TEXT SEARCHABLE DOCUMENT - 2010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON D.C., 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

PC Code: 103613 Chemical: Glyphosate, potassium salt **DP Barcode:** D372053 DCC1510n # 423791

October 26, 2010

MEMORANDUM

- **SUBJECT:** Assessment of Ecological Risk for Glyphosate, potassium salt (PC Code 103613; CAS # 70901-12-1) for Label Supplement to Add Uses on Roundup Ready Sweet Corn
- TO: Jim Tompkins, RM 25 Herbicide Branch Registration Division (7505P)
- Registration Division (7505P)Amelia Modulity 10/20/10FROM:Pamela Hurley, Ph.D., Senior Toxicologist
James Hetrick, Ph.D., Senior Scientist
Dana Spatz, Branch Chief
Environmental Risk Branch III
Environmental Fate and Effects Division (7507P)Amelia Modulity 10/20/10

Monsanto has requested a label amendment for Roundup WeatherMAX® (EPA Reg. No. 524-537) and for Roundup PowerMAX® (EPA Reg. No. 524-549) herbicides to add Roundup ready sweet corn uses. They have also submitted a petition to increase the tolerance for sweet corn, kernels plus cobs with husks removed, and to add a glyphosate tolerance for sweet corn forage. Based on the proposed labels, the maximum application rate on a glyphosate acid equivalent (a.e.) basis is 3.71 lbs a.e./A glyphosate and on a formulation basis is 9.35 lbs formulation/A. EFED has been requested to assess the potential ecological risks.

The proposed product contains a least one surfactant. The names and CAS numbers of the surfactants are proprietary and are not provided in this assessment. It is known from toxicity testing in the open literature that one surfactant mixture that has been used in glyphosate products is considerably more toxic to aquatic organisms than technical glyphosate. That surfactant is a polyoxyethylene alkylamine mixture (POEA, CAS number 61791-26-2). Using available data from the open literature, this assessment is conducted with the assumption that the proposed surfactants are similar to the surfactant, POEA. Therefore, for the proposed use on sweet corn, a conservative estimation of risk to aquatic organisms is conducted on a formulation basis as well as on a glyphosate acid equivalent basis. In addition, a separate assessment is



conducted on the surfactant POEA alone. The aquatic toxicity endpoints are selected from studies that have been conducted with technical glyphosate and when available, from formulations containing the surfactant, POEA and from POEA alone. The terrestrial toxicity endpoints are selected from studies that have been conducted with technical glyphosate only because the vast majority of the toxicity studies on birds and mammals with the formulations do not have discreet endpoints (e.g., the LD_{50} 's and LC_{50} 's are higher than the highest dose/concentration tested). No studies are available for POEA alone. For terrestrial plants, toxicity endpoints are selected from a formulation and expressed in terms of acid equivalents.

I. Executive Summary

Roundup WeatherMAX® (EPA Reg. No. 524-537) and Roundup PowerMAX® (EPA Reg. No. 524-549) contain 48.7 – 48.8% glyphosate potassium salt (39.8% glyphosate acid equivalents) and are proposed for use on Roundup ready sweet corn during preplant, pre-emergence and incrop post-emergence. The labels state that the products contain a systemic herbicide with no soil residual activity. It is generally non-selective and gives broad spectrum control of many annual weeds, perennial weeds, woody brush and trees. The products are formulated as water-soluble liquids and may be applied through most standard industrial or field sprayers after dilution and mixing. The instructions indicate that they can be applied via a variety of application equipment: ground broadcast spray (boom or boomless systems, pull-type sprayers, floaters, pick-up sprayers, spray coupes, and other ground broadcast equipment); aerial spray (fixed wing or helicopter); shielded and hooded sprayers, wiper applicators and sponge bars; aerial or ground injection sprayers; spot treatment; hand-held or backpack equipment; and controlled droplet size applicators (CDA).

Table 1. Proposed Number of Applications, Application Intervals and Rates						
Application Timing	Number of Applications	Application Interval (days)	Application Rate (lbs ae/A)			
P/E Preplant	1	NA	3.71			
P/E Postplant	4	7	1.15			
P/E Preplant/Post Plant	1 (preplant)/2 (postplant)	10 (preplant)/7 (postplant)	3.71/1.15			
P/E Preplant/Post Plant	1 (preplant)/4 (postplant)	10 (preplant)/7 (postplant)	1.35/1.15			

The number of applications, application intervals and rates are provided in Table 1.

Technical glyphosate is classified as practically non-toxic to slightly toxic to aquatic and terrestrial animals. Glyphosate formulations containing POEA are classified on a formulation basis as moderately toxic to freshwater fish and slightly to moderately toxic to aquatic-phase amphibians and freshwater invertebrates.

For the glyphosate acid, neither the acute nor chronic levels of concern (LOC) are exceeded for freshwater fish, aquatic-phase amphibians and invertebrates. For marine/estuarine fish and invertebrates, the acute LOC is not exceeded. No chronic studies are available for marine/estuarine fish and invertebrates; however, it is noted that the acute toxicity value for estuarine fish is approximately 6 times higher than for freshwater fish and the acute toxicity value for value for estuarine/marine invertebrates is approximately 75% of the acute freshwater

invertebrate value. Therefore, based on the weight of the evidence from the fish studies conducted with technical glyphosate and that the RQs for chronic exposure to freshwater species are less than 0.01, there is low concern for risk to estuarine/marine species following chronic exposure. The LOC for aquatic plants is not exceeded for either non-vascular or vascular aquatic plants.

For the glyphosate formulation containing the surfactant POEA, the acute LOCs are not exceeded for either freshwater fish, aquatic-phase amphibians or freshwater invertebrates following acute exposure to the formulation through spray drift. In addition, the aquatic plant LOC is not exceeded for either non-vascular or vascular plants. No aquatic toxicity data are available for marine/estuarine species on formulated products containing POEA. Chronic aquatic EECs were not estimated.

For the surfactant, POEA, the acute LOCs are not exceeded for freshwater fish, aquatic-phase amphibians or freshwater invertebrates following acute exposure to the surfactant through spray drift. No aquatic toxicity data on POEA are available for marine/estuarine species. Chronic aquatic EECs were not estimated.

For birds/terrestrial-phase amphibians/reptiles, there were no mortalities in any of the available acute and subacute avian studies. Therefore, no RQs were calculated. All of the terrestrial EEC values are lower than the highest dose/concentration tested; however, for 20 g birds many of the EECs are greater than 1/10th of the highest dose tested in the study. For 100 g birds, several EECs are greater than 1/10th of the highest dose tested in the study at the 3.71 lbs/A rate and at the 1.15 lbs/A application rate when applied 4 times per year. For these reasons, there is an uncertainty associated with listed avian species (the LOC for listed avian species is 0.1). For the subacute dietary-based EECs, again, several of the EEC values are greater than 1/10th of the highest concentration rate and with the 3.71 lbs/A rate that would be applied 4 times per season.

Following chronic exposure, the chronic LOC for birds (LOC = 1) is exceeded for short grass at the 3.71 lbs/A application rate (RQ = 1.07). However, because there were no effects at the highest concentrations tested in both bird studies and the RQ is only slightly greater than the LOC, the risk following chronic exposure is expected to be minimal.

For mammals, again, there were no mortalities in any of the available acute toxicity studies. Although no RQs were calculated, all of the terrestrial EEC values are less than 1/10th of the highest dose tested. The chronic LOC for mammals was not exceeded, either on a dose or dietary basis.

Glyphosate is classified as practically non-toxic to honeybees. Thus, risk to terrestrial invertebrates is presumed to be negligible.

For terrestrial plants, none of the RQs for either listed or non-listed monocots or dicots exceed the LOC of 1 for any of the application rates when applied via ground application methods. However, when applied aerially, all of the application rates exceed for listed dicots through spray drift. At the highest application rate (3.71 lbs/A), the LOC for terrestrial plants is exceeded for

both listed and non-listed monocots and dicots exposed via spray drift. The highest RQ is 3.79 for listed dicots exposed via spray drift.

II. Analysis

A. Exposure Characterization

Aquatic Exposure from Glyphosate Use on Sweet Corn

Glyphosate active ingredient

Surface water modeling for glyphosate was conducted using environmental fate data shown in **Table 2.**

PARAMETER	VALUE	SOURCE
Spray Drift Fraction	0.01	Default ground spray application
erobic Soil Metabolism Half-life days)	5.4 days	MRID 42372501, 44320645
Drganic Carbon Partition Coefficient K_{∞} (mL/ g_{∞})	3,100	MRID 44320646
Aerobic Aquatic Half-Life (days)	14.1 days	MRID 41723601
Anaerobic Aquatic alf-life (days)	208 days	MRID 41723701
Aqueous Photolysis alf-life (days)	Stable	MRID 41689101, 44320643
lydrolysis alf-life (days)	Stable	MRID 00108192,44320642
Iolecular Weight (g/mole)	170.8	
Ienry's Law constant atm-m ³ /mol)	2.0725×10^{-14}	
/ater Solubility @ 25°C ng/L)	12,000	
Vapor Pressure (torr)	9.75×10^{-10}	

Surface water modeling was conducted using PRZM (3.1.2.2)/EXAMS (2.98.04). Predicted glyphosate concentrations in surface water from glyphosate use on sweet corn are shown in **Table 3**. The KS corn standard scenario was used to represent sweet corn because it is a conservative runoff scenario among the standard PRZM/EXAMS corn scenarios.

Output files for model simulations are shown in Appendix A.

			Application	Concentration (µg/L)		
Application Timing	Number of Apps	Application Interval (days)	Interval (lbs ae/A)		21 Day Average	60 Day Average
P/E Preplant	1	NA	3.71	8.439	5.082	2.872
P/E Postplant	4	7	1.15	6.786	3.945	2.379
P/E Preplant/Post Plant	1(pre)/2(pos)	10(pre)/7(pos)	3.71/1.15	9.817	5.954	3.477
P/E Preplant/Post Plant	1(pre)/4(pos)	10 (pre)/7 (pos)	1.35/1.15	7.202	4.520	3.162

Table 3: Estimated Surface Water Concentrations of Glyphosate for Proposed Use on Sweet Corn.

Glyphosate Formulated Products

The estimated environmental concentrations (EEC) for the glyphosate formulated products and POEA are shown in **Table 4**. These EECs were calculated using the highest single application rate for pre-plant and post-plant label recommendations. For the purpose of this assessment, the percentage of POEA in the formulated product was taken from a document available in the open literature and was assumed to be 15% (Diamond and Durkin, 1997). These EECs represent the spray drift load from a single ground spray application. Runoff was not considered because it is assumed the formulated product and the POEA will dissipate rapidly in soil.

Table 4: Estimated Environmental Concentration (EEC) of Formulated Product and POEA from Spray Drift

Application Timing	Spray Drift Fraction	Maximum Single Application of Formulated Product (Qts/A)	Peak EEC of Formulated Product (ug/L) ¹	Peak EEC of POEA (ng/L) ²
P/E Preplant	0.01	3.3	2.12	318
P/E Postplant	0.01	1.4	0.90	135

1- [Qts formulate Product/A* 1gal/4Qts*Density of Formulated Product (lbs gal)*0.01*454E6 ug/lb]/20E6 liters

2- Peak EEC for formulated products*Percent of POEA*1000

Surface Water Monitoring Data

Surface water monitoring data for glyphosate and AMPA were obtained from NAWQA. Glyphosate and AMPA were not analyzed in the Pesticide Data Program (PDP) and USGS-EPA Pilot Reservoir Monitoring Study. Glyphosate concentrations in surface water range from <0.02 to 35 μ g/L (**Table 5**). The minimum reporting limit (MRL) ranged from 0.02 to 0.15 μ g/L with a median MRL of 0.1 μ g/L. The detection frequency for glyphosate is 38%. The NAWQA site with highest peak and average concentrations is located in Iowa on the South Fork of the Iowa River (NAWQA Station ID 5451070). The land use in watershed of the sampling site is classified as "Other". The "Other" designation has a not applicable (NA) land use code.

AMPA concentrations in surface water range from <0.02 to 28 μ g/L (**Table 5**). The minimum reporting limit (MRL) ranged from 0.02 to 0.31 μ g/L with a median MRL of 0.1 μ g/L. The

detection frequency for AMPA is 60 %. The NAWQA site with highest peak and average concentrations is located in Mississippi on the Bogue Phalia near Leland (NAWQA Station ID 7288650). The land use in watershed of the sampling site is classified as agricultural.

Compound	NAWQA Station ID	Highest Reported Concentration in NAWQA (µg/L)		
		Peak ¹	Average ²	
Glyphosate	5451070	35	1.81	
AMPA	7288650	28	3.11	

 Table 5: Highest Reported Surface Water Concentrations of Glyphosate and AMPA in

 NAWQA

1- Peak glyphosate concentration at NAWQA sampling station

2- Average glyphosate concentration at NAWQA sampling station

A level of 150 ppb was detected in a Texas well (EPA, 1992). The presence of this level was attributed to substandard well construction and careless use of chemicals. Six samples from wells in Virginia had detectable residues of glyphosate ranging from 0.004 to 0.009.

Terrestrial Exposure from Glyphosate Use on Sweet Corn

A conservative exposure to terrestrial animals will be estimated using T-REX version 1.4.1. The following tables provide the terrestrial EECs used in this assessment.

Table 6. Acute Avian Dose-Based Upper Bound Kenaga EECs (mg/kg bw) 3.71 lbs/A Application						
Size Class (grams)	Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore	
20	1014.08	464.79	570.42	63.38	14.08	
100	578.27	265.04	325.28	36.14	8.03	
1000	258.90	118.66	145.63	16.18	3.60	

Table 7. Acute Mammalian Dose-Based Upper Bound Kenaga EECs (mg/kg bw) 3.71 lbs/A Application						
Size Class (grams)	Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore	
15	848.93	389.09	477.52	53.06	11.79	
35	586.72	268.91	330.03	36.67	8.15	
1000	136.03	62.35	76.52	8.50	1.89	

Tab	Table 8. Chronic Mammalian Dose-Based Upper Bound Kenaga EECs (mg/kg bw)3.71 lbs/A Application						
Size Class (grams)	Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore		
15	848.93	389.09	477.52	53.06	11.79		
35	586.72	268.91	330.03	36.67	8.15		

Table 8. Chronic Mammalian Dose-Based Upper Bound Kenaga EECs (mg/kg bw)3.71 lbs/A Application					
Size Class (grams)	Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore
1000	136.03	62.35	76.52	8.50	1.89

Table 9. Upper Bound Kenaga Dietary EECs (ppm)3.71 lbs/A Application					
Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects		
890.40	408.1	500.85	55.65		

r	Table 10. Acute Avian Dose-Based Upper Bound Kenaga EECs (mg/kg bw)1.15 lbs/A Application, 2 applications, 7 day application interval						
Size Class (grams)	Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore		
20	471.50	216.11	265.22	29.47	6.55		
100	268.87	123.23	151.24	16.80	3.73		
1000	120.38	55.17	67.71	7.52	1.67		

Table 11. Acute Mammalian Dose-Based Upper Bound Kenaga EECs (mg/kg bw) 1.15 lbs/A Application, 2 applications, 7 day application interval						
Size Class (grams)	Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore	
15	394.72	180.91	222.03	24.67	5.48	
35	272.80	125.03	153.45	17.05	3.79	
1000	63.25	28.99	35.58	3.95	0.88	

Table 12. Chronic Mammalian Dose-Based Upper Bound Kenaga EECs (mg/kg bw)1.15 lbs/A Application, 2 applications, 7 day application interval							
Size Class (grams)	Class Grass Tall Grass		Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore		
15	394.72	180.91	222.03	24.67	5.48		
35	272.80	125.03	153.45	17.05	3.79		
1000	63.25	28.99	35.58	3.95	0.88		

Table 13. Upper Bound Kenaga Dietary EECs (ppm)1.15 lbs/A Application, 2 applications, 7 day application interval							
Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects				
414.00	189.75	232.88	25.88				

Size class not used for dietary risk quotients

Table 14. Acute Avian Dose-Based Upper Bound Kenaga EECs (mg/kg bw)1.15 lbs/A Application, 4 applications, 7 day application interval							
Size Class (grams)	Class Grass Tall Grass		Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore		
20	589.38	270.13	331.53	36.84	8.19		
100	336.09	154.04	189.05	21.01	4.67		
1000	150.47	68.97	84.64	9.40	2.09		

Table 15. Acute Mammalian Dose-Based Upper Bound Kenaga EECs ((mg/kg bw)
1.15 lbs/A Application, 4 applications, 7 day application interv	al

Size Class (grams)	Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore	
15	493.40	226.14	277.54	30.84	6.85	
35	341.00	156.29	191.81	21.31	4.74	
1000	79.06	36.24	44.47	4.94	1.10	

Table 16. Chronic Mammalian Dose-Based Upper Bound Kenaga EECs (mg/kg by	v)
1.15 lbs/A Application, 4 applications, 7 day application interval	

Size Class (grams)	Short Grass Tall Grass		Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects	Granivore	
15	493.40	226.14	277.54	30.84	6.85	
35	341.00	156.29	191.81	21.31	4.74	
1000	79.06	36.24	44.47	4.94	1.10	

Table 17. Upper Bound Kenaga Dietary EECs (ppm)1.15 lbs/A Application, 4 applications, 7 day application interval						
Short Grass	Tall Grass	Broadleaf Plants/ Small Insects	Fruits/Pods/ Seeds/ Large Insects			
517.50	237.19	291.09	32.34			

B. Environmental Fate Summary

Glyphosate [N-(phosphonomethyl)glyciné] is an acid, and it can also be associated with different counter cations to form salts. Several salts of glyphosate are currently marketed, as well as the acid, and are considered as the active ingredient in end-use products. For the aquatic uses, the isopropylamine salt is the active ingredient in the end-use product. The parent acid is the chemical species that exhibits herbicidal activity. In order to have comparable results, the salt is considered in terms of its glyphosate equivalent, (acid equivalent; ae), determined by multiplying the application rate by the acid equivalence ratio, defined as the ratio of the molecular weight of N-(phosphonomethyl)glycine to the molecular weight of the salt. For the purpose of this assessment, the acid and the salt species are referred to as "glyphosate" throughout this document.

Table 18 summarizes the environmental fate behavior of glyphosate in different media. The

environmental fate data shown in this table are taken from required studies submitted in support of registration of glyphosate.

