (or 0.8 pounds of phosphorus per every pound of nitrogen). For the 31:3:10 High Maintenance Pro Turf ® product simulated in the May and September applications, approximately 0.1 pound of phosphorus is applied for every pound of nitrogen.

Below is a table describing the different fertilizer programs analyzed for nitrogen and phosphorus runoff.

Table 6
Modeled Fertilizer Programs

Program Number	Total Nitogen Applied (lb/M)	Total Phosphorus Applied (lb/M)	Number of Applications
1	4	1.4	10
2	4	0	10
3	4	1.4	5
4	4	0	5
5	2	0.7	10
6	2	0.7	5
7	2	0	10
8	2	0	5
9	0	0	0

The following table presents the total annual export of nitrogen and phosphorus under the nine different fertilizer programs described above. Total annual export is in kilograms of nutrients per hectare.

Table 7
Nutrient Export from Modeled Fertilizer Programs

Program Number	Nitrogen Export (kg/ha)	Phosphorus Export (kg/ha)
1	1.91	4.14
2	1.91	0.48
3	1.93	4.15
4	1.93	0.48
5	1.61	2.30
6	1.64	2.39
7	1.61	0.48
8	1.64	0.48
9	1.49	0.48

A number of conclusions can be made from these data

1. Distributing the total amount of fertilizer applied between 10 applications and 5 applications does not significantly affect nutrient export. Comparing program 1 to program 3 shows N export increasing from 1.91 to 1.93 kg/ha and phosphorus export increasing from 4.14 kg/ha to 4.15 kg/ha when comparing distributing the total amount applied in 10 applications versus 5 applications.

2. Decreasing nitrogen application rates in half reduces nitrogen export by more than one half. For example, program 3 with 4 lb N/M has nitrogen export 0.44 kg/ha than program 9 that does not have any fertilizer applications (background levels). Program 6 with 2 lb N/M has nutrient export that is 0.15 kg/ha higher than background levels (1.64 vs. 1.49 kg/ha).

3. Decreasing phosphorus applications by half results in a decrease in phosphorus export in half. Comparing phosphorus export of programs 3 (4.15 kg/ha) and 6 (2.39 kg/ha), as

done above, shows increases of phosphorus export above background of 3.66 kg/ha at the higher application rate and 1.82 kg/ha at half higher the application rate.

Nitrates

Like the other risk assessments discussed above, it was undiluted concentrations of nitrate in runoff that was compared with the State and Federal standards for nitrates in drinking water, MCL = 10 mg/l. Forty-six (46) rainfall events produced runoff in the GLEAMS modeling. None of the total nitrogen concentrations in runoff events exceeded 10 mg/l. The highest nitrate concentration in runoff was 1.44 mg/l. Concentrations of nitrate were greater than 1 mg/l on only three occasions. Thus, even undiluted total nitrogen concentrations, of which nitrate is only a part, never approached the drinking water standard for nitrate.

Phosphorus

Because the project site is located within the watersheds of two of New York City's water supply reservoirs, the Ashokan and the Pepacton Reservoirs, increased phosphorus export as a result of golf course fertilization practice is a serious concern.

In order to keep phosphorus export from the proposed golf courses within reasonable levels, the fertilizer programs described above were adjusted to decrease the total amount of phosphorus applied in order to keep phosphorus export levels consistent with other lands within the watershed.

Existing levels of phosphorus loading to Ashokan and Pepacton Reservoirs were analyzed by the New York City Department of Environmental Protection (NYC DEP) in 1999. These analyses were performed in order to develop phase two phosphorus total maximum daily load (TDML) calculations for the two reservoirs. Data from the two reports that were used for this risk assessment were the current watershed nutrient loadings on an area basis, and phosphorus export coefficients for grassed areas used in NYC DEP's modeling of watershed nutrient loading and to calculate TDML levels.

Using the watershed areas of the two reservoirs as well as the current phosphorus loading rates it was calculated that the average phosphorus loading rates for Ashokan and Pepacton Reservoir are 1.41 kg/ha and 0.58 kg/ha respectively.

When modeling watershed phosphorus loading to the two reservoirs from the land use identified as "grass areas", NYC DEP utilized export coefficients of 1.11 kg/ha and 1.10 kg/ha for the Ashokan and Pepacton watershed's respectively.

GLEAMS modeling of the steeply sloped 18th fairway on the Big Indian Country Club golf course using an annual application of 0.3 pounds of phosphorus per 1,000 square feet resulted in an annual export of 1.35 kg P/ha. This is slightly less than the 1.41 kg/ha watershed average calculated by NYCDEP.

GLEAMS modeling of the 18th fairway on the Big Indian Country Club golf course was also performed in order to meet the 1.11/1.10 export coefficients used in NYCDEP's modeling for TDML calculations. Modeling of the worst case conditions indicates that reducing the annual phosphorus application to 0.25 pounds of phosphorus per thousand square feet will result in an annual export of 1.11 kg/ha.

Section 4 Discussion of Modeling Results

The data generated from the site-specific analysis of the proposed golf courses demonstrated that a suitable turfgrass fertilization program could be implemented and applications of registered pesticides could be made without significantly impacting groundwater resources and surface water resources both **on** and **off** the project site. Even incorporating a number of worst case conditions into the computer modeling of the fate of pesticides and fertilizer applied to the proposed golf courses produced results that illustrated the very low potential for ground water and surface water contamination from properly implemented management practices on golf courses in general. Proposed use restrictions will mitigate potential risk to groundwater and surface water quality. Results from this risk assessment are consistent with previously published scientific literature as well as field research recently completed at universities throughout the country.

The following excerpt from Kenna and Snow (2000) summarizes the findings of research aimed at documenting the affects of golf course maintenance practices on the environment.

"The university research investigating pesticide and nutrient fate was the first extensive self-examination of golf's impact on water quality and the environment. What has the environmental research program told us? First, the university research shows that most pesticides used on golf courses have a negligible effect on the environment. The word negligible is used because we did find pesticides and fertilizers in runoff or leachate collected from research plots. However, under most conditions, the small amounts collected (parts per billion) were found at levels well below health and safety limits established by the Environmental Protection Agency (EPA) The studies demonstrated that the turfgrass canopy, thatch and root system were an effective filter or sponge. As one would expect, the results documented that heavy textured soils adsorbed pesticides and fertilizers better than light textured or sandy soils." (Note: the soils on the proposed Belleayre Resort golf courses are considered heavy textured soils.)

"The environmental research program has had a positive impact on golf. The program was run in an unbiased fashion, results have been published in peer-reviewed scientific journals and the message *be careful and be responsible* is getting out to golf course superintendents throughout the country."

"The USGA has made progress in understanding the impact that golf courses have on the environment. More is being done to make golf courses both a recreational and environmental asset to the community. An excellent foundation of environmental information, based on scientific evidence, rather than emotional rhetoric, has been established."

4.1 Nitrate Leaching

Nitrate-nitrogen is the primary nutrient associated with potential contamination of groundwater resulting from subsurface transport. The factors controlling nitrogen movement and case studies in agricultural systems have been reviewed by Anderson et al. (1989) and Keeney (1986). Until the 1990's, no comprehensive review of nitrogen losses from turfgrass systems were available. In 1990, Petrovic (1990) provided an excellent review on this topic in order to summarize the then current state of scientific information and to provide information for the development of best management practices for the prevention of groundwater deterioration.

The degree of nitrate leaching loss from turfgrass is variable. Some researchers report little or no leaching while other researchers suggest leaching of 80% or more of applied nitrogen. Factors that influence the degree of nitrate leaching include soil type, irrigation, nitrogen source and rate, and season of application (Petrovic, 1990; Anderson et al., 1989). Numerous university field studies performed in the mid-1990's demonstrated that proper fertilization of mature turfgrass produces very little nitrate leaching, particularly in non-sandy soils containing some organic matter, like much of the soils found on the project site (Petrovic, 1995; Startett and Christians, 1995).

Properly maintained turf grown in loam soil allowed less than one percent of the nitrogen applied to reach a depth of four feet during a 2.5 year period (Branhan et al. 1995, Miltner et al., 1996). Most of the nitrogen was recovered in clippings, thatch and soil. Nitrogen leaching losses can be greatly reduced by irrigating lightly and frequently, rather than heavily and less frequently. Applying nitrogen in smaller amounts and more frequently also reduced leaching losses (Kenna and Snow, 2000; Brauen et al., 1995).

The potential adverse human effects of nitrate in drinking water have been reviewed by many including Pratt (1985) and the only verified human health effect of elevated nitrate levels in drinking water is methemoglobinemia in infants. In general, strong epidemiological association of nitrates in drinking water and health risks has been inconclusive (Balough and Walker, 1992). The fertilizer-groundwater risk assessment nonetheless addressed the concern of the effect of the proposed golf courses fertilization practices on nitrate levels in local groundwater.

LEACHM modeling of potential nitrate loss from the proposed golf courses' soils analyzed a four (4) pounds of nitrogen per thousand square feet per year fertilizer program that included both immediately available and slow release forms of nitrogen. Actual nitrogen application rates are expected to be two (2) to four (4) pounds of nitrogen per thousand square feet per year. Undiluted leachate nitrogen concentrations at the bottom of the simulated Lewbeach soil profile never exceeded 1.0 mg/l, much less than the New York State drinking water standard of 10 mg/l.

Because some of the fertilizer applications occurred late in the year the simulation period was extended through the winter and into the next spring. Figure 1, "Leachate Nitrate Concentrates With and Without Fertilization (10 mg/l)" and Figure 2, "Leachate Nitrate Concentrates With and Without Fertilization (1 mg/l)" illustrate trends in nitrate concentrations in percolate over the two-year period. As would be expected, leachate nitrate concentrations increased in late fall when plant uptake rates naturally decreases.

During the late fall and winter months (under unfrozen ground conditions) leachate nitrate concentrations increased to a peak in November then decreased prior to the first application in the subsequent year. This pattern of increased nitrate leaching during periods of low temperature and higher precipitation was also observed by Petrovic (1990). Since evapotranspiration is low with relatively high precipitation, more subsurface drainage occurs and more nitrate leaching is possible. Nonetheless, even during this time period, undiluted leachate nitrate from the simulated proposed golf courses was well below State drinking water standards. Thus, local groundwater will not be impacted as a result of a golf course fertilization program where up to 4 lbs. N/m/yr. are applied.

Figure 1 Leachate Nitrate Concentrations With and Without Fertilization (10 mg/l scale)

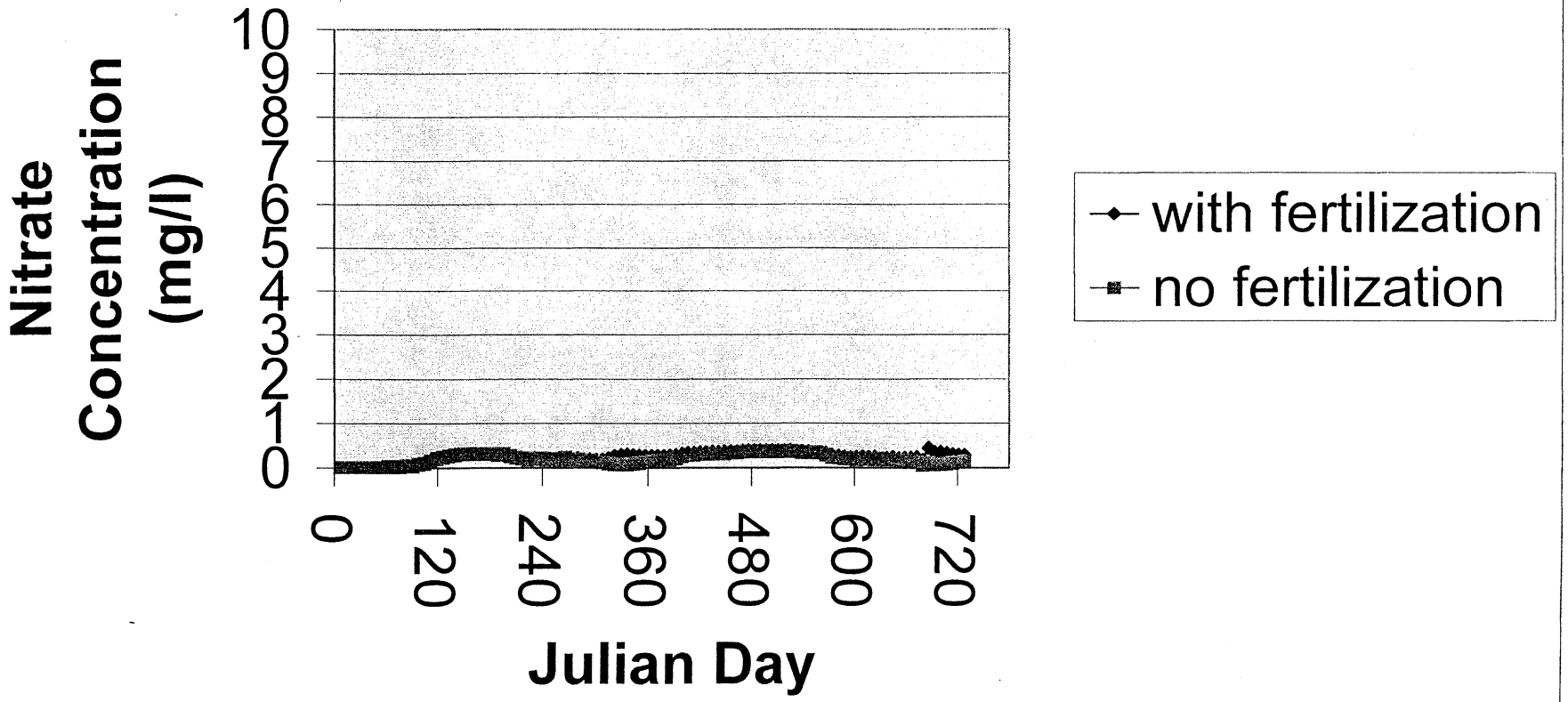
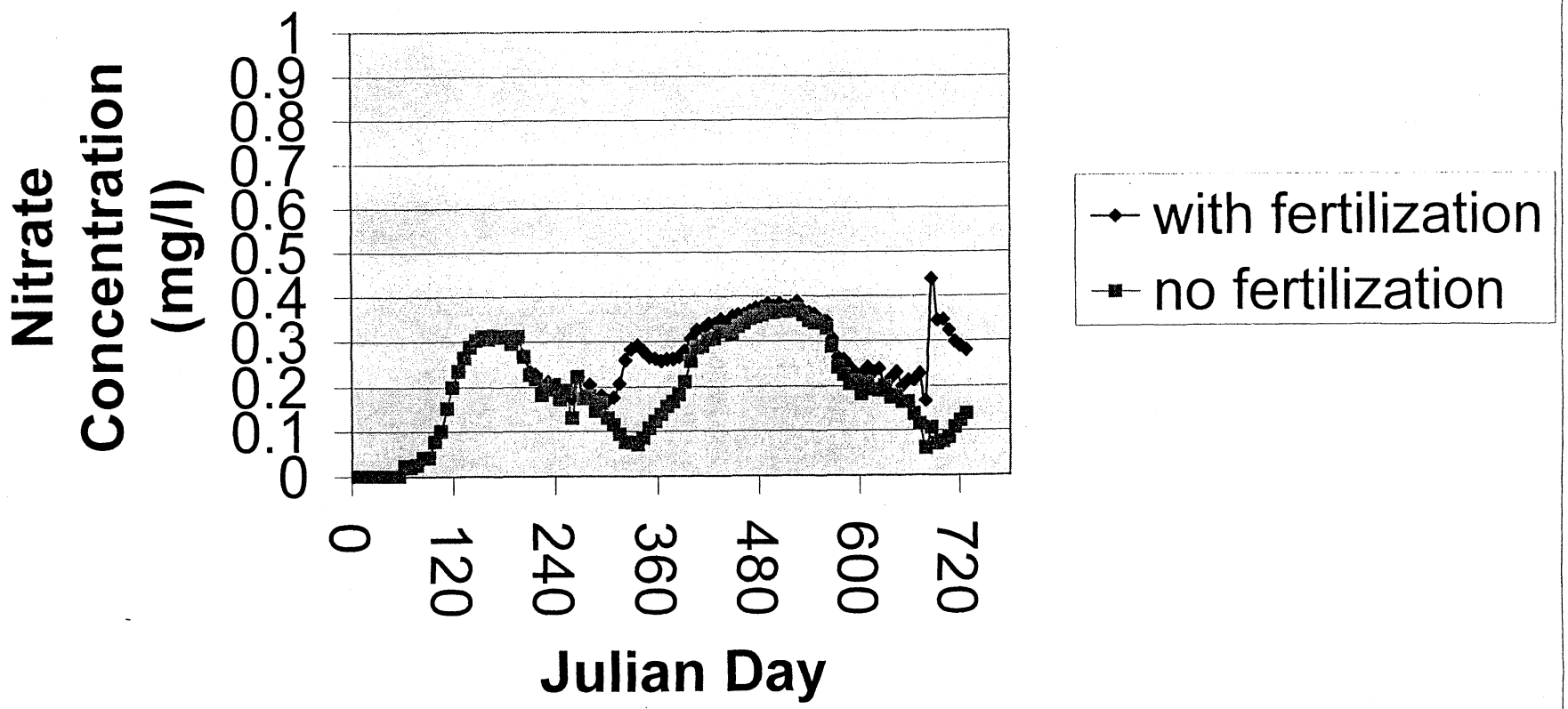


Figure 2 Leachate Nitrate Concentrations With and Without Fertilization (1mg/l scale)



4.2 Pesticide Leaching

Until the 1990's research on leaching of pesticides from the soil surface to groundwater was limited in comparison to studies on surface transport (runoff) of pesticides (Anderson et al. 1989; Fairchild 1987). The lack of published research on pesticide management practices for turfgrass and their impact on groundwater quality in the late 1980's reflected the relatively recent attention these issues have received (Walker et al.,1990). Prior to this, evaluation of pesticide contamination of groundwater resources had relied heavily on extrapolation of transport processes in the rootzone, limited field soil-and water-monitoring studies, soil column studies, well water surveys and computer simulation (Cohen et al.,1990; Fairchild,1987;Kladivko et al.,1991; Leonard and Knisel, 1988; Shoemaker et al.,1990).

Perhaps the first field comprehensive study of pesticide leaching from golf courses was conducted on the sandy soils of Cape Cod and was published in 1990 (Cohen, 1990). "The Cape Cod Study", as it has come to be known, found that significant pesticide leaching does not occur under golf course turfs, even in the very coarse soils of Cape Cod.

Eight university studies were conducted later in the 1990's under a wide variety of conditions. These studies found that very little pesticide leaching occurred with most pesticides, generally less than one percent of the total applied. However significant leaching occurred with certain pesticides under conditions most suitable for pesticide leaching (i.e. sandy soils and high rainfall) (Snow, 1998; Kenna and Snow, 2000).

One other finding of the most recent university research into pesticide leaching from turfgrass is germane to this risk analysis. Researchers found that current pesticide fate models, including the GLEAMS model, tend to over-predict the loss of most pesticides applied to turf (Smith et al, 1993; Smith, 1995). Likewise, the LEACHM model used in this risk assessment also tends to over-predict the amount of pesticide transport for certain pesticides (Roy et al., 2001).

There is a wide range of field and chemical conditions that influence potential transport of pesticides to groundwater. When persistent compounds that have high or intermediate mobility are applied to soils with minimal adsorptive capacity and shallow water tables, the leaching process may result in groundwater contamination. On the opposite end of the risk spectrum is the use of pesticides that are rapidly decomposed and/or strongly adsorbed. When these chemicals are applied to soils with high adsorptive capacity, deep water tables, and appropriate water management, the probability of pesticide leaching is significantly reduced. Therefore, the complex suite of conditions controlling the movement of applied chemicals must be evaluated on a site-specific basis (Walker and Balough, 1992).

Integration of site-specific character with recorded meteorological data for the region, and published values describing candidate pesticide characteristics which influence leaching propensity in LEACHM modeling identified which products could be used on the proposed golf courses and not pose a risk to local groundwater, drinking water, and human health. The results of the simulations indicate that appropriate New York State registered pesticide active ingredients will be available to treat each pest that could occur on the proposed golf courses and not impact the potability of local groundwater.

Of the 53 pesticide active ingredients analyzed (17 fungicides, 22 herbicides, and 14 insecticides) 20 did not leach at all through the simulated soil profiles. Of the 33 products that did leach to some degree, 13 were present in undiluted concentrations that exceeded

drinking water standards. Only the products that did not leach at all through the soil profiles and the products that had undiluted leachate concentrations below drinking water standards are recommended for use based on this portion of this risk assessment. See section 3.2 for products not recommended due to their leaching.

The use of maximum possible application quantities and worst case meteorological data, combined with the comparison of undiluted leachate concentrations with drinking water standards provides a more than adequate measure of protection for the groundwater resources.

4.3 Pesticide Runoff

Loss of agricultural pesticide residues into the environment by surface runoff has been a major research and water quality concern for over 35 years (Anderson et al. 1989). Several extensive literature reviews on the mechanisms and occurrence of surface runoff of pesticides are available (Anderson et al.,1989; Caro,1976; Leonard, 1988,1990; Stewart et al.,1975). These reviews provide insight into the factors that influence surface loss of pesticides from agricultural and turfgrass systems. Although sediment and runoff losses from turfgrass systems are small compared to agricultural systems (Balough and Walker,1992), surface transport processes must be understood for sound turfgrass management.

The primary mode of surface movement of pesticides from established turfgrass is in runoff water, However, under heavy or sustained runoff conditions, small amounts of sediments are still lost from turfgrass plots (Balogh and Watson,1992; Gross et al. 1991). Several studies indicate that the greatest loss of pesticide results from storms that occur soon after initial applications. In general, annual runoff losses of pesticides are quite low when compared to dissipation by volatilization and degradation. However, under intense precipitation conditions, the upper limit of pesticide loss could potentially reach 18% (Balogh and Walker,1992).

In several extensive literature reviews, estimated edge-of-field seasonal losses have been established. Observed runoff losses of pesticides on an event basis have been characterized as nearly random (Smith et al.,1978). The reviews and other studies from pasture, vegetative buffer areas, and reduced tillage systems illustrate the complex interaction of chemical properties and site-specific conditions influencing pesticide transport in runoff. Several of these studies indicate that similar pesticide losses from turfgrass systems are to be expected (Balogh and Walker,1992).

Later in the 1990's a number of university studies were performed on pesticide runoff from turf (Clark, 1996; Smith and Tilloston, 1993; Smith, 1995; Smith and Bridges, 1996; Baird, 1996; Baird 1998). Among the conclusions or trends observed from the pesticide runoff studies were the following: 1) dense turf cover reduces the potential for runoff losses of pesticides; 2) the physical and chemical properties of pesticides are good indicators of potential runoff losses; 3) heavy texture, compacted soils are much more prone to runoff loss than sandy soils; 4) moist soils are more prone to runoff losses than drier soils; 5) buffer strips at higher cutting heights tend to reduce runoff of pesticides when soil moisture is low to moderate prior to rainfall events; and, 6) the application of soluble herbicides on dormant turf can produce high levels of runoff losses.

The integration of factors specific to the proposed golf courses in GLEAMS modeling produced "edge of field" pesticide runoff concentrations for the 18th fairway which would have the highest runoff potential and impact potential based on its slopes and orientation. Of the 53 pesticide active ingredients analyzed, all but two were present to some degree in the worst case modeling, but only 8 of the 53 pesticide active ingredients were present in runoff at sufficient levels to be potentially problematic to aquatic biota in the receiving water. These seven products are not recommended for use on the golf courses. Again, the determination of risk potential was based upon comparison of undiluted runoff concentrations as opposed to final concentrations in the receiving water. The incorporation of this safety factor in the risk analysis and limiting the use of potentially problematic active ingredients would mitigate the potential for significant impact from pesticide runoff.

4.4 Fertilizer Runoff

Applications of fertilizer nitrogen and phosphorus have the potential for some runoff into surface waters. Some field studies have investigated this process in turfgrass systems. In a 2-year field study in Rhode Island, Morton et al. (1988) studied the influence of overwatering and fertilization on losses from home lawns (Kentucky bluegrass). In general, soil water percolate accounted for greater than 93% of total water and inorganic nitrogen from all treatments. They observed only two events that resulted in runoff. This runoff was the result of unusual climatic conditions: (1) frozen ground and (2)from plots that received 5 inches of water in one week. The runoff drainage was found to contain a concentration of nitrate from 1.1 to 4.2 mg/l for the two events. In another study investigating the impact of source, rate and soil texture, Brown et al. (1977) observed only one case of nitrate concentration in runoff water from turfgrass exceeding the 10 mg/l drinking water standard.

In an unpublished thesis from Penn State University, Harrison (1989) observed low runoff volumes and nutrient concentrations from irrigated plots of Kentucky bluegrass grown on clay soil. Concentrations of soluble nitrogen and soluble phosphorus in runoff rarely exceeded 5 and 2 mg/l, respectively.

Additional fertilizer runoff studies at Penn State University later in the 1990's found that nitrogen runoff concentrations from 4 pounds of nitrogen per thousand square feet fertilizer applications were not different from the nitrogen content of the irrigation water. These studies (Linde, 1993; Linde et al., 1993; Linde et al; 1995) were conducted on half inch fairway turfs on 9 to 13 percent slopes.

Gross et al. (1990) also observed limited soluble and sediment loss of phosphorus and nitrate in runoff from Kentucky bluegrass plots fertilized with 220 kg N/ha/yr (4.5 lb N/M/yr). The maximum loss of nitrogen in runoff was observed when a runoff event occurred the day after fertilization. However, the loss of nitrogen in surface runoff was less than 0.1% of the applied granular formulation of urea. A large portion of soluble nitrogen losses in runoff water occurred when a significant precipitation event occurred shortly after fertilizer application. Total and soluble losses of phosphorus were not significantly different between fertilized and control plots. Significant losses of phosphate for a liquid treatment were associated with high amounts of runoff from the turfgrass plots in December. This loss accounted for 73% of total runoff losses of phosphorus. Timing of fertilizer application to avoid precipitation and runoff events will reduce potential surface losses of nutrients (Balogh and Walker,1992).

Significant rainfall or irrigation of at least one half inch occurred shortly after all fertilizer applications were simulated in the GLEAMS modeling. For the fertilizer application that occurred on days 196, almost three inches of rain occurred the same day as fertilization. Almost one inch of rain occurred on day 262, the day after a fertilizer application.

Nitrate runoff concentrations were well below the 10 mg/l MCL established by New York State, in fact total nitrogen levels were rarely above 1 mg/l. The highest total nitrogen concentrations in runoff, 1.1 –1.4 mg/l, occurred on days when over two inches of rain fell shortly after days when fertilizer applications were made.

Analysis of worst case conditions for phosphorus loss in surface water runoff indicated that overall total phosphorus export from the project site could increase as a result of fertilizer applications. However, limiting phosphorus application rates to 0.25 – 0.3 lb P/M/year would produce phosphorus export from the site consistent with current phosphorus loading rates in the watershed and would not adversely affect the water quality in New York City water supply reservoirs.

4.5 Summary of Recommended Pesticide Restrictions

The following is a list of the pesticide active ingredients analyzed for leaching and runoff potential. Next to each active ingredient is any proposed restriction on its use due to risk assessment results.

Fungicides

- azoxystrobin – DO NOT USE, LEACHING POTENTIAL
- chloroneb
- chlorthalonil – DO NOT USE, LEACHING POTENTIAL
-
- etridiazole
- fenarimol – DO NOT USE, LEACHING POTENTIAL
- flutalonil
- fosetyl-Al
- iprodione – DO NOT USE, RUNOFF POTENTIAL
-
- mefenoxam
- propamocarb
- propiconazole
- quintozene
- trifloxystrobin
- thiophanates – DO NOT USE, LEACHING POTENTIAL
- thiram - DO NOT USE, LEACHING AND RUNOFF POTENTIAL
- triademefon - DO NOT USE, LEACHING POTENTIAL
- vinclozolin

Insecticides

- acephate
- bendiocarb
- bifenthrin
- carbaryl – DO NOT USE, LEACHING AND RUNOFF POTENTIAL
- chlorpyrifos – DO NOT USE, RUNOFF POTENTIAL
- deltamethrin – DO NOR USE, RUNOFF POTENTIAL
- ethoprop
- imidiacloprid – DO NOT USE, LEACHING POTENTIAL
- halofenozide – DO NOT USE, LEACHING POTENTIAL
- lambda cyhalothrin
- trichlorfon – DO NOT USE, LEACHING AND RUNOFF POTENTIAL
- cyfluthrin – DO NOT USE, RUNOFF POTENTIAL
- spinosad A
- spinosad D

Herbicides

- 2,4-D
- 2,4-DP
- benefin
- bensulide
- bentazon
- chlorsulfuron – DO NOT USE, LEACHING POTENTIAL
- dicamba – DO NOT USE, LEACHING POTENTIAL
- dithiopyr
- ethofumesate
- fenoxaprop
- glyphosate
- halosulfuron
- MCPA
- MCPP
- MSMA
- oxadiazon
- paclobutrazol – DO NOT USE, LEACHING POTENTIAL
- pendimethalin – DO NOT USE, RUNOFF POTENTIAL
- prodiamine
- siduron
- triclopyr
- trifluralin

4.6 Summary of Recommended Fertilizer Restrictions

Based upon the results of this risk assessment, nitrogen fertilizer application rates of up to four pounds per thousand square feet per year can be applied to golf course fairways.

Phosphorus applications shall be limited to no more than 0.25-0.3 pounds of fertilizer phosphorus per thousand square feet per year.

Section 5 Implementation of Best Management Practices

In addition to the conservative assumptions used in the computer modeling, certain best management practices (BMPs) will be implemented as part of the golf courses' maintenance program, and implementation of these BMPs will further reduce the potential for significant environmental impact. Most of these BMPs are simply common sense approaches to maintaining golf course turf in accordance with good agronomic principles and in an environmentally and economically responsible manner. The BMPs are described in greater detail in the Integrated Turf Management plan that is Appendix 14 of this DEIS.

The timing of pesticide and fertilizer applications will be such as to avoid forecasted rainfall immediately after application. If rain is forecasted for the immediate future (i.e., 48 hours), maintenance personnel shall delay application until after the threat of significant rainfall has past. Not only will this further lessen the potential for environmental impact, but it will also maximize the economic efficiency of any pesticide or fertilizer applications. Considering that a pesticide or fertilizer application can realistically require an investment of thousands of dollars, inefficient applications of fertilizer or pesticide and not obtaining desired results due to losses in runoff or leaching would also be detrimental from an economic standpoint, and desirable to avoid.

Similarly, due to the high materials and labor costs associated with pesticide applications, it can be expected that pesticides will be applied only to those areas that warrant treatment rather than a broadcast application to all areas of the golf courses. Focusing on more of a spot-treatment approach is consistent with the principles of integrated urf management which incorporates identifying those areas in need of treatment based on the exceedence of a pest level threshold and then treating only those areas where the threshold is exceeded. This integrated turf management approach to golf course management is not a new one, rather it has been performed on golf courses for decades.

The concepts of establishing pest thresholds, performing regular golf course turf inspections, and integrating cultural practices (i.e. proper mowing heights and frequencies, proper irrigation scheduling, proper fertilization practices etc.) to maximize turf resistance to pest invasion and proliferation had been routinely performed before the concept of integrated turf management became a "buzz word" within the golf course industry. The recent attention to golf course ITM has effectively formalized some of the major concepts and stressed documentation of golf course turf conditions, pest levels, treatments made, and follow-up inspections of treatment efficiencies. Implementation of ITM programs is not synonymous with the elimination of the use of pesticides but rather maximizing the efficiency and safety of pesticide use by applying only where and when needed and performing other practices which decrease the potential of pest occurrence above threshold levels.

The best management practices applied in conjunction with a fertilizer program of lesser or equal amounts of total nitrogen which was subjected to this risk analysis, and the selection of the pesticide active ingredients and their use recommendations contained in the Risk Assessment will insure that on-site and off-site surface waters and groundwater will not be impacted by the maintenance activities performed on the proposed golf courses.

In addition to the Best Management Practice described above, and in greater detail in the Integrated Turf Management Plan portion of this DEIS, additional measures will likely be incorporated as a pending publication becomes available. New York State has contracted

with Turfgrass Specialists at Cornell University to prepare a list of Best Management Practices for Golf Courses within the New York City Watershed. Unfortunately, publication of this document is behind schedule and was not available at the time of the preparation of this DEIS. According to the publication's author, Dr. Frank Rossi, this publication should be available some time in the fall of 2002 (Personal Communication Dr. Rossi to The LA Group, May 21 2002).

Literature Cited

Anderson, J.L. et al. 1989. *Soil Conservation Service Procedure Manual: Development of Standards and Specifications for Nutrient and Pesticide Management.* SCS State Nutrient and Pest Management Standards and Specifications Workshop. St. Paul MN, July 1989, 453 pp.

Athayde, D.N., P.E. Shelley, E.D. Driscoll, D. Gaboury and G.B. Boyd. 1983. *Results of the Nationwide Urban Runoff Program: Final Report.* USEPA. Water Planning Division, Washington, D.C.

Baird, J.H. 1996. In *USGA 1995 Turfgrass and Environmental Research Summary;* Kenna, M.P. Ed. United States Golf Association. Far Hills, NJ. pp 64-65.

Baird, J.H. 1998. In *USGA 1997 Turfgrass and Environmental Research Summary;* Kenna, M.P. and Snow J.T. Eds. United States Golf Association. Far Hills, NJ. pp 56-59.

Balogh J.C. and W.J. Walker. 1992. *Golf Course Management and Construction Environmental Issues.* Lewis Publishers.Chelsae MD. 951 pp.

Branham, B.E., et al. 1995. *USGA Green Section Record. 33(1):33-37*

Brauen, S.E. et al. 1995. *USGA Green Section Record. 33(1):29-32*

Brown K.W. e al. 1977 *Influence of management and season on fate of N applied to golf greens.* Agron J. 69(4):667-671

Brunnell, L.E. and R.W. Meyer. 1996. Application of Agricultural Nonpoint Source Models to Predict Surface Water Quality Resulting From Golf Course Management Practices. In Watershed 96 Proceedings. Downloaded from USEPA at http://www.epa.gov/owowwtr1/watershed/Proceed/brunell.htm on December 5, 2000

Clark, J.M. 1997. In *USGA 1997 Turfgrass and Environmental Research Summary;* Kenna, M.P. , Snow J.T., Eds.; United States Golf Association. Far Hills, NJ. pp 60-63

Cohen, S.Z. et al. 1990. *Ground water monitoring study for pesticides and nitrates associated with golf courses on Cape Cod.* Ground Water Monit. Rev. 10(1):160-173

Cohen S.Z. et al. 1999

Crowder et al. 1985. *Using CREAMS and economic modeling to evaluate conservation tillage practices: An application.* J. Environ Qual. 14(3):428-434

Donigan, A.S. and P.S. Rao, 1986. *Overview of terrestrial processes and modeling.* In

Hurn, H.C. and Melancon S.M. (eds) *Vadose zone modeling of organic pollutants*. Lewis Publishers, Chelsae, MD pp3-35.