The major route of transformation of glyphosate identified in laboratory studies is microbial degradation. In soils incubated under aerobic conditions, the half-life of glyphosate ranges from 1.8 to 5.4 days and in aerobic water-sediment systems is 7 days. However, anaerobic conditions limit the metabolism of glyphosate (half-life 208 days in anaerobic water-sediment systems). In laboratory studies, glyphosate was not observed to break down by abiotic processes, such as hydrolysis, direct photolysis in soil, or photolysis in water. In the field, dissipation half-lives were measured to be 2.4 to 160 days (n=6). Glyphosate dissipation appeared to correlate with climate, being more persistent in cold than in warm climates. Along with significant mineralization to carbon dioxide, the major metabolite of glyphosate is aminomethylphosphonic acid (AMPA).

No data are available about the environmental fate behavior of glyphosate salts. It is assumed the glyphosate salts dissociate rapidly to form glyphosate and the counter ion.

Study		Value			Major Degradates ¹ , Comments		
Abiotic Hydrolysis Half-life	Stable (at 25° C for at least 30 days)			None			00108192; 44320642
Direct Aqueous Photolysis	Stable (for at least 30 days)			None	_		41689101; 44320643
Soil Photolysis Half-life	Stable (for at least 30 days)				n in dark co it in irradiate		44320645.
Aerobic Soil Metabolism Half-life	1.8 and 5.4 days (sandy loam) 2.6 days (silt loam)			AMPA(max 29% at 40 d) CO_2 (\geq 70% after 1 year)			42372501; 44320645
Anaerobic Aquatic Metabolism Half-life	208 days (Water- silty clay loam sediment system)			AMPA (max 25% at 15 d) CO_2 (\geq 35% after 1 year) Initial degradation was rapid but slowed considerably. Non-linear modeling predicts $DT_{50} = 8.1$ day and $DT_{90} > 1$ yr			41723701; 42372502
Aerobic Aquatic Metabolism Half-life	14.1 days (Water- silty sediment)	r clay loam		AMPA $(19-25\% \text{ at } 7-30 \text{ d})$ CO2 $(\geq 23\% \text{ after } 30 \text{ d})$			41723601; 42372503
Study			V	alue			MRID #
Batch Equilibrium	Soil	Avg K _d	Avg K _{oc}	K _F	1/n	K _{Foc}	44320646
(mL/g)	sand	170	58,000	64	0.75	22,000	
6/	sandy loam	18	3,100	9.4	0.72	1,600	
	sandy loam	230	13,000	90	0.76	5,000	

Table18. Environmental Fate Data for Glyphosate

Study		Value			Major Degradates ¹ , Comments		
	silty clay loam	680	33,000	470	0.93	21,000	
	silty clay loam	1,000	47,000	700	0.94	33,000	
Study		Value					
Terrestrial Field Dissipation Half-life	Glyph. 1.7 d 7.3 d 8.3 d 13 d 17 d 25 d 114 d 142 d	AMPA 131 d 119 d 958 d 896 d 142 d 302 d 240 d no data	(TX) (OH) (GA) (CA) (AZ) (MN) (NY) (IA)	Bare ground studies. Glyphosate and AMPA were found predominantly in the 0 to 6 inch layers			42607501; 42765001
Aquatic Field Dissipation	7.5 days			In a farm pond in Missouri. At 3 sites (OR, GA, MI), half-lives could not be calculated due to recharging events.		half-lives	40881601
	immediately Sediment: in pond sed	Water: Dissipated rapidly immediately after treatment. Sediment: Glyphosate remained in pond sediments at \geq 1 ppm at 1 year post treatment.			In ponds in Michigan and Oregon and a stream in Georgia Accumulation was higher in the pond than in the stream sediments		
Forestry Dissipation		day osate: 100 d A: 118 d	d	3.75 lb ae/A, aerial application			41552801.

¹ Major degradates are defined as those which reach >10% of the applied.

C. Ecological Effects Summary

1. Effects to Aquatic Organisms

Table 19 summarizes the most sensitive aquatic toxicity endpoints of technical glyphosate and/or its salts. Data gaps for glyphosate include chronic marine/estuarine fish and invertebrate studies. Chronic toxicity values (NOAEC) cannot be estimated for either marine/estuarine fish or invertebrates using acute to chronic ratios because for both freshwater fish and invertebrates, the acute and chronic toxicity studies were conducted with different species.

Table 17. Aquate Toxicity Home for Oryphosate/Bat								
Assessment	Species	Toxicity Values	Toxicity	Citation	Comment			
Endpoint			Category ¹	MRID # /Date				
Acute Toxicity to	Bluegill	96-hr. LC ₅₀ : 43 mg	Slightly	44320630/1995				
Freshwater Fish	sunfish	a.e./L*	toxic					
	(Lepomis							
	macrochirus)							

 Table 19. Aquatic Toxicity Profile for Glyphosate/Salt

Assessment Endpoint	Species	Toxicity Values	Toxicity Category ¹	Citation MRID # /Date	Comment
Chronic Toxicity to Freshwater Fish	Fathead minnow (Pimephales promelas)	NOAEC: 25.7 mg a.e./L (highest concentration tested)	N/A ²	00108171/1975	
Acute Toxicity to Aquatic-Phase Amphibians	Australian frog (<i>Crinia</i> <i>insignifera</i>) Adult	LC ₅₀ : 75 mg a.e./L	Slightly toxic	43839601/1995	
Chronic Toxicity to Aquatic-Phase Amphibians	Leopard Frog (Rana pipiens)	NOAEC/LOAEC: 1.8/>1.8	N/A ²	46650501/2004	
Acute Toxicity to Freshwater Invertebrates	Midge (Chironomus plumosus)	48-hr LC ₅₀ : 53.2 mg a.e./L	Slightly toxic	00162296/1979	
Chronic Toxicity to Freshwater Invertebrates	Water flea (Daphnia magna)	NOAEC: 49.9 mg a.e./L	N/A	00124763/1982	LOAEC: 95.7 mg a.e./L based on reduced reproductive capacity.
Acute Toxicity to Marine/Estuarine Fish	Sheepshead minnow (Cyprinodon variegatus)	96-hr. LC ₅₀ : 240 mg a.e./L	Practically nontoxic	44320632/1996	
Acute Toxicity to Marine/Estuarine Invertebrates	Mysid (Americamysis bahia)	LC ₅₀ : 40 mg a.e./L	Slightly toxic	44320634/1996	
Acute Toxicity to Non-vascular Aquatic Plants	Green algae (Selenastrum capricornutum)	4-day EC ₅₀ : 12.1 mg a.e./L	N/A	40236901/1987	
Acute Toxicity to Toxicity to Vascular Aquatic Plants	Duckweed (Lemna gibba) ms of acid equival	14-day EC ₅₀ : 11.9 mg a.e./L	N/A	44320638/1996	

¹Categories of acute toxicity for aquatic organisms (U.S. EPA, 2004) based on LC_{50} (mg/L): < 0.1 very highly toxic; 0.1-1 highly toxic; >1-10 moderately toxic; >10-100 slightly toxic; >100 practically nontoxic. Toxicity categories for aquatic plants have not been defined. ² N/A = Not applicable

Table 20 summarizes the most sensitive acute aquatic toxicity endpoints of glyphosate formulations containing the surfactant POEA. These endpoints will be used in comparison to the estimated EECs from spraydrift for the formulation.

Table 20. Acute Aquatic Toxicity Profile for Glyphosate Formulations Containing POEA				
Assessment Endpoint	Species	Toxicity Value Used in Risk Assessment	Citation MRID # /Date	Comment
Acute Toxicity to Freshwater Fish	Rainbow trout (Oncorhynchus mykiss)	96-hr LC ₅₀ : 3.17 mg formulation/L	40098001/1986	Supplemental Roundup: 30% a.i.

Table 20. Acute A	Table 20. Acute Aquatic Toxicity Profile for Glyphosate Formulations Containing POEA			
Assessment Endpoint	Species	Toxicity Value Used in Risk Assessment	Citation MRID # /Date	Comment
Acute Toxicity to Aquatic-Phase Amphibians	Green Frog (Rana clamitans) Gosner Stg 25	LC50: 6.5 mg formulation/L	46650501/2001	Supplemental Glyphosate IPA (Roundup Original with 15% POEA)
Acute Toxicity to Freshwater Invertebrates	Water flea (Daphnia magna)	48-hr EC ₅₀ : 3 ppm formulation	00162296/1979	Acceptable 30.3% Glyphosate IPA
Toxicity to Non- vascular Aquatic Plants	Freshwater diatom (Navicula pelliculosa)	96-hr EC ₅₀ : 0.39 ppm formulation	45666701/2001	Acceptable Glyphosate (glyphos) 31.0%
Toxicity to Non- vascular Aquatic Plants	Marine diatom (Skeletonema costatum)	96-hr EC ₅₀ : 0.34 ppm formulation	45666703/2001	Acceptable Glyphosate (glyphos) 31.0%
Toxicity to Vascular Aquatic Plants	Duckweed (Lemna gibba)	14-day EC ₅₀ : 4.9 ppm formulation	44125714/1984	Supplemental Glyphosate IPA salt (Roundup 41%)

Table 21 summarizes the most sensitive acute aquatic toxicity endpoints of the surfactant POEA. These endpoints will be used in comparison to the estimated EECs from spraydrift for the formulation.

	Table 21. Acute Aquatic Toxicity Profile for POEA Surfactant					
Chemical	Species	% a.i. ¹	96-hour LC ₅₀ /NOAEC (mg/L)/Slope	Toxicity Category ²	MRID #/Year	Study Classification
Polyoxy ethylene fatty amine (POEA)	Rainbow trout (Oncorhynchus mykiss)	100	$\frac{\text{LC}_{50}: 1 (1.2 - 1.7)^3}{\text{NOAEC and}}$ slope not reported	Highly toxic	00162296/1979	Acceptable
Polyoxy ethylene fatty amine (POEA or MON 0818)	Green Frog (Rana clamitans) Gosner Stg 25	69-73	LC50: 2.2 (2.1- 2.4) NOAEC: NR* Slope: NR	Moderately toxic	46650501/2001	Supplemental
MON 0818 (POEA)	Midge (Chironomus plumosus)	100	LC50: 13 (7.1- 24.0) ² NOAEC: N.R. Slope: N.R.	Slightly toxic	00162296/1979	Acceptable

Table 21. Acute Aquatic Toxicity Profile for POEA Surfactant					
Chemical Species % a.i. ¹ 96-hour LC ₅₀ /NOAEC (mg/L)/Slope Toxicity Category ² MRID #/Year Study Classification					
¹ a.i. = active ingredient, assumed 100% for technical material ² Based on LC ₅₀ (mg/L): < 0.1 very highly toxic; 0.1-1 highly toxic; >1-10 moderately toxic; >10-100 slightly toxic; >100 practically nontoxic ³ Range is 95% confidence interval for endpoint.					

2. Effects to Terrestrial Organisms

 Table 22 summarizes the most sensitive terrestrial animal and plant endpoints for glyphosate.

Endpoint	Species	Toxicity Value	Toxicity Category ¹	Citation MRID#/Date	Comment
Acute Avian Oral Toxicity	Bobwhite quail (Colinus virginianus)	LD ₅₀ : >3196 mg a.e./kg bw	Slightly toxic	00108204/1978	
Acute Avian Dietary Toxicity	Bobwhite quail (Colinus virginianus)	LC ₅₀ : >4971.2 PPM	Slightly toxic	44320628/1997	
Chronic Avian	Bobwhite quail (Colinus virginianus)	Reproduction study NOAEC: 830 PPM	N/A ²	108207/1978	LOAEC: >830 PPM (highest concentration tested).
Acute mammalian	Rat (rattus norvegicus)	LD ₅₀ >4800 mg/kg bw	Practically non-toxic	43728003/1989	
Chronic mammalian	Rat (rattus norvegicus)	NOAEL: 500 mg/kg bw/day; NOAEC: 10000 ppm	N/A	41621501/1990	Reproduction study parental/pup LOAEL: 1500 mg/kg bw/day; LOAEC: 30000 ppm (soft stools, decreased body weight gain and food consumption in parents and decreased body weight gain during lactation in pups).
Acute terrestrial invertebrate	Honey bee (Apis mellifera)	48 hr LD ₅₀ (O): >100 μg/bee	Practically non-toxic	00026489/1972	
Terrestrial	Seedling	EC ₂₅ : >5 LB/A	N/A —	40159301/1987	

Table 22. Terrestrial Toxicity Profile for Glyphosate/Salts

Endpoint	Species	Toxicity Value	Toxicity Category ¹	Citation MRID#/Date	Comment
Plants	Emergence Monocots				
	Seedling Emergence Dicots	EC ₂₅ : > 5 LB/A	N/A	40159301/1987	
	<u>Vegetative</u> <u>Vigor</u> Monocots	EC ₂₅ : 0.16 LB/A	N/A	44125715/45045 101/ 1995	
	<u>Vegetative</u> <u>Vigor</u> Dicots	EC ₂₅ : 0.074 LB/A	N/A	44320636/1996	

For the categories of acute toxicity to terrestrial animals, avian and mammalian (U.S. EPA, 2004). LC_{50} (ppm): < 50 very highly toxic; 50 - 500 highly toxic; 501 - 1000 moderately toxic; 1001-5000 slightly toxic; >5000 practically non-toxic. LD_{50} (mg/kg bw): < 10 very highly toxic; 10 - 50 highly toxic; 51 - 500 moderately toxic; 501-2000 slightly toxic; >2000 practically non-toxic. Toxicity categories for terrestrial plants have not been defined. ² N/A = Not applicable

D. Risk Assessment Summary

Aquatic Species

1. Fish

Technical Glyphosate

Table 23 indicates that neither the acute nor chronic levels of concern (LOC) are exceeded for either freshwater fish or aquatic-phase amphibians with the highest estimated peak and 60-day average EEC values. The acute toxicity endpoint for freshwater fish was used to estimate risk for amphibians because it is a more conservative endpoint and fish are used as a surrogate for amphibians. Both chronic endpoints for freshwater fish and for aquatic-phase amphibians are used to estimate potential risk following chronic exposure because a chronic endpoint for amphibians is available and it is more conservative than the fish endpoint. For marine/estuarine fish, the acute LOC is not exceeded. Estimating a chronic toxicity value for marine/estuarine fish acute and chronic toxicity studies were conducted with different species. However, even with the uncertainties, it is noted that the acute toxicity value for estuarine fish is approximately 6 times higher than for freshwater fish. Therefore, since neither the acute nor chronic LOCs were exceeded for freshwater fish, based on the weight of the evidence from the fish studies conducted with technical glyphosate, there is low concern for risk to estuarine fish following chronic exposure.

Table 23. Technica	Table 23. Technical Glyphosate: Summarized Acute and Chronic Fish Risk Quotients for Sweet Corn				
Scenario	Freshwater Fish/Aquatic- Phase Amphibians (Acute) ^{1,2,4}	Use Freshwater Fish (Chronic) ^{1,2,4}	Estuarine/Marine Fish (Acute) ^{1,3,4}	Aquatic-Phase Amphibians (Chronic) ^{1,3,4}	
3.71 lb ae/A single application	<0.01	<0.01	<0.01	<0.01	
3.71/1.15 lb ae/A 1(pre)/2(post)	<0.01	<0.01	<0.01	<0.01	

¹ Single application of 3.71 lb a.e./A: peak EEC 8.439 µg a.e./L, 60-day average EEC 2.872 µg a.e./L. Multiple applications of 3.71 and/or 1.15 lb a.e./A: peak EEC 9.817 µg a.e./L, 60-day average EEC 3.477 µg a.e./L.

² Acute and chronic toxicity endpoints were 43000 μ g a.e./L (LC₅₀) and 25700 μ g a.e./L (NOAEC), respectively, for freshwater fish. ³ Acute and chronic toxicity endpoints were 240000 μ g/L (LC₅₀) and no chronic value (NOAEC), respectively, for estuarine/marine fish. Chronic toxicity endpoint for amphibians: 1800 μ g/L (NOAEC).

⁴ Risk Quotients are calculated using the following formulas: EEC/LC_{50} for acute exposure and EEC/NOAEC for chronic exposure ⁵Acute LOC for freshwater fish and aquatic-phase amphibians = 0.05 for endangered species, 0.1 for restricted use, and 0.5 for non-listed species

Glyphosate Formulation Containing the Surfactant POEA

Table 24 indicates that the acute LOCs are not exceeded for either freshwater fish or aquaticphase amphibians following acute exposure to the formulation through spray drift. No aquatic toxicity data are available for marine/estuarine species on formulated products containing POEA. Chronic aquatic EECs were not estimated.

Table 24. Glyphosate Formulation with POEA: Summarized Acute Fish and Amphibian Risk Quotients for Sweet Corn Uses			
Scenario	Freshwater Fish (Acute) ^{1,3,4}	Aquatic-Phase Amphibians(Acute) ^{2,3,4}	
9.35 lb formulation/A application	<0.01	<0.01	

¹ Highest peak EEC is 2.12 µg formulation/L. The acute toxicity endpoint is 3170 µg formulation/L for freshwater fish.

² The acute toxicity endpoint is 6500 μ g formulation/L for aquatic-phase amphibians.

³ Risk Quotients are calculated using the following formula: EEC/LC₅₀ for acute exposure

⁴Acute LOC for freshwater fish and aquatic-phase amphibians = 0.05 for endangered species, 0.1 for restricted use, and 0.5 for non-listed species.

POEA Only

Table 25 indicates that the acute LOCs are not exceeded for either freshwater fish or aquaticphase amphibians following acute exposure to the surfactant through spray drift. No aquatic toxicity data on POEA are available for marine/estuarine species. Chronic aquatic EECs were not estimated.

Table 25. POEA: Summarized Acute Fish and AmphibianRisk Quotients for Sweet Corn Uses		
Scenario	Freshwater Fish (Acute) ^{1,3,4}	Aquatic-Phase Amphibians(Acute) ^{2,3,4}

Table 25. POEA: Summarized Acute Fish and Amphibian Risk Quotients for Sweet Corn Uses				
Scenario	Scenario Freshwater Fish (Acute) ^{1,3,4} Aquatic-Phase Amphibians(Acute) ^{2,3,4}			
9.35 lb formulation/A application	<0.01	<0.01		

¹ Highest peak EEC for POEA based on spray drift is 0.318 µg POEA/L. The acute toxicity endpoint is 1000 µg POEA/L for freshwater fish.

² The acute toxicity endpoint is $2200 \,\mu g$ POEA/L for aquatic-phase amphibians.

³ Risk Quotients are calculated using the following formula: EEC/LC₅₀ for acute exposure

⁴Acute LOC for freshwater fish and aquatic-phase amphibians = 0.05 for endangered species, 0.1 for restricted use, and 0.5 for non-listed species.

2. Aquatic Invertebrates

Technical Glyphosate

Table 26 indicates that neither the acute nor chronic levels of concern (LOC) are exceeded for freshwater invertebrates. For marine/estuarine invertebrates, the acute LOC is not exceeded. Estimating a chronic toxicity value for marine/estuarine invertebrates using an acute to chronic ratio would have considerable uncertainties because the freshwater invertebrate acute and chronic toxicity studies were conducted with different species. However, even with the uncertainties, it is noted that the acute toxicity value for estuarine invertebrates is approximately 75% of the acute freshwater invertebrate value. Therefore, since the RQ for chronic exposure to freshwater invertebrates is <0.01 and neither the acute nor chronic LOCs were exceeded for freshwater invertebrates, based on the weight of the evidence from the invertebrate studies conducted with technical glyphosate, there is low concern for risk to estuarine/marine invertebrates following chronic exposure.

Table 26. Summarize	Table 26. Summarized Acute and Chronic Aquatic Invertebrates Risk Quotients for Sweet Corn				
Scenario	Freshwater Inv. (Acute) ^{1,2.4}	Freshwater Inv. (Chronic) ^{1,2,4}	Estuarine/Marine Inv. (Acute) ^{1,3,4}	Estuarine/Marine Inv. (Chronic) ^{1,3,4}	
3.71 lb ae/A single application	<0.01	<0.01	<0.01	N/A	
3.71/1.15 lb ae/A 1(pre)/2(post)	<0.01	<0.01	<0.01	N/A	

¹ Single application of 3.71 lb a.e./A: peak EEC 8.439 µg a.e./L, 21-day average EEC 5.082 µg a.e./L. Multiple applications of 3.71 and/or 1.15 lb a.e./A: peak EEC 9.817 µg a.e./L, 21-day average EEC 5.954 µg a.e./L.

² Acute and chronic toxicity endpoints were 53200 μ g a.e./L (LC₅₀) and 49900 μ g a.e./L (NOAEC), respectively, for freshwater invertebrates.

³ Acute and chronic toxicity endpoints were 40000 μ g/L (LC₅₀) and no chronic value (NOAEC), respectively, for estuarine/marine invertebrates.

⁴ Risk Quotients are calculated using the following formulas: EEC/LC₅₀ for acute exposure and EEC/NOAEC for chronic exposure

⁵Acute LOC for freshwater and marine/estuarine invertebrates = 0.05 for endangered species, 0.1 for restricted use, and 0.5 for non-listed species

Glyphosate Formulation Containing the Surfactant POEA

Table 27 indicates that the acute LOC is not exceeded for freshwater invertebrates. No aquatic toxicity data are available for marine/estuarine species on formulated products containing POEA.

Chronic aquatic EECs were not estimated.

Table 27. Glyphosate Formulation with POEA: Summarized Acute Freshwater Invertebrate Risk Quotients for Sweet Corn Uses		
Scenario	Freshwater Invertebrates ^{1,2,3}	
9.35 lb formulation/A application	<0.01	

¹ Highest peak EEC is 2.12 µg formulation/L. The acute toxicity endpoint is 3000 µg formulation/L for freshwater invertebrates.

² Risk Quotients are calculated using the following formula: EEC/LC₅₀ for acute exposure

³Acute LOC for freshwater fish and aquatic-phase amphibians = 0.05 for endangered species, 0.1 for restricted use, and 0.5 for nonlisted species.

POEA Only

Table 28 indicates that the acute LOC for aquatic invertebrates is not exceeded following acuteexposure to the surfactant through spray drift. No aquatic toxicity data are available formarine/estuarine species on POEA. Chronic aquatic EECs were not estimated.

Table 28. POEA: Summarized Acute Freshwater Invertebrate Risk Quotients for Sweet Corn Uses					
Scenario	Freshwater Invertebrates ^{1.2,3}				
9.35 lb formulation/A application <0.01					

¹ Highest peak EEC for POEA based on spray drift is 0.318 µg POEA/L. The acute toxicity endpoint is 13000 µg POEA/L for freshwater invertebrates.

² Risk Quotients are calculated using the following formula: EEC/LC₅₀ for acute exposure

³Acute LOC for freshwater invertebrates = 0.05 for endangered species, 0.1 for restricted use, and 0.5 for non-listed species.

3. Aquatic Plants

Technical Glyphosate

Table 29 indicates that the LOCs for aquatic non-vascular and vascular plants are not exceeded for the proposed use.

Table 29. Aquatic Plant Risk Quotients for Sweet Corn Uses								
Scenario	Non-vascular Plants	Vascular Plants						
3.71 lb ae/A single application	RQ < 0.01	RQ < 0.01						
3.71/1.15 lb ae/A 1(pre)/2(post)	RQ < 0.01	RQ < 0.01						

Table 29. Aquatic Plant Risk Quotients for Sweet Corn Uses							
Scenario	Non-vascular Plants	Vascular Plants					

¹ Single application of 3.71 lb a.e./A: peak EEC 8.439 µg a.e./L. Multiple applications of 3.71 and/or 1.15 lb a.e./A: peak EEC 9.817 µg a.e./L.

² Endpoints are 12100 μ g a.e./L (EC₅₀) for non-vascular plants and 11900 μ g a.e./L for vascular plants.

³ Risk Quotients are calculated using the following formula: EEC/EC₅₀

⁴LOC for aquatic plants = 1

Glyphosate Formulation Containing the Surfactant POEA

Table 30 indicates that the aquatic plant LOC is not exceeded for either non-vascular or vascular plants.

Table 30. Glyphosate Formulation with POEA: Aquatic Plant Risk Quotients for Sweet Corn Uses ^{1,2,3}							
Scenario	Non-vascular Plants	Vascular Plants					
9.35 lb formulation/A application	<0.01	<0.01					

¹ Peak EEC is 2.12 μ g formulation/L. The toxicity endpoint is 390 μ g formulation/L for non-vascular plants and 4900 μ g formulation/L for vascular plants.

² Risk Quotients are calculated using the following formula: EEC/EC₅₀

³ LOC for aquatic plants = 1.

Terrestrial Species

4. Birds, Reptiles and Terrestrial-Phase Amphibians

There are no toxicity studies available for reptiles or terrestrial-phase amphibians. Therefore, birds are used as a surrogate. There were no mortalities in any of the available acute and subacute avian studies. Therefore, no RQs were calculated. The highest dose/concentrations tested in the acute/subacute avian studies were 3196.3 mg a.e./kg bodyweight (83% technical) and 4971.2 mg a.e./kg diet (95.6% technical), respectively, both with bobwhite quail. Using comparisons between the terrestrial EECs estimated from T-REX v. 1.4.1 (**Appendix B**) and the highest dose tested in the acute oral study, the results show that for all of the application rates, all of the EEC values are lower; however, for 20 g birds many of the EECs are greater than $1/10^{th}$ of the highest dose tested in the study. For 100 g birds, several EECs are greater than $1/10^{th}$ of the highest dose tested in the study at the 3.71 lbs/A rate and at the 1.15 lbs/A application rate when applied 4 times per year. For that reason, there is an uncertainty associated with listed avian species (the LOC for listed avian species is 0.1). For the subacute dietary-based EECs, again, several of the EEC values are greater than $1/10^{th}$ of the highest concentration tested with the 3.71 lbs/A application rate and with the 1.15 lbs/A rate that would be applied 4 times per season.

Following chronic exposure, the chronic LOC for birds (LOC = 1) is exceeded for short grass at the 3.71 lbs/A application rate (RQ = 1.07). However, it is noted that there were no effects at the highest concentration tested in the bobwhite quail reproduction study (e.g., the NOAEC is based on the highest concentration tested). In addition, no effects were observed in mallard ducks at the same concentration levels. Due to the fact that the RQ for short grass is slightly greater than the chronic avian LOC, there is a slight uncertainty for risk following chronic exposure.

5. Mammals

As with the avian acute toxicity studies, there were no mortalities in any of the available acute toxicity studies with mammals. Therefore, no RQs were calculated. If comparisons are made between the terrestrial EECs estimated from T-REX and the highest dose tested in the acute oral studies, the results show that all of the EEC values for all application rates are less than 1/10th of the highest dose tested in the studies. Therefore, the uncertainties associated with the highest dose tested and the terrestrial EECs for listed species are minimal.

The chronic LOC for mammals is not exceeded, either on a dose- or a dietary basis for any of the food categories and for any of the application rates. The highest RQ is 0.77 for small mammals (15 gms) eating short grass at the 3.71 lbs/A application rate.

6. Terrestrial invertebrates

The acute contact LD_{50} for honey bees is >100 µg a.i./bee (MRID 00026489). Based on the acute contact toxicity study to honeybees, glyphosate is classified as practically non-toxic to honeybees. Thus, risk to terrestrial invertebrates is presumed to be negligible.

7. Terrestrial Plants

Terrestrial plants adjacent to the treatment area are considered in this assessment. Utilizing TERRPLANT v 1.2.2, none of the RQs for either listed or non-listed monocots or dicots exceed the LOC of 1 for terrestrial plants for any of the application rates when applied via ground application methods (**Appendix C**). However, when applied aerially, all of the application rates exceed for listed dicots through spray drift. At the highest application rate (3.71 lbs/A), the LOC for terrestrial plants is exceeded for both listed and non-listed monocots and dicots exposed via spray drift. The highest RQ is 3.79 for listed dicots exposed via spray drift.

References:

Diamond, G.L. and Durkin, P.R. 1997. Effects of Surfactants on the Toxicity of Glyphosate, with Specific Reference to RODEO. Syracuse Environmental Research Associates, Inc. Submitted to: Animal and Plant Health Inspection Service (APHIS), Biotechnology, Biologics and Environmental Protection, Environmental Analysis and Documentation, United States Department of Agriculture. SERA TR 97-206-1b. Page 18.

Appendix A

P/E Pre-plant stored as KScopre.out Chemical: glyphosate

EXAMS environment: KSComStd.txt EXAMS environment: pond298.exv Metfile: w13996.dvf modified Tueday, 26 August 2008 at 06:14:08 Water segment concentrations (ppb)

	-						
Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly	
1961	8.558	7.45	4.874	2.757	2.126	0.7553	
1962	2.373	2.003	1.166	0.7321	0.6048	0.3469	
1963	7.349	6.39	3.927	2.173	1.655	0.5984	
1964	2.252	1.908	1.117	0.625	0.4873	0.2549	
1965	2.126	1.788	1.016	0.5718	0.4354	0.1785	
1966	2.116	1.796	1.037	0.5471	0.4102	0.161	
	5.98	5.306	3.368	1.971			
1967					1.528	0.5723	
1968	2.302	2.015	1.606	0.9339	0.7229	0.3577	
1969	5.431	4.661	2.879	1.731	1.342	0.5238	
1970	2.254	1.915	1.373	0.8495	0.6587	0.3163	
1971	3.178	2.803	1.925	1.175	0.9043	0.354	
1972	6.465	5.563	3.407	1.955	1.518	0.5948	
1973	6.116	5.296	3.327	2.007	1.555	0.6486	
1974	2.269	1.935	1.42	0.8436	0.651	0.3284	
1975	2.159	1.828	1.054	0.595	0.453	0.197	
1976	2.469	2.133	1.643	0.9566	0.7278	0.2741	
1970	11.74	9.926	5.95	3.261	2.495	0.9047	
1978	2.712	2.459	1.843	1.133	0.8846	0.4626	
1979	4.883	4.194	2.58	1.415	1.087	0.4363	
1980	2.208	1.891	1.132	0.6753	0.509	0.2351	
1981	3.036	2.661	2.2	1.41	1.083	0.4078	
1982	9.187	7.914	5.944	3.435	2.67	1.022	
1983	4.785	4.134	2.703	1.573	1.211	0.5844	
1984	2.22	1.915	1.156	0.6909	0.533	0.2538	
1985	4.643	3.932	2.512	1.363	1.035	0.3897	
1986	7.37	6.686	5.105	2.885	2.203	0.8318	
1987	4.345	3.808	2.443	1.386	1.072	0.5125	
1987	2.216	1.964	1.248	0.7049	0.5399	0.2538	
1988				1.942	1.503		
1989	6.235	5.353	3.313	1947	1.503	0.57	
1990	2.949	2.59	1.956	1.271	0.9827	0.4407	
1990	2.949						
	2.949	2.59	1.956	1.271	0.9827	0.4407	
1990	2.949	2.59 96 hr					
1990 Sorted re Prob.	2.949 esults	2.59 96 hr	1.956	1.271	0.9827	0.4407	1.022
1990 Sorted re Prob. 0.032258	2.949 esults Peak	2.59 96 hr 11.74	1.956 21 Day	1.271 60 Day	0.9827 90 Day	0.4407 Yearly	1.022 0.9047
1990 Sorted re Prob. 0.032258 0.064510	2.949 esults Peak 8064516129 5129032258	2.59 96 hr 11.74 1 9.187	1.956 21 Day 9.926 7.914	1.271 60 Day 5.95 5.944	0.9827 90 Day 3.435 3.261	0.4407 Yearly 2.67 2.495	0.9047
1990 Sorted re Prob. 0.032258 0.064510 0.096774	2.949 esults Peak 8064516129 5129032258 4193548387	2.59 96 hr 11.74 1 9.187 1 8.558	1.956 21 Day 9.926 7.914 7.45	1.271 60 Day 5.95 5.944 5.105	0.9827 90 Day 3.435 3.261 2.885	0.4407 Yearly 2.67 2.495 2.203	0.9047 0.8318
1990 Sorted re Prob. 0.032258 0.064510 0.096774 0.129032	2.949 esults Peak 8064516129 5129032258 4193548387 2258064516	2.59 96 hr 11.74 1 9.187 1 8.558 7.37	1.956 21 Day 9.926 7.914 7.45 6.686	1.271 60 Day 5.95 5.944 5.105 4.874	0.9827 90 Day 3.435 3.261 2.885 2.757	0.4407 Yearly 2.67 2.495 2.203 2.126	0.9047 0.8318 0.7553
1990 Sorted re Prob. 0.032258 0.064510 0.096774 0.129032 0.161290	2.949 esults Peak 8064516129 5129032258 4193548387 2258064516 0322580645	2.59 96 hr 11.74 1 9.187 1 8.558 7.37 7.349	1.956 21 Day 9.926 7.914 7.45 6.686 6.39	1.271 60 Day 5.95 5.944 5.105 4.874 3.927	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655	0.9047 0.8318 0.7553 0.6486
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 0322580645 3387096774	2.59 96 hr 11.74 1 9.187 1 8.558 7.37 7.349 6.465	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555	0.9047 0.8318 0.7553 0.6486 0.5984
1990 Sorted re Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225800	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 3322580645 3387096774 6451612903	2.59 96 hr 11.74 1 9.187 1 8.558 7.37 7.349 6.465 6.235	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948
1990 Sorted re Prob. 0.032258 0.064510 0.096774 0.129032 0.16129 0.193548 0.225806 0.258064	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 3322580645 3387096774 64516129032	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844
1990 Sorted re Prob. 0.032258 0.064510 0.09677- 0.129032 0.161290 0.193548 0.225806 0.25806 0.290322	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 3387096774 64516129032 2580645161	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.199032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 0322580645 3387096774 54516129032 2580645161 2058064516129	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.199032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 3387096774 64516129032 2580645161	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580 0.354838	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 0322580645 3387096774 54516129032 2580645161 2058064516129	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580 0.354838 0.387090	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 03225806451 3387096774 54516129032 2580645161 064516129 8709677419	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57 0.5238
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580 0.354838 0.387090 0.419354	2.949 esults Peak 8064516129 5129032258 4193548387 2258064516 3387096774 4516129032 2580645161 264516129 8709677419 5774193548 4838709677	2.59 96 hr 11.74 19.187 1 8.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.368 3.327 3.313 2.879 2.703 2.58 2.512	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57 0.5238 0.5125 0.4626
1990 Sorted ra Prob. 0.032258 0.064514 0.096774 0.129032 0.161290 0.193548 0.2258064 0.290322 0.322586 0.32258 0.32558 0.35548 0.32558 0.35586 0.35558 0.35568 0.35568 0.35568 0.35568 0.35558 0.355580 0.355580 0.355580 0.35558000000000000000000000000000000000	2.949 esults Peak 8064516129 5129032258 8193548387 2258064516 3387096774 54516129032 2580645161 264516129 8709677419 5774193548 4838709677 2903225806	2.59 96 hr 11.74 19.187 1 8.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.5723 0.5238 0.5125 0.4626 0.4407
1990 Sorted re Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.258064 0.258064 0.290322 0.322580 0.354838 0.387090 0.419354 0.451612 0.483870	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 32258064516 3387096774 64516129032 2580645161 964516129 8709677419 5774193548 4838709677 2903225806 9967741936	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5723 0.5723 0.5238 0.5125 0.4626 0.4407 0.4363
1990 Sorted re Prob. 0.032258 0.064510 0.09677- 0.129033 0.161290 0.193548 0.225806- 0.290322 0.322580 0.322580 0.322580 0.322580 0.32583 0.387090 0.41935- 0.451612 0.483870 0.516125	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 33278064516 3322580645 3387096774 64516129032 258064516129 8709677419 6774193548 4838709677 2903225806 0967741936	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.5723 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078
1990 Sorted re Prob. 0.032258 0.064510 0.096774 0.129032 0.16129 0.193548 0.258064 0.258064 0.290322 0.322586 0.354838 0.354838 0.354838 0.419354 0.451612 0.483870 0.516129 0.548383	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 32258064516 3387096774 9451612903 451612903 4516129 8709677419 4838709677 1903225806 9067741936 9032258065 7096774194	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897
1990 Sorted re Prob. 0.032258 0.064510 0.096774 0.129032 0.16129 0.193548 0.258064 0.290322 0.322586 0.354838 0.387090 0.419354 0.419354 0.451612 0.48387 0.516129 0.548387 0.580645	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 32258064516 322580645161 364516129032 2580645161 964516129 8709677419 5774193548 4838709677 29032258065 7096774194 5161290323	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.415 1.415 1.386 1.363 1.271 1.175 1.133	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577
1990 Sorted re Prob. 0.032258 0.064510 0.09677- 0.129032 0.161290 0.193548 0.225806 0.290322 0.322586 0.354838 0.387090 0.41935- 0.41935- 0.41935- 0.41935- 0.516129 0.516129 0.516129 0.516129 0.580642 0.580642	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 2322580645 8387096774 64516129032 2580645161 264516129 8709677419 5774193548 4838709677 2903225806 9067741936 29032258065 2096774194 5161290323 3225806452	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712 2.469	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459 2.133	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843 1.643	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175 1.133 0.9566	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846 0.7278	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577 0.354
1990 Sorted re Prob. 0.032258 0.064510 0.09677- 0.129032 0.161290 0.258064 0.258064 0.290322 0.322580 0.354838 0.387090 0.419354 0.451612 0.548387 0.516122 0.548388 0.580645 0.612902 0.645161	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 10322580645 3387096774 64516129032 2580645161 264516129 8709677419 5774193548 4838709677 29032258065 2096774194 5032258065 2096774194 5161290322 5806452 1290322581	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712 2.469 2.373	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459 2.133 2.015	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843 1.643 1.606	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175 1.133 0.9566 0.9339	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846 0.7278 0.7229	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5948 0.5723 0.57 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577 0.354 0.3469
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580 0.354838 0.387099 0.419354 0.451612 0.548387 0.516129 0.548387 0.580645 0.612903 0.645161 0.677415	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 30322580645 30322580645 454516129032 2580645161 264516129 8709677419 5774193548 4838709677 29032258065 0905724194 503225806452 1290322581 33225806452 1290322581 335483871	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712 2.469 2.373 2.302	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459 2.133 2.015 2.003	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843 1.643 1.606 1.42	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175 1.133 0.9566 0.9339 0.8495	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846 0.7278 0.7229 0.6587	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5948 0.5723 0.57 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577 0.354 0.3469 0.3284
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580 0.354838 0.387099 0.419354 0.451612 0.516129 0.548387 0.580645 0.612903 0.645161 0.677419 0.709677	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 0322580645 63387096774 54516129032 2580645161 264516129 87096774193 5474193548 1838709677 29032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258074194 5161290323 3225806452 1290322581 35483871 7419354839	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712 2.469 2.373 2.302 2.269	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459 2.133 2.015 2.003 1.964	1.271 60 Day 5.95 5.944 5.105 4.874 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843 1.606 1.42 1.373	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175 1.133 0.9566 0.9339 0.8495 0.8436	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846 0.7278 0.7229 0.6587 0.651	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577 0.354 0.3469 0.3284 0.3163
1990 Sorted ra Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322580 0.354838 0.387099 0.419354 0.451612 0.516129 0.548387 0.580645 0.612903 0.645161 0.677419 0.709677	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 30322580645 30322580645 454516129032 2580645161 264516129 8709677419 5774193548 4838709677 29032258065 0905724194 503225806452 1290322581 33225806452 1290322581 335483871	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712 2.469 2.373 2.302 2.269 2.254	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459 2.133 2.015 2.003 1.964 1.935	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843 1.606 1.42 1.373 1.248	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175 1.133 0.9566 0.9339 0.8495	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846 0.7278 0.7278 0.7278 0.7278 0.7278 0.6551 0.6048	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5723 0.5723 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577 0.354 0.3284 0.3163 0.2741
1990 Sorted re Prob. 0.032258 0.064510 0.09677- 0.129033 0.161290 0.193548 0.2258060 0.258060 0.258060 0.354838 0.387090 0.419354 0.451612 0.548387 0.516129 0.516129 0.548387 0.516129 0.548387 0.516129 0.548387 0.576129 0.516129 0.57419 0.57419 0.57419 0.57419	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 0322580645 63387096774 54516129032 2580645161 264516129 87096774193 5474193548 1838709677 29032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258065 20032258074194 5161290323 3225806452 1290322581 35483871 7419354839	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712 2.469 2.373 2.302 2.269 2.254 2.252	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459 2.133 2.015 2.003 1.964 1.935 1.915	1.271 60 Day 5.95 5.944 5.105 4.874 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843 1.606 1.42 1.373	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175 1.133 0.9566 0.9339 0.8495 0.8436	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846 0.7278 0.7229 0.6587 0.651	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5844 0.5723 0.57 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577 0.354 0.3469 0.3284 0.3163
1990 Sorted re Prob. 0.032258 0.064510 0.09677- 0.12903 0.161290 0.193548 0.225806 0.258066 0.290322 0.322580 0.322580 0.322580 0.322580 0.3258064 0.3483870 0.451612 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.5483870 0.516129 0.57419350 0.774193500 0.774193500 0.774193500 0.774193500 0.7741935000000000000000000000000000000000000	2.949 esults Peak 8064516129 6129032258 4193548387 2258064516 32258064516 32258064516 3387096774 54516129032 2580645161 964516129 709677419 5774193548 4838709677 2903225806 906774194 5161290323 3225806452 1290322581 3225806452 2190322581 3225806452 2190322581 325483871 7419354839 5483870968	2.59 96 hr 11.74 19.187 18.558 7.37 7.349 6.465 6.235 6.116 5.98 5.431 4.883 4.785 4.643 4.345 3.178 3.036 2.949 2.712 2.469 2.373 2.302 2.269 2.254	1.956 21 Day 9.926 7.914 7.45 6.686 6.39 5.563 5.353 5.306 5.296 4.661 4.194 4.134 3.932 3.808 2.803 2.661 2.59 2.459 2.133 2.015 2.003 1.964 1.935	1.271 60 Day 5.95 5.944 5.105 4.874 3.927 3.407 3.368 3.327 3.313 2.879 2.703 2.58 2.512 2.443 2.2 1.956 1.925 1.843 1.606 1.42 1.373 1.248	0.9827 90 Day 3.435 3.261 2.885 2.757 2.173 2.007 1.971 1.955 1.942 1.731 1.573 1.415 1.41 1.386 1.363 1.271 1.175 1.133 0.9566 0.9339 0.8495 0.8436 0.7321	0.4407 Yearly 2.67 2.495 2.203 2.126 1.655 1.555 1.528 1.518 1.503 1.342 1.211 1.087 1.083 1.072 1.035 0.9827 0.9043 0.8846 0.7278 0.7278 0.7278 0.7278 0.7278 0.6551 0.6048	0.9047 0.8318 0.7553 0.6486 0.5984 0.5948 0.5723 0.5723 0.5238 0.5125 0.4626 0.4407 0.4363 0.4078 0.3897 0.3577 0.354 0.3284 0.3163 0.2741