Durborow, T.E. et al. 2000. *Calibration and Validation of Runoff and Leaching Models for Turf Pesticides, and Comparison with Modeling Results*. Pp 195-227 In Clark, J.M. and M.P. Kenna (ed.s) *Fate and Management of Turfgrass Chemicals*. American Chemical Society, Washington D.C. 465 pp.

Fairchild, D.M. 1987. *A national assessment of groundwater contamination from pesticides and fertilizers.* in Fairchild, D.M. (ed) *Ground Water Quality and Agricultural Practices.* Lewis Publishers, Chelsae MD pp.273-294

Graves, R.M. and G.S. Cormitar. 1998. *Golf Course Design.* John Wiley and Sons, Inc. New York. 446 pp.

Gross M.A. et al. 1990. *Nutrient and sediment losses from turfgrass*. J. Environ Qual.

Gross, M.A. et al. 1991. *Runoff and sediment losses from tall fescue under simulated rainfall.* J. Environ. Qual. 19(4):663-668.

Harrison, S.A. 1989 Effects of Turfgrass Establishment Method and Management on the Quality and Quantity of Nutrient and Pesticide Content of Runoff and Leachate. Unpubl. Thesis Penn State University, University Park, PA, 125pp

Humburg, N.E. et al. 1989. *Herbicide Handbook of the Weed Science Society of America 6th ed.* Weed Science Society of America. Chicago. 301 pp.

Keeney, D.R. 1986. *Sources of nitrate to groundwater.* CRC Crit. Rev. Environ. Control 16:257-304.

Kenna, M.P. and J.T. Snow, 2000. The U.S. Golf Association Turfgrass and Environmental Research Program Overview. In Clark J.M and M.P. Kenna (ed.s) 2000. Fate and Management of Turfgrass Chemicals. American Chemical Society. Washington, DC. 465 pp.

Kladivko, E.J. et al. 1991. *Pesticide and nutrient movement into subsurface tile drains on a silt loam soil in Indiana.* J. Environ Qual. 20(1):264-270

Knisel, W.G. and F.M. Davis. 2000. GLEAMS **G**roundwater **L**oading **E**ffects of **A**gricultural **M**anagement **S**ystems. Version 3.0 Publication No. SEWRL-WKG/FMD-050199, revised 081500. 191 pp.

Leonard, R.A. 1988. *Herbicides in surface waters.* in Grover, R. (ed.) *Environmental Chemistry of Herbicides Vol. 1.* CRC Press. Boca Roton, FL. pp45-87.

Leonard, R.A. 1990. *Movement of pesticides into surface waters.* in Cheng, H.H.(ed). *Pesticides in the Soil Environment:Processes, Impacts, and Modeling.* SSSA Book Series No. 2 Soil Science Society of America, Madison, WI, pp303-349

Leonard, R.A. and W.G. Knisel. 1988. *Evaluating groundwater contamination potential from herbicide use.* Weed Technol. 2(2):207-216

Linde, D.T. 1993. *Surface Runoff and Nutrient Transport Assessment on Creeping Bentgrass and Perennial Ryegrass Turf.* MS Thesis, Pennsylvania State University, The Graduate School of Agricultural Sciences. 84 pp.

Linde, D.T., T.L. Watschke, and J.A. Borger. 1995. *Transport of runoff and nutrients from fairway turfs*. USGA Green Section Record. 33(1):42-44.

Linde, D.T. et al. 1995. *Agron J.* 87:176-182

Mayer, F.L. and M.R. Ellersieck. 1986. Manual of Acute Toxicity: Interpretation and Database for 410 Chemicals and 66 Species of Freshwater Animals. United States Department of the Interior, Fish and Wildlife Service. No. 160.

Miltner, E.D., et al. 1996. *Crop Sci. 36:1427-1433*

Montgomery, J.H. 1993. *Agrochemical Desk Reference, Environmental Data*. Lewis Publishers, Ann Arbor. 625 pp.

Morton, T.G. et al. 1988 *Influence of overwatering and fertilization on nitrogen loss from home lawns*. J. Environ. Qual. 17(1):124-130.

Petrovic, A.M. 1990. *The fate of nitrogenous fertilizers applied to turfgrass.* J. Environ. Qual. 19(1):1-14

Petrovic, A. M. 1995. The impact of soil type and precipitation on pesticide and nutrient leaching from fairway turf. USGA Green Section Record. 33(1):38-41

Pratt, P.F. (Chairman) 1985. *Agriculture and Groundwater Quality.* Council for Agricultural Science and Technology. CAST Report No. 103. 62pp.

Rast, W. and G.F. Lee. 1978. *Summary Analysis of North American OECD Eutrophication Project: Nutrient Loading - Lake Response Relationships and Trophic State.* EPA-600/2-78-008

Roy, J.W. et al. 2001. *Seasonal Leaching and Biodegradation of Dicamba in Turfgrass. J Environ. Qual. 30:1360-1370*

Schueler, T.R. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMP's.* Metropolitan Washington Council of Governments. Washington D.C.

Schueler, T.R., P.A. Kumble, and M.A. Heraty. 199s. *A Current Assessment of Urban Best Management Practices; Techniques for Reducing Non-point Source Pollution in the Coastal Zone.* Anaconda Restoration Team. Washington D.C.

Shoemaker L.L. et al 1990. *Modeling management practice effects on pesticide movement to groundwater.* Ground Water Monit. Rev. 10(1):109-115

Smith, A.E., et al. 1993. In *Pesticides in Urban Environments;* Racke, K.D., Leslie, A.R. Eds.; ACS Symposium Series 522; American Chemical Society: Washington, D.C. pp168-181

Smith, A.E. 1995. *USGA Green Section Record. 33(1):13-14*

Smith, C.N. et al. 1978. *Transport of Agricultural Chemicals from Small Upland Chemicals from Small Upland Piedmont Watersheds.* EPA-600/3-78-056. U.S. Environmental Protection Agency, Washington, D.C.

Smith A.E. and D.C. Bridges. 1996. In *USGA 1995 Turfgrass and Environmental Research Summary;* Kenna, M.P. Ed. United States Golf Association. Far Hills, NJ. pp 76-77.

Smith A.E. and D.C. Bridges. 1997. In *USGA 1996 Turfgrass and Environmental Research Summary;* Kenna, M.P., Snow J.T. Eds. United States Golf Association. Far Hills, NJ. pp 72-73.

Snow, J.T. 1998. *Loss of Nitrogen and Pesticides from Turf via Leaching and Runoff.* - USGA Green Section. For Hills, NJ. 10 pp.

Starrett, S.K. and N.E. Christians. 1995. *Nitrogen and phosphorus fate when applied to turfgrass in golf course fairway conditions.* USGA Green Section Record. 33(1):23-25

Stewart, B.A. et al 1975. *Control of Water Pollution from Cropland: A Manual for Guideline Development Vol 1* EPA 600/2-75-026a USEPA Athens GA.

USEPA 1991 *Drinking Water Regulations and Health Advisories.* USEPA Office of Water. Washington D.C.

Waganet, R.J. and J.L. Hutson 1987. *Leaching Estimation and Chemistry Model* Version 2. Department of Agronomy Cornell University.

Walker et al. 1990. *Environmental Issues Related To Golf Course Construction and Management.* United States Golf Association, Green Section. Far Hills, NJ, 378 pp.

Watschke, T.L., P.H. Dernoeden, and D.J. Shetlar. 1995 *Advances in Turfgrass Science, Managing Turfgrass Pests.* Lewis Publishers. Boca Raton. 368 pp.

Attachment 1

Sample WINPST Report

COOPERATOR: The LA Group, P.C. 40 Long Alley Saratoga Springs, NY 11/10/99.
TRACT: Belleayre Resort FIELD: Halcott soils (B) Watershed

WINPST SOIL / PESTICIDE INTERACTION
LOSS POTENTIAL and HAZARD RATINGS REPORT

Soils Data Table: NY999 Sort Order: MUSYM
Pesticide Data Table Sort Order: NAME

SOILS

HaB: HALCOTT CN-SIL 100%
HYDRO: C
PESTICIDES NY CITY WATERSHED,
NEW YORK: NY999

2,4-D AMINE REG_NO: 00590500072

46.60% Dimethylamine 2,4-dichlorophenoxyacetate PC_CODE: 030019

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

ABOUND FLOWABLE FUNGICIDE REG_NO: 01018200415

22.90% Azoxystrobin (BSI, ISO) PC_CODE: 128810

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	I
Adsorbed Runoff (IARP):	I (r<lh>)		V

ACCLAIM 0.5 WE HERBICIDE REG_NO: 04563900178

5.05% Fenoxaprop-ethyl PC_CODE: 128701

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	I	I
Adsorbed Runoff (IARP):	I (r<lh>)		V

ACE LAWN FOOD WITH WEED CONTROL 22-6-8 REG_NO: 00866000170

0.94% 2,4-Dichlorophenoxyacetic acid PC_CODE: 030001

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

0.94% Mecoprop PC_CODE: 031501

	Loss Potential	Human Hazard	Fish Hazard
pH 7			
Leaching (ILP):	L (<lh>)	I	V

Solution Runoff (ISRP):	I (r<lh>)	H	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

ALIETTE FUNGICIDE REG_NO: 00026400467

80.00% Fosetyl-Al PC_CODE: 123301

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

BALAN DRY FLOWABLE REG_NO: 03470400746

60.00% Benfluralin PC_CODE: 084301

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	L
Solution Runoff (ISRP):	I (r<lh>)	V	H
Adsorbed Runoff (IARP):	I (r<lh>)		V

BANNER FUNGICIDE REG_NO: 00010000641

14.30% Propiconazole PC_CODE: 122101

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	I (r<lh>)	H	L
Adsorbed Runoff (IARP):	I (r<lh>)		V

BANOL REG_NO: 04563900088

66.50% Propamocarb hydrochloride PC_CODE: 119302

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	L (r<lh>)	V	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

BANVEL 720 HERBICIDE REG_NO: 00010000831

12.82% Dicamba, dimethylamine salt PC_CODE: 029802

Missing Data.

24.58% Dimethylamine 2,4-dichlorophenoxyacetate PC_CODE: 030019

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

BARRICADE F HERBICIDE REG_NO: 00010000867

2.00% Prodiamine (ANSI) PC_CODE: 110201

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)		V

Solution Runoff (ISRP):	I (r<lh>)		I
Adsorbed Runoff (IARP):	I (r<lh>)		V

BASAGRAN HERBICIDE REG_NO: 00796900045

44.00% Sodium bentazon PC_CODE: 103901

		Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)		V	V
Solution Runoff (ISRP):	I (r<lh>)		V	V
Adsorbed Runoff (IARP):	L (r<lh>)			V

BATTALION HERBICIDE REG_NO: 00052400466

75.00% Halosulfuron-methyl PC_CODE: 128721

		Loss Potential	Human Hazard	Fish Hazard
pH 7				
Leaching (ILP):	V (<lh>)		V	V
Solution Runoff (ISRP):	I (r<lh>)		V	V
Adsorbed Runoff (IARP):	L (r<lh>)			V

BAYLETON 009 EC TURF AND ORNAMENTAL FUNGICIDE REG_NO: 00312500370

0.88% Triadimefon PC_CODE: 109901

		Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)		V	V
Solution Runoff (ISRP):	I (r<lh>)		I	I
Adsorbed Runoff (IARP):	L (r<lh>)			V

BETASAN 4-E LF SELECTIVE HERBICIDE REG_NO: 01016300196

46.00% Bensulide PC_CODE: 009801

		Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)		V	V
Solution Runoff (ISRP):	I (r<lh>)		I	I
Adsorbed Runoff (IARP):	I (r<lh>)			V

CHIPCO 26019 FUNGICIDE REG_NO: 00026400481

50.00% Iprodione (ANSI) PC_CODE: 109801

		Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)		L	V
Solution Runoff (ISRP):	I (r<lh>)		H	L
Adsorbed Runoff (IARP):	L (r<lh>)			V

DACONIL 2787 FLOWABLE FUNGICIDE REG_NO: 05053400009

40.40% Chlorothalonil (ANSI) PC_CODE: 081901

		Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)		V	L
Solution Runoff (ISRP):	I (r<lh>)		I	H
Adsorbed Runoff (IARP):	I (r<lh>)			L

DACTHAL FLOWABLE HERBICIDE REG_NO: 05053400010

54.90% Chlorthal dimethyl PC_CODE: 078701

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	I (r<lh>)	H	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

DIMENSION 1EC TURF HERBICIDE REG_NO: 00070700246

13.20% Dithiopyr (ANSI) PC_CODE: 128994

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	L	L
Solution Runoff (ISRP):	I (r<lh>)	I	I
Adsorbed Runoff (IARP):	I (r<lh>)		V

DURSBAN - 4E INSECTICIDE REG_NO: 00866000097

44.40% Chlorpyrifos (ANSI) PC_CODE: 059101

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	I
Solution Runoff (ISRP):	L (r<lh>)	L	H
Adsorbed Runoff (IARP):	I (r<lh>)		L

DYLOX 80 TURF AND ORNAMENTAL INSECTICIDE REG_NO: 00312500184

80.00% Trichlorfon PC_CODE: 057901

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	L	L
Solution Runoff (ISRP):	I (r<lh>)	I	I
Adsorbed Runoff (IARP):	L (r<lh>)		L

FOLISTAR 50WP REG_NO: 04563900157

50.30% Flutolanil PC_CODE: 128975

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	L
Adsorbed Runoff (IARP):	I (r<lh>)		V

FORE TURF AND ORNAMENTAL FUNGICIDE REG_NO: 00070700087

80.00% Mancozeb PC_CODE: 014504

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	L
Solution Runoff (ISRP):	I (r<lh>)	H	H
Adsorbed Runoff (IARP):	I (r<lh>)		L

FUNGO 50 SYSTEMIC TURF FUNGICIDE REG_NO: 05818500009

50.00% Thiophanate-methyl (ANSI) PC_CODE: 102001

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	L
Solution Runoff (ISRP):	I (r<lh>)	V	H
Adsorbed Runoff (IARP):	I (r<lh>)		L

KOBAN FLOWABLE REG_NO: 05818500019

40.70% Etridiazole PC_CODE: 084701

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	I (r<lh>)	H	L
Adsorbed Runoff (IARP):	I (r<lh>)		V

LESCO TFC DISPERSIBLE GRANULE TURF HERBICIDE REG_NO: 01040400059

75.00% Chlorsulfuron (ANSI) PC_CODE: 118601

	Loss Potential	Human Hazard	Fish Hazard
pH 7			
Leaching (ILP):	L (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

MERIT (R) 60 WSP REG_NO: 00312500492

60.00% Imidacloprid PC_CODE: 129099

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

60.00% Imidacloprid PC_CODE: 129099
Missing Data.

MOCAP EC NEMATICIDE - INSECTICIDE REG_NO: 00026400458

69.60% Ethoprop (ANSI) PC_CODE: 041101

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	L	L
Solution Runoff (ISRP):	I (r<lh>)	I	I
Adsorbed Runoff (IARP):	L (r<lh>)		L

MSMA 60 PLUS SURFACTANT REG_NO: 00548100229

48.40% MSMA PC_CODE: 013803

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

NEMACUR 10% TURF AND ORNAMENTAL NEMATICIDE REG_NO: 00312500237

10.00% Fenamiphos PC_CODE: 100601

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	I	I
Solution Runoff (ISRP):	I (r<lh>)	H	H
Adsorbed Runoff (IARP):	I (r<lh>)		I

OFTANOL 1-5G INSECTICIDE REG_NO: 05103600157

1.50% Isofenphos PC_CODE: 109401

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	I (r<lh>)	H	L
Adsorbed Runoff (IARP):	I (r<lh>)		V

ORNALIN CONTACT FUNGICIDE 50% WETTABLE POWDER/TURF REG_NO: 05818500017

50.00% Vinclozolin PC_CODE: 113201

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)		V
Solution Runoff (ISRP):	I (r<lh>)		L
Adsorbed Runoff (IARP):	L (r<lh>)		V

ORTHENE 75 WSP (INSECTICIDE IN A WATER SOLUBLE BAG) REG_NO: 05963900089

75.00% Acephate (ANSI) PC_CODE: 103301

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	I (r<lh>)	H	V
Adsorbed Runoff (IARP):	L (r<lh>)		L

PCNB 2 FLOWABLE TURF & ORNAMENTAL SOIL FUNGICIDE REG_NO: 00548100443

21.60% Pentachloronitrobenzene PC_CODE: 056502

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	L (r<lh>)	I	L
Adsorbed Runoff (IARP):	I (r<lh>)		V

PRE-M 3.3 EC TURF HERBICIDE REG_NO: 00024100360

37.40% Pendimethalin (ANSI) PC_CODE: 108501

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	L
Solution Runoff (ISRP):	I (r<lh>)	L	H
Adsorbed Runoff (IARP):	I (r<lh>)		V

PROGRASS EMULSIFIABLE CONCENTRATE REG_NO: 04563900068

19.00% Ethofumesate (ANSI) PC_CODE: 110601

	Loss Potential	Human Hazard	Fish Hazard

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

PROTURF PYTHIUM CONTROL REG_NO: 00053800185

1.21% Metalaxyl (ANSI) PC_CODE: 113501

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

RONSTAR 1% WITH FERTILIZER REG_NO: 06750800001

1.00% Oxadiazon (ANSI) PC_CODE: 109001

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	I (r<lh>)	H	I
Adsorbed Runoff (IARP):	I (r<lh>)		V

ROUNDUP HERBICIDE REG_NO: 00052400445

41.00% Glyphosate, isopropylamine salt PC_CODE: 103601

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

RUBIGAN 50W TURF & ORNAMENTAL REG_NO: 06271900126

50.00% Fenarimol (ANSI) PC_CODE: 206600

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	V	L
Solution Runoff (ISRP):	I (r<lh>)	V	L
Adsorbed Runoff (IARP):	I (r<lh>)		V

SCOTTS TGR POA ANNUA CONTROL REG_NO: 00053800252

2.10% Ethofumesate (ANSI) PC_CODE: 110601

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (f<lh>)	V	V
Solution Runoff (ISRP):	I (rf<lh>)	V	V
Adsorbed Runoff (IARP):	L (rf<lh>)		V

SENTINEL 40 WG TURF FUNGICIDE REG_NO: 00010000863

40.00% Cyproconazole PC_CODE: 128993

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	V
Solution Runoff (ISRP):	I (r<lh>)	H	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

SEVIN GRUB KILLER GRANULES (2% SEVIN) REG_NO: 06757200080

2.00% Carbaryl (ANSI) PC_CODE: 056801

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	L
Adsorbed Runoff (IARP):	L (r<lh>)		V

TEAM 2G REG_NO: 06271900137

0.67% Trifluralin (ANSI) PC_CODE: 036101

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	L	L
Solution Runoff (ISRP):	I (r<lh>)	H	H
Adsorbed Runoff (IARP):	I (r<lh>)		L

1.33% Benfluralin PC_CODE: 084301

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	L
Solution Runoff (ISRP):	I (r<lh>)	V	H
Adsorbed Runoff (IARP):	I (r<lh>)		V

THIRAM 75WP FUNGICIDE REG_NO: 05103600053

75.00% Thiram PC_CODE: 079801

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	I
Solution Runoff (ISRP):	I (r<lh>)	L	X
Adsorbed Runoff (IARP):	L (r<lh>)		L

TRIMEC 1158 BROADLEAF HERBICIDE REG_NO: 00221700784

3.24% Dicamba (ANSI) PC_CODE: 029801

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (f<lh>)	V	V
Solution Runoff (ISRP):	L (rf<lh>)	V	V
Adsorbed Runoff (IARP):	L (rf<lh>)		L

32.43% MCPA PC_CODE: 030501

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (f<lh>)	V	V
Solution Runoff (ISRP):	L (rf<lh>)	L	V
Adsorbed Runoff (IARP):	L (rf<lh>)		V

12.96% Mecoprop PC_CODE: 031501

	Loss Potential	Human Hazard	Fish Hazard
pH 7			
Leaching (ILP):	V (f<lh>)	L	V
Solution Runoff (ISRP):	L (rf<lh>)	I	V

Adsorbed Runoff (IARP):	L (rf<lh>)	V

TRIMEC 13 WEED'N-FEED REG_NO: 00221700532

0.07% Dicamba, dimethylamine salt PC_CODE: 029802
Missing Data.

0.69% Dimethylamine 2,4-dichlorophenoxyacetate PC_CODE: 030019

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

0.31% Dimethylamine 2-(2-methyl-4-chlorophenoxy)propionate PC_CODE: 031519
Missing Data.

TRIPLET HI-D SELECTIVE HERBICIDE REG_NO: 00022800311

1.67% Dicamba, dimethylamine salt PC_CODE: 029802
Missing Data.

41.08% Dimethylamine 2,4-dichlorophenoxyacetate PC_CODE: 030019

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

6.95% Mecoprop-P PC_CODE: 129046
Missing Data.

TUPERSAN HERBICIDE REG_NO: 01016300213

50.00% Siduron (ANSI) PC_CODE: 035509

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)		V
Solution Runoff (ISRP):	I (r<lh>)		V
Adsorbed Runoff (IARP):	I (r<lh>)		V

TURCAM REG_NO: 04563900059

76.00% Bendiocarb (ANSI) PC_CODE: 105201

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	I	I
Adsorbed Runoff (IARP):	L (r<lh>)		V

TURFLON II AMINE REG_NO: 06271900075

34.20% Dimethylamine 2,4-dichlorophenoxyacetate PC_CODE: 030019

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

15.20% Triethylamine triclopyr PC_CODE: 116002

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	V	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

TWIN LIGHT CHLORONEB TURF FUNGICIDE REG_NO: 00115900186

7.50% Chloroneb (ANSI) PC_CODE: 027301

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	I (r<lh>)		V

WEEDONE 638 BROADLEAF HERBICIDE REG_NO: 07136800003

13.80% 2,4-Dichlorophenoxyacetic acid PC_CODE: 030001

	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	V (<lh>)	V	V
Solution Runoff (ISRP):	I (r<lh>)	L	V
Adsorbed Runoff (IARP):	L (r<lh>)		V

24.50% Butoxyethyl 2,4-dichlorophenoxyacetate PC_CODE: 030053
Missing Data.

(.\REPORTS\HLCTBHAZ.TXT generated on 01/25/2000 at 08:21:40)

Ratings Legend:

Ratings:

X -- EXTRA HIGH
H -- HIGH
I -- INTERMEDIATE
L -- LOW
V -- VERY LOW

Conditions that affect ratings: Effect on ratings:

Broadcast -- Default application area.
Pesticide applied to more than 50% of the field.

b -- Banded Application. -1 PLP, -1 PSRP, -1 PARP
Pesticide applied to less than 50% of the field.

Surface Applied -- Default application method.

i -- Soil Incorporated. +1 PLP, -1 PSRP, -1 PARP

f -- Foliar Application. -1 PLP, -1 PSRP, -1 PARP

Standard -- Default application Rate. Greater than 0.25 lb/acre.

l -- Low Rate of Application.
1/4 - 1/10 lb/acre (280 - 112 g/ha) -1 PLP, -1 PSRP, -1 PARP

 -- Ultra Low Rate of Application.
1/10 lb/acre (112 g/ha) or less. -2 PLP, -2 PSRP, -2 PARP

m -- There are macropores or cracks in
the surface horizon deeper than 24". +1 SLP

w -- The high water table comes within

```
        24" of the surface during the
        growing season.                          SLP = HIGH
    s   -- The slope is greater than 15%.                          +1 SARP

    r   -- Residue Management.                              -1 ISRP, -1 IARP

    <hl> -- High probability of rain,
        Low efficiency irrigation.          +1 ILP, +1 ISRP, +1 IARP
    <ln> -- Low probability of rain,
        No irrigation.                      -1 ILP, -1 ISRP, -1 IARP
    <lh> -- Low probability of rain,
        High efficiency irrigation.         -1 ILP, -1 ISRP, -1 IARP
```

Attachment 2

Sample LEACHM Input Report

```
bellha10    ATM-WATER-PESTICIDE-TEMPERATURE-PLANT-INTERACTION
(A value must be present for each item, although it may not be used)
------------------
Date type (US:1 UK:2)                1
Starting date                   010196 Ending (date or day no.)      123196
Read theta(1) or pot'l(2)            2 No. of chemical species             4
No. of water applications          180 No. chemical applications           2
Cycles through data                  1 No. of crops                        1
K-Th-h from PSD:yes(1)no(0)          1 Trace 1(on) 0(off)                  0
--------------------------------------------------------------------------
PROFILE DETAILS
---------------
Profile depth     (mm)      .2540E+03 Bottom boundary condition           2
Segment thickness (mm)      .1270E+03 :1 or 5,water table depth  .2000E+04
--------------------------------------------------------------------------
FOR UNIFORM PROFILE: (Any non-zero value here will override those in the
table of hydrological characteristics below).
Soil bulk density Mg/cu.m   .0000E+00 Air -entry value' kPa     -.0000E+00
Exponent in Campbell's eq   .0000E+00 Sat'd K values (mm/day)    .0000E+00
--------------------------------------------------------------------------
CROP DATA
---------
Plants present: 1 yes, 0 no          1 Wilting point (soil) kPa  -.2000E+03
Max(actual tran/potl tran)  .1200E+01 Min.root water pot'l(kpa) -.2000E+03
Roots: Const(1);growing(2)           1 Max.root water pot'l(kpa) -.6000E+03
Root length (not used)      .5000E+03 Root flow resistance term  .1050E+01
--------------------------------------------------------------------------
DIFFUSION/DISPERSION
--------------------
Molecular diffusion  | Do   .1200E+03 Dispersivity  (mm)          .4000E+02
coefficient (mm2/d)  | DIFA .1000E-02 Diff coeff in air (mm2/d)   .4300E+06
(Bresler's eq.)      | DIFB .1000E+02 Barometric enhancement      .1400E+06
--------------------------------------------------------------------------
NUMBER OF OUTPUT FILES               2
  -- .OUT file --------                  ----- .SUM file ----------
Units: 1 mg/kg, 2 mg/m2              1 Summary print interval (d)        30
Node print frequency                 2 Three depth segments for the summary
Print options: 1, 2 or 3             2  file  (0's default to thirds of the
 1: Time intervals/print             1  profile)  (mm) :
 2: days/print                     7.0    Surface to [depth 1?]          000
 3: No. of prints (even)             4    Depth 1 to [depth 2?]          000
Tables printed: 1,2 or 3             3    Depth 2 to [depth 3?]          000
**************************************************************************
**************************************************************************
          TIMES AT WHICH *.OUT FILE IS DESIRED (if print option = 3)
               ------------------------------------
        Date or    Time of day      Date or    Time of day
        Day no.  (to nearest tenth) Day no.  (to nearest tenth)
        -------- .----------------.----------.----------------
        122688         .2           122888         .6
        010189         .5           010489         .0
**************************************************************************
**************************************************************************
                       INITIAL PROFILE DATA
                       --------------------
 SOIL     TEMP      CHEM1     CHEM2     CHEM3     CHEM4
LAYER NO.  C             ----mg/kg dry soil----
```

```
-------------------------------------------------------
  1       00.6       00.0       0.0       0.0     000.0
  2       00.6       00.0       0.0       0.0     000.0
-------------------------------------------------------------------------
     Concentration (mg/l) below the profile   (not used)
                        0.0       0.0       0.0       0.0
*************************************************************************
*************************************************************************
Soil      Particle size distribution      Conductivity matching factor
Layer      Clay    Silt    Rho   Organic  (Used if K-theta calc from PSD)
 no.                              carbon     Hydr. cond. at Matric pot'l
              %       %   kg/dm3     %          mm/d             kPa
-------------------------------------    ----------------------------
  1         17.0    53.   1.30    4.50          792             -00.
  2         17.0    13.   1.50    0.00          792             -00.
-------------------------------------------------------------------------
Particle density kg/dm3:  Clay    Sand  Organic matter
                          2.65    2.65      1.10
*************************************************************************
*************************************************************************
 Soil |Starting values | Hydrological Characteristics|   Root
layer |---------------- | ----------------------------|  fraction
 no.  | Pot'l or Theta |    AEV     BCAM     KS      | (for const
      |  kPa           |    kPa              mm/d     | root distr)
----- |  ------ ------ |  -------  -----    -----     |  ------
 1     -1515.0 0.0000   -.100E+01   3.00    1000.         0.900
 2     -1515.0 0.0000   -.100E+01   3.50    1000.         0.100
*************************************************************************
                          CROP DATA
                          ---------
Crop Start Emergence  Maturity   Harvest Rel.  Crop  Plant   Pan
 no                Root  Plant          root  cover density factor
    ......... Date or Day no ..........  depth frac not used
-------------------------------------------------------------------------
  1 040196 040296 040396 040396  040997  1.00   1.0  2.000   1.00
*************************************************************************
*************************************************************************
                       CHEMICAL PROPERTIES
                       -------------------
 Species           Solubility  Vapor Density   Koc     Link    Plant
  No.       Name     mg/dm3       mg/dm3       l/kg             Uptake
----     ---------- ---------   ---------   ---------  ----  1(yes),0(no)
  1  '   CHLORSULF' .2800E+01   .9010E-04   .4000E+02    0        0
  2  '   ETHOFUMES' .8000E+02   .0102E-00   .3400E+03    0        1
  3  '   GLYPHOSAT' .1200E+05   .0000E+00   .2640E+04    0        1
  4  '   PACLBUTRA' .3500E+02   .0000E+00   .4000E+03    0        0
*************************************************************************
C  The values of L1,L2--->Ln ('Link' in the Chemical Properties above)
C   determine which species form a transformation chain.
C   Setting Ln = 0 breaks the pathway, Ln = 1 restores it.
C
C                     Transformation pathways------------------->
C     |    RATE 1         RATE 2         RATE 3        RATE 4
C    SE1----/L1/--->SE2----/L2/--->SE3----/L3/--->SE4---/L4/--->...
C     |                |              |             |
C     | RATE 5         | RATE 6       | RATE 7      | RATE 8     Degradation
C     |                |              |             |              pathways
```

```
C     v               v              v             v                  |
C  PRODUCT         PRODUCT        PRODUCT       PRODUCT               |
C                                                                     v
-----------------------------------------------------------------------
TEMPERATURE AND WATER CONTENT EFFECTS ON RATE CONSTANTS
-------------------------------------------------------
     1   (Include temperature subroutine? yes(1), no(0))
     2   (Q10: factor by which rate constant changes per 10 C increase)
    16   (Base temperature: at which rate constants below apply)
    35   (Optimum temperature: Q10 relationship applies from 0 C to here)
    50   (Maximum temperature: Rate constants decrease from optimum to here)
   .08   (High end of optimum water content range: air-filled porosity)
high: air-filled porosity)
  -300   (Lower end of optimum water content: matric potential kPa)
 -1500   (Minimum matric potential for transformations kPa)
   0.6   (Relative transformation rate at saturation)
***********************************************************************
      RATE CONSTANTS  (day ** -1) (All rate constants may vary with depth)
-----------------------------------------------------------------------
               Chemical 1     Chemical 2     Chemical 3     Chemical 4
               ----------     ----------     ----------     ----------
Soil           Rate 1         Rate 2         Rate 3         Rate 4
Layer No.      1/day          1/day          1/day          1/day
---------    ---.--------   ----.--------   ---.--------    -.--------
    1          0.0043E+00     0.0029E+00     0.0900E-01     0.0030E-00
    2          0.0043E+00     0.0029E+00     0.0900E-01     0.0030E-00
-----------------------------------------------------------------------
Soil           Rate 5         Rate 6         Rate 7         Rate 8
Layer No.      1/day          1/day          1/day          1/day
---------     --.--------   ---.--------   ---.--------    -.--------
    1          0.0000E-00     0.0000E-01     0.0000E-01     0.0000E-01
    2          0.0000E-00     0.0000E-01     0.0000E-01     0.0000E-01
***********************************************************************
                    RAIN/IRRIGATION AND WATER COMPOSITION
                    -------------------------------------
     START       AMOUNT   RATE       CHEM1     CHEM2     CHEM3     CHEM4
Date or  Time of   mm     mm/d                   mg/l
Day no.    Day
-------  -(10th)  -----  -----    ---------  --------  --------  --------
     3     .2      8.1    120         0          0         0         0
     4     .2      3.8    120         0          0         0         0
     8     .2      4.6    120         0          0         0         0
     9     .2      3.6    120         0          0         0         0
    10     .2      1.8    120         0          0         0         0
    13     .2      5.6    120         0          0         0         0
    18     .2      1.3    120         0          0         0         0
    19     .2      8.1    120         0          0         0         0
    20     .2     54.6    120         0          0         0         0
    24     .2      3.8    120         0          0         0         0
    25     .2     21.6    120         0          0         0         0
    27     .2     15.0    120         0          0         0         0
    28     .2     39.1    120         0          0         0         0
    30     .2      0.8    120         0          0         0         0
    31     .2      1.0    120         0          0         0         0
    34     .2      2.0    120         0          0         0         0
    39     .2      0.8    120         0          0         0         0
    40     .2      3.3    120         0          0         0         0
```

42	.2	0.8	120	0	0	0	0
43	.2	3.0	120	0	0	0	0
46	.2	0.8	120	0	0	0	0
48	.2	1.5	120	0	0	0	0
52	.2	13.7	120	0	0	0	0
53	.2	3.8	120	0	0	0	0
55	.2	1.8	120	0	0	0	0
56	.2	0.5	120	0	0	0	0
59	.2	4.8	120	0	0	0	0
60	.2	1.5	120	0	0	0	0
65	.2	1.3	120	0	0	0	0
66	.2	9.1	120	0	0	0	0
67	.2	3.0	120	0	0	0	0
68	.2	9.7	120	0	0	0	0
69	.2	4.3	120	0	0	0	0
80	.2	8.1	120	0	0	0	0
81	.2	1.8	120	0	0	0	0
86	.2	3.3	120	0	0	0	0
87	.2	25.4	120	0	0	0	0
89	.2	25.4	120	0	0	0	0
93	.2	8.1	120	0	0	0	0
99	.2	10.7	120	0	0	0	0
103	.2	0.3	120	0	0	0	0
104	.2	9.7	120	0	0	0	0
105	.2	29.2	120	0	0	0	0
106	.2	0.5	120	0	0	0	0
107	.2	14.7	120	0	0	0	0
108	.2	20.8	120	0	0	0	0
114	.2	3.8	120	0	0	0	0
115	.2	12.7	120	0	0	0	0
116	.2	3.0	120	0	0	0	0
118	.2	5.6	120	0	0	0	0
121	.2	20.3	120	0	0	0	0
122	.2	21.6	120	0	0	0	0
125	.2	1.5	120	0	0	0	0
126	.2	2.3	120	0	0	0	0
127	.2	4.1	120	0	0	0	0
128	.2	8.9	120	0	0	0	0
130	.2	1.0	120	0	0	0	0
131	.2	4.6	120	0	0	0	0
132	.2	25.9	120	0	0	0	0
133	.2	26.7	120	0	0	0	0
134	.2	1.0	120	0	0	0	0
135	.2	12.7	120	0	0	0	0
137	.2	12.7	120	0	0	0	0
138	.2	1.0	120	0	0	0	0
140	.2	3.8	120	0	0	0	0
141	.2	12.7	120	0	0	0	0
143	.2	5.8	120	0	0	0	0
144	.2	12.7	120	0	0	0	0
145	.2	1.3	120	0	0	0	0
148	.2	0.3	120	0	0	0	0
149	.2	10.3	120	0	0	0	0
151	.2	10.3	120	0	0	0	0
153	.2	10.3	120	0	0	0	0
156	.2	10.7	120	0	0	0	0
157	.2	8.9	120	0	0	0	0

160	.2	59.7	120	0	0	0	0
161	.2	3.8	120	0	0	0	0
163	.2	17.8	120	0	0	0	0
164	.2	9.0	120	0	0	0	0
165	.2	1.5	120	0	0	0	0
166	.2	1.0	120	0	0	0	0
167	.2	9.0	120	0	0	0	0
170	.2	1.0	120	0	0	0	0
172	.2	13.0	120	0	0	0	0
173	.2	0.3	120	0	0	0	0
174	.2	25.4	120	0	0	0	0
177	.2	2.8	120	0	0	0	0
180	.2	8.1	120	0	0	0	0
182	.2	9.4	120	0	0	0	0
183	.2	1.3	120	0	0	0	0
185	.2	7.6	120	0	0	0	0
186	.2	10.7	120	0	0	0	0
187	.2	14.0	120	0	0	0	0
190	.2	12.7	120	0	0	0	0
191	.2	2.8	120	0	0	0	0
192	.2	12.7	120	0	0	0	0
193	.2	12.7	120	0	0	0	0
194	.2	12.7	120	0	0	0	0
195	.2	3.3	120	0	0	0	0
196	.2	75.4	120	0	0	0	0
198	.2	28.4	120	0	0	0	0
199	.2	1.0	120	0	0	0	0
202	.2	17.8	120	0	0	0	0
208	.2	25.4	120	0	0	0	0
209	.2	2.0	120	0	0	0	0
210	.2	0.3	120	0	0	0	0
211	.2	9.0	120	0	0	0	0
212	.2	2.8	120	0	0	0	0
213	.2	2.0	120	0	0	0	0
214	.2	14.0	120	0	0	0	0
215	.2	5.1	120	0	0	0	0
220	.2	12.7	120	0	0	0	0
223	.2	15.2	120	0	0	0	0
226	.2	12.7	120	0	0	0	0
228	.2	12.7	120	0	0	0	0
229	.2	1.3	120	0	0	0	0
230	.2	5.1	120	0	0	0	0
237	.2	23.9	120	0	0	0	0
240	.2	12.7	120	0	0	0	0
243	.2	12.7	120	0	0	0	0
247	.2	12.7	120	0	0	0	0
249	.2	0.8	120	0	0	0	0
251	.2	6.4	120	0	0	0	0
252	.2	5.1	120	0	0	0	0
253	.2	2.5	120	0	0	0	0
255	.2	12.7	120	0	0	0	0
258	.2	4.6	120	0	0	0	0
261	.2	5.1	120	0	0	0	0
262	.2	20.3	120	0	0	0	0
263	.2	0.8	120	0	0	0	0
267	.2	13.5	120	0	0	0	0
268	.2	0.3	120	0	0	0	0

269	.2	5.6	120	0	0	0	0
270	.2	0.3	120	0	0	0	0
273	.2	24.9	120	0	0	0	0
275	.2	12.7	120	0	0	0	0
277	.2	0.8	120	0	0	0	0
279	.2	12.7	120	0	0	0	0
283	.2	17.8	120	0	0	0	0
284	.2	7.6	120	0	0	0	0
285	.2	2.0	120	0	0	0	0
288	.2	0.8	120	0	0	0	0
294	.2	77.7	120	0	0	0	0
295	.2	16.5	120	0	0	0	0
296	.2	3.8	120	0	0	0	0
298	.2	9.1	120	0	0	0	0
303	.2	9.9	120	0	0	0	0
305	.2	0.5	120	0	0	0	0
308	.2	2.0	120	0	0	0	0
312	.2	0.3	120	0	0	0	0
313	.2	0.5	120	0	0	0	0
314	.2	118.6	120	0	0	0	0
315	.2	3.8	120	0	0	0	0
316	.2	0.5	120	0	0	0	0
317	.2	0.3	120	0	0	0	0
318	.2	0.3	120	0	0	0	0
324	.2	18.5	120	0	0	0	0
325	.2	2.3	120	0	0	0	0
326	.2	0.5	120	0	0	0	0
327	.2	0.8	120	0	0	0	0
330	.2	3.6	120	0	0	0	0
331	.2	10.7	120	0	0	0	0
332	.2	6.4	120	0	0	0	0
336	.2	4.6	120	0	0	0	0
337	.2	72.4	120	0	0	0	0
339	.2	2.0	120	0	0	0	0
341	.2	8.1	120	0	0	0	0
342	.2	5.8	120	0	0	0	0
343	.2	7.6	120	0	0	0	0
344	.2	0.3	120	0	0	0	0
347	.2	1.0	120	0	0	0	0
348	.2	1.3	120	0	0	0	0
349	.2	21.6	120	0	0	0	0
350	.2	3.8	120	0	0	0	0
353	.2	0.8	120	0	0	0	0
354	.2	3.8	120	0	0	0	0
355	.2	3.6	120	0	0	0	0
360	.2	13.5	120	0	0	0	0
364	.2	0.3	120	0	0	0	0
365	.2	12.7	120	0	0	0	0

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CHEMICAL APPLICATIONS

START OF DAY (Date or Day no.)	INCORP'N (SEGMENTS)	CHEM1	CHEM2	CHEM3	CHEM4
		mg/sq.m (1mg/sq.m = .01kg/ha)			
168	0	448	224	84	224
254	0	448	224	84	224

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POTENTIAL ET (WEEKLY TOTALS, mm), DEPTH TO WATER TABLE (mm)
MEAN WEEKLY TEMPERATURES AND MEAN WEEKLY AMPLITUDE (degrees C)

WEEK NO.	ET	WATER TABLE	MEAN TEMP	AMPL
1	00.0	2000.	-11.1	8.0
2	00.0	2000.	-11.5	4.0
3	00.0	2000.	-03.4	8.0
4	00.0	2000.	-05.2	5.0
5	00.0	2000.	-12.5	4.0
6	00.0	2000.	-10.0	9.0
7	00.0	2000.	-11.7	4.0
8	00.0	2000.	00.2	9.0
9	00.0	2000.	-03.5	7.0
10	00.0	2000.	-09.6	6.0
11	00.0	2000.	-01.3	7.0
12	00.0	2000.	-01.4	5.0
13	00.0	2000.	-01.1	4.0
14	00.0	2000.	00.7	3.5
15	00.0	2000.	00.9	5.0
16	00.0	2000.	03.5	6.0
17	00.0	2000.	07.5	6.0
18	12.7	2000.	07.3	1.0
19	14.5	2000.	07.7	6.0
20	28.2	2000.	06.5	7.0
21	35.3	2000.	15.1	6.0
22	31.0	2000.	09.8	3.0
23	32.8	2000.	15.5	3.0
24	38.3	2000.	18.0	2.0
25	21.3	2000.	15.9	2.0
26	32.5	2000.	14.0	2.0
27	30.2	2000.	15.4	3.0
28	33.8	2000.	16.2	4.0
29	32.0	2000.	17.0	4.0
30	31.2	2000.	15.9	3.0
31	26.7	2000.	15.3	2.0
32	29.5	2000.	17.9	3.0
33	31.8	2000.	15.8	2.0
34	31.5	2000.	17.3	2.0
35	26.4	2000.	16.4	3.0
36	25.9	2000.	17.7	2.0
37	17.8	2000.	14.4	3.0
38	18.8	2000.	13.2	5.0
39	10.9	2000.	12.3	3.0
40	21.8	2000.	11.7	5.0
41	14.5	2000.	11.3	6.0
42	15.7	2000.	07.9	4.0
43	17.5	2000.	07.6	4.0
44	09.9	2000.	2.7	5.0
45	00.0	2000.	5.6	3.0
46	00.0	2000.	-4.3	5.0
47	00.0	2000.	-2.9	8.0
48	00.0	2000.	-3.5	6.0
49	00.0	2000.	-1.4	4.0
50	00.0	2000.	-2.1	2.0

51	00.0	2000.	-3.7	8.0
52	00.0	2000.	-2.8	5.0
53	00.0	2000.	-0.7	4.0

Attachment 3

Sample LEACHM Output Report

bellha10.OUT

SOIL HYDROLOGICAL CHARACTERISTICS

PREDICTED RETENTIVITY AND CONDUCTIVITY DATA

Depth (mm)	Water content, theta (Conductivity mm/day)					
	Satrn	-3 kPa	-10 kPa	-30 kPa	-100 kPa	-1500 kPa
64.	.457	.452	.409	.345	.287	.189
	.792E+03	.672E+03	.136E+03	.910E+01	.469E+00	.594E-03
191.	.433	.251	.212	.181	.153	.105
	.827E+03	.671E-01	.363E-02	.254E-03	.137E-04	.194E-07

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TIME ELAPSED .000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 1/ 1/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	37.2	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	.0	.0	.0	.0	.0
Additions: i) in rain or irrig	:	.0	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	.0	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	.0	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	.0	.0	.0	.0	.0
Mass error	:	.0	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.188	-1515.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.104	-1515.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : .0

Total	37.2			.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile				0 mm	.00E+00				0 mm	.00E+00					
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 5th %ile				0 mm	.00E+00				0 mm	.00E+00					
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 16th %ile				0 mm	.00E+00				0 mm	.00E+00					
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 50th %ile				0 mm	.00E+00				0 mm	.00E+00					
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 84th %ile				0 mm	.00E+00				0 mm	.00E+00					
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 95th %ile				0 mm	.00E+00				0 mm	.00E+00					
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 99th %ile				0 mm	.00E+00				0 mm	.00E+00					
0 mm	.00E+00			0 mm	.00E+00										

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: .000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp	Transpiration		Uptake by plants (mg/m2)					
			C	(mm)		CHLORSULF		ETHOFUMES		GLYPHOSAT	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	.0	.900	.6	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

PACLBUTRA

Incr.	Cum.
.000E+00	.000E+00

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   191.     .0  .100      .6       .0      .0 .000E+00.000E+00 .000E+00.000E+00
.000E+00.000E+00 .000E+00.000E+00

Total:   500.0                        .0      .0 .000E+00.000E+00 .000E+00.000E+00
.000E+00.000E+00 .000E+00.000E+00
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TIME ELAPSED 7.000 DAYS — CUMULATIVE TOTALS AND MASS BALANCE

DATE 1/ 7/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2		mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	48.8	.0	.0	.0	.0
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	11.6	.0	.0	.0	.0
Additions: i) in rain or irrig :	11.9	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	.0	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	.2	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta i-.5	Potnl	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.249	-246.0	11.7	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

191. .135 -244.8 3.9 .000E+00 .000E+00 .000E+00 .000E+00 .000E+00
.000E+00 .000E+00 .000E+00 .000E+00 .000E+00 .000E+00 .000E+00
Drainage flux : .0

Total 48.8 .00 .00
.00 .00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 5th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 16th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 50th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 84th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 95th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 99th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 7.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	.0	.900	-11.8	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-11.3	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 14.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 1/14/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	62.6	.0	.0	.0	.0
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	25.4	.0	.0	.0	.0
Additions: i) in rain or irrig :	27.5	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	.0	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	2.0	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.322	-47.1	13.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.171	-45.8	4.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Drainage flux :			.0												
Total	62.6			.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the

soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 14.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	.0	.900	-11.7	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-11.5	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 21.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 1/21/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	82.1	.0	.0	.0	.0

Undissolved on soil surface	:		.0	.0	.0
.0					
Cum. runoff	:	.0			
Simulated change	:	44.9	.0	.0	.0
.0					
Additions: i) in rain or irrig	:	91.5	.0	.0	.0
.0					
ii) as amendment	:		.0	.0	.0
.0					
Losses: i) in drainage	:	41.9	.0	.0	.0
.0					
ii) by evap/voltzn/cnvrsn:		4.6	.0	.0	.0
.0					
iii) by transformation	:		.0	.0	.0
.0					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	.0	.0	.0	.0
.0					
Mass error	:	.1	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth			i-.5	Total	Solution	Gas	Total	Solution	
Gas	Total	Solution	Gas	Total	Solution	Gas			
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	
ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l			
64.	.423	-8.0	61.4	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00			
191.	.224	-6.8	48.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00			
Drainage flux : 41.9									
Total	82.1			.00			.00		
.00			.00						

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

Depth and conc of 84th %ile	0 mm	.00E+00		0 mm	.00E+00	
0 mm .00E+00	0 mm	.00E+00				
Depth and conc of 95th %ile	0 mm	.00E+00		0 mm	.00E+00	
0 mm .00E+00	0 mm	.00E+00				
Depth and conc of 99th %ile	0 mm	.00E+00		0 mm	.00E+00	
0 mm .00E+00	0 mm	.00E+00				

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 21.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
Incr.	Cum.	Incr.	Cum.						
64.	.0	.900	-4.4	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-4.1	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 28.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 1/28/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	84.7	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	47.6	.0	.0	.0	.0
Additions: i) in rain or irrig	:	171.1	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	115.5	.0	.0	.0	.0

ii) by evap/voltzn/cnvrsn:	7.9	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
		i-.5		Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l			
64.	.435	-6.4	76.2	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00		
191.	.232	-5.2	74.7	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00		
Drainage flux :			73.6						
Total			84.7	.00			.00		
.00			.00						

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 28.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
				Incr.	Cum.	Incr.	Cum.	Incr.	
GLYPHOSAT		PACLBUTRA							
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	.0	.900	-5.3	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-5.0	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 35.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 2/ 4/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2		mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	77.8	.0	.0	.0	.0
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	40.6	.0	.0	.0	.0
Additions: i) in rain or irrig :	174.9	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	125.0	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	9.2	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.401	-11.3	2.5	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.211	-10.1	6.9	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Drainage flux :			9.5												
Total			77.8			.00			.00			.00			.00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 35.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	.0	.900	-11.7	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.0	.100	-11.2	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Total: 500.0 .0 .0 .000E+00.000E+00 .000E+00.000E+00
.000E+00.000E+00 .000E+00.000E+00

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TIME ELAPSED 42.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 2/11/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	77.0	.0	.0	.0	.0
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	39.8	.0	.0	.0	.0
Additions: i) in rain or irrig :	179.8	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	128.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	10.9	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl i-.5	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.397	-12.1	3.1	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.209	-10.9	3.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : 3.9

Total 77.0 .00 .00
.00 .00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 5th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 16th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 50th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 84th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 95th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 99th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 42.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	.0	.900	-10.6	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-10.1	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 49.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE
DATE 2/18/96 Water CHLORSULF ETHOFUMES GLYPHOSAT PACLBUTRA

		mm	mg/m2	mg/m2	mg/m2
Initial,total	:	37.2	.0	.0	.0
.0					
Currently in profile	:	76.4	.0	.0	.0
.0					
Undissolved on soil surface	:		.0	.0	.0
.0					
Cum. runoff	:	.0			
Simulated change	:	39.2	.0	.0	.0
.0					
Additions: i) in rain or irrig	:	185.1	.0	.0	.0
.0					
ii) as amendment	:		.0	.0	.0
.0					
Losses: i) in drainage	:	133.0	.0	.0	.0
.0					
ii) by evap/voltzn/cnvrsn	:	12.7	.0	.0	.0
.0					
iii) by transformation	:		.0	.0	.0
.0					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	.0	.0	.0	.0
.0					
Mass error	:	.1	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.394	-12.7	3.5	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.208	-11.5	3.9	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : 4.2

Total	76.4			.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00

Depth and conc of 5th %ile			0 mm	.00E+00			0 mm	.00E+00	
0 mm	.00E+00				0 mm	.00E+00			
Depth and conc of 16th %ile			0 mm	.00E+00			0 mm	.00E+00	
0 mm	.00E+00				0 mm	.00E+00			
Depth and conc of 50th %ile			0 mm	.00E+00			0 mm	.00E+00	
0 mm	.00E+00				0 mm	.00E+00			
Depth and conc of 84th %ile			0 mm	.00E+00			0 mm	.00E+00	
0 mm	.00E+00				0 mm	.00E+00			
Depth and conc of 95th %ile			0 mm	.00E+00			0 mm	.00E+00	
0 mm	.00E+00				0 mm	.00E+00			
Depth and conc of 99th %ile			0 mm	.00E+00			0 mm	.00E+00	
0 mm	.00E+00				0 mm	.00E+00			

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 49.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	.0	.900	-11.8	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
191.	.0	.100	-11.4	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00

GLYPHOSAT		PACLBUTRA	
Incr.	Cum.	Incr.	Cum.
.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00

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TIME ELAPSED 56.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 2/25/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	79.5	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	42.3	.0	.0	.0	.0

Additions: i) in rain or irrig :	204.9	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	147.0	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	15.4	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.410	-9.9	17.1	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.216	-8.6	15.1	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Drainage flux : 14.0															
Total	79.5			.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00	

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 56.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	.0	.900	-1.8	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-1.8	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 63.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 3/ 3/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	77.2	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	40.1	.0	.0	.0	.0
Additions: i) in rain or irrig	:	211.2	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	153.5	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	17.5	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0

v) by plant uptake : .0 .0 .0 .0
.0
Mass error : .2 .0 .0 .0
.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.398	-11.9	4.3	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.210	-10.6	5.7	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : 6.5

Total	77.2			.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 5th %ile			0 mm	.00E+00			0 mm	.00E+00							
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 16th %ile			0 mm	.00E+00			0 mm	.00E+00							
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 50th %ile			0 mm	.00E+00			0 mm	.00E+00							
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 84th %ile			0 mm	.00E+00			0 mm	.00E+00							
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 95th %ile			0 mm	.00E+00			0 mm	.00E+00							
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 99th %ile			0 mm	.00E+00			0 mm	.00E+00							
0 mm	.00E+00			0 mm	.00E+00										

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 63.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)	Uptake by plants (mg/m2) CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA

				Incr.	Cum.	Incr.	Cum.	Incr.
Cum.	Incr.	Cum.	Incr.	Cum.				
64.	.0	.900	-3.7	.0	.0	.000E+00	.000E+00	.000E+00 .000E+00
.000E+00	.000E+00	.000E+00	.000E+00					
191.	.0	.100	-3.1	.0	.0	.000E+00	.000E+00	.000E+00 .000E+00
.000E+00	.000E+00	.000E+00	.000E+00					
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00 .000E+00
.000E+00	.000E+00	.000E+00	.000E+00					

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TIME ELAPSED 70.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 3/10/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	80.9	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	43.7	.0	.0	.0	.0
Additions: i) in rain or irrig	:	238.6	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	172.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	21.8	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	.0	.0	.0	.0	.0
Mass error	:	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas

mm	kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.417	-8.8	23.1	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.220	-7.6	20.7	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : 19.4

Total	80.9			.00				.00			.00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile				0 mm	.00E+00				0 mm	.00E+00	
0 mm	.00E+00			0 mm	.00E+00						
Depth and conc of 5th %ile				0 mm	.00E+00				0 mm	.00E+00	
0 mm	.00E+00			0 mm	.00E+00						
Depth and conc of 16th %ile				0 mm	.00E+00				0 mm	.00E+00	
0 mm	.00E+00			0 mm	.00E+00						
Depth and conc of 50th %ile				0 mm	.00E+00				0 mm	.00E+00	
0 mm	.00E+00			0 mm	.00E+00						
Depth and conc of 84th %ile				0 mm	.00E+00				0 mm	.00E+00	
0 mm	.00E+00			0 mm	.00E+00						
Depth and conc of 95th %ile				0 mm	.00E+00				0 mm	.00E+00	
0 mm	.00E+00			0 mm	.00E+00						
Depth and conc of 99th %ile				0 mm	.00E+00				0 mm	.00E+00	
0 mm	.00E+00			0 mm	.00E+00						

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 70.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	.0	.900	-9.1	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.0	.100	-8.4	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

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TIME ELAPSED 77.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 3/17/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	75.8	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	38.6	.0	.0	.0	.0
Additions: i) in rain or irrig	:	238.6	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	178.0	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	21.8	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	.0	.0	.0	.0	.0
Mass error	:	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta i-.5	Potnl	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.391	-13.4	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.206	-12.2	3.3	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : 5.1

Total	75.8		.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for

the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 77.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	.0	.900	-2.6	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-2.4	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 84.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 3/24/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0

Currently in profile	:	77.4	.0	.0	.0
.0					
Undissolved on soil surface	:		.0	.0	.0
.0					
Cum. runoff	:	.0			
Simulated change	:	40.2	.0	.0	.0
.0					
Additions: i) in rain or irrig	:	248.5	.0	.0	.0
.0					
ii) as amendment	:		.0	.0	.0
.0					
Losses: i) in drainage	:	183.8	.0	.0	.0
.0					
ii) by evap/voltzn/cnvrsn	:	24.2	.0	.0	.0
.0					
iii) by transformation	:		.0	.0	.0
.0					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	.0	.0	.0	.0
.0					
Mass error	:	.3	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth		i-.5		Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
ug/kg	mg/l	ug/l							
64.	.399	-11.7	7.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00		.000E+00	.000E+00	.000E+00	.000E+00		
191.	.210	-10.5	6.4	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00		.000E+00	.000E+00	.000E+00	.000E+00		
Drainage flux :		5.8							
Total	77.4			.00			.00		
.00			.00						

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00		0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00			
Depth and conc of 5th %ile	0 mm	.00E+00		0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00			
Depth and conc of 16th %ile	0 mm	.00E+00		0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00			

Depth and conc of 50th %ile	0 mm	.00E+00		0 mm	.00E+00		
0 mm	.00E+00	0 mm	.00E+00				
Depth and conc of 84th %ile	0 mm	.00E+00		0 mm	.00E+00		
0 mm	.00E+00	0 mm	.00E+00				
Depth and conc of 95th %ile	0 mm	.00E+00		0 mm	.00E+00		
0 mm	.00E+00	0 mm	.00E+00				
Depth and conc of 99th %ile	0 mm	.00E+00		0 mm	.00E+00		
0 mm	.00E+00	0 mm	.00E+00				

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 84.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	.0	.900	-1.8	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.0	.100	-1.5	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

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TIME ELAPSED 91.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 3/31/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	80.1	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	42.9	.0	.0	.0	.0
Additions: i) in rain or irrig	:	302.6	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0

Losses: i) in drainage	:	232.8	.0	.0	.0
.0					
ii) by evap/voltzn/cnvrsn:		26.7	.0	.0	.0
.0					
iii) by transformation	:		.0	.0	.0
.0					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	.0	.0	.0	.0
.0					
Mass error	:	.2	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth		i-.5		Total	Solution	Gas	Total	Solution	
Gas	Total	Solution	Gas	Total	Solution	Gas			
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	
ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l			
64.	.413	-9.4	51.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00			
191.	.218	-8.2	49.9	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00			
Drainage flux : 48.9									
Total	80.1			.00			.00		
.00			.00						

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 91.000 DAYS CROP COVER: .000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
GLYPHOSAT Cum.	GLYPHOSAT Incr.	PACLBUTRA Cum.	PACLBUTRA Incr.						
64.	.0	.900	-1.4	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	.0	.100	-1.2	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total: 500.0				.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 98.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 4/ 7/96

	Water mm	CHLORSULF mg/m2	ETHOFUMES mg/m2	GLYPHOSAT mg/m2	PACLBUTRA mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	77.2	.0	.0	.0	.0
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	40.0	.0	.0	.0	.0
Additions: i) in rain or irrig :	310.8	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	242.7	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	27.8	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT	PACLBUTRA			
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.398	-11.9	7.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.210	-10.6	8.9	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Drainage flux :			9.9												
Total			77.2	.00			.00			.00					

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00	

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 98.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp	Transpiration		Uptake by plants (mg/m2)			
			C	(mm)		CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
Incr.	Cum.	Incr.	Cum.						
64.	900.0	.900	.3	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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    191.  100.0  .100      .4       .0       .0 .000E+00.000E+00 .000E+00.000E+00
.000E+00.000E+00 .000E+00.000E+00

Total:   500.0                     .0       .0 .000E+00.000E+00 .000E+00.000E+00
.000E+00.000E+00 .000E+00.000E+00
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TIME ELAPSED 105.000 DAYS — CUMULATIVE TOTALS AND MASS BALANCE

DATE 4/14/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	84.4	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	47.2	.0	.0	.0	.0
Additions: i) in rain or irrig	:	360.7	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	283.1	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	30.1	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	.0	.0	.0	.0	.0
Mass error	:	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.434	-6.6	47.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

191. .231 -5.4 43.1 .000E+00 .000E+00 .000E+00 .000E+00 .000E+00
.000E+00 .000E+00 .000E+00 .000E+00 .000E+00 .000E+00 .000E+00
Drainage flux : 40.5

Total 84.4 .00 .00
.00 .00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 5th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 16th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 50th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 84th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 95th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 99th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 105.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
				Incr.	Cum.	Incr.	Cum.	Incr.	
GLYPHOSAT		PACLBUTRA							
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	.6	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	100.0	.100	.8	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 112.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 4/21/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	78.1	.0	.0	.0	.0
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	41.0	.0	.0	.0	.0
Additions: i) in rain or irrig :	396.7	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	324.0	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	31.5	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	.0	.0	.0	.0	.0
Mass error :	.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl i-.5	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.403	-11.0	34.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.212	-9.8	38.5	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Drainage flux :			40.8												
Total	78.1			.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the

soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 112.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	2.8	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	100.0	.100	3.0	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 119.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 4/28/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	80.6	.0	.0	.0	.0

Undissolved on soil surface	:		.0	.0	.0
.0					
Cum. runoff	:	.0			
Simulated change	:	43.4	.0	.0	.0
.0					
Additions: i) in rain or irrig	:	421.8	.0	.0	.0
.0					
ii) as amendment	:		.0	.0	.0
.0					
Losses: i) in drainage	:	342.4	.0	.0	.0
.0					
ii) by evap/voltzn/cnvrsn:		35.8	.0	.0	.0
.0					
iii) by transformation	:		.0	.0	.0
.0					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	.0	.0	.0	.0
.0					
Mass error	:	.2	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF				ETHOFUMES			
GLYPHOSAT				PACLBUTRA							
Depth			i-.5	Total	Solution		Gas	Total	Solution		Gas
Gas	Total	Solution		Gas	Total	Solution		Gas			
mm		kPa	mm	ug/kg	mg/l	ug/l		ug/kg	mg/l		
ug/l	ug/kg	mg/l		ug/l	ug/kg	mg/l	ug/l				
64.	.415	-9.1	20.8	.000E+00	.000E+00	.000E+00		.000E+00	.000E+00		
.000E+00	.000E+00	.000E+00		.000E+00	.000E+00	.000E+00	.000E+00				
191.	.219	-7.8	19.3	.000E+00	.000E+00	.000E+00		.000E+00	.000E+00		
.000E+00	.000E+00	.000E+00		.000E+00	.000E+00	.000E+00	.000E+00				
Drainage flux : 18.4											
Total	80.6			.00				.00			
.00				.00							

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

Depth and conc of 84th %ile	0 mm	.00E+00		0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00			
Depth and conc of 95th %ile	0 mm	.00E+00		0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00			
Depth and conc of 99th %ile	0 mm	.00E+00		0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00			

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 119.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.1515E+04 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	6.6	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	100.0	.100	6.7	.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			.0	.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 126.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 5/ 5/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
					mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.5	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.4	.0	.0	.0	.0
Additions: i) in rain or irrig	:	467.5	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	342.9	.0	.0	.0	.0

ii) by evap/voltzn/cnvrsn:	38.9	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	98.5	.0	.0	.0	.0
Mass error :	-26.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
		i-.5		Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l				
64.	.258	-196.3	42.7	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00				
191.	.140	-191.5	2.7	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00				

Drainage flux : .5

Total	50.5	.00	.00	.00	.00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 126.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	7.2	79.6	79.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	100.0	.100	7.3	18.8	18.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Total:	500.0			98.5	98.5	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

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TIME ELAPSED 133.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 5/12/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.6	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.4	.0	.0	.0	.0
Additions: i) in rain or irrig	:	538.8	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	342.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	43.3	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	189.4	.0	.0	.0	.0
Mass error	:	-50.3	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
		i-.5		Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
	ug/kg	mg/l	ug/l						
64.	.258	-195.5	66.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00			
191.	.140	-186.6	14.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00			
Drainage flux :		.0							
Total	50.6			.00			.00		
.00			.00						

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00	
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00	

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 133.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	7.1	70.3	149.9	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	100.0	.100	7.5	20.6	39.4	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

Total: 500.0 90.9 189.4 .000E+00.000E+00 .000E+00.000E+00
.000E+00.000E+00 .000E+00.000E+00

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TIME ELAPSED 140.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 5/19/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.6	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.4	.0	.0	.0	.0
Additions: i) in rain or irrig	:	570.0	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	342.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	45.2	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	224.0	.0	.0	.0	.0
Mass error	:	-55.6	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-195.7	29.3	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.140	-187.1	.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : .0

Total 50.6 .00 .00
.00 .00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00
Depth and conc of 5th %ile	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00
Depth and conc of 16th %ile	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00
Depth and conc of 50th %ile	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00
Depth and conc of 84th %ile	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00
Depth and conc of 95th %ile	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00
Depth and conc of 99th %ile	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00	0 mm .00E+00

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 140.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	6.0	33.9	183.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	100.0	.100	6.4	.8	40.2	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Total:	500.0			34.6	224.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

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TIME ELAPSED 147.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 5/26/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA

		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.2	.0	.0	.0	.0
Additions: i) in rain or irrig	:	602.5	.0	.0	.0	.0
ii) as amendment	:		.0	.0	.0	.0
Losses: i) in drainage	:	342.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	47.5	.0	.0	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	260.1	.0	.0	.0	.0
Mass error	:	-61.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-198.4	30.3	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.139	-197.2	.7	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : .0

Total	50.4	.00	.00
		.00	

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	0 mm .00E+00	0 mm .00E+00
0 mm .00E+00		0 mm .00E+00	

Depth and conc of 5th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 16th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 50th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 84th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 95th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00
Depth and conc of 99th %ile 0 mm .00E+00 0 mm .00E+00
0 mm .00E+00 0 mm .00E+00

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 147.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	14.5	35.3	219.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	100.0	.100	14.9	.8	41.0	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			36.1	260.1	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 154.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 6/ 2/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
					mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.5	.0	.0	.0	.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.3	.0	.0	.0	.0

Additions: i) in rain or irrig :	633.7	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	342.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	48.7	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	293.6	.0	.0	.0	.0
Mass error :	-64.7	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-197.6	30.0	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.139	-194.0	.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : .0

Total	50.5	.00	.00	.00	.00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 5th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 16th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 50th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 84th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 95th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		
Depth and conc of 99th %ile	0 mm	.00E+00	0 mm	.00E+00
0 mm .00E+00	0 mm	.00E+00		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 154.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	9.7	32.8	251.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	100.0	.100	9.9	.7	41.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
Total:	500.0			33.5	293.6	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

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TIME ELAPSED 161.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 6/ 9/96

	Water mm	CHLORSULF mg/m2	ETHOFUMES mg/m2	GLYPHOSAT mg/m2	PACLBUTRA mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	50.6	.0	.0	.0	.0
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	13.4	.0	.0	.0	.0
Additions: i) in rain or irrig :	716.9	.0	.0	.0	.0
ii) as amendment :		.0	.0	.0	.0
Losses: i) in drainage :	360.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn:	49.9	.0	.0	.0	.0
iii) by transformation :		.0	.0	.0	.0
iv) by degradation :		.0	.0	.0	.0

v) by plant uptake : 376.2 .0 .0 .0
.0
Mass error : -83.6 .0 .0 .0
.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl i-.5	Flux	CHLORSULF Total	Solution	Gas	ETHOFUMES Total	Solution	Gas	GLYPHOSAT Total	Solution	Gas	PACLBUTRA Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-195.4	81.8	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
191.	.140	-186.3	22.5	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

Drainage flux : 18.0

Total	50.6			.00			.00			.00			.00		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 5th %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 16th %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 50th %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 84th %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 95th %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										
Depth and conc of 99th %ile			0 mm	.00E+00			0 mm	.00E+00			0 mm	.00E+00			
0 mm	.00E+00			0 mm	.00E+00										

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 161.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)	Uptake by plants (mg/m2) CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA

				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	15.1	56.3	308.1	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
191.	100.0	.100	15.2	26.3	68.1	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						
Total:	500.0			82.6	376.2	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00						

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TIME ELAPSED 168.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 6/16/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	.1	1.1	.0	.0
Undissolved on soil surface	:		440.2	.0	84.0	224.0
Cum. runoff	:	.0				
Simulated change	:	13.3	440.3	1.1	84.0	224.0
Additions: i) in rain or irrig	:	755.2	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0
Losses: i) in drainage	:	360.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	:	52.6	7.7	222.9	.0	.0
iii) by transformation	:		.0	.0	.0	.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	417.8	.0	.0	.0	.0
Mass error	:	-89.4	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas

mm	kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-198.3	35.6	.406E+00	.203E-03	.654E-05	.694E+01	.448E-03	.571E-04	.000E+00	.000E+00
191.	.139	-194.7	1.2	.238E-04	.256E-06	.823E-08	.257E-03	.276E-05	.352E-06	.000E+00	.000E+00