0.838709677	935484	2.208	1.908 1.891	1.132 1.117	0.6753 0.625	0.509 0.4873	0.2538	
0.903225806 0.935483870 0.967741935	967742	2.126	1.828 1.796 1.788	1.054 1.037 1.016	0.595 0.5718 0.5471	0.453 0.4354 0.4102	0.197 0.1785 0.161	
	4392	7.3736	5.0819	2.8722	2.1953	0.82415 f yearly ave		0.4589066666666666

Inputs generated by pe5.pl - Novemeber 2006

Data used for this run: Output File: KScopre Metfile: w13996.dvf PRZM scenario: KSCornStd.txt pond298.exv EXAMS environment file: Chemical Name: glyphosate Variable Name Value Units Comments Description g/mol Molecular weight mwt 170.8 2.07E-14 atm-m^3/mol Henry's Law Const. henry Vapor Pressure 9.75E-10 torr vapr Solubility sol 12000 mg/L Kd Kd mg/L 3100 Koc Koc mg/L Photolysis half-life Half-life kdp days Halfife Aerobic Aquatic Metabolism kbacw 14.1 days 208 Halfife Anaerobic Aquatic Metabolism kbacs days Aerobic Soil Metabolism asm 5.4 days Halfife days Half-life Hydrolysis: pH7 See PRZM manual Method: CAM 2 integer Incorporation Depth: DEP1 cm 4.155 Application Rate: TAPP kg/ha APPEFF 0.99 Application Efficiency: fraction Spray Drift DRFT 0.01 fraction of application rate applied to pond Application Date 1-5 dd/mm or dd/mmm or dd-mm or dd-mmm Date Record 17: FILTRA IPSCND 1 UPTKF Record 18:PLVKRT PLDKRT FEXTRC 0.5 EPA Pond Flag for Index Res. Run IR Flag for runoff calc. RUNOFF none none, monthly or total(average of entire run)

P/E Post-plant stored as KScopos.out Chemical: glyphosate PRZM environment: KSComStd.txt EXAMS environment: pond298.exv Metfile: w13996.dvf modified Tueday, 26 August 2008 at 06:14:52

modified Monday, 25 August 2008 at 15:45:08 modified Tueday, 26 August 2008 at 06:14:08

Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly	
1961	2.257	1.958	1.646	1.061	0.8296	0.2962	
1962	7,444	6.239	4.043	2.207	1.71	0.6819	
			1.285		0.7077		
1963	1.719	1.5		0.8929		0.3806	
1964	3.252	2.981	2.316	1.515	1.182	0.4807	
1965	4.507	4.076	3.124	1.948	1.528	0.6618	
1966	4.991	4.297	2.833	1.717	1.349	0.628	
1967	5.881	5.083	3.859	2.587	2.04	0.8918	
1968	2.629	2.252	1.864	1.344	1.088	0.5997	
1969	4.223	3.62	2.619	1.787	1.411	0.6254	
1970	5.809	5.157	3.592	2.266	1.781	0.7651	
1971	2.134	1.874	1.618	1.108	0.8782	0.4576	
1972	1.517	1.285	1.075	0.7182	0.5804	0.2773	
1973	6.886	5.848	4.103	2.261	1.753	0.6768	
1974	4.244	3.645	2.31	1.598	1.255	0.6027	
1975	3.705	3.325	2.517	1.617	1.274	0.5732	
1976	2.338	2.047	1.68	1.068	0.8359	0.3989	
1977	5.622	4.943	3.622	2.824	2.186	0.8449	
1978	6.982	6.474	3.954	2.392	1.882	0.8649	
1979	1.986	1.721	1.344	1.036	0.8408	0.4719	
1980	5.339	4.825	3.507	1.84	1.414	0.5793	
1981	3.155	2.78	2.247	1.732	1.362	0.6008	
1982	3.104	2.797	2.396	1.846	1.452	0.6385	
1983	2.133	1.872	1.637	1.159	0.8982	0.4261	
1984	5.854	5.036	3.197	2.02	1.572	0.6311	
1985	5.272	4.682	2.831	1.75	1.377	0.635	
1986	2.171	1.88	1.624	1.102	0.8708	0.4311	
1987	3.86	3.271	2.343	1.397	1.097	0.4675	
1988	2.285	2.044	1.554	1.187	0.9784	0.4487	
1989	1.559	1.338	1.163	0.877	0.7075	0.3437	
1990	2.933	2.546	2.165	1.528	1.191		
1990	2.933						
		2.5 10	2.105	1.520	1.171	0.4785	
		2.5 10	2.105	1.526	1.171	0.4785	
Sorted re			2.105	1.526	1.191	0.4785	
Sorted re Prob.		2.5 to 96 hr	2.103 21 Day	60 Day	90 Day	Yearly	
Prob.	esults Peak	96 hr	21 Day	60 Day	90 Day	Yearly	0.8918
Prob. 0.032258	esults Peak 3064516129	96 hr 7.444	21 Day 6.474	60 Day 4.103	90 Day 2.824	Yearly 2.186	0.8918
Prob. 0.032258 0.064516	esults Peak 8064516129 5129032258	96 hr 7.444 I 6.982	21 Day 6.474 6.239	60 Day 4.103 4.043	90 Day 2.824 2.587	Yearly 2.186 2.04	0.8649
Prob. 0.032258 0.064510 0.096774	esults Peak 8064516129 5129032258 4193548387	96 hr 7.444 1 6.982 1 6.886	21 Day 6.474 6.239 5.848	60 Day 4.103 4.043 3.954	90 Day 2.824 2.587 2.392	Yearly 2.186 2.04 1.882	0.8649 0.8449
Prob. 0.032258 0.064510 0.096774 0.129032	sults Peak 8064516129 5129032258 4193548387 2258064516	96 hr 7.444 1 6.982 1 6.886 5.881	21 Day 6.474 6.239 5.848 5.157	60 Day 4.103 4.043 3.954 3.859	90 Day 2.824 2.587 2.392 2.266	Yearly 2.186 2.04 1.882 1.781	0.8649 0.8449 0.7651
Prob. 0.032258 0.064510 0.096774 0.129032	esults Peak 8064516129 5129032258 4193548387	96 hr 7.444 1 6.982 1 6.886 5.881 5.854	21 Day 6.474 6.239 5.848 5.157 5.083	60 Day 4.103 4.043 3.954 3.859 3.622	90 Day 2.824 2.587 2.392 2.266 2.261	Yearly 2.186 2.04 1.882 1.781 1.753	0.8649 0.8449 0.7651 0.6819
Prob. 0.032258 0.064510 0.096774 0.129032 0.161290	sults Peak 8064516129 5129032258 4193548387 2258064516	96 hr 7.444 1 6.982 1 6.886 5.881 5.854	21 Day 6.474 6.239 5.848 5.157	60 Day 4.103 4.043 3.954 3.859	90 Day 2.824 2.587 2.392 2.266	Yearly 2.186 2.04 1.882 1.781	0.8649 0.8449 0.7651
Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548	sults Peak 8064516129 5129032258 4193548387 2258064516 0322580645	96 hr 7.444 1 6.982 1 6.886 5.881 5.854 5.809	21 Day 6.474 6.239 5.848 5.157 5.083 5.036	60 Day 4.103 4.043 3.954 3.859 3.622 3.592	90 Day 2.824 2.587 2.392 2.266 2.261 2.207	Yearly 2.186 2.04 1.882 1.781 1.753 1.71	0.8649 0.8449 0.7651 0.6819 0.6768
Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225800	sults Peak 8064516129 5129032258 4193548387 2258064516 0322580645 3387096774 6451612903	96 hr 7.444 1 6.982 1 6.886 5.881 5.854 5.809 5.622	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618
Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.225806 0.258064	sults Peak 3064516129 5129032258 4193548387 2258064516 3322580645 3387096774 5451612903 4516129032	96 hr 7.444 1 6.982 1 6.886 5.881 5.854 5.809 5.622 5.339	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618 0.6385
Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.2258064 0.258064 0.290322	sults Peak 3064516129 5129032258 4193548387 2258064516 0322580645 3387096774 54516129032 2580645161	96 hr 7.444 6.982 6.886 5.881 5.854 5.809 5.622 5.339 5.272	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.597 3.197 3.124	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618 0.6385 0.635
Prob. 0.032258 0.064510 0.096774 0.129032 0.161290 0.193548 0.2258064 0.258064 0.290322 0.322580	sults Peak 8064516129 9129032258 4193548387 2258064516 3387096774 54516129032 2580645161 2032580645161 264516129	96 hr 7.444 6.982 6.886 5.881 5.854 5.859 5.622 5.339 5.272 4.991	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618 0.6385 0.635 0.6311
Prob. 0.032258 0.064510 0.096777 0.129032 0.161299 0.193548 0.225806 0.258866 0.290322 0.32258(0.354838	sults Peak 8064516129 5129032258 4193548387 2258064516 0322580645 3387096774 4516129032 5580645161 064516129 8709677419	96 hr 7.444 6.982 6.886 5.881 5.854 5.809 5.622 5.339 5.272 4.991 4.507	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076	60 Day 4.103 4.043 3.954 3.859 3.592 3.592 3.507 3.197 3.124 2.833 2.831	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618 0.6385 0.635 0.635 0.6311 0.628
Prob. 0.032258 0.064510 0.096777 0.129032 0.161299 0.193548 0.225806 0.258866 0.290322 0.32258(0.354838	sults Peak 8064516129 9129032258 4193548387 2258064516 3387096774 54516129032 2580645161 2032580645161 264516129	96 hr 7.444 6.982 6.886 5.851 5.854 5.859 5.622 5.339 5.272 4.991 4.507 4.244	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618 0.6385 0.635 0.6311
Prob. 0.032258 0.064510 0.096777 0.129032 0.161290 0.193548 0.225806 0.258866 0.290322 0.32258 0.354838 0.387090	sults Peak 8064516129 5129032258 4193548387 2258064516 0322580645 3387096774 4516129032 5580645161 064516129 8709677419	96 hr 7.444 6.982 6.886 5.881 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076	60 Day 4.103 4.043 3.954 3.859 3.592 3.592 3.507 3.197 3.124 2.833 2.831	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618 0.6385 0.635 0.635 0.6311 0.628
Prob. 0.032258 0.064510 0.096777 0.129033 0.161299 0.193544 0.225806 0.258064 0.290322 0.322586 0.32258 0.32258 0.32258 0.322586 0.32258 0.32258 0.32258 0.322586 0.322586 0.32258 0.3258 0.3578 0.35780 0.325800 0.3258000000000000000000000000000000000000	sults Peak 8064516129 5129032258 4193548387 2258064516 0322580645 3387096774 516129032 2580645161 064516129 8709677419 5774193548 4838709677	96 hr 7.444 6.982 6.886 5.881 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62	60 Day 4.103 4.043 3.954 3.859 3.592 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362	0.8649 0.8449 0.7651 0.6819 0.6768 0.6618 0.6385 0.635 0.635 0.6311 0.628 0.6254 0.6027
Prob. 0.032258 0.064510 0.096774 0.129033 0.161299 0.193544 0.225806 0.258064 0.290322 0.322588 0.354833 0.387099 0.419354 0.451612	sults Peak 3064516129 5129032258 4193548387 2258064516 0322580645 3387096774 54516129032 2580645161 364516129 3709677419 5774193548 4838709677 2903225806	96 hr 7.444 6.982 6.886 5.881 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.635 0.6311 0.628 0.6254 0.6027 0.6008
Prob. 0.032258 0.064510 0.096774 0.129032 0.161299 0.193544 0.225806 0.258064 0.290322 0.322580 0.354833 0.387099 0.419354 0.451612 0.483870	sults Peak 8064516129 5129032258 4193548387 2258064516 0322580645 3387096774 54516129032 2580645161 258064516129 8709677419 5774193548 4838709677 2903225806 0967741936	96 hr 7.444 6.982 6.886 5.881 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.597 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.75 1.732 1.717 1.617	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.572 1.452 1.414 1.411 1.377 1.362 1.349 1.274	0.8649 0.8449 0.7651 0.6819 0.6768 0.6318 0.635 0.635 0.6254 0.6224 0.6224 0.6027 0.6008 0.5997
Prob. 0.032258 0.064510 0.096774 0.129032 0.161299 0.193544 0.225806 0.258064 0.258064 0.290322 0.322580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.357580 0.4515120 0.4515120 0.551580 0.4515120000000000000000000000000000000000	sults Peak 3064516129 5129032258 4193548387 2258064516 3320580645 3387096774 54516129032 2580645161 964516129 3709677419 5774193548 4838709677 2903225806 0967741936	96 hr 7.444 6.982 6.886 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316	90 Day 2.824 2.587 2.392 2.266 2.201 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255	0.8649 0.8449 0.7651 0.6819 0.6768 0.6318 0.635 0.635 0.6311 0.628 0.6027 0.6008 0.5997 0.5793
Prob. 0.032258 0.064510 0.096774 0.129032 0.161299 0.193544 0.225806 0.258064 0.258064 0.290322 0.322580 0.32580 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.35680 0.3568000000000000000000000000000000000000	sults Peak 3064516129 5129032258 4193548387 2258064516 3387096774 5451612903 4516129032 2580645161 964516129 3709677419 5774193548 4838709677 2903225806 9967741936	96 hr 7.444 6.982 6.886 5.854 5.854 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797	60 Day 4.103 4.043 3.954 3.859 3.592 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316	90 Day 2.824 2.587 2.392 2.266 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.6351 0.623 0.6027 0.6027 0.6008 0.5997 0.5793 0.5732
Prob. 0.032258 0.064516 0.096777 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322586 0.354838 0.387096 0.419354 0.419354 0.419354 0.419354 0.419354 0.419354 0.516122 0.548387 0.580643	sults Peak 3064516129 5129032258 4193548387 2258064516 3387096774 54516129032 2580645161 964516129 3709677419 5774193548 4838709677 2903225806 9067741936 903225806 57096774194 5161290323	96 hr 7.444 6.982 1 6.886 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247	90 Day 2.824 2.587 2.392 2.266 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.6385 0.635 0.6311 0.628 0.6027 0.6008 0.5997 0.5793 0.5732 0.4807
Prob. 0.032258 0.064516 0.096777 0.129032 0.161290 0.193548 0.225806 0.258064 0.290322 0.322586 0.354838 0.387096 0.419354 0.419354 0.419354 0.419354 0.419354 0.419354 0.516122 0.548387 0.580643	sults Peak 3064516129 5129032258 4193548387 2258064516 3387096774 5451612903 4516129032 2580645161 964516129 3709677419 5774193548 4838709677 2903225806 9967741936	96 hr 7.444 6.982 6.886 5.854 5.854 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797	60 Day 4.103 4.043 3.954 3.859 3.592 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31	90 Day 2.824 2.587 2.392 2.266 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.6351 0.623 0.6027 0.6027 0.6008 0.5997 0.5793 0.5732
Prob. 0.032258 0.064516 0.096777 0.129032 0.161290 0.193548 0.225806 0.258066 0.290322 0.322586 0.354838 0.387099 0.419354 0.451612 0.451612 0.548387 0.516129	sults Peak 3064516129 5129032258 4193548387 2258064516 3387096774 54516129032 2580645161 964516129 3709677419 5774193548 4838709677 2903225806 9067741936 903225806 57096774194 5161290323	96 hr 7.444 6.982 1 6.886 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.597 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165	90 Day 2.824 2.587 2.392 2.266 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515 1.397	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.635 0.635 0.6254 0.6254 0.6027 0.6008 0.5997 0.5793 0.5732 0.4807 0.4785
Prob. 0.032258 0.064516 0.096777 0.129032 0.161290 0.193548 0.258066 0.258066 0.354838 0.354838 0.387099 0.419352 0.451612 0.548387 0.516129 0.548388 0.580642 0.612902 0.645161	sults Peak 3064516129 5129032258 4193548387 2258064516 33225806451 5387096774 454516129032 2580645161 964516129 87096774193 9032258065 70967741936 9032258065 7096774194 51612903223 3225806452 1290322581	96 hr 7.444 6.982 6.886 5.881 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104 2.933 2.629	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515 1.397 1.344	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.6355 0.635 0.6311 0.628 0.6254 0.6027 0.6008 0.5997 0.5793 0.5793 0.5793 0.4807 0.4807
Prob. 0.032258 0.064516 0.096777 0.129033 0.161290 0.193548 0.225806 0.258066 0.290322 0.322586 0.354838 0.387090 0.419355 0.451612 0.483870 0.516122 0.548385 0.548385 0.548385 0.548385 0.548364 0.612903 0.645161 0.677419	sults Peak 3064516129 5129032258 4193548387 2258064516 3387096774 4516129032 2580645161 264516129 37096774193548 4838709677 29032258065 20967741936 9032258065 2096774194 5161290323 3225806452 1290322581 335483871	96 hr 7,444 6,982 1 6,886 5,881 5,854 5,809 5,622 5,339 5,272 4,991 4,507 4,244 4,223 3,86 3,705 3,252 3,155 3,104 2,933 2,629 2,338	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252 2.047	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864 1.68	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515 1.397 1.344 1.187	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088 0.9784	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.635 0.635 0.6311 0.628 0.6254 0.6027 0.6008 0.5997 0.5793 0.5793 0.5793 0.4807 0.4785 0.4719 0.4675
Prob. 0.032258 0.064516 0.096777 0.129033 0.161299 0.193548 0.225806 0.258866 0.290322 0.322586 0.354838 0.387099 0.419354 0.451612 0.483870 0.516129 0.548387 0.580643 0.612902 0.645161 0.677419 0.709677	sults Peak 3064516129 5129032258 4193548387 2258064516 3387096774 4516129032 2580645161 264516129 3709677419 5774193548 4838709677 29032258065 20032258065 20032258064 506774194 5161290323 3225806452 1290322581 35483871 7419354839	96 hr 7,444 6,982 16,886 5,854 5,854 5,859 5,622 5,339 5,272 4,991 4,507 4,244 4,223 3,86 3,705 3,252 3,155 3,104 2,933 2,629 2,338 2,285	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252 2.047 2.044	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864 1.68 1.646	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.528 1.515 1.397 1.344 1.187 1.159	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088 0.9784 0.8982	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.635 0.6311 0.628 0.6254 0.6027 0.6008 0.5997 0.5793 0.5732 0.4807 0.4719 0.4719 0.4675 0.4576
Prob. 0.032258 0.064516 0.09677- 0.129033 0.161299 0.193548 0.258064 0.290322 0.322586 0.354838 0.387099 0.419354 0.451612 0.548387 0.516129 0.548387 0.516129 0.548387 0.516129 0.548387 0.516129 0.548387 0.516129 0.548387 0.516129 0.548387 0.516129 0.548387 0.564516 0.677419 0.709677 0.741933	sults Peak 8064516129 5129032258 4193548387 2258064516 3387096774 4516129032 2580645161 264516129 8709677419 5774193548 4838709677 29032258065 20032258065 2003274194 5161290323 3225806452 21290322581 3225808452 21290322581 335483871 7419354839 5483870968	96 hr 7.444 6.982 6.886 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104 2.933 2.629 2.338 2.285 2.257	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252 2.047 2.044 1.958	60 Day 4.103 4.043 3.954 3.859 3.622 3.597 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864 1.68 1.646 1.637	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515 1.397 1.344 1.187 1.159 1.108	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.452 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088 0.9784 0.8982 0.8782	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.6351 0.628 0.6254 0.6027 0.6008 0.5997 0.5793 0.5793 0.5793 0.5793 0.4807 0.4755 0.4675 0.4576 0.4487
Prob. 0.032258 0.064516 0.096774 0.12903 0.161299 0.193544 0.225806 0.258064 0.290322 0.322586 0.354838 0.387096 0.419354 0.451612 0.548387 0.516129 0.548387 0.57419 0.774193 0.774193	sults Peak 3064516129 5129032258 4193548387 2258064516 33225806456 3387096774 54516129032 2580645161 964516129 37096774193548 37096774193548 203225806 0967741936 093225806452 1290322581 5161290323 3225806452 1290322581 5483870968 355483871	96 hr 7.444 6.982 6.886 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104 2.933 2.629 2.338 2.285 2.257 2.171	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252 2.047 2.044 1.958 1.88	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864 1.68 1.646 1.637 1.624	90 Day 2.824 2.587 2.392 2.266 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515 1.397 1.344 1.187 1.159 1.108 1.102	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088 0.9784 0.8982 0.8782 0.8708	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.6351 0.628 0.6254 0.6027 0.6008 0.5997 0.5793 0.5793 0.5793 0.5793 0.5793 0.4705 0.4776 0.4576 0.4576 0.4576 0.4576
Prob. 0.032258 0.064516 0.096774 0.12903 0.161299 0.193544 0.225806 0.258064 0.290322 0.322586 0.354838 0.387096 0.419354 0.451612 0.548387 0.516129 0.548387 0.57419 0.774193 0.774193	sults Peak 8064516129 5129032258 4193548387 2258064516 3387096774 4516129032 2580645161 264516129 8709677419 5774193548 4838709677 29032258065 20032258065 2003274194 5161290323 3225806452 21290322581 3225808452 21290322581 335483871 7419354839 5483870968	96 hr 7.444 6.982 6.886 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104 2.933 2.629 2.338 2.285 2.257	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252 2.047 2.044 1.958	60 Day 4.103 4.043 3.954 3.859 3.622 3.597 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864 1.68 1.646 1.637	90 Day 2.824 2.587 2.392 2.266 2.261 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515 1.397 1.344 1.187 1.159 1.108	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.452 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088 0.9784 0.8982 0.8782	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.6351 0.628 0.6254 0.6027 0.6008 0.5997 0.5793 0.5793 0.5793 0.5793 0.4807 0.4755 0.4675 0.4576 0.4487
Prob. 0.032258 0.064510 0.096774 0.129033 0.161299 0.193544 0.225806 0.290322 0.322580 0.324838 0.387090 0.419354 0.451612 0.483870 0.516129 0.548387 0.516129 0.5161	sults Peak 3064516129 5129032258 4193548387 2258064516 33225806456 3387096774 54516129032 2580645161 964516129 37096774193548 37096774193548 203225806 0967741936 093225806452 1290322581 5161290323 3225806452 1290322581 5483870968 355483871	96 hr 7.444 6.982 6.886 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104 2.933 2.629 2.338 2.285 2.257 2.171	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252 2.047 2.044 1.958 1.88	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864 1.68 1.646 1.637 1.624	90 Day 2.824 2.587 2.392 2.266 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.528 1.515 1.397 1.344 1.187 1.159 1.108 1.102	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088 0.9784 0.8982 0.8782 0.8708	0.8649 0.8449 0.7651 0.6819 0.6768 0.6385 0.635 0.6351 0.628 0.6254 0.6027 0.6008 0.5997 0.5793 0.5793 0.5793 0.5793 0.5793 0.4705 0.4776 0.4576 0.4576 0.4576 0.4576
Prob. 0.032258 0.064516 0.096777 0.129032 0.161290 0.193543 0.225806 0.290322 0.322586 0.354838 0.387096 0.419354 0.419354 0.419354 0.419356 0.516129 0.548387 0.5161290 0.645161 0.677419 0.709677 0.741932 0.774192 0.806451 0.838709	sults Peak 3064516129 5129032258 4193548387 2258064516 332258064516 3322580645161 36451612903 4516129032 2580645161 96774193548 4838709677 41935806 903225806 906774194 5161290322 8006774194 5161290322 8006774194 51612903228 7096774194 51612903228 7096774194 51612903228 741935483871 7419354839 5483870968 3548387097	96 hr 7.444 6.982 5.854 5.854 5.809 5.622 5.339 5.272 4.991 4.507 4.244 4.223 3.86 3.705 3.252 3.155 3.104 2.933 2.629 2.338 2.285 2.257 2.171 2.134	21 Day 6.474 6.239 5.848 5.157 5.083 5.036 4.943 4.825 4.682 4.297 4.076 3.645 3.62 3.325 3.271 2.981 2.797 2.78 2.546 2.252 2.047 2.044 1.958 1.88 1.874	60 Day 4.103 4.043 3.954 3.859 3.622 3.592 3.507 3.197 3.124 2.833 2.831 2.619 2.517 2.396 2.343 2.316 2.31 2.247 2.165 1.864 1.68 1.646 1.637 1.624 1.618	90 Day 2.824 2.587 2.392 2.266 2.207 2.02 1.948 1.846 1.84 1.787 1.75 1.732 1.717 1.617 1.598 1.515 1.397 1.344 1.187 1.159 1.108 1.102 1.068	Yearly 2.186 2.04 1.882 1.781 1.753 1.71 1.572 1.528 1.452 1.414 1.411 1.377 1.362 1.349 1.274 1.255 1.191 1.182 1.097 1.088 0.9784 0.8782 0.8782 0.8708	0.8649 0.8449 0.7651 0.6819 0.6768 0.635 0.635 0.635 0.628 0.6254 0.6224 0.6027 0.6008 0.5297 0.5793 0.5793 0.5793 0.5793 0.5793 0.5793 0.4807 0.4719 0.4675 0.4487 0.4487 0.4481 0.4481

0.9354838	806451613 870967742 935483871	1.719 1.559 1.517	1.5 1.338 1.285	1.285 1.163 1.075	0.8929 0.877 0.7182	0.7077 0.7075 0.5804	0.3437 0.2962 0.2773	
0.1	6.7855	5.7789	3.9445	2.3794	1.8719 Average o	0.83692 of yearly av	erages:	0.56199
Inputs gen	erated by p	e5.pl - Nov	emeber 20	06				
Output Fil Metfile: PRZM sce	environmen	s lvf KSComSt	pond298.	exv				
Descriptio	n	Variable N	Name	Value	Units	Comment	s	
Molecular Henry's La Vapor Pre Solubility Kd Koc	aw Const. essure	mwt henry vapr 12000 3100	170.8 2.07E-14 9.75E-10 mg/L mg/L mg/L	g/mol atm-m^3/ torr	mol			
Photolysis		kdp	mg/L	days	Half-life			
	quatic Met		kbacw	14.1	days	Halfife		
	Aquatic M		kbacs	208	days	Halfife		
Hydrolysi	oil Metabo	pH 7	asm	5.4 days	days Half-life	Halfife		
Method:	CAM	2	integer	See PRZN				
	tion Depth:			cm				
Applicatio	on Rate:	TAPP	1.288	kg/ha				
	on Efficient		APPEFF	0.99	fraction			
Spray Dri		DRFT	0.01			n rate appli		
Application Interval 1		Date 7	12-5 dava			or dd-mm o e for single		
app. rate 1		1.288	days kg/ha	3611000		e tot single	app.	
Interval 2	• •	7	days	Set to 0 or	delete line	e for single	add.	
app. rate 2		1.288	kg/ha					
Interval 3	interval	7	days	Set to 0 or	delete line	for single	app.	
app. rate 3		1.288	kg/ha					
Record 17	FILTRA							
	IPSCND UPTKF	1						
Record 18	B:PLVKRT							
	PLDKRT							
	FEXTRC							
	ndex Res. F		IR	EPA Pone				
Flag for n	unoff calc.	RUNOFF	none	none, mor	thly or tota	al(average o	of entire rur	1)

P/E Pre-plant (3.71 lbs ae/A)/Post-plant (1.15 lbs ae/A) stored as KSprel.out Chemical: glyphosate

PRZM environment: KSCornStd.txt EXAMS environment: pond298.exv Metfile: w13996.dvf modified Tueday, 26 August 2008 at 06:14:08 Metfile: w13996.dvf modified Tueday, 26 August 2008 at 06:14:52

Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly	
1961	8.558	7.45	5.498	3.363	2.602	0.9292	
1962	3.421	2.923	1.83	1.459	1.165	0.5984	
1963	7.437	6.475	4.542	2.621	2.003	0.7606	
1964	2.295	1.95	1.469	1.065	0.8306	0.4013	
1965	2.179	1.838	1.38	1.145	0.8955	0.3721	
1966	2.189	1.867	1.422	1.023	0.7939	0.3345	
1967	6.035	5.361	3.867	2.618	2.066	0.8071	
1968	2.487	2.193	2.022	1.38	1.078	0.531	
1969	5.483	4.712	3.646	2.327	1.823	0.7263	
1970	3.174	2.732	2.188	1.622	1.273	0.5724	
1971	3.838	3.373	2.758	1.736	1.347	0.5545	
1972	6.524	5.621	3.95	2.316	1.801	0.7252	
1973	6.156	5.335	3.922	2.678	2.089	0.8623	
1974	3.02	2.611	2.026	1.415	1.102	0.5299	
1975	2.231	1.897	1.453	1.16	0.9022	0.392	
1976	2.928	2.584	2.287	1.583	1.22	0.4819	
1970			7.516		3.565		
	11.8	9.988		4.61		1.327	
1978	3.436	3.088	2.315	1.898	1.506	0.7686	
1979	4.989	4.297	3	1.797	1.392	0.5935	
1980	2.7	2.355	1.824	1.387	1.063	0.452	
1981	9.957	8.633	5.383	3.217	2.514	0.9748	
1982	11.34	10.04	7.831	4.809	3.768	1.533	
1983	4.973	4.316	3.4	2.284	1.772	0.8609	
1984	2.879	2.522	1.711	1.363	1.075	0.488	
1985	4.722	4.009	3.069	1.944	1.495	0.5976	
1986	7.522	7.116	6.005	3.49	2.68	1.037	
1987	4.407	3.869	2.813	1.899	1.479	0.6934	
1988	2.598	2.341	1.729	1.247	0.9704	0.4365	
		5.56					
1989	6.29		4.169	2.474	1.924	0.7524	
1990	5.494	4.948	3.481	2.157	1.677	0.7171	
Sorted resu							
Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly	
Prob. 0.0322580	Peak	96 hr 11.8	10.04	60 Day 7.831	90 Day 4.809	3.768	1.533
0.0322580 0.0645161	Peak 64516129 290322581	11.8 11.34			4.809 4.61		1.533 1.327
0.0322580 0.0645161	Peak 64516129	11.8 11.34	10.04	7.831	4.809	3.768	
0.0322580 0.0645161	Peak 64516129 290322581 935483871	11.8 11.34	10.04 9.988	7.831 7.516	4.809 4.61	3.768 3.565	1.327
0.0322580 0.0645161 0.0967741 0.1290322	Peak 64516129 290322581 935483871 58064516	11.8 11.34 9.957 8.558	10.04 9.988 8.633 7.45	7.831 7.516 6.005 5.498	4.809 4.61 3.49 3.363	3.768 3.565 2.68 2.602	1.327 1.037 0.9748
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903	Peak 64516129 290322581 935483871 58064516 22580645	11.8 11.34 9.957 8.558 7.522	10.04 9.988 8.633 7.45 7.116	7.831 7.516 6.005 5.498 5.383	4.809 4.61 3.49 3.363 3.217	3.768 3.565 2.68 2.602 2.514	1.327 1.037 0.9748 0.9292
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483	Peak 64516129 290322581 935483871 58064516 22580645 87096774	11.8 11.34 9.957 8.558 7.522 7.437	10.04 9.988 8.633 7.45 7.116 6.475	7.831 7.516 6.005 5.498 5.383 4.542	4.809 4.61 3.49 3.363 3.217 2.678	3.768 3.565 2.68 2.602 2.514 2.089	1.327 1.037 0.9748 0.9292 0.8623
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.2258064	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903	11.8 11.34 9.957 8.558 7.522 7.437 6.524	10.04 9.988 8.633 7.45 7.116 6.475 5.621	7.831 7.516 6.005 5.498 5.383 4.542 4.169	4.809 4.61 3.49 3.363 3.217 2.678 2.621	3.768 3.565 2.68 2.602 2.514 2.089 2.066	1.327 1.037 0.9748 0.9292 0.8623 0.8609
$\begin{array}{c} 0.0322580\\ 0.0645161\\ 0.0967741\\ 0.1290322\\ 0.1612903\\ 0.1935483\\ 0.22580644\\ 0.2580645\end{array}$	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071
$\begin{array}{c} 0.0322580\\ 0.0645161\\ 0.0967741\\ 0.1290322\\ 0.1612903\\ 0.1935483\\ 0.22580644\\ 0.2580645\\ 0.2903225 \end{array}$	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.2258064 0.2580645 0.2903225 0.3225806	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161 4516129	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.2258064 0.2580645 0.2903225 0.3225806 0.3548387	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7524
$\begin{array}{c} 0.0322580\\ 0.0645161\\ 0.0967741\\ 0.1290322\\ 0.1612903\\ 0.1935483\\ 0.22580645\\ 0.2903225\\ 0.322580645\\ 0.3903225\\ 0.3225806\\ 0.3548387\\ 0.3870967 \end{array}$	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419 74193548	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.867 3.646 3.481	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7524 0.7263
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.22580645 0.2903225 0.3225806 0.3548387 0.3870967 0.4193548	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419 74193548 38709677	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483 4.989	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712 4.316	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7524 0.7263 0.7252
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.22580645 0.2903225 0.3225806 0.3248387 0.3870967 0.4193548 0.4516129	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129033 16129032 80645161 4516129 09677419 74193548 38709677 03225806	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.4 3.069	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7524 0.7263 0.7252 0.7171
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.22580645 0.2903225 0.3225806 0.3548387 0.3870967 0.4193548	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129033 16129032 80645161 4516129 09677419 74193548 38709677 03225806	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483 4.989	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712 4.316	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7524 0.7263 0.7252
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.22580645 0.2903225 0.3225806 0.3248387 0.3870967 0.4193548 0.4516129	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483 4.989 4.973	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712 4.316 4.297	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.4 3.069	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7524 0.7263 0.7252 0.7171
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.22580645 0.2903225 0.3225806 0.3548387 0.3870967 0.4193548 0.4516129 0.4838709	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936 32258065	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483 4.989 4.973 4.722	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712 4.316 4.297 4.009	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.4 3.069 3	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7686 0.7524 0.7263 0.7252 0.7171 0.6934
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.22580645 0.2580645 0.3225806 0.3548387 0.370967 0.4193548 0.4516129 0.4838709 0.5161290 0.5483870	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936 32258065 96774194	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483 4.989 4.973 4.722 4.407 3.838	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712 4.316 4.297 4.009 3.869 3.373	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.479 1.392	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7686 0.7624 0.7252 0.7171 0.6934 0.5984 0.5976
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.22580645 0.32580645 0.3225806 0.3548387 0.3870967 0.4193548 0.45161290 0.5161290 0.54838709 0.5161290	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936 32258065 96774194 61290323	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483 4.989 4.973 4.722 4.407 3.838 3.436	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712 4.316 4.297 4.009 3.869 3.373 3.088	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.479 1.392 1.347	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7666 0.7524 0.7252 0.7171 0.6934 0.5984 0.5976 0.5935
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.2580645 0.2580645 0.2580645 0.3225806 0.3548387 0.3870967 0.4193548 0.45161290 0.5483870 0.5161290 0.5483870 0.5483870	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936 32258065 96774194 61290323 25806452	$\begin{array}{c} 11.8\\ 11.34\\ 9.957\\ 8.558\\ 7.522\\ 7.437\\ 6.524\\ 6.29\\ 6.156\\ 6.035\\ 5.494\\ 5.483\\ 4.989\\ 4.973\\ 4.722\\ 4.407\\ 3.838\\ 3.436\\ 3.421 \end{array}$	$\begin{array}{c} 10.04\\ 9.988\\ 8.633\\ 7.45\\ 7.116\\ 6.475\\ 5.621\\ 5.56\\ 5.361\\ 5.335\\ 4.948\\ 4.712\\ 4.316\\ 4.297\\ 4.009\\ 3.869\\ 3.373\\ 3.088\\ 2.923\\ \end{array}$	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315 2.287	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736 1.622	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.479 1.392 1.347 1.273	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7624 0.7263 0.7252 0.7171 0.6934 0.5984 0.5976 0.5975 0.5724
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.2258064 0.2580645 0.2903225 0.3225806 0.3548387 0.3870967 0.4193548 0.4516129 0.5483870 0.5586451 0.5806451 0.6129032 0.6451612	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419 74193548 38709677 032258065 96774194 61290323 25806452 90322581	$\begin{array}{c} 11.8\\ 11.34\\ 9.957\\ 8.558\\ 7.522\\ 7.437\\ 6.524\\ 6.29\\ 6.156\\ 6.035\\ 5.494\\ 5.483\\ 4.989\\ 4.973\\ 4.722\\ 4.407\\ 3.838\\ 3.436\\ 3.436\\ 3.421\\ 3.174 \end{array}$	10.04 9.988 8.633 7.45 7.116 6.475 5.621 5.56 5.361 5.335 4.948 4.712 4.316 4.297 4.009 3.869 3.373 3.088 2.923 2.732	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315 2.287 2.188	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736 1.622 1.583	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.479 1.392 1.347 1.273 1.22	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7606 0.7624 0.7263 0.7252 0.7171 0.6934 0.5984 0.5976 0.5935 0.5724 0.5545
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.258064 0.2580645 0.322580645 0.3225806 0.3548387 0.3870967 0.4193548 0.4516129 0.5483870 0.5483870 0.5483870 0.5806451 0.6129032 0.6451612 0.6774193	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936 32258065 96774194 61290323 25806452 90322581 5483871	$\begin{array}{c} 11.8\\ 11.34\\ 9.957\\ 8.558\\ 7.522\\ 7.437\\ 6.524\\ 6.29\\ 6.156\\ 6.035\\ 5.494\\ 5.483\\ 4.989\\ 4.973\\ 4.722\\ 4.407\\ 3.838\\ 3.436\\ 3.421\\ 3.174\\ 3.02 \end{array}$	$\begin{array}{c} 10.04\\ 9.988\\ 8.633\\ 7.45\\ 7.116\\ 6.475\\ 5.621\\ 5.56\\ 5.361\\ 5.335\\ 4.948\\ 4.712\\ 4.316\\ 4.297\\ 4.009\\ 3.869\\ 3.373\\ 3.088\\ 2.923\\ 2.923\\ 2.732\\ 2.611 \end{array}$	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315 2.287 2.188 2.026	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736 1.622 1.583 1.459	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.495 1.392 1.347 1.273 1.22 1.165	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7686 0.7686 0.7624 0.7252 0.7171 0.6934 0.5934 0.5976 0.5724 0.5724 0.5545 0.531
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.2580645 0.2932580645 0.3225806 0.3528806 0.3548387 0.3870967 0.4193548 0.4516129 0.54838709 0.54838709 0.54838709 0.54838709 0.54838709 0.54838709 0.546129 0.6451612 0.6451612 0.6774193 0.7096774	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419 74193548 38709677 032258065 96774194 61290323 25806452 90322581 5483871 19354839	$\begin{array}{c} 11.8\\ 11.34\\ 9.957\\ 8.558\\ 7.522\\ 7.437\\ 6.524\\ 6.29\\ 6.156\\ 6.035\\ 5.494\\ 5.483\\ 4.989\\ 4.973\\ 4.722\\ 4.407\\ 3.838\\ 3.436\\ 3.421\\ 3.174\\ 3.02\\ 2.928\\ \end{array}$	$\begin{array}{c} 10.04\\ 9.988\\ 8.633\\ 7.45\\ 7.116\\ 6.475\\ 5.621\\ 5.56\\ 5.361\\ 5.335\\ 4.948\\ 4.712\\ 4.316\\ 4.297\\ 4.009\\ 3.869\\ 3.373\\ 3.088\\ 2.923\\ 2.732\\ 2.611\\ 2.584\\ \end{array}$	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315 2.287 2.188 2.026 2.022	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736 1.622 1.583 1.459 1.415	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.495 1.495 1.479 1.392 1.347 1.273 1.22 1.165 1.102	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7686 0.7666 0.7624 0.7623 0.7252 0.7171 0.6934 0.5934 0.5976 0.5724 0.5545 0.5531 0.5299
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.2580645 0.2903225 0.3225806 0.3548387 0.3870967 0.4193548 0.4516129 0.54838709 0.5161290 0.5806451 0.6129032 0.6451612 0.6774193 0.7096774	Peak 64516129 290322581 935483871 58064516 22580645 87096774 51612903 16129032 80645161 4516129 09677419 74193548 38709677 032258065 967741936 32258065 96774194 61290323 25806452 90322581 5483871 19354839 83870968	$\begin{array}{c} 11.8\\ 11.34\\ 9.957\\ 8.558\\ 7.522\\ 7.437\\ 6.524\\ 6.29\\ 6.156\\ 6.035\\ 5.494\\ 5.483\\ 4.989\\ 4.973\\ 4.722\\ 4.407\\ 3.838\\ 3.436\\ 3.421\\ 3.174\\ 3.02\\ 2.928\\ 2.879\\ \end{array}$	$\begin{array}{c} 10.04\\ 9.988\\ 8.633\\ 7.45\\ 7.116\\ 6.475\\ 5.621\\ 5.56\\ 5.361\\ 5.335\\ 4.948\\ 4.712\\ 4.316\\ 4.297\\ 4.009\\ 3.869\\ 3.373\\ 3.088\\ 2.923\\ 2.732\\ 2.611\\ 2.584\\ 2.522\\ \end{array}$	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315 2.287 2.188 2.026 2.022 1.83	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736 1.622 1.583 1.459 1.415 1.387	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.495 1.479 1.347 1.273 1.22 1.165 1.102 1.078	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7686 0.7666 0.7524 0.7252 0.7171 0.6934 0.5984 0.5984 0.5935 0.5724 0.531 0.5299 0.488
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.2580645 0.2903225 0.3225806 0.3548387 0.3870967 0.4193548 0.4516129 0.54838709 0.5161290 0.5483870 0.5806451 0.6129032 0.6451612 0.6774193 0.7096774 0.7419354	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936 32258065 96774194 61290323 25806452 96322581 5483871 19354839 83870968 48387097	11.8 11.34 9.957 8.558 7.522 7.437 6.524 6.29 6.156 6.035 5.494 5.483 4.989 4.973 4.722 4.407 3.838 3.436 3.421 3.174 3.02 2.928 2.879 2.7	$\begin{array}{c} 10.04\\ 9.988\\ 8.633\\ 7.45\\ 7.116\\ 6.475\\ 5.621\\ 5.56\\ 5.361\\ 5.335\\ 4.948\\ 4.712\\ 4.316\\ 4.297\\ 4.009\\ 3.869\\ 3.373\\ 3.088\\ 2.923\\ 2.732\\ 2.611\\ 2.584\\ 2.522\\ 2.355\\ \end{array}$	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315 2.287 2.188 2.026 2.022 1.83 1.824	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736 1.622 1.583 1.459 1.415 1.387 1.38	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.479 1.347 1.273 1.22 1.165 1.102 1.078 1.075	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7524 0.7263 0.7252 0.7171 0.6934 0.5984 0.5984 0.5976 0.5724 0.5531 0.5299 0.488 0.4819
0.0322580 0.0645161 0.0967741 0.1290322 0.1612903 0.1935483 0.2580645 0.2903225 0.3225806 0.3548387 0.3870967 0.4193548 0.4516129 0.54838709 0.5161290 0.5806451 0.6129032 0.6451612 0.6774193 0.7096774	Peak 64516129 290322581 935483871 58064516 22580645 87096774 516129032 80645161 4516129 09677419 74193548 38709677 03225806 67741936 32258065 96774194 61290323 25806452 96322581 5483871 19354839 83870968 48387097	$\begin{array}{c} 11.8\\ 11.34\\ 9.957\\ 8.558\\ 7.522\\ 7.437\\ 6.524\\ 6.29\\ 6.156\\ 6.035\\ 5.494\\ 5.483\\ 4.989\\ 4.973\\ 4.722\\ 4.407\\ 3.838\\ 3.436\\ 3.421\\ 3.174\\ 3.02\\ 2.928\\ 2.879\\ \end{array}$	$\begin{array}{c} 10.04\\ 9.988\\ 8.633\\ 7.45\\ 7.116\\ 6.475\\ 5.621\\ 5.56\\ 5.361\\ 5.335\\ 4.948\\ 4.712\\ 4.316\\ 4.297\\ 4.009\\ 3.869\\ 3.373\\ 3.088\\ 2.923\\ 2.732\\ 2.611\\ 2.584\\ 2.522\\ \end{array}$	7.831 7.516 6.005 5.498 5.383 4.542 4.169 3.95 3.922 3.867 3.646 3.481 3.4 3.069 3 2.813 2.758 2.315 2.287 2.188 2.026 2.022 1.83	4.809 4.61 3.49 3.363 3.217 2.678 2.621 2.618 2.474 2.327 2.316 2.284 2.157 1.944 1.899 1.898 1.797 1.736 1.622 1.583 1.459 1.415 1.387	3.768 3.565 2.68 2.602 2.514 2.089 2.066 2.003 1.924 1.823 1.801 1.772 1.677 1.506 1.495 1.495 1.479 1.347 1.273 1.22 1.165 1.102 1.078	1.327 1.037 0.9748 0.9292 0.8623 0.8609 0.8071 0.7686 0.7686 0.7666 0.7524 0.7252 0.7171 0.6934 0.5984 0.5984 0.5935 0.5724 0.531 0.5299 0.488

0.838709	677419355	2.487	2.193	1.711	1.247	0.9704	0.4365	
0.870967	741935484	2.295	1.95	1.469	1.16	0.9022	0.4013	
0.903225	806451613	2.231	1.897	1.453	1.145	0.8955	0.392	
0.935483	870967742	2.189	1.867	1.422	1.065	0.8306	0.3721	
0.967741	935483871	2.179	1.838	1.38	1.023	0.7939	0.3345	
0.1	9.8171	8.5147	5.9543	3.4773	2.6722	1.03078		
					Average	of yearly av	erages:	0.6936833333333333

Inputs generated by pe5.pl - Novemeber 2006

Data used for this run: Output File: KSpre1 Metfile: w13996.dvf PRZM scenario: KSComStd.txt pond298.exv EXAMS environment file: glyphosate Chemical Name: Description Variable Name Value Units Comments g/mol Molecular weight 170.8 mwt 2.07E-14 atm-m^3/mol Henry's Law Const. henry Vapor Pressure 9.75E-10 torr vapr Solubility sol 12000 mg/L Kd Kd mg/L 3100 mg/L Koc Koc Photolysis half-life kdp days Half-life Aerobic Aquatic Metabolism Halfife kbacw 14.1 days Anaerobic Aquatic Metabolism kbacs 208 days Halfife Aerobic Soil Metabolism 5.4 Halfife asm days Hydrolysis: pH7 days Half-life Method: CAM See PRZM manual integer 2 Incorporation Depth: DEPI сm 4.155 Application Rate: TAPP kg/ha Application Efficiency: APPEFF 0.99 fraction DRFT Spray Drift 0.01 fraction of application rate applied to pond Application Date Date 1-5 dd/mm or dd/mmm or dd-mmm Interval 1 interval 10 days Set to 0 or delete line for single app. 1.288 app. rate 1 apprate kg/ha Interval 2 interval Set to 0 or delete line for single app. 7 days 1.288 app. rate 2 apprate kg/ha Record 17: FILTRA IPSCND 1 UPTKF Record 18: PLVKRT PLDKRT FEXTRC 0.5 Flag for Index Res. Run IR EPA Pond Flag for runoff calc. RUNOFF none none, monthly or total(average of entire run)

P/E Pre-plant (1.35 lbs ae/A)/Post-plant (1.15 lbs ae/A)

stored as KSpos1.out Chemical: glyphosate PRZM environment: KSCornStd.txt EXAMS environment: pond298.exv Metfile: w13996.dvf modified Tueday, 26 August 2008 at 06:14:08 Metfile: w13996.dvf modified Tueday, 26 August 2008 at 06:14:52 Water segment concentrations (ppb)