Drainage flux : .0

Total	50.4			.07			1.15		.00		.00

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	1 mm	.67E-01	1 mm	.11E+01	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of	5th %ile	6 mm	.67E-01	6 mm	.11E+01	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of	16th %ile	20 mm	.67E-01	20 mm	.11E+01	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of	50th %ile	63 mm	.67E-01	63 mm	.11E+01	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of	84th %ile	106 mm	.67E-01	106 mm	.11E+01	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of	95th %ile	120 mm	.67E-01	120 mm	.11E+01	0 mm	.00E+00	0 mm	.00E+00
Depth and conc of	99th %ile	125 mm	.67E-01	125 mm	.11E+01	0 mm	.00E+00	0 mm	.00E+00

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 168.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	17.8	40.1	348.2	.000E+00	.000E+00	.147E-03	.147E-03	.000E+00	.000E+00	.000E+00	.000E+00
191.	100.0	.100	17.9	1.5	69.6	.000E+00	.000E+00	.209E-07	.209E-07	.000E+00	.000E+00	.000E+00	.000E+00
Total:	500.0			41.6	417.8	.000E+00	.000E+00	.147E-03	.147E-03	.000E+00	.000E+00	.000E+00	.000E+00

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  TIME ELAPSED   175.000 DAYS                    CUMULATIVE TOTALS AND MASS
BALANCE
  DATE   6/23/96                          Water    CHLORSULF   ETHOFUMES   GLYPHOSAT
PACLBUTRA
                                             mm        mg/m2        mg/m2
mg/m2         mg/m2

 Initial total                      :     37.2          .0          .0          .0
.0
 Currently in profile               :     50.4        110.5         1.1        79.5
221.3
 Undissolved on soil surface        :                 276.9          .0          .0
.0
 Cum. runoff                        :      .0
 Simulated change                   :     13.2        387.4         1.1        79.5
221.3
 Additions:  i) in rain or irrig    :    794.9          .0          .0          .0
.0
            ii) as amendment        :                 448.0       224.0        84.0
224.0
 Losses: i) in drainage             :    360.9          .0          .0          .0
.0
        ii) by evap/voltzn/cnvrsn:     55.0         59.4       222.9          .0
.0
       iii) by transformation       :                   1.2          .0         4.3
2.7
        iv) by degradation          :                    .0          .0          .0
.0
         v) by plant uptake         :    467.4          .0          .0          .2
.0
 Mass error                         :   -101.7          .0          .0          .0
.0

  Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

  Node Theta  Potnl  Flux          CHLORSULF                      ETHOFUMES
GLYPHOSAT                    PACLBUTRA
 Depth                i-.5       Total  Solution    Gas       Total  Solution
Gas       Total  Solution    Gas       Total  Solution    Gas
   mm           kPa     mm         ug/kg    mg/l      ug/l       ug/kg    mg/l
ug/l       ug/kg    mg/l     ug/l       ug/kg    mg/l      ug/l

   64.  .258  -198.4  37.3      .658E+03 .329E+00 .106E-01  .666E+01 .430E-03
.548E-04  .481E+03 .404E-02 .000E+00  .134E+04 .734E-01 .000E+00
  191.  .139  -196.0   5.7      .100E+02 .108E+00 .347E-02  .166E-01 .179E-03
.228E-04  .143E+00 .154E-02 .000E+00  .366E+01 .395E-01 .000E+00
    Drainage flux :     .0

 Total   50.4                     110.49                          1.10
79.49                      221.26

 (Water fluxes are cumulative since the previous printout and, except for
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the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm	.11E+03	1 mm	.11E+01
1 mm .79E+02	1 mm	.22E+03		
Depth and conc of 5th %ile	6 mm	.11E+03	6 mm	.11E+01
6 mm .79E+02	6 mm	.22E+03		
Depth and conc of 16th %ile	20 mm	.11E+03	20 mm	.11E+01
20 mm .79E+02	20 mm	.22E+03		
Depth and conc of 50th %ile	64 mm	.11E+03	63 mm	.11E+01
63 mm .79E+02	63 mm	.22E+03		
Depth and conc of 84th %ile	108 mm	.11E+03	106 mm	.11E+01
106 mm .79E+02	107 mm	.22E+03		
Depth and conc of 95th %ile	122 mm	.11E+03	120 mm	.11E+01
120 mm .79E+02	121 mm	.22E+03		
Depth and conc of 99th %ile	180 mm	.19E+01	126 mm	.11E+01
125 mm .79E+02	126 mm	.22E+03		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 175.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	15.8	41.5	389.7	.000E+00	.000E+00	.181E-01	.182E-01
.171E+00	.171E+00	.000E+00	.000E+00						
191.	100.0	.100	15.9	8.1	77.7	.000E+00	.000E+00	.151E-02	.151E-02
.133E-01	.133E-01	.000E+00	.000E+00						
Total:	500.0			49.6	467.4	.000E+00	.000E+00	.196E-01	.197E-01
.185E+00	.185E+00	.000E+00	.000E+00						

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TIME ELAPSED 182.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 6/30/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0

Currently in profile	: 51.1	164.3	1.1	75.0	217.1
Undissolved on soil surface	:	166.6	.0	.0	.0
Cum. runoff	: .0				
Simulated change	: 13.9	331.0	1.1	75.0	217.1
Additions: i) in rain or irrig	: 815.2	.0	.0	.0	.0
ii) as amendment	:	448.0	224.0	84.0	224.0
Losses: i) in drainage	: 360.9	.0	.0	.0	.0
ii) by evap/voltzn/cnvrsn	: 56.3	112.4	222.9	.0	.0
iii) by transformation	:	4.6	.0	8.7	6.9
iv) by degradation	:	.0	.0	.0	.0
v) by plant uptake	: 487.4	.0	.0	.3	.0
Mass error	: -103.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.260	-188.6	19.1	.975E+03	.487E+00	.157E-01	.648E+01	.418E-03	.533E-04	.454E+03	.382E-02	.000E+00	.131E+04	.720E-01	.000E+00
191.	.142	-167.8	.8	.178E+02	.188E+00	.604E-02	.232E-01	.245E-03	.312E-04	.191E+00	.202E-02	.000E+00	.451E+01	.476E-01	.000E+00

Drainage flux : .0

Total	51.1	164.34	1.07	75.03	217.11

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .16E+03	1 mm .11E+01	1 mm .75E+02	1 mm .22E+03	
Depth and conc of 5th %ile	6 mm .16E+03	6 mm .11E+01	6 mm .75E+02	6 mm .22E+03	
Depth and conc of 16th %ile	20 mm .16E+03	20 mm .11E+01	20 mm .75E+02	20 mm .22E+03	

Depth and conc of 50th %ile 64 mm .16E+03 63 mm .11E+01
63 mm .75E+02 63 mm .22E+03
Depth and conc of 84th %ile 108 mm .16E+03 107 mm .11E+01
106 mm .75E+02 107 mm .22E+03
Depth and conc of 95th %ile 123 mm .16E+03 121 mm .11E+01
120 mm .75E+02 121 mm .22E+03
Depth and conc of 99th %ile 192 mm .34E+01 126 mm .11E+01
125 mm .75E+02 126 mm .22E+03

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 182.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	13.9	19.6	409.3	.000E+00	.000E+00	.827E-02	.265E-01
.761E-01	.248E+00	.000E+00	.000E+00						
191.	100.0	.100	14.0	.4	78.1	.000E+00	.000E+00	.930E-04	.161E-02
.771E-03	.141E-01	.000E+00	.000E+00						
Total:	500.0			20.0	487.4	.000E+00	.000E+00	.836E-02	.281E-01
.769E-01	.262E+00	.000E+00	.000E+00						

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TIME ELAPSED 189.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 7/ 7/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	252.8	1.0	70.6	212.9
Undissolved on soil surface	:		20.1	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.2	272.9	1.0	70.6	212.9
Additions: i) in rain or irrig	:	848.8	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0

Losses: i) in drainage	:	360.9	.0	.0	.0
.0					
ii) by evap/voltzn/cnvrsn:		58.2	164.5	222.9	.0
.0					
iii) by transformation	:		10.6	.1	13.0
11.1					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	524.8	.0	.0	.4
.0					
Mass error	:	-108.3	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas
	mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l
ug/l		ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l		
64.	.258	-198.9	31.7	.149E+04	.747E+00	.240E-01	.626E+01	.404E-03	
.515E-04		.427E+03	.359E-02	.000E+00	.128E+04	.705E-01	.000E+00		
191.	.139	-197.4	.6	.332E+02	.358E+00	.115E-01	.283E-01	.305E-03	
.389E-04		.232E+00	.250E-02	.000E+00	.533E+01	.575E-01	.000E+00		

Drainage flux : .0

Total	50.4	252.84	1.04		
70.60		212.88			

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	1 mm	.25E+03	1 mm	.10E+01
1 mm	.71E+02	1 mm	.21E+03		
Depth and conc of	5th %ile	6 mm	.25E+03	6 mm	.10E+01
6 mm	.71E+02	6 mm	.21E+03		
Depth and conc of	16th %ile	20 mm	.25E+03	20 mm	.10E+01
20 mm	.71E+02	20 mm	.21E+03		
Depth and conc of	50th %ile	65 mm	.25E+03	63 mm	.10E+01
63 mm	.71E+02	63 mm	.21E+03		
Depth and conc of	84th %ile	109 mm	.25E+03	107 mm	.10E+01
106 mm	.71E+02	107 mm	.21E+03		
Depth and conc of	95th %ile	123 mm	.25E+03	121 mm	.10E+01
120 mm	.71E+02	121 mm	.21E+03		
Depth and conc of	99th %ile	203 mm	.63E+01	126 mm	.10E+01
125 mm	.71E+02	126 mm	.21E+03		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 189.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.
64.	900.0	.900	15.2	36.4	445.7	.000E+00	.000E+00	.150E-01	.414E-01	.135E+00	.383E+00	.000E+00 .000E+00
191.	100.0	.100	15.3	1.0	79.1	.000E+00	.000E+00	.282E-03	.189E-02	.234E-02	.164E-01	.000E+00 .000E+00
Total:	500.0			37.4	524.8	.000E+00	.000E+00	.152E-01	.433E-01	.137E+00	.399E+00	.000E+00 .000E+00

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TIME ELAPSED 196.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 7/14/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	86.8	238.4	1.0	66.1	206.0
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	49.6	238.4	1.0	66.1	206.0
Additions: i) in rain or irrig	:	981.2	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0
Losses: i) in drainage	:	399.5	25.1	.0	.1	2.6
ii) by evap/voltzn/cnvrsn	:	62.6	166.1	222.9	.0	.0
iii) by transformation	:		18.4	.1	17.2	15.4
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	588.6	.0	.1	.6	.0
Mass error	:	-119.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
					Solution	Gas	Total	Solution	Gas	Total
	mm	i-.5	kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
	64.	.442	-5.2	127.9	.132E+04	.619E+00	.199E-01	.587E+01	.375E-03	.478E-04
	191.	.241	-4.0	53.1	.103E+03	.643E+00	.207E-01	.598E-01	.372E-03	.474E-04

Node	Depth	GLYPHOSAT			PACLBUTRA		
		Solution	Gas	Total	Solution	Gas	Total
	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
	64.	.400E+03	.335E-02	.000E+00	.124E+04	.673E-01	.000E+00
	191.	.524E+00	.326E-02	.000E+00	.108E+02	.675E-01	.000E+00

Drainage flux : 38.6

	CHLORSULF			ETHOFUMES		
	Solution	Gas	Total	Solution	Gas	Total
Total	86.8		238.38		.98	
	66.08		205.99			

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

	CHLORSULF			ETHOFUMES		
	Solution			Solution		
Depth and conc of 1st %ile	1 mm	.22E+03		1 mm	.97E+00	
	1 mm	.66E+02	1 mm	.20E+03		
Depth and conc of 5th %ile	6 mm	.22E+03		6 mm	.97E+00	
	6 mm	.66E+02	6 mm	.20E+03		
Depth and conc of 16th %ile	22 mm	.22E+03		20 mm	.97E+00	
	20 mm	.66E+02	20 mm	.20E+03		
Depth and conc of 50th %ile	69 mm	.22E+03		64 mm	.97E+00	
	63 mm	.66E+02	64 mm	.20E+03		
Depth and conc of 84th %ile	116 mm	.22E+03		107 mm	.97E+00	
	106 mm	.66E+02	107 mm	.20E+03		
Depth and conc of 95th %ile	177 mm	.20E+02		122 mm	.97E+00	
	120 mm	.66E+02	121 mm	.20E+03		
Depth and conc of 99th %ile	238 mm	.20E+02		144 mm	.11E-01	
	125 mm	.66E+02	127 mm	.21E+01		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 196.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
						GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	15.9	62.3	508.0	.000E+00	.000E+00	.246E-01	.661E-01
						.218E+00	.601E+00	.000E+00	.000E+00

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    191.  100.0  .100    16.0      1.5    80.6 .000E+00.000E+00 .501E-03.239E-02
.418E-02.206E-01 .000E+00.000E+00

Total:  500.0                     63.8   588.6 .000E+00.000E+00 .251E-01.684E-01
.222E+00.621E+00 .000E+00.000E+00
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TIME ELAPSED 203.000 DAYS — CUMULATIVE TOTALS AND MASS BALANCE

DATE 7/21/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.5	229.5	.9	61.6	201.4
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.4	229.5	.9	61.6	201.4
Additions: i) in rain or irrig	:	1028.4	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn	:	65.8	166.2	222.9	.0	.0
iii) by transformation	:		25.7	.1	21.3	19.8
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	701.4	.0	.1	1.0	.0
Mass error	:	-154.0	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta i-.5	Potnl	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-196.2	44.1	.128E+04	.640E+00	.206E-01	.554E+01	.358E-03	.456E-04	.373E+03	.313E-02	.000E+00	.121E+04	.664E-01	.000E+00

191. .140 -191.3 5.7 .969E+02 .104E+01 .335E-01 .234E-01 .251E-03
.320E-04 .196E+00 .211E-02 .000E+00 .104E+02 .111E+00 .000E+00
Drainage flux : 2.3

Total 50.5 229.50 .92
61.56 201.40

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile 1 mm .21E+03 1 mm .92E+00
1 mm .62E+02 1 mm .20E+03
Depth and conc of 5th %ile 6 mm .21E+03 6 mm .92E+00
6 mm .62E+02 6 mm .20E+03
Depth and conc of 16th %ile 22 mm .21E+03 20 mm .92E+00
20 mm .62E+02 20 mm .20E+03
Depth and conc of 50th %ile 69 mm .21E+03 63 mm .92E+00
63 mm .62E+02 64 mm .20E+03
Depth and conc of 84th %ile 116 mm .21E+03 107 mm .92E+00
106 mm .62E+02 107 mm .20E+03
Depth and conc of 95th %ile 175 mm .18E+02 121 mm .92E+00
120 mm .62E+02 121 mm .20E+03
Depth and conc of 99th %ile 238 mm .18E+02 126 mm .92E+00
125 mm .62E+02 126 mm .20E+03

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 203.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	16.7	82.3	590.3	.000E+00	.000E+00	.303E-01	.964E-01
.271E+00	.872E+00	.000E+00	.000E+00						
191.	100.0	.100	16.9	30.5	111.1	.000E+00	.000E+00	.920E-02	.116E-01
.806E-01	.101E+00	.000E+00	.000E+00						
Total:	500.0			112.8	701.4	.000E+00	.000E+00	.395E-01	.108E+00
.352E+00	.973E+00	.000E+00	.000E+00						

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TIME ELAPSED 210.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 7/28/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	222.5	.9	57.7	197.2
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.3	222.5	.9	57.7	197.2
Additions: i) in rain or irrig	:	1056.1	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn	:	67.4	166.3	222.9	.0	.0
iii) by transformation	:		32.5	.1	25.1	24.1
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	737.1	.0	.1	1.1	.0
Mass error	:	-163.5	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-197.8	26.1	.123E+04	.615E+00	.198E-01	.536E+01	.346E-03	.441E-04	.349E+03	.293E-02	.000E+00	.118E+04	.649E-01	.000E+00
191.	.139	-196.3	5.1	.102E+03	.110E+01	.354E-01	.237E-01	.255E-03	.325E-04	.191E+00	.206E-02	.000E+00	.111E+02	.120E+00	.000E+00

Drainage flux : .0

Total	50.4	222.51	.89	57.66	197.17

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the

soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .20E+03	1 mm .88E+00	1 mm .58E+02	1 mm .20E+03
Depth and conc of 5th %ile	6 mm .20E+03	6 mm .88E+00	6 mm .58E+02	6 mm .20E+03
Depth and conc of 16th %ile	22 mm .20E+03	20 mm .88E+00	20 mm .58E+02	20 mm .20E+03
Depth and conc of 50th %ile	69 mm .20E+03	63 mm .88E+00	63 mm .58E+02	64 mm .20E+03
Depth and conc of 84th %ile	116 mm .20E+03	107 mm .88E+00	106 mm .58E+02	107 mm .20E+03
Depth and conc of 95th %ile	181 mm .19E+02	121 mm .88E+00	120 mm .58E+02	121 mm .20E+03
Depth and conc of 99th %ile	239 mm .19E+02	126 mm .88E+00	125 mm .58E+02	135 mm .21E+01

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 210.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.
64.	900.0	.900	15.7	28.2	618.5	.000E+00	.000E+00	.984E-02	.106E+00	.846E-01	.956E+00	.000E+00
191.	100.0	.100	15.9	7.5	118.6	.000E+00	.000E+00	.205E-02	.136E-01	.169E-01	.118E+00	.000E+00
Total:	500.0			35.7	737.1	.000E+00	.000E+00	.119E-01	.120E+00	.101E+00	.107E+01	.000E+00

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TIME ELAPSED 217.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 8/ 4/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	50.4	216.1	.9	54.2	193.2

Undissolved on soil surface	:		.0	.0	.0
.0					
Cum. runoff	:	.0			
Simulated change	:	13.3	216.1	.9	54.2
193.2					
Additions: i) in rain or irrig	:	1089.0	.0	.0	.0
.0					
ii) as amendment	:		448.0	224.0	84.0
224.0					
Losses: i) in drainage	:	401.8	26.6	.0	.1
2.8					
ii) by evap/voltzn/cnvrsn	:	69.5	166.4	222.9	.0
.0					
iii) by transformation	:		38.9	.1	28.5
28.0					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	772.0	.0	.1	1.2
.0					
Mass error	:	-167.6	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth			i-.5	Total	Solution	Gas	Total	Solution	
Gas	Total	Solution	Gas	Total	Solution	Gas			
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	
ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l			
64.	.258	-197.6	30.8	.121E+04	.605E+00	.195E-01	.518E+01	.334E-03	
.426E-04	.328E+03	.276E-02	.000E+00	.116E+04	.637E-01	.000E+00			
191.	.139	-196.3	.8	.870E+02	.937E+00	.302E-01	.262E-01	.283E-03	
.361E-04	.206E+00	.222E-02	.000E+00	.956E+01	.103E+00	.000E+00			

Drainage flux : .0

Total	50.4		216.07	.86	
54.18		193.23			

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm	.20E+03	1 mm	.86E+00
1 mm .54E+02	1 mm	.19E+03		
Depth and conc of 5th %ile	6 mm	.20E+03	6 mm	.86E+00
6 mm .54E+02	6 mm	.19E+03		
Depth and conc of 16th %ile	22 mm	.20E+03	20 mm	.86E+00
20 mm .54E+02	20 mm	.19E+03		
Depth and conc of 50th %ile	68 mm	.20E+03	63 mm	.86E+00
63 mm .54E+02	64 mm	.19E+03		

Depth and conc of 84th %ile	115 mm	.20E+03	107 mm	.86E+00	106 mm	.54E+02	107 mm	.19E+03
Depth and conc of 95th %ile	171 mm	.17E+02	121 mm	.86E+00	120 mm	.54E+02	121 mm	.19E+03
Depth and conc of 99th %ile	237 mm	.17E+02	126 mm	.86E+00	125 mm	.54E+02	126 mm	.19E+03

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 217.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.
64.	900.0	.900	15.2	34.1	652.6	.000E+00	.000E+00	.116E-01	.118E+00	.977E-01	.105E+01	.000E+00
191.	100.0	.100	15.3	.8	119.4	.000E+00	.000E+00	.226E-03	.139E-01	.181E-02	.120E+00	.000E+00
Total:	500.0			34.9	772.0	.000E+00	.000E+00	.118E-01	.132E+00	.995E-01	.117E+01	.000E+00

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TIME ELAPSED 224.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 8/11/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.5	209.0	.8	50.5	188.8
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.3	209.0	.8	50.5	188.8
Additions: i) in rain or irrig	:	1116.9	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8

ii) by evap/voltzn/cnvrsn:	71.4	166.5	222.9	.0	.0
iii) by transformation :		45.9	.2	32.1	32.4
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	803.7	.0	.1	1.3	.0
Mass error :	-173.3	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-196.7	26.0	.118E+04	.589E+00	.189E-01	.500E+01	.323E-03	.411E-04	.306E+03	.257E-02	.000E+00	.113E+04	.623E-01	.000E+00
191.	.140	-192.3	.9	.775E+02	.833E+00	.268E-01	.273E-01	.293E-03	.374E-04	.207E+00	.222E-02	.000E+00	.861E+01	.925E-01	.000E+00

Drainage flux : .0

Total	50.5			208.98			.83			50.49			188.85		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	1 mm	.19E+03	1 mm	.83E+00	1 mm	.50E+02	1 mm	.19E+03			
Depth and conc of	5th %ile	6 mm	.19E+03	6 mm	.83E+00	6 mm	.50E+02	6 mm	.19E+03			
Depth and conc of	16th %ile	21 mm	.19E+03	20 mm	.83E+00	20 mm	.50E+02	20 mm	.19E+03			
Depth and conc of	50th %ile	68 mm	.19E+03	63 mm	.83E+00	63 mm	.50E+02	64 mm	.19E+03			
Depth and conc of	84th %ile	114 mm	.19E+03	107 mm	.83E+00	106 mm	.50E+02	107 mm	.19E+03			
Depth and conc of	95th %ile	164 mm	.15E+02	121 mm	.83E+00	120 mm	.50E+02	121 mm	.19E+03			
Depth and conc of	99th %ile	236 mm	.15E+02	126 mm	.83E+00	125 mm	.50E+02	126 mm	.19E+03			

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 224.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	17.6	30.8	683.4	.000E+00	.000E+00	.101E-01	.128E+00	.816E-01	.114E+01	.000E+00	.000E+00
191.	100.0	.100	17.8	.9	120.3	.000E+00	.000E+00	.263E-03	.141E-01	.203E-02	.122E+00	.000E+00	.000E+00
Total:	500.0			31.7	803.7	.000E+00	.000E+00	.103E-01	.142E+00	.836E-01	.126E+01	.000E+00	.000E+00

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TIME ELAPSED 231.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 8/18/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	202.6	.8	47.3	184.8
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.2	202.6	.8	47.3	184.8
Additions: i) in rain or irrig	:	1148.8	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn	:	73.5	166.6	222.9	.0	.0
iii) by transformation	:		52.2	.2	35.3	36.4
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	839.0	.0	.2	1.3	.0
Mass error	:	-178.8	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
ug/kg	mg/l	ug/l							
64.	.258	-198.4	29.7	.115E+04	.574E+00	.185E-01	.483E+01	.312E-03	.397E-04
.286E+03	.240E-02	.000E+00		.111E+04	.610E-01	.000E+00			
191.	.139	-196.0	.8	.699E+02	.752E+00	.242E-01	.276E-01	.297E-03	.379E-04
.203E+00	.219E-02	.000E+00		.780E+01	.840E-01	.000E+00			
Drainage flux :			.0						
Total	50.4			202.56			.80		
47.26				184.84					

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .19E+03	1 mm .80E+00	1 mm .47E+02
	1 mm .18E+03		
Depth and conc of 5th %ile	6 mm .19E+03	6 mm .80E+00	6 mm .47E+02
	6 mm .18E+03		
Depth and conc of 16th %ile	21 mm .19E+03	20 mm .80E+00	20 mm .47E+02
	20 mm .18E+03		
Depth and conc of 50th %ile	67 mm .19E+03	63 mm .80E+00	63 mm .47E+02
	64 mm .18E+03		
Depth and conc of 84th %ile	114 mm .19E+03	107 mm .80E+00	106 mm .47E+02
	107 mm .18E+03		
Depth and conc of 95th %ile	157 mm .13E+02	121 mm .80E+00	120 mm .47E+02
	121 mm .18E+03		
Depth and conc of 99th %ile	234 mm .13E+02	126 mm .80E+00	125 mm .47E+02
	126 mm .18E+03		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 231.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp	Transpiration		Uptake by plants (mg/m2)			
			C	(mm)		CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
Incr.	Cum.								
64.	900.0	.900	15.7	34.5	717.9	.000E+00	.000E+00	.109E-01	.139E+00
.860E-01	.122E+01	.000E+00	.000E+00						
191.	100.0	.100	15.8	.8	121.1	.000E+00	.000E+00	.233E-03	.144E-01
.176E-02	.124E+00	.000E+00	.000E+00						

Total: 500.0 35.3 839.0 .000E+00.000E+00 .112E-01.153E+00
.878E-01.135E+01 .000E+00.000E+00

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TIME ELAPSED 238.000 DAYS CUMULATIVE TOTALS AND MASS
BALANCE

DATE 8/25/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	50.5	196.1	.8	44.1	180.7
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	13.3	196.1	.8	44.1	180.7
Additions: i) in rain or irrig :	1172.7	.0	.0	.0	.0
ii) as amendment :		448.0	224.0	84.0	224.0
Losses: i) in drainage :	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn:	73.6	166.7	222.9	.0	.0
iii) by transformation :		58.6	.2	38.3	40.5
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	869.7	.0	.2	1.4	.0
Mass error :	-185.8	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta i-.5	Potnl	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-196.7	23.9	.110E+04	.549E+00	.177E-01	.467E+01	.301E-03	.384E-04	.267E+03	.224E-02	.000E+00	.108E+04	.596E-01	.000E+00
191.	.140	-192.4	4.9	.775E+02	.832E+00	.268E-01	.268E-01	.288E-03	.367E-04	.191E+00	.205E-02	.000E+00	.874E+01	.939E-01	.000E+00

Drainage flux : .0

Total 50.5 196.06 .78
44.12 180.74

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .18E+03	1 mm .77E+00	1 mm .44E+02
	1 mm .18E+03		
Depth and conc of 5th %ile	6 mm .18E+03	6 mm .77E+00	6 mm .44E+02
	6 mm .18E+03		
Depth and conc of 16th %ile	21 mm .18E+03	20 mm .77E+00	20 mm .44E+02
	20 mm .18E+03		
Depth and conc of 50th %ile	68 mm .18E+03	63 mm .77E+00	63 mm .44E+02
	64 mm .18E+03		
Depth and conc of 84th %ile	115 mm .18E+03	107 mm .77E+00	106 mm .44E+02
	107 mm .18E+03		
Depth and conc of 95th %ile	169 mm .15E+02	121 mm .77E+00	120 mm .44E+02
	121 mm .18E+03		
Depth and conc of 99th %ile	237 mm .15E+02	126 mm .77E+00	125 mm .44E+02
	126 mm .18E+03		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 238.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	17.1	25.4	743.3	.000E+00	.000E+00	.770E-02	.147E+00	.578E-01	.128E+01	.000E+00	.000E+00
191.	100.0	.100	17.2	5.4	126.5	.000E+00	.000E+00	.159E-02	.160E-01	.115E-01	.135E+00	.000E+00	.000E+00
Total:	500.0			30.8	869.7	.000E+00	.000E+00	.929E-02	.162E+00	.693E-01	.141E+01	.000E+00	.000E+00

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TIME ELAPSED 245.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 9/ 1/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA

		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	189.9	.8	41.3	176.8
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.2	189.9	.8	41.3	176.8
Additions: i) in rain or irrig	:	1198.1	.0	.0	.0	.0
ii) as amendment	:		448.0	224.0	84.0	224.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn	:	75.2	166.8	222.9	.0	.0
iii) by transformation	:		64.7	.2	41.1	44.4
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	898.7	.0	.2	1.5	.0
Mass error	:	-190.9	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta i-.5	Potnl	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-198.6	23.8	.107E+04	.535E+00	.172E-01	.452E+01	.292E-03	.372E-04	.250E+03	.210E-02	.000E+00	.106E+04	.583E-01	.000E+00
191.	.139	-197.2	.6	.695E+02	.750E+00	.241E-01	.265E-01	.285E-03	.364E-04	.183E+00	.197E-02	.000E+00	.792E+01	.854E-01	.000E+00

Drainage flux : .0

Total	50.4	189.91	.75	41.25	176.82

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	1 mm .18E+03	1 mm .75E+00	1 mm .41E+02	1 mm .18E+03

Depth and conc of 5th %ile	6 mm	.18E+03	6 mm	.75E+00	6 mm .41E+02
Depth and conc of 16th %ile	21 mm	.18E+03	20 mm	.75E+00	20 mm .41E+02
Depth and conc of 50th %ile	68 mm	.18E+03	63 mm	.75E+00	64 mm .18E+03 63 mm .41E+02
Depth and conc of 84th %ile	114 mm	.18E+03	107 mm	.75E+00	107 mm .18E+03 106 mm .41E+02
Depth and conc of 95th %ile	162 mm	.13E+02	121 mm	.75E+00	121 mm .18E+03 120 mm .41E+02
Depth and conc of 99th %ile	235 mm	.13E+02	126 mm	.75E+00	126 mm .18E+03 125 mm .41E+02

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 245.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	16.2	28.3	771.6	.000E+00	.000E+00	.839E-02	.155E+00	.617E-01	.134E+01	.000E+00	.000E+00
191.	100.0	.100	16.4	.7	127.2	.000E+00	.000E+00	.199E-03	.162E-01	.141E-02	.137E+00	.000E+00	.000E+00
Total:	500.0			29.0	898.7	.000E+00	.000E+00	.859E-02	.171E+00	.631E-01	.148E+01	.000E+00	.000E+00

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TIME ELAPSED 252.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 9/ 8/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	50.8	183.6	.7	38.4	172.8
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	13.6	183.6	.7	38.4	172.8

Additions: i) in rain or irrig :	1223.1	.0	.0	.0	.0
ii) as amendment :		448.0	224.0	84.0	224.0
Losses: i) in drainage :	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn:	77.0	166.9	222.9	.0	.0
iii) by transformation :		70.8	.2	43.9	48.4
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	924.8	.0	.2	1.5	.0
Mass error :	-194.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.259	-193.2	23.3	.104E+04	.519E+00	.167E-01	.438E+01	.282E-03	.360E-04	.233E+03	.195E-02	.000E+00	.104E+04	.570E-01	.000E+00
191.	.141	-180.2	.8	.642E+02	.683E+00	.220E-01	.264E-01	.281E-03	.358E-04	.176E+00	.187E-02	.000E+00	.737E+01	.784E-01	.000E+00

Drainage flux : .0

Total	50.8	183.64	.73	38.44	172.78

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm	.17E+03	1 mm	.72E+00	1 mm .38E+02 1 mm .17E+03
Depth and conc of 5th %ile	6 mm	.17E+03	6 mm	.72E+00	6 mm .38E+02 6 mm .17E+03
Depth and conc of 16th %ile	21 mm	.17E+03	20 mm	.72E+00	20 mm .38E+02 20 mm .17E+03
Depth and conc of 50th %ile	68 mm	.17E+03	63 mm	.72E+00	63 mm .38E+02 64 mm .17E+03
Depth and conc of 84th %ile	114 mm	.17E+03	107 mm	.72E+00	106 mm .38E+02 107 mm .17E+03
Depth and conc of 95th %ile	158 mm	.12E+02	121 mm	.72E+00	120 mm .38E+02 121 mm .17E+03
Depth and conc of 99th %ile	234 mm	.12E+02	126 mm	.72E+00	125 mm .38E+02 126 mm .17E+03

' PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 252.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.
64.	900.0	.900	17.5	25.5	797.1	.000E+00	.000E+00	.733E-02	.162E+00	.519E-01	.139E+01	.000E+00
191.	100.0	.100	17.7	.5	127.7	.000E+00	.000E+00	.154E-03	.163E-01	.105E-02	.138E+00	.000E+00
Total:	500.0			26.1	924.8	.000E+00	.000E+00	.748E-02	.179E+00	.529E-01	.153E+01	.000E+00

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TIME ELAPSED 259.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 9/15/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	226.5	1.8	116.8	390.5
Undissolved on soil surface	:		353.9	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.2	580.3	1.8	116.8	390.5
Additions: i) in rain or irrig	:	1242.9	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn	:	78.2	212.3	445.7	.0	.0
iii) by transformation	:		76.8	.3	49.4	54.8
iv) by degradation	:		.0	.0	.0	.0

v) by plant uptake	:	946.6	.0	.2	1.7
.0					
Mass error	:	-196.9	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT		PACLBUTRA			
		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-199.3	18.6	.130E+04	.651E+00	.210E-01	.110E+02	.713E-03	.909E-04	.707E+03	.594E-02	.000E+00	.236E+04	.129E+00	.000E+00
191.	.139	-196.6	.3	.613E+02	.660E+00	.212E-01	.351E-01	.378E-03	.482E-04	.240E+00	.258E-02	.000E+00	.817E+01	.881E-01	.000E+00

Drainage flux : .0

Total	50.4			226.46			1.83								
116.83				390.46											

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile				1 mm	.21E+03				1 mm	.18E+01					
1 mm	.12E+03			1 mm	.39E+03										
Depth and conc of 5th %ile				6 mm	.21E+03				6 mm	.18E+01					
6 mm	.12E+03			6 mm	.39E+03										
Depth and conc of 16th %ile				21 mm	.21E+03				20 mm	.18E+01					
20 mm	.12E+03			20 mm	.39E+03										
Depth and conc of 50th %ile				66 mm	.21E+03				63 mm	.18E+01					
63 mm	.12E+03			63 mm	.39E+03										
Depth and conc of 84th %ile				112 mm	.21E+03				107 mm	.18E+01					
106 mm	.12E+03			107 mm	.39E+03										
Depth and conc of 95th %ile				130 mm	.12E+02				121 mm	.18E+01					
120 mm	.12E+03			121 mm	.39E+03										
Depth and conc of 99th %ile				229 mm	.12E+02				126 mm	.18E+01					
125 mm	.12E+03			126 mm	.39E+03										

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 259.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp	Transpiration	Uptake by plants (mg/m2)			
			C	(mm)	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA

				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	14.3	21.3	818.4	.000E+00	.000E+00	.142E-01	.176E+00
.119E+00	.151E+01	.000E+00	.000E+00						
191.	100.0	.100	14.4	.5	128.2	.000E+00	.000E+00	.165E-03	.165E-01
.116E-02	.139E+00	.000E+00	.000E+00						
Total:	500.0			21.8	946.6	.000E+00	.000E+00	.144E-01	.193E+00
.120E+00	.165E+01	.000E+00	.000E+00						

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TIME ELAPSED 266.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 9/22/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	293.2	1.8	110.6	383.6
Undissolved on soil surface	:		227.6	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.2	520.8	1.8	110.6	383.6
Additions: i) in rain or irrig	:	1269.1	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn	:	80.2	264.8	445.7	.0	.0
iii) by transformation	:		83.7	.3	55.4	61.6
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	976.3	.0	.2	1.8	.0
Mass error	:	-202.5	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas

mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l
ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l		
64.	.258	-198.2	24.2	.170E+04	.850E+00	.274E-01	.107E+02	.692E-03
.883E-04	.670E+03	.563E-02	.000E+00	.231E+04	.127E+00	.000E+00		
191.	.139	-197.0	1.3	.666E+02	.718E+00	.231E-01	.440E-01	.474E-03
.604E-04	.311E+00	.335E-02	.000E+00	.976E+01	.105E+00	.000E+00		

Drainage flux : .0

Total	50.4	293.22	1.78
110.63		383.61	

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .28E+03	1 mm .18E+01	1 mm .11E+03
Depth and conc of 5th %ile	6 mm .28E+03	6 mm .18E+01	6 mm .11E+03
Depth and conc of 16th %ile	21 mm .28E+03	20 mm .18E+01	20 mm .11E+03
Depth and conc of 50th %ile	66 mm .28E+03	63 mm .18E+01	63 mm .11E+03
Depth and conc of 84th %ile	111 mm .28E+03	107 mm .18E+01	106 mm .11E+03
Depth and conc of 95th %ile	126 mm .28E+03	121 mm .18E+01	120 mm .11E+03
Depth and conc of 99th %ile	224 mm .13E+02	126 mm .18E+01	125 mm .11E+03

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 266.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
GLYPHOSAT		PACLBUTRA							
64.	900.0	.900	12.9	28.0	846.3	.000E+00	.000E+00	.196E-01	.196E+00
.163E+00	.168E+01	.000E+00	.000E+00						
191.	100.0	.100	13.2	1.8	130.0	.000E+00	.000E+00	.850E-03	.173E-01
.624E-02	.145E+00	.000E+00	.000E+00						
Total:	500.0			29.7	976.3	.000E+00	.000E+00	.205E-01	.213E+00
.169E+00	.182E+01	.000E+00	.000E+00						

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TIME ELAPSED 273.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 9/29/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	51.0	410.3	1.7	105.0	377.3
Undissolved on soil surface	:		51.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.8	461.3	1.7	105.0	377.3
Additions: i) in rain or irrig	:	1313.8	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	401.8	26.6	.0	.1	2.8
ii) by evap/voltzn/cnvrsn	:	83.3	316.2	445.7	.0	.0
iii) by transformation	:		91.8	.3	60.8	67.9
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1029.1	.0	.2	2.1	.0
Mass error	:	-214.3	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.259	-190.1	41.5	.237E+04	.119E+01	.381E-01	.103E+02	.667E-03	.851E-04	.636E+03	.534E-02	.000E+00	.227E+04	.125E+00	.000E+00
191.	.142	-171.8	5.2	.995E+02	.105E+01	.339E-01	.491E-01	.519E-03	.661E-04	.361E+00	.382E-02	.000E+00	.133E+02	.140E+00	.000E+00

Drainage flux : .0

Total	51.0	410.29	1.72	105.02	377.34

(Water fluxes are cumulative since the previous printout and, except for

the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .39E+03	1 mm .17E+01	1 mm .10E+03
	1 mm .37E+03		
Depth and conc of 5th %ile	6 mm .39E+03	6 mm .17E+01	6 mm .10E+03
	6 mm .37E+03		
Depth and conc of 16th %ile	21 mm .39E+03	20 mm .17E+01	20 mm .10E+03
	20 mm .37E+03		
Depth and conc of 50th %ile	66 mm .39E+03	63 mm .17E+01	63 mm .10E+03
	63 mm .37E+03		
Depth and conc of 84th %ile	111 mm .39E+03	107 mm .17E+01	106 mm .10E+03
	107 mm .37E+03		
Depth and conc of 95th %ile	126 mm .39E+03	121 mm .17E+01	120 mm .10E+03
	121 mm .37E+03		
Depth and conc of 99th %ile	226 mm .19E+02	126 mm .17E+01	125 mm .10E+03
	126 mm .37E+03		

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 273.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	12.1	46.0	892.4	.000E+00	.000E+00	.312E-01	.227E+00
.252E+00	.193E+01	.000E+00	.000E+00						
191.	100.0	.100	12.2	6.8	136.7	.000E+00	.000E+00	.372E-02	.210E-01
.275E-01	.172E+00	.000E+00	.000E+00						
Total:	500.0			52.8	1029.1	.000E+00	.000E+00	.349E-01	.248E+00
.279E+00	.210E+01	.000E+00	.000E+00						

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TIME ELAPSED 280.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 10/ 6/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0

Currently in profile	:	50.5	436.0	1.7	100.0
371.4					
Undissolved on soil surface	:		.0	.0	.0
.0					
Cum. runoff	:	.0			
Simulated change	:	13.3	436.0	1.7	100.0
371.4					
Additions: i) in rain or irrig	:	1340.0	.0	.0	.0
.0					
ii) as amendment	:		896.0	448.0	168.0
448.0					
Losses: i) in drainage	:	401.8	26.6	.0	.1
2.8					
ii) by evap/voltzn/cnvrsn	:	85.0	331.7	445.7	.0
.0					
iii) by transformation	:		101.7	.3	65.6
73.8					
iv) by degradation	:		.0	.0	.0
.0					
v) by plant uptake	:	1059.2	.0	.3	2.3
.0					
Mass error	:	-219.5	.0	.0	.0
.0					

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth		i-.5		Total	Solution	Gas	Total	Solution	
Gas	Total	Solution	Gas	Total	Solution	Gas			
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	
ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l			
64.	.258	-196.1	24.6	.252E+04	.126E+01	.406E-01	.101E+02	.649E-03	
.828E-04	.605E+03	.509E-02	.000E+00	.223E+04	.123E+00	.000E+00			
191.	.140	-192.7	.4	.104E+03	.112E+01	.361E-01	.518E-01	.557E-03	
.710E-04	.377E+00	.405E-02	.000E+00	.129E+02	.138E+00	.000E+00			

Drainage flux : .0

Total	50.5	436.00		1.67	
100.02		371.44			

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm	.42E+03	1 mm	.17E+01
1 mm .10E+03	1 mm	.37E+03		
Depth and conc of 5th %ile	6 mm	.42E+03	6 mm	.17E+01
6 mm .10E+03	6 mm	.37E+03		
Depth and conc of 16th %ile	21 mm	.42E+03	20 mm	.17E+01
20 mm .10E+03	20 mm	.37E+03		

Depth and conc of 50th %ile	66 mm	.42E+03	63 mm	.10E+03	63 mm	.37E+03	63 mm	.17E+01
Depth and conc of 84th %ile	111 mm	.42E+03	106 mm	.10E+03	107 mm	.37E+03	107 mm	.17E+01
Depth and conc of 95th %ile	126 mm	.42E+03	120 mm	.10E+03	121 mm	.37E+03	121 mm	.17E+01
Depth and conc of 99th %ile	226 mm	.20E+02	125 mm	.10E+03	126 mm	.37E+03	126 mm	.17E+01

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 280.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	11.4	29.4	921.8	.000E+00	.000E+00	.193E-01	.247E+00	.154E+00	.208E+01	.000E+00	.000E+00
191.	100.0	.100	11.7	.7	137.4	.000E+00	.000E+00	.389E-03	.214E-01	.287E-02	.175E+00	.000E+00	.000E+00
Total:	500.0			30.1	1059.2	.000E+00	.000E+00	.197E-01	.268E+00	.156E+00	.226E+01	.000E+00	.000E+00

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TIME ELAPSED 287.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 10/13/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	426.4	1.6	95.4	365.8
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.2	426.4	1.6	95.4	365.8
Additions: i) in rain or irrig	:	1367.4	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0

Losses: i) in drainage	:	401.9	26.7	.0	.1	2.8
ii) by evap/voltzn/cnvrsn:		87.1	331.9	445.7	.0	.0
iii) by transformation	:		111.1	.4	70.1	79.4
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1089.4	.0	.3	2.4	.0
Mass error	:	-224.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT	PACLBUTRA
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas		
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l		
64.	.258	-197.9	25.4	.246E+04	.123E+01	.395E-01	.980E+01	.632E-03	.806E-04	.577E+03	.485E-02
191.	.139	-196.7	1.0	.110E+03	.118E+01	.380E-01	.535E-01	.576E-03	.735E-04	.386E+00	.416E-02

.000E+00	.220E+04	.121E+00	.000E+00	.000E+00	.128E+02	.138E+00	.000E+00				

Drainage flux : .0

Total	50.4			426.36			1.63			95.39	365.81

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	1 mm	.41E+03			1 mm	.16E+01	1 mm	.95E+02	1 mm	.36E+03
Depth and conc of	5th %ile	6 mm	.41E+03			6 mm	.16E+01	6 mm	.95E+02	6 mm	.36E+03
Depth and conc of	16th %ile	21 mm	.41E+03			20 mm	.16E+01	20 mm	.95E+02	20 mm	.36E+03
Depth and conc of	50th %ile	66 mm	.41E+03			63 mm	.16E+01	63 mm	.95E+02	63 mm	.36E+03
Depth and conc of	84th %ile	112 mm	.41E+03			107 mm	.16E+01	106 mm	.95E+02	107 mm	.36E+03
Depth and conc of	95th %ile	126 mm	.41E+03			121 mm	.16E+01	120 mm	.95E+02	121 mm	.36E+03
Depth and conc of	99th %ile	228 mm	.21E+02			126 mm	.16E+01	125 mm	.95E+02	126 mm	.36E+03

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 287.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT	PACLBUTRA
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	10.9	29.1	950.9	.000E+00	.000E+00	.186E-01	.265E+00	.145E+00	.223E+01
.000E+00	.000E+00										
191.	100.0	.100	11.3	1.1	138.6	.000E+00	.000E+00	.655E-03	.221E-01	.480E-02	.180E+00
.000E+00	.000E+00										
Total:	500.0			30.2	1089.4	.000E+00	.000E+00	.192E-01	.287E+00	.150E+00	.241E+01
.000E+00	.000E+00										

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TIME ELAPSED 294.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 10/20/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
					mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	87.0	374.4	1.6	91.7	356.3
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	49.8	374.4	1.6	91.7	356.3
Additions: i) in rain or irrig	:	1445.9	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	442.2	71.0	.0	.3	7.8
ii) by evap/voltzn/cnvrsn	:	87.7	332.1	445.7	.0	.0
iii) by transformation	:		118.6	.4	73.5	83.9
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1090.3	.0	.3	2.4	.0
Mass error	:	-224.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT		PACLBUTRA			
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas						
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l						
64.	.443	-5.1	77.9	.207E+04	.968E+00	.311E-01	.948E+01	.606E-03	.772E-04	.555E+03	.466E-02	.000E+00	.214E+04	.116E+00	.000E+00
191.	.242	-3.9	53.5	.170E+03	.105E+01	.339E-01	.974E-01	.604E-03	.770E-04	.733E+00	.454E-02	.000E+00	.194E+02	.121E+00	.000E+00

Drainage flux : 40.4

Total	87.0			374.38			1.58								
91.73				356.33											

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile			1 mm	.34E+03			1 mm	.16E+01							
1 mm	.92E+02			1 mm	.35E+03										
Depth and conc of 5th %ile			6 mm	.34E+03			6 mm	.16E+01							
6 mm	.92E+02			6 mm	.35E+03										
Depth and conc of 16th %ile			22 mm	.34E+03			20 mm	.16E+01							
20 mm	.92E+02			20 mm	.35E+03										
Depth and conc of 50th %ile			69 mm	.34E+03			64 mm	.16E+01							
63 mm	.92E+02			64 mm	.35E+03										
Depth and conc of 84th %ile			116 mm	.34E+03			107 mm	.16E+01							
106 mm	.92E+02			107 mm	.35E+03										
Depth and conc of 95th %ile			180 mm	.32E+02			122 mm	.16E+01							
120 mm	.92E+02			121 mm	.35E+03										
Depth and conc of 99th %ile			239 mm	.32E+02			145 mm	.19E-01							
125 mm	.92E+02			131 mm	.37E+01										

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 294.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp	Transpiration		Uptake by plants (mg/m2)					
			C	(mm)		CHLORSULF		ETHOFUMES		GLYPHOSAT	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	7.7	.8	951.7	.000E+00	.000E+00	.511E-03	.266E+00	.391E-02	.223E+01
.000E+00	.000E+00										

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   191.  100.0  .100     7.9        .0   138.6 .000E+00.000E+00 .125E-04.221E-01
.896E-04.180E+00 .000E+00.000E+00

Total:   500.0                      .8  1090.3 .000E+00.000E+00 .523E-03.288E+00
.400E-02.241E+01 .000E+00.000E+00
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TIME ELAPSED 301.000 DAYS — CUMULATIVE TOTALS AND MASS BALANCE

DATE 10/27/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.4	355.5	1.5	88.2	350.8
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.3	355.5	1.5	88.2	350.8
Additions: i) in rain or irrig	:	1475.3	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	454.7	83.6	.0	.4	9.2
ii) by evap/voltzn/cnvrsn	:	89.1	332.2	445.7	.0	.0
iii) by transformation	:		124.6	.4	76.7	88.0
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1165.4	.0	.3	2.7	.0
Mass error	:	-247.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta i-.5	Potnl	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-197.6	28.0	.205E+04	.102E+01	.329E-01	.916E+01	.591E-03	.754E-04	.534E+03	.449E-02	.000E+00	.211E+04	.116E+00	.000E+00

191. .139 -196.3 -2.2 .940E+02 .101E+01 .326E-01 .216E-01 .233E-03
.297E-04 .147E+00 .159E-02 .000E+00 .111E+02 .119E+00 .000E+00
Drainage flux : 12.5

Total 50.4 355.54 1.52
88.23 350.76

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .34E+03	1 mm .15E+01	1 mm .88E+02
Depth and conc of 5th %ile	6 mm .34E+03	6 mm .15E+01	6 mm .88E+02
Depth and conc of 16th %ile	21 mm .34E+03	20 mm .15E+01	20 mm .88E+02
Depth and conc of 50th %ile	66 mm .34E+03	63 mm .15E+01	63 mm .88E+02
Depth and conc of 84th %ile	112 mm .34E+03	106 mm .15E+01	106 mm .88E+02
Depth and conc of 95th %ile	127 mm .18E+02	120 mm .15E+01	120 mm .88E+02
Depth and conc of 99th %ile	228 mm .18E+02	126 mm .15E+01	126 mm .88E+02

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 301.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.4000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	7.3	50.7	1002.4	.000E+00	.000E+00	.305E-01	.296E+00
.235E+00	.246E+01	.000E+00	.000E+00						
191.	100.0	.100	7.6	24.4	163.0	.000E+00	.000E+00	.115E-01	.336E-01
.868E-01	.267E+00	.000E+00	.000E+00						
Total:	500.0			75.1	1165.4	.000E+00	.000E+00	.419E-01	.330E+00
.322E+00	.273E+01	.000E+00	.000E+00						

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TIME ELAPSED 308.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 11/ 3/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	50.5	350.7	1.5	85.8	347.6
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	13.3	350.7	1.5	85.8	347.6
Additions: i) in rain or irrig	:	1487.7	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	454.7	83.7	.0	.4	9.2
ii) by evap/voltzn/cnvrsn	:	89.6	332.4	445.7	.0	.0
iii) by transformation	:		129.2	.4	79.1	91.2
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1178.3	.0	.3	2.8	.0
Mass error	:	-248.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta i-.5	Potnl	Flux	CHLORSULF Total	CHLORSULF Solution	CHLORSULF Gas	ETHOFUMES Total	ETHOFUMES Solution	ETHOFUMES Gas	GLYPHOSAT Total	GLYPHOSAT Solution	GLYPHOSAT Gas	PACLBUTRA Total	PACLBUTRA Solution	PACLBUTRA Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.258	-197.9	11.9	.202E+04	.101E+01	.325E-01	.903E+01	.582E-03	.743E-04	.519E+03	.436E-02	.000E+00	.209E+04	.115E+00	.000E+00
191.	.140	-193.0	.3	.942E+02	.101E+01	.326E-01	.279E-01	.300E-03	.383E-04	.183E+00	.196E-02	.000E+00	.111E+02	.119E+00	.000E+00

Drainage flux : .0

Total	50.5	350.74	1.50	85.79	347.57

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the

soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .33E+03	1 mm .15E+01	1 mm .86E+02
Depth and conc of 5th %ile	6 mm .33E+03	6 mm .15E+01	6 mm .86E+02
Depth and conc of 16th %ile	21 mm .33E+03	20 mm .15E+01	20 mm .86E+02
Depth and conc of 50th %ile	66 mm .33E+03	63 mm .15E+01	63 mm .86E+02
Depth and conc of 84th %ile	112 mm .33E+03	107 mm .15E+01	106 mm .86E+02
Depth and conc of 95th %ile	129 mm .18E+02	121 mm .15E+01	120 mm .86E+02
Depth and conc of 99th %ile	229 mm .18E+02	126 mm .15E+01	125 mm .86E+02

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 308.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	2.4	12.7	1015.1	.000E+00	.000E+00	.743E-02	.304E+00
191.	100.0	.100	2.7	.3	163.2	.000E+00	.000E+00	.757E-04	.336E-01
Total:	500.0			12.9	1178.3	.000E+00	.000E+00	.750E-02	.337E+00

GLYPHOSAT		PACLBUTRA	
Incr.	Cum.	Incr.	Cum.
.563E-01	.252E+01	.000E+00	.000E+00
.519E-03	.268E+00	.000E+00	.000E+00
.568E-01	.279E+01	.000E+00	.000E+00

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TIME ELAPSED 315.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 11/10/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	83.6	269.8	1.4	83.2	334.5

Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	46.4	269.8	1.4	83.2	334.5
Additions: i) in rain or irrig :	1610.9	.0	.0	.0	.0
ii) as amendment :		896.0	448.0	168.0	448.0
Losses: i) in drainage :	543.5	160.1	.1	.7	19.3
ii) by evap/voltzn/cnvrsn:	90.9	332.5	445.7	.0	.0
iii) by transformation :		133.6	.4	81.3	94.3
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	1178.3	.0	.3	2.8	.0
Mass error :	-248.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
	i-.5			Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.430	-7.1	121.9	.150E+04	.703E+00	.226E-01	.861E+01	.551E-03	.702E-04	.503E+03	.422E-02	.000E+00	.201E+04	.109E+00	.000E+00
191.	.228	-5.9	100.0	.117E+03	.769E+00	.247E-01	.828E-01	.545E-03	.694E-04	.626E+00	.411E-02	.000E+00	.168E+02	.111E+00	.000E+00

Drainage flux : 88.7

Total	83.6	269.77	1.44	83.18	334.46

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm	.25E+03	1 mm	.14E+01	1 mm .83E+02 1 mm .33E+03
Depth and conc of 5th %ile	6 mm	.25E+03	6 mm	.14E+01	6 mm .83E+02 6 mm .33E+03
Depth and conc of 16th %ile	22 mm	.25E+03	20 mm	.14E+01	20 mm .83E+02 20 mm .33E+03
Depth and conc of 50th %ile	69 mm	.25E+03	64 mm	.14E+01	63 mm .83E+02 64 mm .33E+03

Depth and conc of 84th %ile	116 mm	.25E+03		107 mm	.14E+01	
106 mm	.83E+02	107 mm	.33E+03			
Depth and conc of 95th %ile	177 mm	.22E+02		121 mm	.14E+01	
120 mm	.83E+02	121 mm	.33E+03			
Depth and conc of 99th %ile	238 mm	.22E+02		138 mm	.16E-01	
125 mm	.83E+02	126 mm	.33E+03			

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 315.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT	PACLBUTRA
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	5.3	.0	1015.1	.000E+00	.000E+00	.000E+00	.304E+00	.000E+00	.252E+01
191.	100.0	.100	5.4	.0	163.2	.000E+00	.000E+00	.000E+00	.336E-01	.000E+00	.268E+00
Total:	500.0			.0	1178.3	.000E+00	.000E+00	.000E+00	.337E+00	.000E+00	.279E+01

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TIME ELAPSED 322.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 11/17/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2		
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	76.5	262.4	1.4	82.3	332.5
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	39.3	262.4	1.4	82.3	332.5
Additions: i) in rain or irrig	:	1612.0	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	551.3	166.1	.1	.7	20.1

ii) by evap/voltzn/cnvrsn:	91.3	332.7	445.7	.0	.0
iii) by transformation :		134.9	.4	82.2	95.4
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	1178.3	.0	.3	2.8	.0
Mass error :	-248.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		GLYPHOSAT	PACLBUTRA	
		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l
64.	.395	-12.6	.8	.147E+04	.698E+00	.225E-01	.856E+01	.549E-03	.700E-04	.498E+03	.418E-02
.000E+00	.200E+04	.109E+00	.000E+00								
191.	.208	-11.4	5.3	.104E+03	.752E+00	.242E-01	.754E-01	.544E-03	.693E-04	.566E+00	.408E-02
.000E+00	.152E+02	.110E+00	.000E+00								

Drainage flux : 7.8

Total	76.5	262.37	1.43	82.30	332.45

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm	.24E+03	1 mm	.14E+01	1 mm .82E+02
Depth and conc of 5th %ile	6 mm	.24E+03	6 mm	.14E+01	6 mm .82E+02
Depth and conc of 16th %ile	21 mm	.24E+03	20 mm	.14E+01	20 mm .82E+02
Depth and conc of 50th %ile	68 mm	.24E+03	64 mm	.14E+01	63 mm .82E+02
Depth and conc of 84th %ile	115 mm	.24E+03	107 mm	.14E+01	106 mm .82E+02
Depth and conc of 95th %ile	170 mm	.20E+02	121 mm	.14E+01	120 mm .82E+02
Depth and conc of 99th %ile	237 mm	.20E+02	127 mm	.14E-01	125 mm .82E+02

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 322.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	
Cum.	Incr.	Cum.	Incr.	Cum.					
64.	900.0	.900	-3.3	.0	1015.1	.000E+00	.000E+00	.000E+00	.304E+00
.000E+00	.252E+01	.000E+00	.000E+00						
191.	100.0	.100	-2.6	.0	163.2	.000E+00	.000E+00	.000E+00	.336E-01
.000E+00	.268E+00	.000E+00	.000E+00						
Total:	500.0			.0	1178.3	.000E+00	.000E+00	.000E+00	.337E+00
.000E+00	.279E+01	.000E+00	.000E+00						

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TIME ELAPSED 329.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 11/24/96

		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	78.1	248.7	1.4	82.2	330.4
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	40.9	248.7	1.4	82.2	330.4
Additions: i) in rain or irrig	:	1634.1	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	570.0	179.6	.1	.8	22.2
ii) by evap/voltzn/cnvrsn	:	93.0	332.8	445.7	.0	.0
iii) by transformation	:		134.9	.4	82.2	95.4
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1178.3	.0	.3	2.8	.0
Mass error	:	-248.2	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
Depth		i-.5		Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.403	-11.0	20.3	.139E+04	.659E+00	.212E-01	.850E+01	.544E-03	.694E-04
.497E+03	.418E-02	.000E+00		.198E+04	.108E+00	.000E+00			
191.	.212	-9.8	19.3	.101E+03	.710E+00	.229E-01	.771E-01	.544E-03	.694E-04
.584E+00	.413E-02	.000E+00		.155E+02	.109E+00	.000E+00			

Drainage flux : 18.7

Total	78.1			248.68			1.42		
82.22			330.40						

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile			1 mm	.23E+03			1 mm	.14E+01	
1 mm	.82E+02			1 mm	.33E+03				
Depth and conc of 5th %ile			6 mm	.23E+03			6 mm	.14E+01	
6 mm	.82E+02			6 mm	.33E+03				
Depth and conc of 16th %ile			22 mm	.23E+03			20 mm	.14E+01	
20 mm	.82E+02			20 mm	.33E+03				
Depth and conc of 50th %ile			68 mm	.23E+03			64 mm	.14E+01	
63 mm	.82E+02			64 mm	.33E+03				
Depth and conc of 84th %ile			115 mm	.23E+03			107 mm	.14E+01	
106 mm	.82E+02			107 mm	.33E+03				
Depth and conc of 95th %ile			171 mm	.19E+02			121 mm	.14E+01	
120 mm	.82E+02			121 mm	.33E+03				
Depth and conc of 99th %ile			237 mm	.19E+02			131 mm	.15E-01	
125 mm	.82E+02			126 mm	.33E+03				

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 329.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp	Transpiration		Uptake by plants (mg/m2)			
			C	(mm)		CHLORSULF		ETHOFUMES	
GLYPHOSAT		PACLBUTRA							
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	-3.3	.0	1015.1	.000E+00	.000E+00	.000E+00	.304E+00
.000E+00	.252E+01	.000E+00	.000E+00						
191.	100.0	.100	-2.8	.0	163.2	.000E+00	.000E+00	.000E+00	.336E-01
.000E+00	.268E+00	.000E+00	.000E+00						

Total: 500.0 .0 1178.3 .000E+00.000E+00 .000E+00.337E+00
.000E+00.279E+01 .000E+00.000E+00

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TIME ELAPSED 336.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 12/ 1/96		Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	80.5	235.8	1.4	82.1	328.4
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	43.3	235.8	1.4	82.1	328.4
Additions: i) in rain or irrig	:	1659.5	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	588.7	192.4	.1	.9	24.2
ii) by evap/voltzn/cnvrsn	:	97.3	332.9	445.7	.0	.0
iii) by transformation	:		134.9	.4	82.2	95.4
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1178.3	.0	.3	2.8	.0
Mass error	:	-248.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT	PACLBUTRA		
Depth		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	
64.	.415	-9.1	21.1	.132E+04	.621E+00	.200E-01	.843E+01	.540E-03	.688E-04	.497E+03	.417E-02	.000E+00	
191.	.219	-7.9	19.5	.979E+02	.670E+00	.216E-01	.793E-01	.543E-03	.692E-04	.606E+00	.415E-02	.000E+00	
				.158E+02	.109E+00	.000E+00							

Drainage flux : 18.6

Total 80.5 235.79 1.41
82.14 328.37

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm .22E+03	1 mm .14E+01	1 mm .82E+02
Depth and conc of 5th %ile	6 mm .22E+03	6 mm .14E+01	6 mm .82E+02
Depth and conc of 16th %ile	22 mm .22E+03	20 mm .14E+01	20 mm .82E+02
Depth and conc of 50th %ile	68 mm .22E+03	64 mm .14E+01	63 mm .82E+02
Depth and conc of 84th %ile	115 mm .22E+03	107 mm .14E+01	106 mm .82E+02
Depth and conc of 95th %ile	173 mm .19E+02	121 mm .14E+01	120 mm .82E+02
Depth and conc of 99th %ile	237 mm .19E+02	135 mm .15E-01	125 mm .82E+02

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 336.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	-3.7	.0	1015.1	.000E+00	.000E+00	.000E+00	.304E+00
191.	100.0	.100	-3.4	.0	163.2	.000E+00	.000E+00	.000E+00	.336E-01
Total:	500.0			.0	1178.3	.000E+00	.000E+00	.000E+00	.337E+00

GLYPHOSAT		PACLBUTRA	
Incr.	Cum.	Incr.	Cum.
.000E+00	.252E+01	.000E+00	.000E+00
.000E+00	.268E+00	.000E+00	.000E+00
.000E+00	.279E+01	.000E+00	.000E+00

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TIME ELAPSED 343.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 12/ 8/96	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA

		mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total	:	37.2	.0	.0	.0	.0
Currently in profile	:	83.6	183.5	1.4	81.8	318.9
Undissolved on soil surface	:		.0	.0	.0	.0
Cum. runoff	:	.0				
Simulated change	:	46.4	183.5	1.4	81.8	318.9
Additions: i) in rain or irrig	:	1755.4	.0	.0	.0	.0
ii) as amendment	:		896.0	448.0	168.0	448.0
Losses: i) in drainage	:	677.6	244.7	.2	1.3	33.7
ii) by evap/voltzn/cnvrsn	:	101.2	332.9	445.7	.0	.0
iii) by transformation	:		134.9	.4	82.2	95.4
iv) by degradation	:		.0	.0	.0	.0
v) by plant uptake	:	1178.3	.0	.3	2.8	.0
Mass error	:	-248.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
		i-.5		Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.430	-7.1	92.0	.102E+04	.479E+00	.154E-01	.814E+01	.521E-03	.664E-04	.495E+03	.415E-02	.000E+00	.191E+04	.104E+00	.000E+00
191.	.228	-5.9	90.1	.792E+02	.521E+00	.168E-01	.801E-01	.527E-03	.672E-04	.632E+00	.416E-02	.000E+00	.160E+02	.105E+00	.000E+00

Drainage flux : 88.9

Total	83.6			183.49			1.36			81.77			318.88		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile		1 mm	.17E+03			1 mm	.13E+01		1 mm	.82E+02		1 mm	.32E+03	

Depth and conc of 5th %ile	6 mm	.17E+03		6 mm	.13E+01	6 mm	.82E+02	6 mm .32E+03
Depth and conc of 16th %ile	22 mm	.17E+03		20 mm	.13E+01	20 mm	.82E+02	20 mm .32E+03
Depth and conc of 50th %ile	69 mm	.17E+03		64 mm	.13E+01	63 mm	.82E+02	64 mm .32E+03
Depth and conc of 84th %ile	116 mm	.17E+03		107 mm	.13E+01	106 mm	.82E+02	107 mm .32E+03
Depth and conc of 95th %ile	176 mm	.15E+02		122 mm	.13E+01	120 mm	.82E+02	121 mm .32E+03
Depth and conc of 99th %ile	238 mm	.15E+02		140 mm	.15E-01	125 mm	.82E+02	126 mm .32E+03

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 343.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	-1.9	.0	1015.1	.000E+00	.000E+00	.000E+00	.304E+00	.000E+00	.252E+01	.000E+00	.000E+00
191.	100.0	.100	-1.8	.0	163.2	.000E+00	.000E+00	.000E+00	.336E-01	.000E+00	.268E+00	.000E+00	.000E+00
Total:	500.0			.0	1178.3	.000E+00	.000E+00	.000E+00	.337E+00	.000E+00	.279E+01	.000E+00	.000E+00

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TIME ELAPSED 350.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 12/15/96

	Water	CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA
	mm	mg/m2	mg/m2	mg/m2	mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	82.9	170.3	1.3	81.7	316.1
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	45.7	170.3	1.3	81.7	316.1

Additions: i) in rain or irrig :	1783.4	.0	.0	.0	.0
ii) as amendment :		896.0	448.0	168.0	448.0
Losses: i) in drainage :	703.8	257.7	.2	1.4	36.4
ii) by evap/voltzn/cnvrsn:	103.7	333.0	445.7	.0	.0
iii) by transformation :		134.9	.4	82.2	95.4
iv) by degradation :		.0	.0	.0	.0
v) by plant uptake :	1178.3	.0	.3	2.8	.0
Mass error :	-248.1	.0	.0	.0	.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES			GLYPHOSAT			PACLBUTRA		
Depth			i-.5	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.427	-7.6	25.5	.948E+03	.445E+00	.143E-01	.806E+01	.516E-03	.658E-04	.494E+03	.415E-02	.000E+00	.190E+04	.103E+00	.000E+00
191.	.226	-6.3	25.9	.729E+02	.484E+00	.156E-01	.785E-01	.521E-03	.665E-04	.625E+00	.415E-02	.000E+00	.157E+02	.104E+00	.000E+00

Drainage flux : 26.2

Total	82.9			170.32			1.35			81.66			316.13		

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile	1 mm	.16E+03	1 mm	.13E+01	1 mm	.82E+02	1 mm	.31E+03			
Depth and conc of	5th %ile	6 mm	.16E+03	6 mm	.13E+01	6 mm	.82E+02	6 mm	.31E+03			
Depth and conc of	16th %ile	22 mm	.16E+03	20 mm	.13E+01	20 mm	.82E+02	20 mm	.31E+03			
Depth and conc of	50th %ile	69 mm	.16E+03	64 mm	.13E+01	63 mm	.82E+02	64 mm	.31E+03			
Depth and conc of	84th %ile	116 mm	.16E+03	107 mm	.13E+01	106 mm	.82E+02	107 mm	.31E+03			
Depth and conc of	95th %ile	176 mm	.14E+02	122 mm	.13E+01	120 mm	.82E+02	121 mm	.31E+03			
Depth and conc of	99th %ile	238 mm	.14E+02	139 mm	.15E-01	125 mm	.82E+02	126 mm	.31E+03			

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 350.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.
64.	900.0	.900	-2.2	.0	1015.1	.000E+00	.000E+00	.000E+00	.304E+00	.000E+00	.252E+01	.000E+00
191.	100.0	.100	-2.0	.0	163.2	.000E+00	.000E+00	.000E+00	.336E-01	.000E+00	.268E+00	.000E+00
Total:	500.0			.0	1178.3	.000E+00	.000E+00	.000E+00	.337E+00	.000E+00	.279E+01	.000E+00

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TIME ELAPSED 357.000 DAYS CUMULATIVE TOTALS AND MASS BALANCE

DATE 12/22/96

	Water mm	CHLORSULF mg/m2	ETHOFUMES mg/m2	GLYPHOSAT mg/m2	PACLBUTRA mg/m2
Initial total :	37.2	.0	.0	.0	.0
Currently in profile :	78.5	165.7	1.3	81.6	315.1
Undissolved on soil surface :		.0	.0	.0	.0
Cum. runoff :	.0				
Simulated change :	41.3	165.7	1.3	81.6	315.1
Additions: i) in rain or irrig :	1791.6	.0	.0	.0	.0
ii) as amendment :		896.0	448.0	168.0	448.0
Losses: i) in drainage :	713.3	262.3	.2	1.4	37.4
ii) by evap/voltzn/cnvrsn:	106.7	333.1	445.7	.0	.0
iii) by transformation :		134.9	.4	82.2	95.4
iv) by degradation :		.0	.0	.0	.0

v) by plant uptake : 1178.3 .0 .3 2.8
.0
Mass error : -248.0 .0 .0 .0
.0

Volatile loss (mg/m2) of pesticide during ponded water application
.0000E+00 .0000E+00 .0000E+00 .0000E+00

Node Depth	Theta	Potnl	Flux	CHLORSULF			ETHOFUMES		
GLYPHOSAT				PACLBUTRA					
		i-.5		Total	Solution	Gas	Total	Solution	Gas
mm		kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l			
64.	.405	-10.7	5.2	.926E+03	.439E+00	.141E-01	.804E+01	.515E-03	
.656E-04	.494E+03	.414E-02	.000E+00	.189E+04	.103E+00	.000E+00			
191.	.213	-9.4	7.9	.672E+02	.472E+00	.152E-01	.739E-01	.519E-03	
.662E-04	.591E+00	.415E-02	.000E+00	.148E+02	.104E+00	.000E+00			

Drainage flux : 9.5

Total	78.5			165.71			1.34		
81.62				315.14					

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of	1st %ile		1 mm	.15E+03			1 mm	.13E+01	
1 mm	.82E+02		1 mm	.31E+03					
Depth and conc of	5th %ile		6 mm	.15E+03			6 mm	.13E+01	
6 mm	.82E+02		6 mm	.31E+03					
Depth and conc of	16th %ile		22 mm	.15E+03			20 mm	.13E+01	
20 mm	.82E+02		20 mm	.31E+03					
Depth and conc of	50th %ile		68 mm	.15E+03			64 mm	.13E+01	
63 mm	.82E+02		64 mm	.31E+03					
Depth and conc of	84th %ile		115 mm	.15E+03			107 mm	.13E+01	
106 mm	.82E+02		107 mm	.31E+03					
Depth and conc of	95th %ile		171 mm	.13E+02			121 mm	.13E+01	
120 mm	.82E+02		121 mm	.31E+03					
Depth and conc of	99th %ile		237 mm	.13E+02			133 mm	.14E-01	
125 mm	.82E+02		126 mm	.31E+03					

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 357.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)	Uptake by plants (mg/m2) CHLORSULF	ETHOFUMES	GLYPHOSAT	PACLBUTRA

mm	kPa	mm	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l	ug/kg	mg/l	ug/l
64.	.403	-10.9	13.0	.892E+03	.423E+00	.136E-01	.799E+01	.512E-03	.653E-04	.493E+03	.414E-02
.000E+00	.188E+04	.103E+00	.000E+00								
191.	.213	-9.7	13.2	.645E+02	.455E+00	.146E-01	.733E-01	.517E-03	.659E-04	.588E+00	.415E-02
.000E+00	.147E+02	.104E+00	.000E+00								

Drainage flux : 13.2

Total	78.3			159.54				1.33			
81.57				313.76							

(Water fluxes are cumulative since the previous printout and, except for the drainage flux, refer to the upper boundary of each depth segment.)

The following distribution is calculated ignoring undissolved chemical on the soil surface and that lost from the profile by leaching, plant uptake and volatilization

Depth and conc of 1st %ile	1 mm	.15E+03	1 mm	.13E+01	1 mm .81E+02
	1 mm	.31E+03			
Depth and conc of 5th %ile	6 mm	.15E+03	6 mm	.13E+01	6 mm .81E+02
	6 mm	.31E+03			
Depth and conc of 16th %ile	22 mm	.15E+03	20 mm	.13E+01	20 mm .81E+02
	20 mm	.31E+03			
Depth and conc of 50th %ile	68 mm	.15E+03	64 mm	.13E+01	63 mm .81E+02
	64 mm	.31E+03			
Depth and conc of 84th %ile	115 mm	.15E+03	107 mm	.13E+01	106 mm .81E+02
	107 mm	.31E+03			
Depth and conc of 95th %ile	171 mm	.12E+02	121 mm	.13E+01	120 mm .81E+02
	121 mm	.31E+03			
Depth and conc of 99th %ile	237 mm	.12E+02	132 mm	.14E-01	125 mm .81E+02
	126 mm	.31E+03			

PLANT GROWTH, TRANSPIRATION AND PESTICIDE ABSORPTION (IF CALCULATED)

TIME: 364.000 DAYS CROP COVER: 1.000 ROOT POTENTIAL:-.6000E+03 kPa

Node	Roots	RDF	Temp C	Transpiration (mm)		Uptake by plants (mg/m2) CHLORSULF		ETHOFUMES		GLYPHOSAT		PACLBUTRA	
				Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.	Incr.	Cum.
64.	900.0	.900	-3.2	.0	1015.1	.000E+00	.000E+00	.000E+00	.304E+00	.000E+00	.252E+01	.000E+00	.000E+00
191.	100.0	.100	-2.9	.0	163.2	.000E+00	.000E+00	.000E+00	.336E-01	.000E+00	.268E+00	.000E+00	.000E+00
Total:	500.0			.0	1178.3	.000E+00	.000E+00	.000E+00	.337E+00	.000E+00	.279E+01	.000E+00	.000E+00

Attachment 4

Excerpts From Cornell Cooperative Extension Year 2000~~0~~1 Pest Management Guidelines for Commercial Turfgrass

A Cornell Cooperative Extension Publication

2001 Pest Management Guidelines for Commercial Turfgrass

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Every effort has been made to provide correct, complete, and up-to-date pest management information for New York State in this publication, which was released for printing February 2001. Changes in pesticide registrations, regulations, and guidelines that occur after publication are regularly available in county Cornell Cooperative Extension offices and from the Pesticide Management Education Program web site, http://pmep.cce.cornell.edu. A revision of the printed document is issued annually.

These guidelines are not a substitute for pesticide labeling. Read the label before applying any pesticide.

DISEASE CONTROL

Table 4. Cultural management and chemical control of turfgrass diseases

Disease (Pathogens)	*Comments*[1]	*Cultural Management*[2]	*Fungicide or Nematicide*[3]
Anthracnose *(Colletotrichum)*	Occurs April–October. Attacks ANNUAL BLUEGRASS, Kentucky bluegrass, fine fescues, and BENTGRASS.	Avoid N deficiency and drought, especially on annual bluegrass.	azoxystrobin[4] cyproconazole mancozeb propiconazole thiophanates triadimefon
Brown patch, yellow patch *(Rhizoctonia)*	All seasons. Attacks Kentucky bluegrass, BENTGRASS, RYEGRASSES, ANNUAL BLUEGRASS, fine-leaf fescues, and TALL FESCUE.	Avoid excess N and water, especially on perennial ryegrass, fescue, and bentgrass. Use resistant varieties of perennial ryegrass. Water early in the day and remove dew from greens. The use of organic fertilizers and composts has been shown to reduce disease severity.	chlorothalonil cyproconazole fenarimol flutolanil iprodione mancozeb propiconazole quintozene thiophanates thiram triadimefon *Trichoderma harzianum* vinclozolin
Copper spot *(Gleocercospora)*	Occurs June–October. Attacks low-cut bentgrass.	No information known on cultural practices to manage copper spot.	chlorothalonil cyproconazole fenarimol iprodione thiophanates thiram triadimefon vinclozolin
Damping-off, seed rot (various fungi)	Occurs April–October. Attacks all grasses.	Provide good seedbed and conditions for seedling vigor. Species of *Pythium, Fusarium,* and *Rhizoctonia* often cause damping-off; select fungicides accordingly.	Seed treatment: mefenoxam thiram Seedling spray: varies with the causal fungus.
Dollar spot *(Sclerotinia homoeocarpa)*	Occurs June–October. Attacks Kentucky bluegrass, ryegrasses, ANNUAL BLUEGRASS, BENTGRASS, and fine fescues.	Avoid N deficiency, drought, and night watering. Use resistant varieties of Kentucky bluegrass, fine fescue, and bentgrass. Remove dew from greens. The use of organic fertilizers and composts has been shown to reduce disease severity.	chlorothalonil cyproconazole fenarimol iprodione propiconazole thiophanates thiram triadimefon vinclozolin

[1] The most susceptible species are printed in CAPITAL LETTERS.

[2] These practices have been shown to affect disease severity. The inclusion of these practices in no way implies that they may eliminate the need for pesticides. Solid programs will integrate good culture with judicious pesticide use.

[3] See pages 21–26 for registered trade names.

[4] The use of this fungicide may increase severity of dollar spot.

[5] Combined use of aeration and nonionic surfactants with the fungicide are useful.

* Restricted-use pesticide; may be purchased and used only by certified applicators.

continued

Table 4. Cultural management and chemical control of turfgrass diseases (*continued*)

Disease (Pathogens)	*Comments*[1]	*Cultural Management*[2]	*Fungicide or Nematicide*[3]
Fairy rings (various fungi)	Occurs April–October. All grasses.	Mask symptoms by removal of cores, thorough watering, and moderate fertility. In critical areas, fumigate or replace the soil and reseed.	flutolanil[5]
Leaf spots and blights (*Ascochyta, Bipolaris, Curvularia, Dreschlera, Nigrospora, Septoria,* etc.)	Occurs April–October. Attacks KENTUCKY BLUEGRASS, ryegrasses, annual bluegrass, BENTGRASS, and FINE-LEAF FESCUES.	Avoid excess N (especially in spring). Avoid excess benomyl, thiophanate, and triadimefon, and night watering. Use resistant varieties of Kentucky bluegrass, perennial ryegrass, and fine fescue. Raise mowing height.	chlorothalonil iprodione mancozeb vinclozolin
Necrotic ringspot (*Leptosphaeria*)	Occurs June–September. Attacks KENTUCKY BLUEGRASS, fine fescues, ANNUAL BLUEGRASS, and bentgrass.	Avoid excess N, drought, excess water, and very low mowing. Reduce thatch when practical. Mix perennial ryegrass into Kentucky bluegrass seed or overseed with resistant varieties of Kentucky bluegrass.	azoxystrobin[4] cyproconazole fenarimol iprodione
Nematode-caused diseases (various genera)	Occurs April–October. Attacks all grasses.	Apply to prepared seedbed during warm weather. Aerate soil thoroughly before planting. Apply as a drenching application during growing season. Do not handle sod within 30 days. See label directions.	Preplant: 1,3-dichloropropene metam Mature turf: *ethoprop *fenamiphos
Pink snow mold (*Microdochium*)	Occurs March–June and September–November during cool, wet weather. Snow is not necessary. Attacks ANNUAL BLUEGRASS, Kentucky bluegrass, BENTGRASS, fine fescues, TALL FESCUE, and perennial ryegrass.	Avoid late fall application of N. Rake matted grass in spring. Use resistant varieties of Kentucky bluegrasses.	azoxystrobin[4] cyproconazole fenarimol iprodione propiconazole quintozene thiophanates triadimefon vinclozolin
Powdery mildew (*Erysiphe*)	Occurs July–September. Attacks KENTUCKY BLUEGRASS and fine fescues.	Avoid excess N and shade. Use resistant (shade-tolerant) varieties of Kentucky bluegrass.	propiconazole thiophanates triadimefon

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[2]These practices have been shown to affect disease severity. The inclusion of these practices in no way implies that they may eliminate the need for pesticides. Solid programs will integrate good culture with judicious pesticide use.

[3]See pages 21–26 for registered trade names.

[4]The use of this fungicide may increase severity of dollar spot.

[5]Combined use of aeration and nonionic surfactants with the fungicide are useful.

*Restricted-use pesticide; may be purchased and used only by certified applicators.

Table 4. Cultural management and chemical control of turfgrass diseases (*continued*)

Disease (Pathogens)	*Comments*[1]	*Cultural Management*[2]	*Fungicide or Nematicide*[3]
Pythium blight *(Pythium)*	Occurs July–August. Attacks Kentucky bluegrass, RYEGRASS, tall fescue, annual bluegrass, bentgrass, and fine-leaf fescues.	Avoid excess N and watering especially on perennial ryegrass, fescue, and bentgrass. Do not mow when grass is wet. Renovate area to increase air flow and drainage.	azoxystrobin[4] etridiazole fosetyl-Al mefenoxam metalaxyl propamocarb *Trichoderma harzianum*
Pythium root rot *(Pythium)*	Occurs March–November. Attacks Kentucky bluegrass, ANNUAL BLUEGRASS, CREEPING BENTGRASS, and PERENNIAL RYEGRASS.	Avoid prolonged wet conditions and excess watering. Raise mowing height if practical. Avoid frequent applications of broad-spectrum systemic fungicides. The use of some composts and organic fertilizers has been shown to reduce disease severity.	etridiazole fosetyl-Al mefenoxam metalaxyl propamocarb (NOTE: etridiazole, propamocarb, and metalaxyl must be thoroughly watered in. Fosetyl-Al can be applied as a spray. Apply fungicides October–November for early spring control.) *Trichoderma harzianum*
Red thread, pink patch *(Laetisaria, Limonomyces)*	Occurs May–October. Attacks Kentucky bluegrass, annual bluegrass, PERENNIAL RYEGRASS, FINE FESCUES, and bentgrass.	Avoid N deficiency, especially on perennial ryegrass and fescue. Use resistant varieties of Kentucky bluegrass, perennial ryegrass, and fine fescue. The use of some organic fertilizers will reduce disease severity.	flutolanil iprodione propiconazole thiram triadimefon
Rusts *(Puccinia)*	Occurs July–October. Attacks Kentucky bluegrass and perennial ryegrass.	Avoid N deficiency and drought. Use resistant varieties of Kentucky bluegrass and perennial ryegrass.	chlorothalonil mancozeb propiconazole triadimefon
Smuts *(Urocystis, Ustilago)*	Occurs April–November. Attacks KENTUCKY BLUEGRASS, creeping bentgrass, and colonial bentgrass.	Avoid excess N and drought. Use resistant varieties of Kentucky bluegrass.	cyproconazole fenarimol propiconazole thiophanates triadimefon (NOTE: Apply fungicides in November or March.)
Summer patch *(Magneporthe)*	Occurs June–September. Attacks KENTUCKY BLUEGRASS, fine fescues, ANNUAL BLUEGRASS, and bentgrass.	Avoid excess N, drought, excess water, and very low mowing. Mix perennial ryegrass into Kentucky bluegrass seed or overseed with resistant varieties of Kentucky bluegrass.	azoxystrobin[4] cyproconazole fenarimol iprodione propiconazole thiophanates triadimefon (NOTE: Apply fungicides preventively at high rates in April–June.)

[1]The most susceptible species are printed in CAPITAL LETTERS.

[2]These practices have been shown to affect disease severity. The inclusion of these practices in no way implies that they may eliminate the need for pesticides. Solid programs will integrate good culture with judicious pesticide use.

[3]See pages 21–26 for registered trade names.

[4]The use of this fungicide may increase severity of dollar spot.

[5]Combined use of aeration and nonionic surfactants with the fungicide are useful.

*Restricted-use pesticide; may be purchased and used only by certified applicators.

continued

Table 4. Cultural management and chemical control of turfgrass diseases *(continued)*

Disease (Pathogens)	*Comments*[1]	*Cultural Management*[2]	*Fungicide or Nematicide*[3]
Take-all patch *(Gaeumannomyces)*	Occurs March–June and September–November. Attacks BENTGRASS and annual bluegrass.	Use acidifying fertilizers to reduce thatch pH. Avoid heavy applications of lime. The use of composts and organic fertilizers may reduce the severity of take-all in newly seeded areas.	azoxystrobin[4] fenarimol (NOTE: Controlling other diseases with triadimefon or propiconazole may also be helpful.)
Typhula blight *(Typhula)*	Occurs December–April. "Gray snow mold." Attacks Kentucky bluegrass, BENTGRASS, ANNUAL BLUEGRASS, TALL FESCUE, fine fescues, and perennial ryegrass.	Use proper fertilizer management to prevent lush turf going into winter. Apply heavy rates of compost to cover dormant turf. Remove excess compost in early spring before turf resumes growth.	chloroneb chlorothalonil fenarimol iprodione propiconazole quintozene thiram triadimefon (NOTE: Apply fungicides before long-lasting snow cover. Systemic fungicides should not be applied to dormant turf.)

[1]The most susceptible species are printed in CAPITAL LETTERS.
[2]These practices have been shown to affect disease severity. The inclusion of these practices in no way implies that they may eliminate the need for pesticides. Solid programs will integrate good culture with judicious pesticide use.
[3]See pages 21–26 for registered trade names.
[4]The use of this fungicide may increase severity of dollar spot.
[5]Combined use of aeration and nonionic surfactants with the fungicide are useful.
*Restricted-use pesticide; may be purchased and used only by certified applicators.

Selection and Application of Turfgrass Fungicides

Fungicides used for turfgrass disease control can be categorized as contacts and systemics. Many of the older fungicides are contact fungicides. Some common contact fungicides are listed in Table 5.

Contact fungicides are typically applied to foliage to prevent pathogenic fungi from infecting leaves. These fungicides are also effective in killing pathogens on thatch and leaf clippings in the turfgrass canopy. Contact fungicides act by killing both dormant spores and dormant and active mycelia of pathogenic fungi. They must be reapplied frequently so newly formed grass tissue remains protected. For contact fungicides to be effective foliar protectants, they must be allowed to dry on the plant surface after application. Therefore, to achieve most effective control of foliar diseases, they should never be watered in or applied in the rain. If they are used to control pathogen activity in thatch, they can be watered in. Because contact fungicides are largely water-insoluble, their movement through thatch is limited and they may not protect roots effectively.

Many of the modern fungicides used for turfgrass disease control are systemic fungicides. This means that they move in the plant's vascular system from the original site of application to distant parts. For example, a systemic fungicide applied to turf foliage may move through the plant to protect roots as well as leaves against infection by a pathogen. Most of the systemic fungicides currently used are translocated upward in the plant. A few have limited downward movement as well. The plant translocation of each of various systemic fungicides is given in Table 6.

The way systemic fungicides move in the plant influences the manner in which they should be applied so as to achieve effective control of specific diseases. These properties should be considered when developing any disease control strategy that includes systemic fungicides. In general, foliar disease control with systemic fungicides is more prolonged when they are drenched into the root zone. For example, foliar applications of upward-moving systemic fungicides provide excellent short-term control of foliar diseases. Drenching the fungicide into the root zone provides a much longer period of protection as well as control against some root and crown diseases. Root disease control with upward-moving systemic fungicides is possible only if they are drenched into the root zone, whereas downward-moving systemic fungicides can control root diseases when applied as a foliar spray.

Systemic fungicides have the following advantages over contact fungicides: (1) longer residual action, (2) protection of root and crown tissues, (3) suppression of pathogens that have already infected plant tissues, and (4) protection of newly

Because of its toxicity and long residual activity, it is not appropriate for home lawns.

Trichlorfon (Dylox) is a fast-acting, short-residual insecticide recommended for spot treatments. All people and pets must be kept off the treated area for 24 hours after treatment. Trichlorfon is highly soluble and penetrates the thatch layer of sod better than most products, but it has an extremely short residual activity. It has a reduced half-life in alkaline soils. This product is recommended as a good late-season curative and should be applied after the grubs have been located.

Diazinon has been recommended for grubs for many years. It must be carefully watered in. It is sensitive to acid and will thus persist slightly longer in alkaline soils. Diazinon granules are no longer legal for commercial application to large areas and golf course turf because the particles are toxic to birds that eat them.

Chlorpyrifos (Dursban) is commonly available in lawn and garden centers. It is not very water soluble and tends to bind to thatch. This product will not be useful in managing grubs if it remains on the leaf blades and thatch while the target insect resides inches below the thatch layer.

Carbaryl (Sevin) is a stomach poison insecticide labeled for control of white grubs in home lawns. The grubs must be actively feeding for it to work. It is highly toxic to bees, so it should be applied in the early morning or evening when they are not in flight.

Imidacloprid is a broad-spectrum, long-residual insecticide. It must be well watered in to be effective and requires an activation period. The optimal time to use imidacloprid is June and July before egg hatch. It is highly effective against young, newly hatched grubs but is less effective when applied in late summer or fall. If a site in a home lawn or golf course is damaged every year, it may be a preferred oviposition site by the female beetles. It makes sense to use a preventive as a spot treatment in this type of area.

Sod Webworm and Black Cutworms

Monitoring

The initial appearance of adults in the North can be monitored using either black light or pheromone traps set out early in the season (mid-March in southeastern New York). Both traps have shortcomings. Black light traps are expensive, require high maintenance, and are labor intensive but have the advantage of capturing both male and female moths (along with a wide variety of other insects). Pheromone traps are relatively inexpensive and simple to maintain but catch only male moths. Because storm-driven moths are deposited randomly, there is no guarantee that no captures means no females are present nor is there any way to equate capture numbers to infestation levels; thus the usefulness of these traps is limited. A positive capture means only that chances are good that females are present and that larvae may appear within a week.

In agronomic crops, primarily corn, it is recommended that scouting for the damaging fourth instar should begin 168–300 GDD after first capture. On greens, damage would be readily noticeable by the time the larvae reached the fourth instar, so ideally the management decision should be made before they reach that stage.

The standard method for monitoring larvae is the soapy water drench: 1 fluid ounce lemon-scented dish detergent per 2 gallons water applied to 2–3 square feet of green and from one to three samples taken per green. The soap acts as an irritant, causing the larvae to emerge from hiding. The reliability of detecting young larvae by randomly sampling only 2 to 6 square feet of each green is questionable, particularly because young larvae are prone to falling back into their holes before being noticed. In addition, it can be both time and labor intensive. In our experience the soapy drench works best to confirm the presence of cutworm where damage is already suspected. Although this helps prevent misdiagnosis and potential misapplication (cutworm damage superficially resembles dollar spot or ball marks) it doesn't serve the other goals of monitoring.

Cultural Control

Cultural guidelines include dumping clippings 50 to 200 feet from greens to prevent newly hatched larvae from migrating back onto the green. Although neither endophytic perennial ryes nor tall fescues are resistant, the larvae shun feeding on Kentucky bluegrasses, so a buffer of KB around a green may reduce the incidence of feeding.

For chemical control, see Table 7.

Table 7. Chemical control of turfgrass insects

Pest	*Chemical*	*AI/A (lb.)*
Ants	bifenthrin *chlorpyrifos (Dursban) cyfluthrin	

Treat mounds according to label directions. When used for other lawn insects, it should also control ants. Talstar Lawn and Tree Flowable (EPA reg. no. 279-3162) and perhaps other formulations if still in effect should not be used on sod farms, golf course turf, or grass grown for seed. Please check label(s) for current restrictions. Product Bulletin (code 1660 for Talstar Lawn and Tree Flowable, EPA reg. no. 279-3162): a 100-foot buffer must be maintained between the application site and waters of the state. A 100-foot buffer is required for all waters except those entirely owned with no outlet to state waters. The buffer must consist of well-maintained, established vegetation (e.g., grass) growth and must be maintained to prevent the development of channels. Do not make more than three applications per year, with a minimum reapplication interval of 30 days.

continued

Table 7. Chemical control of turfgrass insects (*continued*)

Pest	*Chemical*	*AI/A (lb.)*
Black turfgrass ataenius	bifenthrin	See label.
	cyfluthrin	See label.
Apply during May and July to control first- and second-generation black turfgrass ataenius adults, respectively. The May application should be timed to coincide with the full bloom stage of Vanhoutte spirea and horse chestnut. The July application should be timed to coincide with the blooming of Rose of Sharon. Talstar Lawn and Tree Flowable (EPA reg. no. 279-3162) should not be used on sod farms, golf course turf, or grass grown for seed. Please check label(s) for current restrictions. Product Bulletin (code 1660 for Talstar Lawn and Tree Flowable (EPA reg. no. 279-3162): a 100-foot buffer must be maintained between the application site and waters of the state. A 100-foot buffer is required for all waters except those entirely owned with no outlet to state waters. The buffer must consist of well-maintained, established vegetation (e.g., grass) growth and must be maintained to prevent the development of channels. Do not make more than three applications per year, with a minimum reapplication interval of 30 days.		
Bluegrass billbug	bifenthrin	See label.
	carbaryl (Sevin)	See label.
	*chlorpyrifos (Dursban)	See label.
	cyfluthrin	See label.
	imidacloprid (Merit)[1]	See label.
Make one application to newly mowed turfgrass between May 15 and July 1 when one billpug per minute is seen on adjacent pavement. Water lightly. Degree-day models have been developed to optimize timing of application. Product Bulletin (code 1660 for Talstar Lawn and Tree Flowable (EPA reg. no. 279-3162): a 100-foot buffer must be maintained between the application site and waters of the state. A 100-foot buffer is required for all waters except those entirely owned with no outlet to state waters. The buffer must consist of well-maintained, established vegetation (e.g., grass) growth and must be maintained to prevent the development of channels. Do not make more than three applications per year, with a minimum reapplication interval of 30 days.		
Grubs (e.g., Japanese beetle,	bendiocarb (Turcam)	See label.
	*chlorpyrifos (Dursban)	See label.
European chafer, Asiatic	*ethoprop (Mocap)	See label.
garden beetle, oriental beetle)	trichlorfon (Dylox, Proxol)	See label.
	carbaryl (Sevin)	See label.
	imidacloprid (Merit)[1]	See label.
	*halofenozide (MACH II)[2]	See label.
Hairy chinch bug	bifenthrin	See label.
	carbaryl (Sevin)	See label.
	*chlorpyrifos (Dursban)	See label.
	cyfluthrin	See label.
	*ethoprop (Mocap)	See label.
Fine fescues are most susceptible. Water before treatment. Spray with 15 to 20 gal. of water per 1,000 sq. ft. Water in granular materials after application. Apply in early June. Except with isofenphos and Aspon, a second application two to three weeks later may be necessary. Avoid drought; use endophyte-containing cultivars. Talstar Lawn and Tree Flowable (EPA reg. no. 279-3162) should not be used on sod farms, golf course turf, or grass grown for seed. Please check label(s) for current restrictions. Product Bulletin (code 1660 for Talstar Lawn and Tree Flowable (EPA reg. no. 279-3162): a 100-foot buffer must be maintained between the application site and waters of the state. A 100-foot buffer is required for all waters except those entirely owned with no outlet to state waters. The buffer must consist of well-maintained, established vegetation (e.g., grass) growth and must be maintained to prevent the development of channels. Do not make more than three applications per year, with a minimum reapplication interval of 30 days.		
Hyperodes weevil (primarily	bifenthrin	
	*chlorpyrifos (Dursban)	See label.
Long Island and Westchester County)	imidacloprid (Merit)	See label.
Treat between forsythia and flowering dogwood "full-bloom" (usually about April 15 to May 7). Repeat treatments for second generation. Applications should be timed to control adult weevils as they leave their overwintering sites and move into grass areas. This movement generally begins when Forsythia is in full bloom and concludes when flowering dogwood is in full bloom. Repeat treatment for second generation if needed. Talstar Lawn and Tree Flowable (EPA reg. 279-3162): Not for use on sod farms, golf course turf, or grass grown for seed. Please check label(s) for current restrictions. Product Bulletin (code 1660 for Talstar Lawn and Tree Flowable (EPA reg. no. 279-3162): a 100-foot buffer must be maintained between the application site and waters of the state. A 100-foot buffer is required for all waters except those entirely owned with no outlet to state waters. The buffer must consist of well-maintained, established vegetation (e.g., grass) growth and must be maintained to prevent the development of channels. Do not make more than three applications per year, with a minimum reapplication interval of 30 days.		

Table 7. Chemical control of turfgrass insects (*continued*)

Pest	*Chemical*	*AI/A (lb.)*
Moles		
Older-type poison baits not effective. Traps continue to be effective when carefully set. Moles feed on beetle grubs and earthworms. Mouse damage to turfgrass in very early spring is often attributed to moles.		
Sod webworm and black cutworms	acephate (Orthene)	See label.
	bifenthrin	See label.
	carbaryl (Sevin)	8
	*chlorpyrifos (Dursban)	1
	cyfluthrin	See label.
	*ethoprop (Mocap)	5
	spinosad	See label.
	trichlorfon (Dylox, Proxol)	8
Wet lawn before treating. Do not cut grass for one to three days after application. Irrigate for 15 minutes after application. Use endophyte-containing cultivars. To ensure optimal control, delay irrigation or mowing 24 hours after application. Older (larger) cutworms are more difficult to control than younger larvae; thus early treatment should require a lower rate for adequate contorl. Turf maintained at a high cutting height may require higher rates when pest pressure is high. Talstar Lawn and Tree Flowable (EPA reg. 279-3162): Not for use on sod farms, golf course turf, or grass grown for seed. Please check label(s) for current restrictions. Product Bulletin (code 1660 for Talstar Lawn and Tree Flowable, EPA reg. no. 279-3162): a 100-foot buffer must be maintained between the application site and waters of the state. A 100-foot buffer is required for all waters except those entirely owned with no outlet to state waters. The buffer must consist of well-maintained, established vegetation (e.g., grass) growth and must be maintained to prevent the development of channels. Do not make more than three applications per year, with a minimum reapplication interval of 30 days.		

[1]This insecticide has shown sufficient residual activity in turfgrass to control the fall brood of annual scarab grubs when applied the previous spring or summer. High levels of grub control can be achieved when applications are made between April 1 and August 15, which precedes annual scarab grub egg hatch. There has been considerable debate among turfgrass entomologists about the use of insecticides such as MErit that are designed to be used before the size and damage potential of the insect population are known. That is, these products are applied before insect eggs are hatched and frequently several months before they are laid. There is great potential for abuse of this product if turf managers use it indiscriminately, that is, without regard to the likelihood of having a damaging population of insects on treated areas sometime in the future.

[2]Not for use on Long Island, N.Y.

Table 8. Chemical control of turfgrass weeds

ANNUAL GRASSY WEEDS: PREEMERGENCE CONTROL

Weed	*Herbicide*			
	Common name	*Trade name*	*Formulation*	*AI/A*
Crabgrass, barnyardgrass, foxtails, panicum	benefin	Balan	25G	2 lb.
	Apply in early spring for preemergence control on mature turfgrass only. May injure bentgrass.			
	benefin + trifluralin	Team	2G	2 lb.
	benefin + trifluralin	Team Pro	0.86G	1.5–3.0 lb.
	Apply in early spring for preemergence control on mature turfgrass only. Do not use on bentgrass greens or tees.			
	bensulide	Betasan	4E	7.5–1.0 lb.
	Apply in early spring for preemergence control on mature turfgrass only.			
	*dithiopyr	Dimension	1EC, granular w/fertilizer (several formulations)	0.25–0.5 lb.
	Apply in early spring for preemergence control on established turfgrasses. Tolerant turfgrasses include bluegrasses, fescues, ryegrasses, zoysiagrass, and creeping bentgrass. Labeled for bentgrass greens, tees, and fairways. Length of control is rate dependent; lower rates may be used upstate and higher rates in the lower Hudson Valley. Not for use on Long Island. See label for rate suggestions and precautions.			
	oxadiazon 2G	Ronstar	2G, 50WP	2–4 lb.
	Apply in early spring for preemergence control on mature Kentucky bluegrass, tall fescue, and perennial ryegrass only. **NOTE:** Ronstar 50WP formulation is labeled for Zoysia turf but has injured other cool-season turfgrasses.			
	pendimethalin	Pre-M, Halts, Weedgrass control	65DG	1.5–2.0 lb.
	Apply in early spring for preemergence control on mature turfgrass. May also be used on seedling turf with 1 to 2 inches of growth. Do not use on closely cut bentgrass.			
	*prodiamine	Barricade	65WG	0.65–0.75 lb.
	Apply in early spring for preemergence control on established turfgrasses. Tolerant turfgrasses include bluegrasses, fescues, ryegrasses, zoysiagrass, and creeping bentgrass. Maximum dose for any application and maximum allowed per year vary with turf type. See label for detailed rate suggestions and precautions.			
	siduron	Tupersan	4.6%, 50WP	6–12 lb.
	Apply in early spring to newly seeded, seedling, or mature turfgrass for preemergence control. Also effective on young crabgrass seedlings. Use reduced rate, 6 lb./A, on newly seeded turfgrass.			
Goosegrass (silver crabgrass)	benefin + trifluralin	Team	2G	3 lb.
	benefin + trifluralin	Team Pro	0.86G	3 lb.
Goosegrass generally germinates 2 to 4 weeks after crabgrass. Treat later than for crabgrass.	Apply in spring for preemergence control on mature turfgrass only. Do not use on bentgrass greens or tees. Split applications may be necessary to control late-germinating goosegrass. See label for details.			
	oxadiazon 2G	Ronstar	2G, 50WP	4 lb.
	Apply in spring for preemergence control on mature Kentucky bluegrass, tall fescue, and perennial ryegrass only. **NOTE**: Ronstar 50WP formulation is labeled for Zoysia turf but has injured other cool-season turfgrasses.			

2ee recommendation
*Restricted-use pesticide; may be purchased and used only by certified applicators.

continued

Table 8. Chemical control of turfgrass weeds *(continued)*

ANNUAL GRASSY WEEDS: PREEMERGENCE CONTROL *(continued)*

Weed	Herbicide: Common name	Herbicide: Trade name	Herbicide: Formulation	AI/A
Goosegrass *(continued)*	bensulide + oxadiazon	Scott's Goosegrass/ Crabgrass Control	4E+50WP 6.5+1.5 lb.	
	For use on bentgrass, greens, and tees. Some injury can be expected.			
	*dithiopyr	Dimension	1EC	0.5 lb.
	Apply in spring for preemergence control on established turfgrasses. Tolerant turfgrasses include bluegrasses, fescues, ryegrasses, zoysiagrass, and creeping bentgrass. Labeled for bentgrass tees, fairways, and greens. Not for use on Long Island. Some turf injury has been observed on native soil (unamended) greens. See label for rate suggestions and precautions.			
	pendimethalin	Pre-M, Halts, Weedgrass Control	60DG 60WP	2 lb. 2 lb.
	Apply in spring for preemergence control on mature turfgrass only. Do not use on closely cut bentgrass. Second application may be necessary to control late-germinating goosegrass. See label for details.			
	*prodiamine	Barricade	65WDG	0.75 lb.
	Apply in early spring for preemergence control on established turfgrasses. Tolerant turfgrasses include bluegrasses, fescues, ryegrasses, and zoysiagrass. More consistent control is obtained by sequential applications of 0.75 lb. followed six weeks later by 0.25 lb. This higher rate required to control goosegrass is not safe on bentgrass. Maximum dose for any application and maximum allowed per year vary with turf type. See label for detailed rate suggestions and precautions.			