* 7		0.41		(0 P	00 D	** •	
Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly	
1961	3.352	3.056	2.567	2.015	1.581	0.5748	
1962	7.207	6.062	3.985	2.245	1.777	0.7787	
1963	2.969	2.608	2.283	1.706	1.342	0.6012	
1964	3.152	2.899	2.287	1.602	1.281	0.56	
1965	4.277	3.864	3.041	1.94	1.55	0.688	
1966	4.731	4.083	2.72	1.764	1.415	0.6564	
1967	5.89	5.128	4.021	2.926	2.426	1.059	
1968	2.624	2.271	1.991	1.609	1.329	0.7139	
1969	4.276	3.705	2.739	2.235	1.811	0.7944	
1970	5.603	5.008	3.56	2.42	1.908	0.8489	
1971	2.69	2.375	2.041	1.51	1.209	0.5808	
1972	2.528	2.201	1.98	1.429	1.145	0.5013	
1973	6.957	5.949	4.371	2.742	2.178	0.8867	
1974	4.13	3.57	2.351	1.799	1.443	0.7052	
1975	3.584	3.224	2.513	1.703	1.368	0.6259	
1976	2.783	2.447	2.017	1.386	1.101	0.4982	
1977	7.086	6.245	4.536	3.607	2.882	1.126	
1978	7.85	6.82	4.127	2.536	2.051	0.9792	
1979	2.124	1.865	1.631	1.47	1.224	0.6137	
1980	5.483	4.853	3.475	1.932	1.496	0.6393	
1981	8.593	7.443	5.072	3.188	2.491	1.026	
1982	7.152	6.245	4.884	3.617	2.864	1.243	
1983	2.86	2.543	2.328	1.766	1.411	0.7021	
1984	5.741	4.957	3.201	2.081	1.66	0.7105	
1985	5.222	4.665	2.916	2.095	1.689	0.7603	
1986	4.124	3.702	3.129	2.132	1.697	0.7426	
1987	4.037	3.458	2.529	1.774	1.428	0.6452	
1988	2.447	2.114	1.758	1.309	1.135	0.5335	
1989	3.28	2.854	2.346	1.683	1.355	0.5898	
1990	4.19	3.802	2.932	1.965	1.554	0.6605	
Sorted re	esults						
Sorted re		96 hr	21 Day	60 Dav	90 Day	Vearly	
Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly	1.242
Prob. 0.03225	Peak 8064516129	8.593	7.443	5.072	3.617	2.882	1.243
Prob. 0.032253 0.064510	Peak 8064516129 51290322581	8.593 7.85	7.443 6.82	5.072 4.884	3.617 3.607	2.882 2.864	1.126
Prob. 0.032253 0.064510	Peak 8064516129	8.593 7.85	7.443	5.072	3.617	2.882	
Prob. 0.032253 0.064510 0.096774	Peak 8064516129 51290322581 41935483871	8.593 7.85	7.443 6.82 6.245	5.072 4.884 4.536	3.617 3.607 3.188	2.882 2.864	1.126 1.059
Prob. 0.032253 0.064510 0.096774 0.129033	Peak 8064516129 61290322581 41935483871 2258064516	8.593 7.85 7.207 7.152	7.443 6.82 6.245 6.245	5.072 4.884 4.536 4.371	3.617 3.607 3.188 2.926	2.882 2.864 2.491 2.426	1.126 1.059 1.026
Prob. 0.032253 0.064510 0.096774 0.129033 0.161290	Peak 8064516129 51290322581 41935483871 2258064516 0322580645	8.593 7.85 7.207 7.152 7.086	7.443 6.82 6.245 6.245 6.062	5.072 4.884 4.536 4.371 4.127	3.617 3.607 3.188 2.926 2.742	2.882 2.864 2.491 2.426 2.178	1.126 1.059 1.026 0.9792
Prob. 0.032253 0.064510 0.096774 0.129033 0.161290 0.19354	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774	8.593 7.85 7.207 7.152 7.086 6.957	7.443 6.82 6.245 6.245 6.062 5.949	5.072 4.884 4.536 4.371 4.127 4.021	3.617 3.607 3.188 2.926 2.742 2.536	2.882 2.864 2.491 2.426 2.178 2.051	1.126 1.059 1.026 0.9792 0.8867
Prob. 0.032253 0.064514 0.096774 0.129033 0.161290 0.193543 0.225800	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 6451612903	8.593 7.85 7.207 7.152 7.086 6.957 5.89	7.443 6.82 6.245 6.245 6.062 5.949 5.128	5.072 4.884 4.536 4.371 4.127 4.021 3.985	3.617 3.607 3.188 2.926 2.742 2.536 2.42	2.882 2.864 2.491 2.426 2.178 2.051 1.908	1.126 1.059 1.026 0.9792 0.8867 0.8489
Prob. 0.032253 0.064510 0.096774 0.129033 0.161290 0.193543 0.225806 0.25806	Peak 8064516129 51290322581 41935483871 2258064516 0322580645 8387096774 6451612903 4516129032	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944
Prob. 0.032253 0.064510 0.096774 0.129033 0.161290 0.193543 0.225806 0.258066 0.29032	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 64516129032 4516129032 2580645161	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475	3.617 3.607 3.188 2.926 2.742 2.536 2.42	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777	1.126 1.059 1.026 0.9792 0.8867 0.8489
Prob. 0.032253 0.064510 0.096774 0.129033 0.161290 0.193543 0.225806 0.258066 0.29032	Peak 8064516129 51290322581 41935483871 2258064516 0322580645 8387096774 6451612903 4516129032	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944
Prob. 0.032253 0.064510 0.096774 0.129033 0.161290 0.193543 0.225806 0.258066 0.290323 0.322586	Peak 8064516129 6129032258 41935483877 2258064516 0322580645 8387096774 4516129032 2580645161 064516129	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.245 2.235 2.132	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603
Prob. 0.032253 0.064510 0.096777 0.129033 0.161290 0.193543 0.225806 0.25806 0.29032 0.322580 0.354833	Peak 8064516129 6129032258 41935483877 2258064516 0322580645 8387096774 44516129032 2580645161 064516129 8709677419	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689	$\begin{array}{c} 1.126\\ 1.059\\ 1.026\\ 0.9792\\ 0.8867\\ 0.8489\\ 0.7944\\ 0.7787\\ 0.7603\\ 0.7426\end{array}$
Prob. 0.032253 0.064510 0.096777 0.129033 0.161299 0.193543 0.225806 0.29032 0.322588 0.354833 0.387099	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 4516129032 4516129032 4516129032 4516129032 8709677419 6774193548	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.603 5.483 5.222 4.731	7.443 6.82 6.245 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.655 4.083	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66	$\begin{array}{c} 1.126\\ 1.059\\ 1.026\\ 0.9792\\ 0.8867\\ 0.8489\\ 0.7944\\ 0.7787\\ 0.7603\\ 0.7426\\ 0.7139\end{array}$
Prob. 0.032253 0.064510 0.096777 0.129033 0.161299 0.193543 0.225806 0.29032 0.322588 0.322588 0.354833 0.387099 0.419354	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 4516129032 4516129032 4516129032 4516129032 8709677419 6774193548 4838709677	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277	7.443 6.82 6.245 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.697 1.689 1.66 1.581	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105
Prob. 0.032253 0.064510 0.096774 0.129033 0.161299 0.193543 0.225806 0.290325 0.322586 0.320325 0.322588 0.354833 0.387099 0.419355 0.451612	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 64516129032 2580645161 064516129 8709677419 6774193548 4838709677 2903225806	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105 0.7052
Prob. 0.032253 0.064514 0.096774 0.129033 0.161299 0.193543 0.225806 0.290323 0.322588 0.3524833 0.387099 0.419355 0.451612 0.483870	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 64516129032 2580645161 064516129 8709677419 6774193548 4838709677 2903225806 0967741936	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105 0.7105 0.7052 0.7021
Prob. 0.032253 0.064514 0.096774 0.129033 0.161299 0.193543 0.225806 0.290323 0.322588 0.3524833 0.387099 0.419355 0.451612 0.483870	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 64516129032 2580645161 064516129 8709677419 6774193548 4838709677 2903225806	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.245 2.245 2.245 2.095 2.095 2.081 2.015 1.965 1.94 1.932	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.555 1.496	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105 0.7052
Prob. 0.032253 0.064514 0.096774 0.129033 0.161299 0.193543 0.225806 0.25806 0.25806 0.25806 0.25806 0.25806 0.35803 0.322580 0.322580 0.322580 0.322580 0.322580 0.35268 0.35709 0.419355 0.451612 0.483870 0.516129	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 64516129032 2580645161 064516129 8709677419 6774193548 4838709677 2903225806 0967741936	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105 0.7105 0.7052 0.7021
Prob. 0.032253 0.064514 0.096774 0.129033 0.161299 0.193543 0.225806 0.25806 0.25806 0.290323 0.322588 0.354833 0.354833 0.38709 0.419355 0.451612 0.483876 0.516129	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 64516129032 4516129032 4516129032 2580645161 064516129 8709677419 6774193548 4838709677 2903225806 096774194	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.702 3.57	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.245 2.245 2.245 2.095 2.081 2.015 1.965 1.94 1.932 1.799	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7105 0.7105 0.7105 0.7052 0.7021 0.688 0.6605
Prob. 0.03225 0.064511 0.09677 0.12903 0.161290 0.19354 0.225806 0.29032 0.322586 0.35483 0.38709 0.41935 0.41935 0.41935 0.48387 0.51612 0.54838 0.58064	Peak 8064516129 61290322581 41935483877 2258064516 032258064516 3387096774 4516129032 2580645161 064516129 8709677419 6774193548 4838709677 4193548 4838709677 4193548 6032258065 70967741936 2067741937 207741977 2077419777 2077419777 20777777777777777777777777777777777	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.702 3.57 3.458	5.072 4.884 4.536 4.371 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443 1.428	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7139 0.7052 0.7052 0.7052 0.7021 0.688 0.6605 0.6564
Prob. 0.032253 0.064514 0.096777 0.129033 0.161290 0.193544 0.225806 0.290322 0.322586 0.354833 0.387099 0.419355 0.451612 0.548387 0.516122 0.548388 0.580643 0.612903	Peak 8064516129 61290322581 41935483871 2258064516 032258064516 0322580645161 034516129032 2580645161 064516129 87096774193548 4838709677 29032258065 0967741936 09032258065 7096774194 5161290323 3225806452	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.702 3.57 3.458 3.224	5.072 4.884 4.536 4.371 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.245 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.555 1.496 1.443 1.428 1.415	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7426 0.7139 0.7052 0.7052 0.7021 0.688 0.6605 0.6564 0.6452
Prob. 0.032253 0.064516 0.096777 0.129033 0.161299 0.193544 0.225806 0.25806 0.290322 0.322580 0.354833 0.354833 0.387099 0.419355 0.451612 0.54838 0.580643 0.612903 0.64516	Peak 8064516129 61290322581 41935483871 2258064516 032258064516 0322580645161 034516129032 2580645161 064516129 8709677419 6774193548 4838709677 29032258065 096774193 096774193 09032258065 7096774194 5161290322 3225806452 1290322581	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584 3.352	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.705 3.705 3.57 3.458 3.224 3.056	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513 2.351	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.245 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766 1.764	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.554 1.555 1.496 1.443 1.428 1.428 1.415	1.126 1.059 1.026 0.9792 0.8489 0.7944 0.7787 0.7603 0.7426 0.77139 0.7105 0.7052 0.7052 0.7021 0.688 0.6605 0.6564 0.6564 0.6522 0.6393
Prob. 0.032253 0.064516 0.096777 0.129033 0.161299 0.193540 0.25806 0.25806 0.29032 0.322580 0.354833 0.387099 0.419355 0.451612 0.48387 0.516129 0.54838 0.58064 0.612900 0.64516 0.677416	Peak 8064516129 61290322581 41935483877 2258064516 0322580645 8387096774 4516129032 258064516129 8709677419 6774193548 4838709677 2903225806 0967741936 0903225806 0903225806 0903225806 33225806452 1290322581 935483871	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584 3.352 3.28	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.705 3.702 3.57 3.458 3.224 3.056 2.899	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513 2.351 2.346	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766 1.764 1.706	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443 1.428 1.415 1.411 1.368	1.126 1.059 1.026 0.9792 0.8867 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105 0.7052 0.7021 0.688 0.6605 0.6564 0.6452 0.6452 0.6393 0.6259
Prob. 0.032253 0.064514 0.096777 0.129033 0.161299 0.193544 0.225806 0.29032 0.322588 0.354833 0.387099 0.419355 0.451612 0.483877 0.516129 0.548388 0.580643 0.612903 0.64516 0.677414 0.70967	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 4516129032 4516129032 2580645161 064516129 8709677419 6774193548 4838709677 29032258065 7096774193 5161290322 5225806452 1290322581 535483871 7419354839	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584 3.352 3.28 3.152	7.443 6.82 6.245 6.245 6.245 6.245 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.702 3.57 3.458 3.224 3.056 2.899 2.854	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513 2.351 2.346 2.328	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766 1.764 1.706 1.703	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443 1.428 1.415 1.411 1.368 1.355	1.126 1.059 1.026 0.9792 0.8867 0.8867 0.7944 0.7787 0.7603 0.7426 0.7139 0.7426 0.7139 0.7425 0.7021 0.688 0.6655 0.6564 0.6393 0.6259 0.6137
Prob. 0.032253 0.064514 0.096777 0.129033 0.161299 0.193544 0.225806 0.29032 0.322588 0.354833 0.387099 0.419355 0.451612 0.483877 0.516129 0.548388 0.580643 0.612903 0.64516 0.677414 0.70967	Peak 8064516129 61290322581 41935483877 2258064516 0322580645 8387096774 4516129032 258064516129 8709677419 6774193548 4838709677 2903225806 0967741936 0903225806 0903225806 0903225806 33225806452 1290322581 935483871	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584 3.352 3.28	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.705 3.702 3.57 3.458 3.224 3.056 2.899	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513 2.351 2.346	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766 1.764 1.706	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443 1.428 1.415 1.411 1.368	1.126 1.059 1.026 0.9792 0.8867 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105 0.7052 0.7021 0.688 0.6605 0.6564 0.6452 0.6452 0.6393 0.6259
Prob. 0.032253 0.064514 0.096777 0.129033 0.161299 0.193544 0.225806 0.29032 0.322588 0.354833 0.387099 0.419355 0.451612 0.548387 0.516129 0.548388 0.580644 0.5161290 0.64516 0.677419 0.709677 0.741933	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 4516129032 4516129032 2580645161 064516129 8709677419 6774193548 4838709677 29032258065 7096774193 5161290322 5225806452 1290322581 535483871 7419354839	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584 3.352 3.28 3.152	7.443 6.82 6.245 6.245 6.245 6.245 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.702 3.57 3.458 3.224 3.056 2.899 2.854	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513 2.351 2.346 2.328	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766 1.764 1.706 1.703	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443 1.428 1.415 1.411 1.368 1.355	1.126 1.059 1.026 0.9792 0.8867 0.8867 0.7944 0.7787 0.7603 0.7426 0.7139 0.7426 0.7139 0.7425 0.7021 0.688 0.6655 0.6564 0.6393 0.6259 0.6137
Prob. 0.032253 0.064514 0.096774 0.12903 0.161299 0.193544 0.225806 0.29032 0.322586 0.320586 0.29032 0.322586 0.354838 0.354838 0.354838 0.451612 0.54838 0.580643 0.612900 0.64516 0.677419 0.774193 0.774193	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 4516129032 4516129032 2580645161 064516129 8709677419 6774193548 4838709677 29032258065 9032258065 9032258065 2032258065 2032258065 2032258065 2032258065 2032258065 2032258065 2032258065 2032258065 2032258065 2032258065 2032258065 2032258074193 5161290322581 335483871 7419354839 5483870968	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584 3.352 3.28 3.152 2.969 2.86	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.702 3.57 3.458 3.224 3.056 2.899 2.854 2.608 2.543	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513 2.351 2.351 2.326 2.328 2.328 2.287 2.283	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766 1.764 1.706 1.706 1.703 1.683 1.609	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443 1.428 1.415 1.411 1.368 1.355 1.342 1.329	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7944 0.7787 0.7603 0.7426 0.7139 0.7105 0.7052 0.7021 0.688 0.6605 0.6564 0.6452 0.6393 0.6259 0.6012 0.5898
Prob. 0.032253 0.064514 0.096774 0.12903 0.161299 0.193543 0.225806 0.29032 0.322586 0.354833 0.387099 0.41935 0.451612 0.548387 0.516129 0.548387 0.548487 0.5484700000000000000000000000000000000000	Peak 8064516129 61290322581 41935483871 2258064516 0322580645 8387096774 4516129032 2580645161 064516129 87096774193 6774193548 4838709677 2903225806 903225806 903225806 903225806 3225806452 1290322581 335483871 7419354839 5483870968 3548387096	8.593 7.85 7.207 7.152 7.086 6.957 5.89 5.741 5.603 5.483 5.222 4.731 4.277 4.276 4.19 4.13 4.124 4.037 3.584 3.352 3.28 3.152 2.969	7.443 6.82 6.245 6.245 6.062 5.949 5.128 5.008 4.957 4.853 4.665 4.083 3.864 3.802 3.705 3.702 3.57 3.458 3.224 3.056 2.899 2.854 2.608	5.072 4.884 4.536 4.371 4.127 4.021 3.985 3.56 3.475 3.201 3.129 3.041 2.932 2.916 2.739 2.72 2.567 2.529 2.513 2.351 2.346 2.328 2.328	3.617 3.607 3.188 2.926 2.742 2.536 2.42 2.245 2.235 2.132 2.095 2.081 2.015 1.965 1.94 1.932 1.799 1.774 1.766 1.764 1.706 1.703 1.683	2.882 2.864 2.491 2.426 2.178 2.051 1.908 1.811 1.777 1.697 1.689 1.66 1.581 1.554 1.55 1.496 1.443 1.428 1.415 1.411 1.368 1.355 1.342	1.126 1.059 1.026 0.9792 0.8867 0.8489 0.7947 0.7603 0.7426 0.7426 0.7139 0.7426 0.7426 0.7425 0.7021 0.688 0.6655 0.6564 0.6452 0.6259 0.6259 0.6259 0.62137

0.870967741935484 0.903225806451613 0.935483870967742 0.967741935483871	2.528 2.447	2.271 2.201 2.114 1.865	1.991 1.98 1.758 1.631	1.47 1.429 1.386 1.309	1.209 1.145 1.135 1.101	0.56 0.5335 0.5013 0.4982	
0.1 7.2015	6.245	4.5195	3.1618	2.4845 Average o	1.0557 of yearly av	erages:	0.734836666666666
Inputs generated by	pe5.pl - No	vemeber 20	06				
Data used for this ru Output File: KSpos1 Metfile: w13996.o PRZM scenario:		td.txt					
EXAMS environment	nt file:	pond298.0	exv				
Chemical Name:	glyphosat	e					
Description	Variable	Name	Value	Units	Comment	ts	
Molecular weight	mwt	170.8	g/mol				
Henry's Law Const.	henry	2.07 E- 14	atm-m^3/	mol			
Vapor Pressure	vapr	9.75E-10	torr				
Solubility sol	12000	mg/L					
Kd Kd		mg/L					
Koc Koc	3100	mg/L					
Photolysis half-life	kdp		days	Half-life			
Aerobic Aquatic Me		kbacw	14.1	days	Halfife		
Anaerobic Aquatic N		kbacs	208	days	Halfife		
Aerobic Soil Metabo		asm	5.4	days	Halfife		
Hydrolysis:	pH 7		days	Half-life			
Method: CAM Incorporation Depth	2 • DEPI	integer	See PRZN cm	n manual			
Application Rate:	TAPP	1.54	kg/ha				
Application Efficien		APPEFF	0.99	fraction			
Spray Drift	DRFT	0.01		f applicatio	n rate annli	ed to nond	
Application Date	Date	1-5		dd/mmm o			
Interval 1 interval	10	days		r delete line			
app. rate 1 apprate	1.54	kg/ha				-PP	
Interval 2 interval	7	days	Set to 0 or	r delete line	for single	app.	
app. rate 2 apprate	1.288	kg/ha			U		
Interval 3 interval	7	days	Set to 0 or	r delete line	for single	app.	
app. rate 3 apprate	1.288	kg/ha			-		
Interval 4 interval	7	days	Set to 0 or	r delete line	for single	app.	
app. rate 4 apprate	1.288	kg/ha					
Record 17: FILTRA							
IPSCND	1						
UPTKF							
Record 18:PLVKRT							
PLDKRT							
FEXTRO Flag for Index Box		ID	EDA D-				
Flag for Index Res. I		IR	EPA Pone	_	1/01/07000	of ontino -	
Flag for runoff calc.	RUNOFF	none	none, moi	nthly or tota	in average (n entue rui	1)