ANNUAL GRASSY WEEDS: POSTEMERGENCE CONTROL

Crabgrass, goosegrass, foxtail, barnyardgrass, other summer annual grasses	*dithiopyr	Dimension	1EC	0.38–0.5 lb.
	Postemergent control of young seedling (pretillering) crabgrass but not goosegrass. Addition of 0.25% (by volume) of a nonionic surfactant may improve control. To control tillered crabgrass dithiopyr may be mixed with Acclaim or MSMA. Not for use on Long Island.			
	fenoxaprop	Acclaim Extra	0.57EC	1/8–3/8 lb.
	Apply to actively growing grassy weeds. Use higher rates for larger weeds. Do not tank mix with broadleaf herbicides. See label for other restrictions. On bentgrass tees and fairways use 0.032 lb./A. Follow the special directions on the label. Addition of a surfactant is not generally recommended.			
	methanearsonates	MSMA	6.0L, 6.6L, 55WG	2 lb.
	Apply after crabgrass has emerged but before it is large enough to be competitive with desirable turfgrass. Repeat application may be necessary. Does not control goosegrass effectively. May discolor turfgrass. DSMA is also labeled but is used at higher rates.			
Annual bluegrass in perennial ryegrass	ethofumesate	Prograss	1.5EC	1–2 lb./A (2/3–1 1/3 gal./A)
	Apply in late August or early September to control seedling annual bluegrass. Apply follow-up treatment 30 to 60 days later. Do not exceed 4 lb. AI/A per year. On seedling ryegrass, apply only after ryegrass seedlings are 1 inch tall.			
Annual bluegrass in creeping bentgrass	paclobutrizol	Scott's TGR	0.36G	1/3–3/4 lb./A
	For suppression of annual bluegrass and gradual conversion to bentgrass. Use lower rate on sandy soils. Apply in late summer or early fall (no later than October 1 in New York) and again in the spring after 100% green-up. Applications when turfgrass vigor is low may result in undesirable levels of discoloration and growth reduction. May be used on bentgrass greens, but greater caution is advised because the margin for safety is narrower than on higher-cut turf.			

2ee recommendation
*Restricted-use pesticide; may be purchased and used only by certified applicators.

Table 8. Chemical control of turfgrass weeds *(continued)*

PERENNIAL WEEDS

Weed	*Herbicide* *Common name*	*Trade name*	*Formulation*	*AI/A*
Yellow nutsedge	bentazon	Basagran	5G, 4L	1–2 lb.
	Apply in late June to early July; repeat in 10 to 14 days if necessary. The high rate has injured ryegrass turf; avoid such applications during hot weather to minimize the chances of injury.			
	halosulfuron	Manage	75WP	0.031–0.062 lb.
	Apply at 3- to 8- leaf stage with nonionic surfactant. A second application may be needed six weeks later.			
	methanearsonates	MSMA	6.0L, 6.6L, 5.5WG	2 lb.
	Apply when first active spring growth occurs. Repeat application in 10 to 14 days. May discolor turfgrass.			
Tall fescue or perennial ryegrass in Kentucky bluegrass, fine fescue, or bentgrass turf	chlorsulfuron	Lesco TFC	75DG	2–4 oz./A
	Apply as a spot or limited-area treatment to tall fescue or ryegrass infestations. May take one month to show effect. Some varietal differences in Kentucky bluegrass tolerance have been observed; use with caution. Do not allow spray drift to contact nearby trees or shrubs; injury will result. Injury to trees and shrubs may also occur via root uptake.			
Tall fescue, orchardgrass, quackgrass (and other undesirable perennial grasses) in other turfgrasses	Roundup	Monsanto, others	4L	1–2 lb.
	Wipe with Roundup (glyphosate) when tall fescue is taller than desirable grass. Avoid contact with desirable species. If large infestations exist, see section on turf renovation.			
Wild onion, garlic	2,4-D	many formulations		1 lb.
	Spray during each of two successive springs; second spring cleanup essential because plants regrow from bulbs.			
## Star-of-Bethlehem (*Ornithogalum* sp.)	oxadiazon	Ronstar G	2G, 50WP	4 lb.
	Apply in October for two consecutive years. Apply to established Kentucky bluegrass, tall fescue, and perennial ryegrass only.			

BROADLEAF WEEDS: PREEMERGENCE CONTROL

Winter annuals (germinate in late summer, fall, or early spring)

Chickweed, common or mouseear	pendimethalin	Pre-M, Weedgrass Control	6.0L, 6.6L, 55WG	2 lb.
	Apply in August before weed germination. Observe all label restrictions pertaining to turf species, mowing height, and maximum dosage.			
	*dithiopyr	Dimension	1EC	0.5 lb.
	*prodiamine	Barricade	65WDG	0.75 lb.
Henbit and deadnettle	pendimethalin	Pre-M, Weedgrass Control	60DG, 60WP	2 lb.
	bensulide	Betasan, others	4G	12.5 lb.
	Apply in August before weed germination. Observe all label restrictions pertaining to turf species, mowing height, and maximum dosage.			
	*dithiopyr	Dimension	1EC	0.5 lb.
	*prodiamine	Barricade	65WDG	0.75 lb.

2ee recommendation
*Restricted-use pesticide; may be purchased and used only by certified applicators.

continued

Table 8. Chemical control of turfgrass weeds *(continued)*

BROADLEAF WEEDS: PREEMERGENCE CONTROL *(continued)*

Weed	Herbicide: Common name	Herbicide: Trade name	Herbicide: Formulation	AI/A
Speedwell, annual species such as *Veronica arvensis, V. hederifolia, V. persica, V. peregrina.* Not *V. filiformis.*	oxadiazon	Ronstar G	2G, 50WP	2 lb.
	Apply in August before weed germination. Observe all label restrictions pertaining to turf species, mowing height, and maximum dosage.			
	*dithiopyr	Dimension	1EC	0.5 lb.
Summer annuals (germinate in the spring or summer and die at frost)				
Knotweed, prostrate	pendimethalin	Weedgrass Control	60DG, 60WP	2 lb.
	Germinates in very early spring; therefore, late fall applications are more effective. A second application in early to mid-June may be necessary to prevent late-germinating weeds.			
Oxalis (woodsorrel)	pendimethalin	Pre-M, Weedgrass Control	60DG, 60WP	2 lb.
	benefin + trifluralin	Team	2G	3 lb.
	benefin + trifluralin	Team Pro	0.86G	3 lb.
	oxadiazon	Ronstar G	2G, 50WP	2 lb.
	Apply in the spring before germination. A second application is usually necessary to prevent late-germinating weeds.			
	*prodiamine	Barricade	65WDG	0.75 lb.
Spurge	pendimethalin	Pre-M, Weedgrass Control	60DG 60WP	2 lb.
	Apply in late spring before germination. A second application is usually necessary to prevent late-germinating weeds.			
	benefin + trifluralin	Team	2G	3 lb.
	benefin + trifluralin	Team Pro	0.86G	3 lb.
	Apply in late spring before germination. A second application is usually necessary to prevent late-germinating weeds. Follow all label restrictions pertaining to turf species, mowing height, and maximum dosage.			
	oxadiazon	Ronstar G	2G, 50WP	4 lb.
	Apply in late spring before germination. A second application is usually necessary to prevent late-germinating weeds. Note the higher rate is required for spurge control. Variable results have been obtained at lower rates. Follow all label restrictions.			
	*prodiamine	Barricade	65WDG	0.75 lb.
	Apply in the spring before germination. Sequential applications are generally more effective than single spring treatments. See label for rate restrictions and other precautions.			
General broadleaf weed control, including black medic, burdock, chickweeds, clover, dandelion dock, healall, mallow, plantains, sheep (red) sorrel, spurge, wild garlic, yarrow, and others	Various two-way and three-way combinations of 2,4-D + MCPP + dicamba 2,4-D + 2,4-DP + dicamba MCPA + MCPP + dicamba	many trade names	many formulations	See labels.
	Fall application is usually best; spring is acceptable. Repeat applications may be necessary for some weeds. Apply on mature turfgrass only. Special formulations are available for bentgrass lawns and fairways.			

2ee recommendation

*Restricted-use pesticide; may be purchased and used only by certified applicators.

Table 8. Chemical control of turfgrass weeds (*continued*)

BROADLEAF WEEDS: POSTEMERGENCE CONTROL

Weed	*Herbicide*			
	Common name	*Trade name*	*Formulation*	*AI/A*
Broadleaf plantain, buckhorn plantain, burdock, dandelion, hawkweed, moneywort, shepherdspurse, thistles, wild carrot, yellow rocket	2,4-D	many trade names	many formulations	1.0–1.5 lb.
	Fall application is usually best; early spring is acceptable. Repeat applications may be necessary for some weeds. Apply on mature turfgrass only.			
Chickweed (both), henbit, knotweed, pearlwort, prostrate spurge, red (sheep) sorrel, white clover, yarrow	dicamba	Banvel	many formulations	1/8–3/8 lb.
	Avoid root zone of trees and shrubs. Repeat applications may be necessary for some weeds.			
General broadleaf weed control, including black medic, buttercup, chickweed (both), ground ivy, henbit, common mallow, white clover, yarrow, and yellow woodsorrel	2,4-D + dichlorprop	Weedone DPC	many formulations	1 lb. + 1 lb.
	Apply in fall or early spring. Repeat applications may be necessary for some weeds.			
Chickweed (both), pearlwort, purslane, white clover	mecoprop	MCPP	many formulations	1 lb.
	Relatively safe on all grasses including bentgrass. Labeled for use on bentgrass greens. Can be used in summer.			
General broadleaf weed control, including black medic, buttercup, chickweed, cinquefoil, clovers, corn speedwell, dandelion, docks, field bindweed, ground ivy, mallow, plantains, prostrate spurge, wild carrot (Queen Anne's lace), wild violet, woodsorrel, yarrow, and others	triclopyr + 2,4-D	Chaser, Turflon II Amine	1L + 2L	0.375 lb. + 0.75 lb. to 0.5 lb. + 1.0 lb.
	Apply to actively growing weeds in established turfgrass. Repeat applications may be necessary for complete kill of certain hard-to-kill species. Do not use on bentgrass.			
Annual and perennial broadleaf weeds in established turf and sods	triclopyr + clopyralid	*Confront	1L	1–2 pt./A; maximum use rate is 2 2/3 pt./A/season
	Apply only to established turfgrasses. Stunting and discoloration may result from application to less well established turfs. Do not apply more than 1 pt./A to bentgrass. Some injury may be observed. Not for use in Nassau and Suffolk Counties. Do not use on golf course putting greens or tees. Read label carefully with respect to disposal of treated grass clippings. Do not make broadcast applications to landscape plantings. Do not allow spray to contact susceptible trees, shrubs, or landscape materials. Avoid spray drift.			
	clopyralid	*Lontrel T&O		1/8–1/3 pt./A
	Apply only to established turfgrasses. Stunting and discoloration may result from application to less well established turfs. Do not apply more than 1 pt./A to bentgrass. Some injury may be observed. Not for use in Nassau and Suffolk Counties. Do not use on golf course putting greens or tees. Read label carefully with respect to disposal of treated grass clippings. Do not make broadcast applications to landscape plantings. Do not allow spray to contact susceptible trees, shrubs, or landscape materials. Avoid spray drift.			

2ee recommendation
*Restricted-use pesticide; may be purchased and used only by certified applicators.

Turf Renovation

To kill all grass and growing weeds, omit at least one mowing before spraying. Apply glyphosate (Roundup) at the rate required for specific weeds: a normal rate of 2 lb./A or 2 qt./50 gal. water/A (1½ oz./gal./1,000 sq. ft.) is adequate for grass control, with the exception of certain fescue species. In addition, glufosinate (Finale) can be used at 3–5 qt./20 gal./A, except in Nassau and Suffolk Counties. Allow seven days before vertical cutting and seeding. For best results, use a seeder that places seed in the topsoil under the thatch. Do not contact foliage of desirable plants. This treatment provides no residual weed control. Do not use glyphosate in galvanized or unlined steel sprayers.

Attachment 5

Fertilizer Product Information

Home Up Contents

2-3-3 Nat Org | 4-6-4 Nat Org | 5-2-4 Nat Org | 5-2-4+Fe
5-2-10+Fe | 10-1-2 Nat Org | 10-2-10 | 18-1-8

SUSTÅNE Naturally...

Suståne 5 – 2 – 4 All Natural Organic

OMRI™ Listed

Granulated Slow Release Nitrogen Fertilizer

Allowed for use on certified organic food and fiber crops

GUARANTEED PRODUCT ANALYSIS:

Total Nitrogen (N).....5 %
- 0.5 % Ammoniacal Nitrogen
- 0.5 % Water Soluble Nitrogen
- 4.0 % Water Insoluble Nitrogen*

Available Phosphate (P_2O_5).....2 %
Soluble Potash (K_2O).....4 %
Calcium (Ca).....2 %
Sulfur (S) (Combined.....2 %
Primary plant food sources derived from aerobically composted turkey litter, hydrolyzed feathermeal and sulfate of potash.
*This product contains 4.0 % slow release nitrogen.

FINE AND MEDIUM GRADES

Fine Grade: Mesh size -14 + 30 (1.4 mm to 0.6 mm) for greens and tees.
Medium Grade: Mesh sizes -7 + 14 (2.8 mm to 1.4 mm) for lawncare, gardening, nurseries.

GENERAL TURF APPLICATION RATES (metric see below)

Coverage

50 lb. covers 2500 sq. ft. @ 20 lb./1000 sq. ft. (1.0 lb. N/1000 sq. ft.);
50 lb. covers 3333 sq. ft. @ 15 lb./1000 sq. ft. (0.75 lb. N/1000 sq. ft.)

Northern Turf

Fairways, Athletic Fields, Parks and Lawncare -
Apply 2-3 times per season. Spring and Fall rate 20 lb. per 1000 sq. ft.; Summer 15 lb.

per 1000 sq. ft.

Greens and Tees -

Apply 3-4 times per season. Spring and Fall rate 20 lb. per 1000 sq. ft.; Summer 15 lb. per 1000 sq. ft.

Southern Turf

Fairways, Athletic Fields, Parks and Lawncare -

Apply 4-7 times per season not exceeding 20 lb. per 1000 sq. ft. per application.

Greens and Tees -

On bermudagrass, apply 20 lb. per 1000 sq. ft. per application every 30-45 days or as dictated by clipping weight.

METRIC GENERAL TURF APPLICATION RATES

Coverage

25 kg covers 250 sq. m. @ 9.75 kg/100 sq. m. (0.50 kg N/100 sq. m.)
25 kg covers 340 sq. m. @ 7.38 kg/100 sq. m. (0.38 kg N/100 sq. m.)

Northern Turf

Fairways, Athletic Fields, Parks and Lawncare -

Apply 2-3 times per season. Spring and Fall rate 9.75 kg/100 sq. m.; Summer 7.38 kg/100 sq. m.

Greens and Tees -

Apply 3-4 times per season. Spring and Fall rate 9.75 kg/100 sq. m.; Summer 7.38 kg/100 sq. m.

Southern Turf

Fairways, Athletic Fields, Parks and Lawncare -

Apply 4-7 times per season not exceeding 9.75 kg/100 sq. m. per application.

Greens and Tees -

On bermudagrass, apply 9.75 kg/100 sq. m. per application every 30-45 days or as dictated by clipping weight

Send mail to help@sustane.com with questions or comments about this web site.
Last modified: May 18, 2000

Scotts ProTurf

31-3-10 Hi-Maintenance Fertilizer

High Density

Fine Particle

- Delivers good particle coverage, even at lower application rates
- Provides readily-available and controlled release nitrogen

83980

Net Weight: 63 7/8 lbs (28.97 kg)

CAUTION: PLEASE KEEP OUT OF REACH OF CHILDREN. EYE CONTACT WITH CONTENTS MAY CAUSE IRRITATION. FLUSH EYES WITH WATER AS SOON AS POSSIBLE.

ProTurf Hi-Maintenance Turf Fertilizer
31-3-10 643-8551

Guaranteed Analysis

Total nitrogen (N)	31%
0.5% ammoniacal nitrogen	
23.8% urea, methylene ureas nitrogen	
6.7% water insoluble nitrogen	
Available phosphoric acid (P_2O_5)	3%
Soluble potash (K_2O)	10%
Sulfur (S) (combined)	3.5%

Derived from urea, methylene ureas, monoammonium phosphate and potassium sulfate.

US Patent Nos: 3,705,794; 3,989,470 and 4,025,329
Product of USA

ProTurf Division
The O.M. Scott & Sons Company
Marysville, Ohio 43041

Recommended for Use by Professional Turfgrass Managers

Scotts ProTurf

31-3-10 Hi-Maintenance Fertilizer

High Density
Fine Particle

Provides controlled-release nitrogen and readily available potassium for quick, even green-up and extended feeding at low application rates

83980

The HD HI-MAINTENANCE Advantage:

- High nutrient analysis containing fast and sustained release of nitrogen, plus readily available phosphorus and potassium
- Optimum nitrogen-phosphorus-potassium ratio to meet various turf needs and soil conditions
- Small particle size to deliver good distribution at rates less than 0.9 lb of nitrogen per 1,000 square feet
- Contains readily available potassium from potassium sulfate
- For use on all turfgrasses on golf courses and related areas; particularly well suited for use on high maintenance, low-cut turf on low nitrogen programs
- Dry, dense, free-flowing, homogeneous product of uniform particle size that supplies an exceptionally even distribution of nutrients in each application; specially designed for use with rotary spreader
- Excellent turf safety; will not burn when used as directed
- No chloride- or nitrate-containing salts
- No inert carrier or fillers

Specifications for Bidding

NUTRIENT SOURCES:
N Urea, methylene urea, monoammonium phosphate
P Monoammonium phosphate
K Potassium sulfate
S Potassium sulfate

HD Hi-Maintenance Fertilizer: Analysis 31-3-10. A minimum of 98 percent of the total nitrogen (31 percent) is derived from urea and methylene ureas; a minimum of 2.0 percent from monoammonium phosphate. A minimum of 21 percent is from water-insoluble methylene ureas; remaining 78.4 percent from water-soluble urea, methylene urea and monoammonium phosphate. Phosphorus (3 percent) from monoammonium phosphate; potash (10 percent) and sulfur as sulfate (3.5 percent) from potassium sulfate.

Particle size:	-10+25 mesh (0.7—2.0 mm)
Net weight:	63.88 lbs (28.97 kg)
Coverage:	22,000 sq ft (1/2 acre)
Bulk Density:	46 lbs/cu ft
Stock no.:	83980

Recommended for Use by Professional Turfgrass Managers

891220 Printed in U.S.A.

31-3-10 Hi-Maintenance Fertilizer

Directions for use:

For use on all turf areas, including fairways, greens and tees. Particularly effective in low nitrogen program applications where lower application rates are desired, as the small particle size improves distribution and reduces the chance of speckling or mottling without sacrificing spreadability.

May be used anytime during the growing season. HALF RATE applications are effective in low nitrogen programs.

Turfgrass Areas Other Than Bentgrass Greens

Apply to dry foliage. If moist foliage applications are necessary, the turf should be watered immediately to remove the particles from the foliage.

For cool season grasses, apply at the NORMAL RATE. For warm season grasses, apply at the NORMAL or DOUBLE RATE. Use the HALF RATE in low nitrogen programs. When temperatures exceed 85°F, turf should be watered in immediately following application.

Putting Green Turf

Apply to moist or dry foliage at the NORMAL RATE or the HALF RATE and water in immediately with a minimum of 0.20 inches of water. EXCEPTION: If temperatures are 85°F or above, apply only at the HALF RATE and water as outlined above.

Storage and use

Store in a clean, dry place.

Reseal opened bag by folding top down and securing.

Use only clean, dry spreaders. Do not leave unused product in spreaders.

ProTurf Division
The O.M. Scott & Sons Company
Marysville, Ohio 43041

SUGGESTED SPREADER SETTINGS

To provide proper distribution calibrate your spreader before application

63 7/8 lbs feeds 22,000 ft² (1/2 acre)
with 0.9 lb N/1,000 ft² at the NORMAL RATE
63 7/8 lbs feeds 44,000 ft² (1 acre)
with 0.45 lb N/1,000 ft² at the HALF RATE
63 7/8 lbs feeds 11,000 ft² (1/4 acre)
with 1.8 lbs N/1,000 ft ² at the DOUBLE RATE

SPREADER	GROUND SPEED	WIDTH OF COVERAGE	SPREADER SETTINGS HALF RATE	NORMAL RATE	DOUBLE RATE
Scotts Drop	3 mph	overlap wheels	4	5 1/4	6 3/4
Scotts Rotaries R-7,R-7X* PT-10*,PT-11*	3 mph	12 feet	D	G	K
R-8 (cone 8)	3 mph	11 feet	J	L	N 1/2
Lely Model (see below)	4.5 mph	30 feet	4 IV	5 IV	6 1/2 IV
Vicon	4.5 mph	30 feet	16	23	36

* Use discharge hole cover #13030 (already attached to the PT-10 and PT-11 models). For the R-7X model use the adjustable pattern slide 1/4 closed.

Lely models WTR, WFR, HR and 1250. PTO at 450 rpm

Metric coverage: 28.97 kg feeds 2044m² at the NORMAL RATE, and 4088m² at the HALF RATE, and 1022m² at the DOUBLE RATE

Attachment 6

Sample GLEAMS Output File

NUTRIENT INPUT PARAMETER FILENAME: glm3nut3.par

G L E A M S NONPOINT SOURCE POLLUTION MODEL (NUTRIENTS)
VERSION 3.0 MAY 1, 1999 TIFTON GA

Belleayre Resort, ridge golf course hole #18 with perennial turf cover
Vly silt loam hydrological soil group C, 1996 climate,5app., w/P 4lbN

SURFACE RESIDUE 0.00 (KG/HA)
RAINFALL NITROGEN 0.34 PPM
IRRIGATION NITROGEN 0.43 PPM
IRRIGATION PHOSPHORUS 0.04 PPM

NITROGEN

TOTAL NITROGEN (percent)

1	0.35	2	0.35	3	0.21	4	0.21	5	0.21	6	0.21	7	0.21

NITRATE (KG/HA)

1	0.53	2	2.11	3	5.99	4	5.99	5	5.99	6	5.99	7	5.99

NITRATE (MG/KG)

1	3.50	2	3.50	3	3.00	4	3.00	5	3.00	6	3.00	7	3.00

AMMONIA (KG/HA)

1	0.30	2	1.21	3	3.99	4	3.99	5	3.99	6	3.99	7	3.99

AMMONIA (MG/KG)

1	2.00	2	2.00	3	2.00	4	2.00	5	2.00	6	2.00	7	2.00

ORGANIC NITROGEN (KG/HA)

1	0.00	2	0.00	3	0.00	4	0.00	5	0.00	6	0.00	7	0.00

POTENTIAL MINERALIZABLE NITROGEN (KG/HA)

1	49.00	2	196.00	3	49.00	4	49.00	5	49.00	6	49.00	7	49.00

SOIL NITROGEN (KG/HA)

1	477.06	2	1909.50	3	4124.12	4	4132.92	5	4136.98	6	4138.85	7	4139.72

PHOSPHORUS

TOTAL PHOSPHORUS (percent)

1	0.19	2	0.19	3	0.18	4	0.18	5	0.18	6	0.18	7	0.18

LABILE PHOSPHORUS (KG/HA)

1	2.27	2	9.06	3	27.96	4	27.96	5	27.96	6	27.96	7	27.96

LABILE PHOSPHORUS (MG/KG)

1	15.00	2	15.00	3	14.00	4	14.00	5	14.00	6	14.00	7	14.00

ORGANIC PHOSPHORUS (KG/HA)

1	0.00	2	0.00	3	0.00	4	0.00	5	0.00	6	0.00	7	0.00

MINERALIZABLE ORGANIC PHOSPHORUS (KG/HA)
1 66.45 2 265.79 3 613.92 4 613.92 5 613.92 6 613.92 7 613.92

ACTIVE MINERAL PHOSPHORUS (KG/HA)
1 43.24 2 173.02 3 597.67 4 598.11 5 598.32 6 598.41 7 598.45

STABLE MINERAL PHOSPHORUS (KG/HA)
1 172.96 2 692.07 3 2390.69 4 2392.45 5 2393.26 6 2393.64 7 2393.81

EXTRACTION COEFFICIENT FOR AMMONIA = 0.3497
EXTRACTION COEFFICIENT FOR PHOSPHORUS = 0.1000

ADSORPTION COEFFICIENT FOR AMMONIA
1 3.00 2 3.00 3 3.00 4 3.00 5 3.00 6 3.00 7 3.00

ADSORPTION COEFFICIENT FOR PHOSPHORUS
1 150.00 2 150.00 3 150.00 4 150.00 5 150.00 6 150.00 7 150.00

CLAY CONTENT, PERCENT
1 20.00 2 20.00 3 20.00 4 20.00 5 20.00 6 20.00 7 20.00

PH
1 6.50 2 6.50 3 6.50 4 6.50 5 6.50 6 6.50 7 6.50

BASE SATURATION, PERCENT
1 70.00 2 70.00 3 70.00 4 70.00 5 70.00 6 70.00 7 70.00

CALCIUM CARBONATE, PERCENT
1 0.00 2 0.00 3 0.00 4 0.00 5 0.00 6 0.00 7 0.00

UPDATEABLE PLANT NUTRIENT INPUTS

POT. YIELD 4480. KG/HA; DRY MATTER:YIELD 1.35
COEFFICIENTS OF N-CONTENT: C1 1.50000 C2 -0.23000
DATE OF HARVEST 1997365
CROP

				INORGANIC FERTILIZATION	
DATE	NO3 KG/HA	NH4 KG/HA	PHOS KG/HA	METH. APPL.	DEPTH CM
1996139	0.00	22.00	4.40	0	0.00

				INORGANIC FERTILIZATION	
DATE	NO3 KG/HA	NH4 KG/HA	PHOS KG/HA	METH. APPL.	DEPTH CM
1996169	0.00	48.80	19.52	0	0.00

				INORGANIC FERTILIZATION	
DATE	NO3 KG/HA	NH4 KG/HA	PHOS KG/HA	METH. APPL.	DEPTH CM
1996196	0.00	48.80	19.52	0	0.00

INORGANIC FERTILIZATION

DATE	NO3 KG/HA	NH4 KG/HA	PHOS KG/HA	METH. APPL.	DEPTH CM
1996227	0.00	48.80	19.52	0	0.00

INORGANIC FERTILIZATION

DATE	NO3 KG/HA	NH4 KG/HA	PHOS KG/HA	METH. APPL.	DEPTH CM
1996261	0.00	22.00	4.40	0	0.00

MONTHLY SUMMARY FOR JAN 1996

0	STORMS PRODUCED	0.00	CM. OF RAINFALL
0	STORMS PRODUCED	0.00	CM. OF RUNOFF
0	STORMS PRODUCED	0.00	CM. OF PERCOLATION
0	STORMS PRODUCED	0.00	T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.00	0.00
SEDIMENT	0.00	0.00
UPTAKE	0.00	0.00
MINERALIZATION	0.03	0.00
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.00	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.00	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996052	3.52	2.31	0.00	0.00	1.18	-7.4	0.28	0.00	0.00	1.50	7.51

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 52

SOURCE	NITROGEN	PHOSPHORUS

------		--------	----------
RUNOFF	MASS	0.27 KG/HA	0.02 KG/HA
	CONC	1.19 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.01 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.12 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996053	2.16	1.35	0.00	0.00	1.61	3.9	0.31	0.00	0.00	0.01	0.05

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 53

SOURCE		NITROGEN	PHOSPHORUS
------		--------	----------
RUNOFF	MASS	0.07 KG/HA	0.01 KG/HA
	CONC	0.54 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)

1996054	2.15	1.43	0.00	0.00	1.84	4.7	0.32	0.00	0.00	0.01
0.06										

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 54

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.07 KG/HA	0.01 KG/HA
	CONC	0.48 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996055	1.92	1.27	0.00	0.00	1.61	3.8	0.33	0.00	0.00	0.01	0.06

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 55

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.06 KG/HA	0.01 KG/HA
	CONC	0.45 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996056	1.47	0.89	0.18	0.00	1.69	3.1	0.33	0.00	0.00	0.01	0.06

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 56

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.04 KG/HA	0.01 KG/HA
	CONC	0.42 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.26 KG/HA	0.01 KG/HA
	CONC	14.09 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.25 KG/HA	
	CONC	13.81 MG/L	
RAINFALL		0.05 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996057	0.59	0.23	0.38	0.00	4.53	1.3	0.33	0.00	0.00	0.01	0.06

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 57

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.01 KG/HA	0.00 KG/HA
	CONC	0.41 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.54 KG/HA	0.01 KG/HA
	CONC	14.13 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.53 KG/HA	
	CONC	13.86 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	

UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996058	0.50	0.17	0.41	0.00	3.28	1.1	0.33	0.00	0.00	0.01	0.05

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 58

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.01 KG/HA	0.00 KG/HA
	CONC	0.40 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.58 KG/HA	0.01 KG/HA
	CONC	14.18 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.57 KG/HA	
	CONC	13.90 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996059	2.13	1.46	0.46	0.00	1.61	3.6	0.33	0.00	0.00	0.01	0.05

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 59

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.06 KG/HA	0.01 KG/HA
	CONC	0.39 MG/L	0.09 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.65 KG/HA	0.01 KG/HA
	CONC	14.22 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.64 KG/HA	

	CONC	13.94 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 60

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.55 KG/HA	0.01 KG/HA
	CONC	14.25 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.54 KG/HA	
	CONC	13.98 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR FEB 1996

8 STORMS PRODUCED	14.44	CM. OF RAINFALL
8 STORMS PRODUCED	9.12	CM. OF RUNOFF
5 STORMS PRODUCED	1.81	CM. OF PERCOLATION
8 STORMS PRODUCED	0.00	T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN	PHOSPHORUS
	(KG/HA)	(KG/HA)
RUNOFF	0.58	0.08
SEDIMENT	0.01	0.00
UPTAKE	0.00	0.00
MINERALIZATION	0.00	0.00
LEACHED, TOTAL	2.57	0.06
NITRATE	2.52	-------
AMMONIA	0.05	-------

RAINFALL	0.49	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.00	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 61

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.37 KG/HA	0.01 KG/HA
	CONC	14.27 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.36 KG/HA	
	CONC	14.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 62

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.21 KG/HA	0.00 KG/HA
	CONC	14.28 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.20 KG/HA	
	CONC	14.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 63

SOURCE	NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.11 KG/HA	0.00 KG/HA
	CONC	14.28 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.10 KG/HA	
	CONC	14.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 64

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.05 KG/HA	0.00 KG/HA
	CONC	14.27 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.05 KG/HA	
	CONC	14.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 65

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.02 KG/HA	0.00 KG/HA
	CONC	14.27 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.02 KG/HA	
	CONC	13.99 MG/L	

RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 66

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.01 KG/HA	0.00 KG/HA
	CONC	14.26 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.01 KG/HA	
	CONC	13.98 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 67

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 68

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 69

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996074	1.65	0.99	0.12	0.00	1.84	-6.0	0.32	0.00	0.00	0.09	0.79

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 74

SOURCE		NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.04 KG/HA	0.01 KG/HA
	CONC	0.38 MG/L	0.12 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.17 KG/HA	0.00 KG/HA
	CONC	14.28 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.17 KG/HA	
	CONC	14.00 MG/L	
RAINFALL		0.06 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996075	2.79	2.07	0.31	0.00	1.11	6.1	0.33	0.00	0.00	0.01	0.10

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 75

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.08 KG/HA	0.02 KG/HA
	CONC	0.37 MG/L	0.12 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.44 KG/HA	0.01 KG/HA
	CONC	14.32 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.43 KG/HA	
	CONC	14.04 MG/L	
RAINFALL		0.09 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 76

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

LEACHING (TOTAL)	MASS	0.47 KG/HA	0.01 KG/HA
	CONC	14.35 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.46 KG/HA	
	CONC	14.07 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 77

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.35 KG/HA	0.01 KG/HA
	CONC	14.36 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.34 KG/HA	
	CONC	14.09 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996078	0.87	0.39	0.23	0.00	2.50	-1.8	0.33	0.00	0.00	0.04	0.41

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 78

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.01 KG/HA	0.00 KG/HA
	CONC	0.36 MG/L	0.12 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.34 KG/HA	0.01 KG/HA
	CONC	14.38 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	

	CONC	0.28 MG/L		
NITRATE	MASS	0.33 KG/HA		
	CONC	14.11 MG/L		
RAINFALL		0.03 KG/HA		
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA	
MINERALIZATION		0.00 KG/HA	0.00 KG/HA	
FIXATION		0.00 KG/HA		
UPTAKE		0.00 KG/HA	0.00 KG/HA	
DENITRIFICATION		0.00 KG/HA		
VOLATIZATION		0.00 KG/HA		

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996079	1.23	0.69	0.30	0.00	3.70	2.7	0.33	0.00	0.00	0.03	0.25

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 79

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.02 KG/HA	0.01 KG/HA
	CONC	0.36 MG/L	0.12 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.44 KG/HA	0.01 KG/HA
	CONC	14.41 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.28 MG/L	
NITRATE	MASS	0.43 KG/HA	
	CONC	14.14 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996080	2.23	1.56	0.42	0.00	1.61	3.1	0.33	0.00	0.00	0.02	0.18

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 80

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.06 KG/HA	0.02 KG/HA

	CONC	0.36 MG/L	0.12 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.60 KG/HA	0.01 KG/HA
	CONC	14.45 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.59 KG/HA	
	CONC	14.17 MG/L	
RAINFALL		0.08 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 81

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.55 KG/HA	0.01 KG/HA
	CONC	14.47 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.53 KG/HA	
	CONC	14.20 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 82

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.38 KG/HA	0.01 KG/HA
	CONC	14.48 MG/L	0.32 MG/L
AMMONIA	MASS	0.01 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.37 KG/HA	
	CONC	14.20 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA

FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 83

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.22 KG/HA	0.00 KG/HA
	CONC	14.47 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.21 KG/HA	
	CONC	14.20 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 84

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.11 KG/HA	0.00 KG/HA
	CONC	14.46 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.11 KG/HA	
	CONC	14.19 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 85

SOURCE	NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.05 KG/HA	0.00 KG/HA
	CONC	14.45 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.05 KG/HA	
	CONC	14.17 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 86

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.02 KG/HA	0.00 KG/HA
	CONC	14.44 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.02 KG/HA	
	CONC	14.16 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 87

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.01 KG/HA	0.00 KG/HA
	CONC	14.43 MG/L	0.32 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.27 MG/L	
NITRATE	MASS	0.01 KG/HA	
	CONC	14.15 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA

MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 88

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 89

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 90

SOURCE		NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996091	0.64	0.23	0.00	0.00	4.53	-3.4	0.32	0.20	0.20	0.17	1.56

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 91

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.04 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		30.87 KG/HA	4.17 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR MAR 1996

6 STORMS PRODUCED 9.41 CM. OF RAINFALL

6	STORMS PRODUCED	5.93	CM. OF RUNOFF
31	STORMS PRODUCED	3.41	CM. OF PERCOLATION
6	STORMS PRODUCED	0.00	T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.21	0.07
SEDIMENT	0.00	0.00
UPTAKE	30.87	4.17
MINERALIZATION	0.00	0.00
LEACHED, TOTAL	4.89	0.11
NITRATE	4.80	-------
AMMONIA	0.09	-------
RAINFALL	0.32	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.00	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996092	2.65	1.84	0.00	0.00	1.00	5.8	0.32	0.25	0.25	0.02	0.21

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 92

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.01 KG/HA
	CONC	0.00 MG/L	0.04 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.09 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.26 KG/HA	0.04 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996093	2.04	1.33	0.00	0.00	1.61	2.7	0.32	0.27	0.27	0.02	0.22

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 93

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.04 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.26 KG/HA	0.04 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996098	0.27	0.02	0.00	0.00	0.00	-0.8	0.27	2.36	2.82	0.18	2.33

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 98

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.04 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.26 KG/HA	0.18 KG/HA

DENITRIFICATION	0.00 KG/HA
VOLATIZATION	0.00 KG/HA

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996103	1.68	0.64	0.00	0.00	1.85	-2.4	0.23	0.10	3.61	0.00	2.98

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 103

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.02 KG/HA	0.00 KG/HA
	CONC	0.34 MG/L	0.04 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.06 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.04 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996104	2.64	1.45	0.00	0.00	1.61	4.7	0.26	0.18	0.27	0.02	0.23

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 104

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.03 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	

RAINFALL		0.09 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		1.29 KG/HA	0.17 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996105	2.92	1.75	0.00	0.00	1.61	1.1	0.26	0.25	0.25	0.02	0.21

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 105

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.01 KG/HA
	CONC	0.00 MG/L	0.03 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.10 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.26 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996107	1.52	0.60	0.00	0.00	1.97	0.3	0.25	0.87	1.02	0.03	0.84

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 107

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.03 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

	CONC	0.00 MG/L	0.00 MG/L	
AMMONIA	MASS	0.00 KG/HA		
	CONC	0.00 MG/L		
NITRATE	MASS	0.00 KG/HA		
	CONC	0.00 MG/L		
RAINFALL		0.05 KG/HA		
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA	
MINERALIZATION		0.00 KG/HA	0.00 KG/HA	
FIXATION		0.00 KG/HA		
UPTAKE		0.25 KG/HA	0.07 KG/HA	
DENITRIFICATION		0.00 KG/HA		
VOLATIZATION		0.00 KG/HA		

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996108	2.08	0.96	0.00	0.00	1.71	1.4	0.25	0.36	0.98	0.00	0.81

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 108

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.03 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.25 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996114	0.38	0.00	0.00	0.00	0.00	7.6	0.23	0.44	15.16	0.00	12.50

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 114

SOURCE		NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.04 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996115	1.27	0.00	0.00	0.00	0.00	10.0	0.25	0.15	3.23	0.00	2.67

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 115

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		1.51 KG/HA	0.20 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996116	0.30	0.00	0.00	0.00	0.00	1.1	0.24	0.50	2.45	0.00	2.02

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 116

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.25 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996118	0.56	0.00	0.00	0.00	0.00	8.4	0.24	0.12	6.30	0.00	5.20

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 118

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.25 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996121	2.03	0.00	0.00	0.00	0.00	5.3	0.24	0.22	8.74	0.00	7.21

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 121

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.25 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR APR 1996

13	STORMS PRODUCED	20.35	CM. OF RAINFALL
8	STORMS PRODUCED	8.60	CM. OF RUNOFF
6	STORMS PRODUCED	0.00	CM. OF PERCOLATION
7	STORMS PRODUCED	0.00	T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.02	0.03
SEDIMENT	0.00	0.00
UPTAKE	5.10	0.93
MINERALIZATION	0.15	0.02
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.69	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.00	-------

AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996122	2.16	0.00	0.00	0.00	0.00	6.9	0.18	3.10	3.10	0.28	2.56

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 122

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.49 KG/HA	0.07 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996125	0.15	0.00	0.00	0.00	0.00	7.5	0.18	0.00	9.58	0.00	7.90

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 125

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	

	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996126	0.23	0.00	0.00	0.00	0.00	7.8	0.18	0.06	3.26	0.00	2.69

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 126

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.98 KG/HA	0.13 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996127	0.41	0.00	0.00	0.00	0.00	9.2	0.18	0.09	3.41	0.00	2.81

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 127

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996128	0.89	0.00	0.00	0.00	0.00	1.1	0.19	0.16	2.64	0.00	2.18

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 128

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996130	0.10	0.00	0.00	0.00	0.00	7.4	0.18	0.35	6.57	0.00	5.42

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 130

SOURCE	NITROGEN	PHOSPHORUS

LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996128	0.89	0.00	0.00	0.00	0.00	1.1	0.19	0.16	2.64	0.00	2.18

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 128

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996130	0.10	0.00	0.00	0.00	0.00	7.4	0.18	0.35	6.57	0.00	5.42

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 130

$OURCE		NITROGEN	PHOSPHORUS

1996132	2.59	0.00	0.00	0.00	0.00	13.6	0.21	0.18	3.92	0.00	3.23

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 132

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.09 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996133	2.67	0.00	0.00	0.00	0.00	8.3	0.12	3.43	3.43	0.31	2.83

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 133

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.09 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996135	1.37	0.00	0.00	0.00	0.00	0.5	0.13	0.00	5.34	0.00 4.41

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 135

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.05 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996137	1.27	0.00	0.00	0.00	0.00	6.8	0.13	0.54	6.67	0.00 5.50

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 137

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	

UPTAKE		0.72 KG/HA	0.10 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996138	0.10	0.00	0.00	0.00	0.00	4.7	0.12	0.50	3.14	0.00	2.59

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 138

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

FERTILIZER APPLICATION ON DAY 1996139

AMMONIA (KG/HA)	NITRATE (KG/HA)	PHOSPHORUS (KG/HA)	DEPTH (CM)	METHOD
22.00	0.00	4.40	0.00	0

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996140	0.38	0.00	0.00	0.00	0.00	13.1	0.13	0.04	8.00	0.00	6.60

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 140

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA

	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996141	1.27	0.00	0.00	0.00	0.00	22.2	0.14	0.15	4.82	0.00	3.97

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 141

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.02 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996143	0.58	0.00	0.00	0.00	0.00	18.5	0.13	0.50	9.04	0.00	7.46

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 143

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.09 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996144	1.27	0.00	0.00	0.00	0.00	11.9	0.14	0.23	3.96	0.00	3.26

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 144

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.07 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.10 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP

	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996145	0.13	0.00	0.00	0.00	0.00	14.4	0.12	0.50	4.21	0.00	3.48

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 145

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996148	0.03	0.00	0.00	0.00	0.00	10.4	0.12	0.05	11.54	0.00	9.51

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 148

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.24 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996149	1.03	0.00	0.00	0.00	0.00	10.8	0.14	0.01	3.91	0.00	3.23

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 149

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.71 KG/HA	0.10 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996151	1.27	0.00	0.00	0.00	0.00	7.2	0.13	0.41	7.12	0.00	5.87

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 151

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA

MINERALIZATION	0.02 KG/HA	0.00 KG/HA
FIXATION	0.00 KG/HA	
UPTAKE	0.24 KG/HA	0.03 KG/HA
DENITRIFICATION	0.10 KG/HA	
VOLATIZATION	0.00 KG/HA	

MONTHLY SUMMARY FOR MAY 1996

20 STORMS PRODUCED	18.36 CM. OF RAINFALL
0 STORMS PRODUCED	0.00 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
0 STORMS PRODUCED	0.00 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.00	0.00
SEDIMENT	0.00	0.00
UPTAKE	6.75	0.91
MINERALIZATION	0.36	0.07
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.62	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.23	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996153	1.27	0.00	0.00	0.00	0.00	9.6	0.13	0.50	7.65	0.00	6.31

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 153

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L

AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA
DENITRIFICATION		0.09 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996156	1.07	0.00	0.00	0.00	0.00	13.2	0.13	0.50	12.67	0.00	10.45

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 156

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA
DENITRIFICATION		0.05 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996157	0.89	0.00	0.00	0.00	0.00	15.8	0.14	0.42	4.49	0.00	3.71

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 157

SOURCE	NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.47 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996160	5.97	0.08	0.00	0.00	3.88	15.9	0.15	0.35	13.55	0.00 11.17

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 160

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.01 KG/HA	0.00 KG/HA
	CONC	1.44 MG/L	0.20 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.20 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.04 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA
DENITRIFICATION		0.13 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996161	0.38	0.00	0.00	0.00	0.00	19.2	0.12	2.49	4.84	0.16 3.99

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 161

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.70 KG/HA	0.09 KG/HA
DENITRIFICATION		0.04 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996163	1.78	0.00	0.00	0.00	0.00	19.2	0.13	0.00	9.70	0.00	8.00

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 163

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.06 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.11 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.05 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP

	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996164	0.90	0.00	0.00	0.00	0.00	18.3	0.12	1.02	4.78	0.09	3.94

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 164

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.69 KG/HA	0.09 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996165	0.15	0.00	0.00	0.00	0.00	18.9	0.12	0.00	4.84	0.00	3.99

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 165

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)
1996166	0.10	0.00	0.00	0.00	0.00	16.7	0.12	0.06	4.64	0.00 3.83

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 166

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.46 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)
1996167	0.90	0.00	0.00	0.00	0.00	16.9	0.13	0.04	4.67	0.00 3.85

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 167

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA

MINERALIZATION	0.07 KG/HA	0.02 KG/HA
FIXATION	0.00 KG/HA	
UPTAKE	0.23 KG/HA	0.03 KG/HA
DENITRIFICATION	0.00 KG/HA	
VOLATIZATION	0.00 KG/HA	

FERTILIZER APPLICATION ON DAY 1996169

AMMONIA (KG/HA)	NITRATE (KG/HA)	PHOSPHORUS (KG/HA)	DEPTH (CM)	METHOD
48.80	0.00	19.52	0.00	0

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996170	0.10	0.00	0.00	0.00	0.00	17.5	0.12	0.35	14.19	0.00	11.70

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 170

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996172	1.30	0.00	0.00	0.00	0.00	14.7	0.13	0.04	8.94	0.00	7.37

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 172

SOURCE	NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.08 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA
DENITRIFICATION		0.09 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996173	0.03	0.00	0.00	0.00	0.00	16.1	0.12	0.51	4.61	0.00 3.80

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 173

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.46 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996174	2.54	0.00	0.00	0.00	0.00	15.8	0.16	0.01	4.58	0.00 3.78

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 174

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.09 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.13 KG/HA	0.03 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA
DENITRIFICATION		0.07 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996177	0.28	0.00	0.00	0.00	0.00	14.4	0.12	1.00	13.34	0.01	11.00

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 177

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996180	0.81	0.00	0.00	0.00	0.00	13.4	0.12	0.11	13.02	0.00 10.73

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 180

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.68 KG/HA	0.09 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996182	0.94	0.00	0.00	0.00	0.00	14.7	0.13	0.32	8.93	0.00 7.37

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 182

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.23 KG/HA	0.03 KG/HA

DENITRIFICATION	0.00 KG/HA
VOLATIZATION	0.00 KG/HA

MONTHLY SUMMARY FOR JUN 1996

17 STORMS PRODUCED	19.41 CM. OF RAINFALL
1 STORMS PRODUCED	0.08 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
1 STORMS PRODUCED	0.00 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.01	0.00
SEDIMENT	0.00	0.00
UPTAKE	5.28	0.71
MINERALIZATION	0.71	0.15
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.66	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.53	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996183	0.13	0.00	0.00	0.00	0.00	14.4	0.12	0.37	4.43	0.00	3.65

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 183

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	

	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.45 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996185	0.76	0.00	0.00	0.00	0.00	17.5	0.13	0.05	9.45	0.00 7.79

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 185

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.07 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM) (CM)
1996186	1.07	0.00	0.00	0.00	0.00	14.1	0.14	0.30	4.39	0.00 3.62

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 186

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.45 KG/HA	0.06 KG/HA
DENITRIFICATION		0.24 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996187	1.40	0.00	0.00	0.00	0.00	10.8	0.14	0.42	4.05	0.00	3.34

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 187

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.05 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.30 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996190	1.27	0.00	0.00	0.00	0.00	17.4	0.13	0.55	14.06	0.00	11.59

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 190

SOURCE	NITROGEN	PHOSPHORUS

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.19 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996191	0.28	0.00	0.00	0.00	0.00	19.4	0.12	0.50	4.85	0.00	4.00

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 191

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.07 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.67 KG/HA	0.09 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)

1996192	1.27	0.00	0.00	0.00	0.00	16.7	0.14	0.11	4.60	0.00
3.79										

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 192

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.10 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996193	1.27	0.00	0.00	0.00	0.00	12.8	0.14	0.50	4.21	0.00	3.47

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 193

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.41 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996194	1.27	0.00	0.00	0.00	0.00	14.7	0.14	0.50	4.39	0.00	3.62

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 194

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.48 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996195	0.33	0.00	0.00	0.00	0.00	16.9	0.12	0.50	4.59	0.00	3.79

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 195

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.07 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	

UPTAKE	0.22 KG/HA	0.03 KG/HA
DENITRIFICATION	0.00 KG/HA	
VOLATIZATION	0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996196	7.54	0.39	0.00	0.00	2.15	14.4	0.22	0.13	4.34	0.00	3.58

FERTILIZER APPLICATION ON DAY 1996196

AMMONIA (KG/HA)	NITRATE (KG/HA)	PHOSPHORUS (KG/HA)	DEPTH (CM)	METHOD
48.80	0.00	19.52	0.00	0

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 196

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.04 KG/HA	0.04 KG/HA
	CONC	1.02 MG/L	0.93 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.26 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.36 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996198	2.84	0.00	0.00	0.00	0.00	17.9	0.14	2.80	9.31	0.04	7.67

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 198

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA

	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.10 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.16 KG/HA	0.04 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.07 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996199	0.10	0.00	0.00	0.00	0.00	17.5	0.12	1.15	4.60	0.02	3.79

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 199

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.44 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996202	1.78	0.00	0.00	0.00	0.00	17.6	0.13	0.00	13.74	0.00	11.33

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 202

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.06 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.14 KG/HA	0.03 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.05 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996208	2.54	0.00	0.00	0.00	0.00	15.8	0.13	0.70	26.09	0.01	21.52

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 208

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.09 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.12 KG/HA	0.03 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.88 KG/HA	0.12 KG/HA
DENITRIFICATION		0.03 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP

	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996209	0.20	0.00	0.00	0.00	0.00	16.7	0.12	1.06	4.39	0.04	3.62

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 209

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		1.31 KG/HA	0.18 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996210	0.03	0.00	0.00	0.00	0.00	12.8	0.12	0.00	4.01	0.00	3.31

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 210

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996211	0.90	0.00	0.00	0.00	0.00	15.3	0.13	0.01	4.23	0.00	3.49

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 211

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.11 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996212	0.28	0.00	0.00	0.00	0.00	15.0	0.12	0.35	4.18	0.00	3.45

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 212

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA

MINERALIZATION	0.06 KG/HA	0.01 KG/HA
FIXATION	0.00 KG/HA	
UPTAKE	0.22 KG/HA	0.03 KG/HA
DENITRIFICATION	0.00 KG/HA	
VOLATIZATION	0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996213	0.20	0.00	0.00	0.00	0.00	13.3	0.12	0.11	4.01	0.00	3.30

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 213

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR JUL 1996

20 STORMS PRODUCED	25.46 CM. OF RAINFALL
1 STORMS PRODUCED	0.39 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
1 STORMS PRODUCED	0.00 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.04	0.04
SEDIMENT	0.00	0.00

UPTAKE	6.85	0.93
MINERALIZATION	1.25	0.28
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.87	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	2.49	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996214	1.40	0.00	0.00	0.00	0.00	14.4	0.14	0.08	4.09	0.00	3.37

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 214

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.05 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.15 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996215	0.51	0.00	0.00	0.00	0.00	16.4	0.13	0.55	4.25	0.00	3.51

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 215

SOURCE	NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.08 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996220	1.27	0.00	0.00	0.00	0.00	17.8	0.12	0.20	21.55	0.00	17.77

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 220

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.22 KG/HA	0.03 KG/HA
DENITRIFICATION		0.12 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996223	1.52	0.00	0.00	0.00	0.00	18.4	0.13	0.50	12.82	0.00	10.57

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 223

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.05 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.12 KG/HA	0.03 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		1.08 KG/HA	0.15 KG/HA
DENITRIFICATION		0.13 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996226	1.27	0.00	0.00	0.00	0.00	14.0	0.13	0.60	11.51	0.00	9.49

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 226

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.43 KG/HA	0.06 KG/HA
DENITRIFICATION		0.10 KG/HA	
VOLATIZATION		0.00 KG/HA	

FERTILIZER APPLICATION ON DAY 1996227

AMMONIA (KG/HA)	NITRATE (KG/HA)	PHOSPHORUS (KG/HA)	DEPTH (CM)	METHOD
48.80	0.00	19.52	0.00	0

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996228	1.27	0.00	0.00	0.00	0.00	16.4	0.13	0.50	7.97	0.00	6.57

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 228

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.04 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.64 KG/HA	0.09 KG/HA
DENITRIFICATION		0.10 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996229	0.13	0.00	0.00	0.00	0.00	17.8	0.12	0.50	4.06	0.00	3.35

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 229

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	

RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996230	0.51	0.00	0.00	0.00	0.00	15.8	0.13	0.05	3.88	0.00	3.20

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 230

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996233	1.27	0.00	0.00	0.00	0.00	16.9	0.13	0.20	11.74	0.00	9.68

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 233

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

	CONC	0.00 MG/L	0.00 MG/L	
AMMONIA	MASS	0.00 KG/HA		
	CONC	0.00 MG/L		
NITRATE	MASS	0.00 KG/HA		
	CONC	0.00 MG/L		
RAINFALL		0.04 KG/HA		
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA	
MINERALIZATION		0.04 KG/HA	0.01 KG/HA	
FIXATION		0.00 KG/HA		
UPTAKE		0.21 KG/HA	0.03 KG/HA	
DENITRIFICATION		0.12 KG/HA		
VOLATIZATION		0.00 KG/HA		

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996237	2.39	0.00	0.00	0.00	0.00	18.0	0.13	0.50	15.64	0.00	12.89

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 237

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.08 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.14 KG/HA	0.03 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.42 KG/HA	0.06 KG/HA
DENITRIFICATION		0.10 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996240	1.27	0.00	0.00	0.00	0.00	16.8	0.13	0.93	11.16	0.02	9.20

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 240

SOURCE		NITROGEN	PHOSPHORUS

RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.64 KG/HA	0.09 KG/HA
DENITRIFICATION		0.08 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996241	0.08	0.00	0.00	0.00	0.00	17.8	0.12	0.50	3.74	0.00	3.09

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 241

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.42 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996243	1.27	0.00	0.00	0.00	0.00	15.8	0.13	0.03	7.12	0.00	5.87

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 243

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.04 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.09 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR AUG 1996

13 STORMS PRODUCED	14.16 CM. OF RAINFALL
0 STORMS PRODUCED	0.00 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
0 STORMS PRODUCED	0.00 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.00	0.00
SEDIMENT	0.00	0.00
UPTAKE	5.55	0.75
MINERALIZATION	0.81	0.19
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.48	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	1.00	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996247	1.27	0.00	0.00	0.00	0.00	16.0	0.12	0.50	13.95	0.00	11.50

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 247

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.42 KG/HA	0.06 KG/HA
DENITRIFICATION		0.10 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996249	0.08	0.00	0.00	0.00	0.00	17.0	0.12	0.50	6.95	0.00	5.73

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 249

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.63 KG/HA	0.08 KG/HA

DENITRIFICATION	0.00	KG/HA
VOLATIZATION	0.00	KG/HA

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996251	0.64	0.00	0.00	0.00	0.00	18.9	0.12	0.03	7.07	0.00	5.83

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 251

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.09 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996252	0.51	0.00	0.00	0.00	0.00	16.7	0.13	0.25	3.35	0.00	2.76

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 252

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	

RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.07 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.42 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996253	0.25	0.00	0.00	0.00	0.00	16.7	0.12	0.20	3.32	0.00	2.74

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 253

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.06 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996255	1.27	0.00	0.00	0.00	0.00	16.8	0.13	0.10	6.56	0.00	5.41

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 255

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

	CONC	0.00 MG/L	0.00 MG/L	
AMMONIA	MASS	0.00 KG/HA		
	CONC	0.00 MG/L		
NITRATE	MASS	0.00 KG/HA		
	CONC	0.00 MG/L		
RAINFALL		0.04 KG/HA		
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA	
MINERALIZATION		0.04 KG/HA	0.01 KG/HA	
FIXATION		0.00 KG/HA		
UPTAKE		0.21 KG/HA	0.03 KG/HA	
DENITRIFICATION		0.17 KG/HA		
VOLATIZATION		0.00 KG/HA		

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996258	0.46	0.00	0.00	0.00	0.00	13.2	0.12	0.50	8.89	0.00	7.33

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 258

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996261	0.51	0.00	0.00	0.00	0.00	11.1	0.12	0.18	8.20	0.00	6.76

FERTILIZER APPLICATION ON DAY 1996261

AMMONIA	NITRATE	PHOSPHORUS	DEPTH	METHOD

(KG/HA)	(KG/HA)	(KG/HA)	(CM)	
22.00	0.00	4.40	0.00	0

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 261

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.04 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.41 KG/HA	0.06 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996262	2.03	0.00	0.00	0.00	0.00	8.9	0.15	0.20	2.53	0.00	2.08

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 262

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.62 KG/HA	0.08 KG/HA
DENITRIFICATION		0.20 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996263	0.08	0.00	0.00	0.00	0.00	9.2	0.12	0.81	2.52	0.06	2.08

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 263

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996267	1.35	0.00	0.00	0.00	0.00	16.2	0.12	0.00	11.65	0.00	9.60

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 267

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.05 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.07 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	

UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.15 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996268	0.03	0.00	0.00	0.00	0.00	10.0	0.12	0.53	2.45	0.00	2.02

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 268

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.82 KG/HA	0.11 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996269	0.56	0.00	0.00	0.00	0.00	10.6	0.13	0.01	2.46	0.00	2.03

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 269

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	

	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.08 KG/HA	0.02 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996270	0.03	0.00	0.00	0.00	0.00	11.7	0.12	0.22	2.50	0.00	2.06

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 270

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996273	2.49	0.00	0.00	0.00	0.00	13.7	0.13	0.01	7.70	0.00	6.35

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 273

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.08 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.05 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.21 KG/HA	0.03 KG/HA
DENITRIFICATION		0.12 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR SEP 1996

15 STORMS PRODUCED	11.56 CM. OF RAINFALL
0 STORMS PRODUCED	0.00 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
0 STORMS PRODUCED	0.00 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.00	0.00
SEDIMENT	0.00	0.00
UPTAKE	5.18	0.70
MINERALIZATION	0.70	0.15
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.39	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.77	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996275	1.27	0.00	0.00	0.00	0.00	14.4	0.13	0.96	5.08	0.05	4.19

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 275

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.61 KG/HA	0.08 KG/HA
DENITRIFICATION		0.09 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996277	0.08	0.00	0.00	0.00	0.00	15.3	0.12	0.50	5.05	0.00	4.16

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 277

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.20 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)

1996279	1.27	0.00	0.00	0.00	0.00	6.7	0.13	0.03	3.95	0.00	3.26

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 279

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.04 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.20 KG/HA	0.03 KG/HA
DENITRIFICATION		0.09 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996283	1.78	0.00	0.00	0.00	0.00	12.9	0.13	0.50	9.01	0.00	7.43

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 283

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.06 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.04 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.41 KG/HA	0.06 KG/HA
DENITRIFICATION		0.10 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996284	0.76	0.00	0.00	0.00	0.00	11.7	0.12	0.97	2.13	0.09	1.75

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 284

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.61 KG/HA	0.08 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996285	0.20	0.00	0.00	0.00	0.00	8.3	0.12	0.00	1.92	0.00	1.58

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 285

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	

UPTAKE	0.00 KG/HA	0.00 KG/HA
DENITRIFICATION	0.00 KG/HA	
VOLATIZATION	0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996288	0.08	0.00	0.00	0.00	0.00	9.3	0.12	0.08	5.76	0.00	4.75

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 288

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.20 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996294	7.77	0.39	0.00	0.00	2.23	7.4	0.14	0.03	10.29	0.00	8.48

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 294

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.04 KG/HA	0.09 KG/HA
	CONC	0.93 MG/L	2.19 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	

	CONC	0.00 MG/L		
RAINFALL		0.26 KG/HA		
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA	
MINERALIZATION		0.00 KG/HA	0.00 KG/HA	
FIXATION		0.00 KG/HA		
UPTAKE		0.61 KG/HA	0.08 KG/HA	
DENITRIFICATION		0.68 KG/HA		
VOLATIZATION		0.00 KG/HA		

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996295	1.65	0.00	0.00	0.00	4.43	5.3	0.19	1.54	1.54	0.14	1.27

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 295

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.74 MG/L	2.17 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.06 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		1.21 KG/HA	0.16 KG/HA
DENITRIFICATION		0.71 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996296	0.38	0.00	0.00	0.00	0.00	4.7	0.14	1.49	1.49	0.13	1.23

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 296

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA

LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.20 KG/HA	0.03 KG/HA
DENITRIFICATION		0.08 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996298	0.91	0.00	0.00	0.00	0.00	7.1	0.14	0.27	3.15	0.00	2.60

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 298

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.20 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996302	0.08	0.00	0.00	0.00	0.00	9.6	0.13	0.36	6.51	0.00	5.37

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 302

SOURCE		NITROGEN	PHOSPHORUS

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.40 KG/HA	0.05 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996303	0.99	0.00	0.00	0.00	0.00	7.2	0.14	0.03	1.47	0.00	1.21

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 303

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.03 KG/HA	0.01 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.60 KG/HA	0.08 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)

1996305 0.05 0.00 0.00 0.00 0.00 2.0 0.13 0.39 2.43 0.00 2.00

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 305

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.01 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.20 KG/HA	0.03 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR OCT 1996

14 STORMS PRODUCED	17.27 CM. OF RAINFALL
2 STORMS PRODUCED	0.39 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
2 STORMS PRODUCED	0.00 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.04	0.09
SEDIMENT	0.00	0.00
UPTAKE	5.05	0.68
MINERALIZATION	0.20	0.03
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.59	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	1.75	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996311	0.20	0.01	0.00	0.00	0.00	0.2	0.13	0.02	0.00	0.00	4.94

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 311

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.58 MG/L	2.14 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.01 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.40 KG/HA	0.05 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996312	0.03	0.00	0.00	0.00	0.00	6.9	0.13	0.00	0.00	0.04	0.39

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 312

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA

FIXATION	0.00 KG/HA	
UPTAKE	0.00 KG/HA	0.00 KG/HA
DENITRIFICATION	0.00 KG/HA	
VOLATIZATION	0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996313	0.05	0.00	0.00	0.00	4.43	12.5	0.13	0.00	0.00	0.04	0.36

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 313

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.58 MG/L	2.13 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.00 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996314	9.99	7.82	0.00	0.06	1.11	7.2	0.16	0.00	0.00	0.03	0.28

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 314

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.40 KG/HA	1.65 KG/HA
	CONC	0.52 MG/L	2.11 MG/L
SEDIMENT (TOTAL)	MASS	0.23 KG/HA	0.14 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	

NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.34 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996322	0.49	0.09	0.00	0.00	4.83	-4.0	0.16	0.00	0.00	0.10	0.93

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 322

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.02 KG/HA
	CONC	0.43 MG/L	2.02 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996331	2.21	1.15	0.00	0.00	1.64	-2.0	0.17	0.00	0.00	0.27	2.44

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 331

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.06 KG/HA	0.23 KG/HA
	CONC	0.56 MG/L	1.99 MG/L

SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.08 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.02 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR NOV 1996

6 STORMS PRODUCED	12.97 CM. OF RAINFALL
5 STORMS PRODUCED	9.07 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
4 STORMS PRODUCED	0.06 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	0.47	1.90
SEDIMENT	0.23	0.14
UPTAKE	0.40	0.05
MINERALIZATION	0.02	0.00
LEACHED, TOTAL	0.00	0.00
NITRATE	0.00	-------
AMMONIA	0.00	-------
RAINFALL	0.44	-------
IRRIGATION	0.00	0.00
DENITRIFICATION	0.00	-------
AMMONIA VOLATIZED	0.00	-------
NITRATE FIXED	0.00	-------

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996336	0.96	0.34	0.00	0.00	2.30	-4.8	0.18	0.00	0.00	0.04	0.33

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 336

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.02 KG/HA	0.07 KG/HA
	CONC	0.52 MG/L	1.97 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.03 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996337	8.80	7.48	0.00	0.05	1.12	5.0	0.21	0.00	0.00	0.01	0.06

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 337

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.35 KG/HA	1.46 KG/HA
	CONC	0.47 MG/L	1.96 MG/L
SEDIMENT (TOTAL)	MASS	0.21 KG/HA	0.13 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.30 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996353	2.09	0.00	0.00	0.00	4.43	4.4	0.24	0.00	0.00	0.07	0.66

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 353

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.60 MG/L	1.84 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		1.19 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996354	0.52	0.00	0.00	0.00	0.00	0.3	0.25	0.00	0.00	0.06	0.57

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 354

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA

MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.92 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996359	0.50	0.15	0.00	0.00	3.19	-6.0	0.25	0.00	0.00	0.09	0.85

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 359

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.01 KG/HA	0.03 KG/HA
	CONC	0.59 MG/L	1.83 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.02 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

STORM INPUTS

DATE	RAIN (CM)	RUN. (CM)	PERC. (CM)	EROS. (T/HA)	E.R.	TEMP (C)	SWC (CM/CM)	AC TRAN (CM)	PT TRAN (CM)	AC EVAP (CM)	PT EVAP (CM)
1996364	0.62	0.22	0.00	0.00	2.85	-3.5	0.26	0.00	0.00	0.03	0.28

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 364

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.01 KG/HA	0.04 KG/HA
	CONC	0.58 MG/L	1.82 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	

	CONC	0.00 MG/L		
NITRATE	MASS	0.00 KG/HA		
	CONC	0.00 MG/L		
RAINFALL		0.02 KG/HA		
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA	
MINERALIZATION		0.00 KG/HA	0.00 KG/HA	
FIXATION		0.00 KG/HA		
UPTAKE		0.00 KG/HA	0.00 KG/HA	
DENITRIFICATION		0.00 KG/HA		
VOLATIZATION		0.00 KG/HA		

STORM INPUTS

DATE	RAIN	RUN.	PERC.	EROS.	E.R.	TEMP	SWC	AC TRAN	PT TRAN	AC EVAP	PT EVAP
	(CM)	(CM)	(CM)	(T/HA)		(C)	(CM/CM)	(CM)	(CM)	(CM)	(CM)
1996365	2.14	1.42	0.00	0.00	1.61	1.9	0.27	0.00	0.00	0.03	0.24

PLANT NUTRIENT SUMMARY FOR STORM OF 1996 DAY 365

SOURCE		NITROGEN	PHOSPHORUS
RUNOFF	MASS	0.08 KG/HA	0.26 KG/HA
	CONC	0.55 MG/L	1.81 MG/L
SEDIMENT (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
LEACHING (TOTAL)	MASS	0.00 KG/HA	0.00 KG/HA
	CONC	0.00 MG/L	0.00 MG/L
AMMONIA	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
NITRATE	MASS	0.00 KG/HA	
	CONC	0.00 MG/L	
RAINFALL		0.07 KG/HA	
IRRIGATION	MASS	0.00 KG/HA	0.00 KG/HA
MINERALIZATION		0.00 KG/HA	0.00 KG/HA
FIXATION		0.00 KG/HA	
UPTAKE		0.00 KG/HA	0.00 KG/HA
DENITRIFICATION		0.00 KG/HA	
VOLATIZATION		0.00 KG/HA	

MONTHLY SUMMARY FOR DEC 1996

9 STORMS PRODUCED	17.01 CM. OF RAINFALL
6 STORMS PRODUCED	9.61 CM. OF RUNOFF
0 STORMS PRODUCED	0.00 CM. OF PERCOLATION
6 STORMS PRODUCED	0.05 T/HA OF SEDIMENT

MONTHLY NUTRIENT LOSSES AND TRANSFORMATIONS

SED P	-	0.28
P LEACHED	-	0.17
YEILD P	-	0.00
BALE P	-	0.00
BURN P	-	0.00
IRRIGATION P	+	0.00
FERT P	+	67.36
A.W. ORG P	+	0.00
A.W. P	+	0.00
SUM BEG POOLS	+	19599.04
SUM END POOLS	-	19661.89
PHOSPHORUS BALANCE		+0.00

G L E A M S NONPOINT SOURCE POLLUTION MODEL (NUTRIENTS)

VERSION 3.0 MAY 1, 1999 TIFTON GA

Belleayre Resort, ridge golf course hole #18 with perennial turf cover
Vly silt loam hydrological soil group C, 1996 climate,5app., w/P 41bN

STORM SUMMARY

141 STORMS PRODUCED	180.39	CM. OF RAINFALL
37 STORMS PRODUCED	43.20	CM. OF RUNOFF
42 STORMS PRODUCED	5.22	CM. OF PERCOLATION
35 STORMS PRODUCED	0.12	T/HA OF SEDIMENT

TOTAL NUTRIENT LOSSES AND TRANSFORMATIONS

	NITROGEN (KG/HA)	PHOSPHORUS (KG/HA)
RUNOFF	1.85	4.06
SEDIMENT	0.46	0.28
UPTAKE	82.74	11.43
YIELD	0.00	0.00
MINERALIZATION	4.32	0.91
LEACHED, TOTAL	7.47	0.17
NITRATE	7.32	-------
AMMONIA	0.14	-------
RAINFALL	6.13	-------
IRRIGATION	0.00	0.00
FERTILIZATION	190.40	67.36
DENITRIFICATION	9.52	-------
AMMONIA VOLATIZED	0.00	-------
NITROGEN FIXATION	0.00	-------