APPENDIX B

T-REX v. 1.4.1

Summary of Risk Quotient Calculations Based on Upper Bound Kenaga EECs 3.71 lbs/A Application

						EECs	and RQs	_	_		
Size Class (grams)	Adjusted LD50	Short Grass		Tall Grass		Broadleaf Plants/ Small Insects		Fruits/Pods/ Seeds/ Large Insects		Granivore	
		EEC	RQ	EEC	RQ	EEC_	RQ	EEC	RQ	EEC	RQ
20	2302.49	1014.08	0.44	464.79	0.20	570.42	0.25	63.38	0.03	14.08	0.01
100	2931.19	578.27	0.20	265.04	0.09	325.28	0.11	36.14	0.01	8.03	0.00

				EECs	and RQs			
	Short	Grass	Tall (Grass	Pla	ndleaf nts/ Insects	Fruits/F Seed Large In	s/
LC50	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
4971	890.40	0.18	408.10 0.08 500.85			0.10	55.65	0.01

Size class not used for dietary risk quotients

Tabl	e B-3. Uppe	er Bound I	Kenaga, C		vian Diet and RQs	tary Based	<u>Risk Quotien</u>	ts		
	Short (Grass	Tall (Tall Grass		adleaf ants/ Insects	Fruits/Pods/ Seeds/ Large Insects			
NOAEC (ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ		
830	890.40 1.07 408.10 0.49 500.85 0.60 55.65 0.07									

	Tab	ele B-4. Up	per Bou	nd Kenag	a, Acute		an Dose-Based	d Risk Q	uotients		
Size Class (grams)	Adjusted LD50	Short Grass		Tall (Tall Grass		EECs and RQs Broadleaf Plants/ Small Insects		Fruits/Pods/ Seeds/ Large Insects		ivore
		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
15	10549.59	848.93	0.08	389.09	0.04	477.52	0.05	53.06	0.01	11.79	0.00
35	8535.74	586.72	0.07	268.91	0.03	330.03	0.04	36.67	0.00	8.15	0.00
1000	3691.97	136.03	0.04	62.35	0.02	76.52	0.02	8.50	0.00	1.89	0.00

Table 1	B-5. Upper	Bound Ke	enaga, Ac		malian D and RQs		ed Risk Quoti	ents
LC50	Short	Grass	Tail (Grass	Pla	adleaf ants/ Insects	Fruits/Pods/ Seeds/ Large Insects	
(ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
0	890.40	#####	408.10	#####	500.85	#DIV/0!	55.65	#####

Size class not used for dietary risk quotients

Table B	-6. Upper B	ound Ker	naga, Chro			Dietary Ba	sed Risk Quot	tients
NOAEC (ppm)	 Short (Grass	Tall (Pla	adleaf ints/ Insects	Fruits/Pe Seeds Large Ins	/
	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
10000	890.40 0.09 408.		408.10	0.04	500.85	0.05	55.65	0.01

Γ

Г

	Tabl	e B-7. Up	per Bour	nd Kenaga	a, Chron		lian Dose-Bas and RQs	ed <u>Ri</u> sk (Juotients	·	
Size Class (grams)	Adjusted NOAEL	Short L-rass		Tall (Tall Grass		Broadleaf Plants/ Small Insects		Fruits/Pods/ Seeds/ Large Insects		ivore
		EEC	RQ	EEC	EEC RQ EEC RQ		EEC	RQ	EEC	RQ	
15	1098.92	<u>84</u> 8.93	0.77	389.09	0.35	477.52	0.43	53.06	0.05	11.79	0.01
35	889.14	586.72	0.66	268.91	0.30	330.03	0.37	36.67	0.04	8.15	0.01
1000	384.58	136.03	0.35	62.35	0.16	76.52	0.20	8.50	0.02	1.89	0.00

Summary of Risk Quotient Calculations Based on Upper Bound Kenaga EECs 1.15 lbs/A 2 applications

						EE	Cs and RQs				
Size Class (grams)	Adjusted LD50	Short Grass		Tall Grass		Broadleaf Plants/ Small Insects		Fruits/Pods/ Seeds/ Large Insects		Granivore	
		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
20	2302.49	471.50	0.20	216.11	0.09	265.22	0.12	29.47	0.01	6.55	0.0
100	2931.19	268.87	0.09	123.23	0.04	151.24	0.05	16.80	0.01	3.73	0.0

Table B	-9. Upper F	Bound Ke	enaga, Sul		vian Dieta Cs and RQ		Risk Quotients		
	Short (Grass	Tall (Grass	Pla	dleaf nts/ Insects	Fruits/Pods/ Seeds/ Large Insects		
LC50	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	
4971	414.00								

Table B	-10. Upper	Bound K	Cenaga, C		vian Dieta Cs and RQ		Risk Quotients	
	Short (Grass	Tall (Grass	Pla	ndleaf nts/ Insects	Fruits/Pods/ Seeds/ Large Insects	
NOAEC (ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
830	414.00	0.50	189.75	0.23	232.88	0.28	25.88	0.03

Size class not used for dietary risk quotients

Г

	Tat	ole B-11. Up	oper Bo	und Kena	ga, Acut	e Mamma	lian Dose-I	Based Risk (Quotients		<u>_</u>
						EEC	cs and RQ	S			
Size Class (grams)	Adjusted LD50	Short Grass		Tall Grass		Broadleaf Plants/ Small Insects		Fruits/Pods/ Seeds/ Large Insects		Granivore	
		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
15	10549.59	394.72	0.04	180.91	0.02	222.03	0.02	24.67	0.00	5.48	0.00
35	8535.74	272.80	0.03	125.03	0.01	153.45	0.02	17.05	0.00	3.79	0.00
1000	3691.97	63.25	0.02	28.99	0.01	35.58	0.01	3.95	0.00	0.88	0.00

Table B-12.	Upper Bou	nd Kenaj	ga, Acute		lian Dieta and RQs	ary Based I	Risk Quotier	nts	
	Short (Grass	Tall (Grass	Pla	adleaf ants/ Insects	Fruits/P Seeds Large In	s/	
LC50 (ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	
0	414.00	#####	189.75	#####	232.88	#DIV/0!	25.88	#####	

Table B-13. Upper Bound Kenaga, Chronic Mammalian Dietary Based Risk Quotients												
EECs and RQs												
		_		Broadleaf Fruits/Pod								
NOAEC (ppm)	Short G	Frass	Tall C	Grass		nts/	Seed					
					Small	Insects	Large In	isects				
	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ				
10000	414.00	0.04	189.75	0.02	232.88	0.02	25.88	0.00				

Size class not used for dietary risk quotients

-

	Tabl	e B-14. U	pper Boı	und Kenag	ga, Chron		lian Dose-Ba	sed Risk Qu	ıotients		
Size Class (grams)	Adjusted NOAEL	Short (Grass	Tall (Grass	Broadle	s and RQs af Plants/ Insects	Se	s/Pods/ eds/ Insects	Granivore	
_		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
15	1098.92	394.72	0.36	180.91	0.16	222.03	0.20	24.67	0.02	5.48	0.00
35	889.14	272.80	0.31	125.03 0.14		153.45	0.17	17.05	0.02	3.79	0.00
1000	384.58	63.25	0.16 28.99 0.08 35.58 0.09 3.95 0.01 0.88							0.88	0.00

Summary of Risk Quotient Calculations Based on Upper Bound Kenaga EECs 1.15 lbs/A 4 applications/year

		Table B	-15. Upp	er Bound	Kenaga,		an Dose-Based Cs and RQs	Risk Quo	tients		
Size Class (grams)	Adjusted LD50	Short	Short Grass Tall Grass			lleaf Plants/ all Insects		uits/Pods/ Seeds/ ge Insects	Granivore		
(8)		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
20	2302.49	589.38	0.26	270.13	0.12	331.53	0.14	36.84	0.02	8.19	0.00
100	2931.19	336.09	0.11	154.04	0.05	189.05	0.06	21.01	0.01	4.67	0.00
1000	4140.41	150.47	0.04	68.97	0.02	84.64	0.02	9.40	0.00	2.09	0.00

				<u>, Subacu</u> EE(cs and RQ	S		
	Short (Grass	Tall (Grass	Pla	dleaf nts/ Insects	Fruits/Pods/ Seeds/ Large Insects	
LC50	EEC	RO	EEC	RQ	EEC	RQ	EEC	RQ
4971	517.50	0.10	237.19	0.05	291.09	0.06	32.34	0.01

Size class not used for dietary risk quotients

Tabl	e <u>B</u> -17. Up	per Bour	ıd Kenaga		ic Avian E Cs and RQ		ed Risk Quotic	ents				
	Short (Frass	Tall (Grass	Pla	dleaf nts/ Insects	Fruits/Pods/ Seeds/ Large Insects					
NOAEC (ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ				
830	517.50											

Size class not used for dietary risk quotients

	T	able B-18.	. Upper l	Bound Ke	naga, Ac		nalian Dose-Bas Cs and RQs	sed Risk Q	Quotients		
Size Class (grams)	Adjusted LD50	Short	Grass	Tall (Grass		dleaf Plants/ all Insects Earge Insects		Seeds/		ivore
		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
15	10549.59	493.40	0.05	226.14	0.02	277.54	0.03	30.84	0.00	6.85	0.00
35	8535.74	341.00	0.04	156.29 0.02		191.81	0.02	21.31	0.00	4.74	0.00
1000	3691.97	79.06	0.02	36.24	0.01	44.47	0.01	4.94	0.00	1.10	0.00

Table	В-19. Uppe	er Bound	Kenaga,		ammalian s and RQ		ased Risk Quoti	ents		
LC50	Short (Grass	Tall (Grass	Pla	adleaf ants/ Insects	Fruits/Poo Seeds/ Large Inse			
(ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ		
								1		
0	517.50	517.50 ##### 237.19 ##### 291.09 #DIV/0! 32.34 ###								

Г

Table B	-20. Upper	Bound 1	Kenaga, C		<u>Iammalia</u> Is and RQ		Based Risk Quo	tients
NOAEC (ppm)	Short G	Frass	Tall (Grass	Pla	adleaf ants/ Insects	Fruits/Poo Seeds/ Large Inse	
	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
10000	517.50	0.05	237.19	0.02	291.09	0.03	32.34	0.00

Size class not used for dietary risk quotients

	1a	Die B-21.	Upper r	sound Ke	naga, Cn			ISEU KISK	Quotients		21. Upper Bound Kenaga, Chronic Mammalian Dose-Based Risk Quotients EECs and RQs											
Size Class (grams)	Adjusted NOAEL Short G		Short Grass Tall Grass Broadleaf Plants/ Small Insects		Tall Grass				uits/Pods/ Seeds/ rge Insects	Gran	ivore											
		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ											
15	1098.92	493.40	0.45	226.14	0.21	277.54	0.25	30.84	0.03	6.85	0.01											
35	889.14	341.00	0.38	156.29	156.29 0.18		0.22	21.31	0.02	4.74	0.01											
1000	384.58	79.06	0.21	36.24			0.12	4.94	0.01	1.10	0.00											

Summary of Risk Quotient Calculations Based on Upper Bound Kenaga EECs 1.35 lbs/A 1 application/year

	Table B-22. Upper Bound Kenaga, Acute Avian Dose-Based Risk Quotients EECs and RQs													
Size Class (grams)	Adjusted LD50	Short	Short Grass Tall Grass		ass Tall Grass		lleaf Plants/ all Insects	nts/ Fruits/Poo		Gran	ivore			
		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ			
20	2302.49	369.00	0.16	169.13	0. <u>0</u> 7	207.56	0.09	23.06	0.01	5.13	0.00			
100	2931.19	210.42	0.07	96.44	0.03	118.36	0.04	13.15	0.00	2.92	0.00			
1000	4140.41	94.21	0.02	43.18	0.01	52.99	0.01	5.89	0.00	1.31	0.00			

			u Henugu		cs and RQ		ed Risk Quoti	
	Short (Short Grass Tall Grass		Grass	Pla	dleaf nts/ Insects	Fruits/Pods/ Seeds/ Large Insects	
LC50	EEC	RQ	EEC RQ		EEC	RQ	EEC	RQ
4971	324.00	0.07	148.50 0.03 182.25 0.04				20.25	0.00

Size class not used for dietary risk quotients

Tabl	e B-24. Up	per Bour	id Kenaga		ic Avian I Cs and RQ		sed Risk Quotier	ıts			
	Short C	Frass	Tall (Grass	Fruits/Poo Seeds/ Large Inse						
NOAEC (ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ			
830	324.00										

Size class not used for dietary risk quotients

.

Table B-25. Upper Bound Kenaga, Acute Mammalian Dose-Based Risk Quotients EECs and ROs											
Size Class (grams)	Adjusted LD50	Short	Short Grass Tall Grass		Broad	Broadleaf Plants/ Small Insects		Fruits/Pods/ Seeds/ Large Insects		Granivore	
		EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
15	10549.59	308.91	0.03	141.58	0.01	173.76	0.02	19.31	0.00	4.29	0.00
35	8535.74	213.50	0.03	97.85	0.01	120.09	0.01	13.34	0.00	2.97	0.00
1000	3691.97	49.50	0.01	22.69	0.01	27.84	0.01	3.09	0.00	0.69	0.00

		B-26. Upper Bound Kenaga, Acute Mammalian Dietary Based Risk Quotients EECs and RQs									
LC50	Short Grass Tall Grass		Broadleaf Plants/ Small Insects		Fruits/Pods/ Seeds/ Large Insects						
(ppm)	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ			
0	324.00	#####	148.50	######	182.25	#DIV/0!	20.25	#####			

Γ

Table B-27. Upper Bound Kenaga, Chronic Mammalian Dietary Based Risk Quotients EECs and RQs										
NOAEC (ppm)	Short Grass		Tall (Tall Grass		adleaf ants/ Insects	Fruits/Poo Seeds/ Large Inse			
	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ		
10000	324.00	0.03	148.50	0.01	182.25	0.02	20.25	0.00		

Size class not used for dietary risk quotients

Table B-28. Upper Bound Kenaga, Chronic Mammalian Dose-Based Risk Quotients EECs and RQs											
Size Class (grams)	Adjusted NOAEL	Short	Grass	Tall (Grass		lleaf Plants/ all Insects		uits/Pods/ Seeds/ ge Insects	Gran	ivore
		EEC	RQ	EEC	RQ	EEC	EEC RQ		RQ	EEC	RQ
15	1098.92	308.91	0.28	141.58	0.13	173.76	0.16	19.31	0.02	4.29	0.00
35	889.14	213.50	0.24	97.85	0.11	120.09	0.14	13.34	0.02	2.97	0.00
1000	384.58	49.50	0.13	22.69	0.06	27.84	0.07	3.09	0.01	0.69	0.00

APPENDIX C TERRPLANT v. 1.2.2

Table C-1. Chemical Identity.						
Chemical Name	Glyphosate Potassium Salt					
PC code	103613					
Use	Sweet Corn					
Application Method	Ground					
Application Form	Liquid					
Solubility in Water						
(ppm)	12,000					

Table C-2. Input parameters used to derive EECs.							
Input Parameter	Symbol	Value	Units				
Application Rate	A	1.15	lb a.e./A				
Incorporation		1.	none				
Runoff Fraction	R	0.05	none				
Drift Fraction	D	0.01	none				

Table C-3. EECs for Glyphosate IPA salt. Units in Ib a.e./A.						
Description	Equation	EEC				
Runoff to dry areas	(A/I)*R	0.0575				
Runoff to semi-aquatic areas	(A/I)*R*10	0.575				
Spray drift	A*D	0.0115				
Total for dry areas	((A/I)*R)+(A*D)	0.069				
Total for semi-aquatic areas	((A/I)*R*10)+(A*D)	0.5865				

Table C-4. Plant survival and growth data used for RQ derivation. Units are in ib a.e./A.								
	Seedling	Emergence	Vegetative Vigor					
Plant type	EC25	NOAEC	EC25	NOAEC				
Monocot	5	5	0.16	0.07				
Dicot	5	5	0.074	0.049				

Table C-5. RQ values for plants in dry and semi-aquatic areas exposed to Glyphosate IPA sait through runoff and/or spray drift.*

Plant Type	Listed Status	Dry	Semi-Aquatic	Spray Drift
Monocot	non-listed	<0.1	0.12	<0.1
Monocot	listed	<0.1	0.12	0.16
Dicot	non-listed	<0.1	0.12	0.16
Dicot	listed	<0.1	0.12	0.23

Table C-6. Chemical Identity.						
Chemical Name	Glyphosate potassium salt					
PC code	103613					
Use	Sweet Corn					
Application Method	aerial					
Application Form	liquid					
Solubility in Water						
(ppm)	12,000					

Table C-7. Input parameters used to derive EECs.							
Input Parameter	Symbol	Value	Units				
Application Rate	A	1 15	lb a.e./A				
Incorporation		1	none				
Runoff Fraction	R	0.05	none				
Drift Fraction	D	0.05	none				

Table C-8. EECs for Glyphosate IPA salt. Units in ib a.e./A.							
Description Equation EEC							
Runoff to dry areas	(A/I)*R	0.0575					
Runoff to semi-aquatic areas	(A/I)*R*10	0.575					
Spray drift	A*D	0.0575					
Total for dry areas	((A/I)*R)+(A*D)	0.115					
Total for semi-aquatic areas	((A/I)*R*10)+(A*D)	0.6325					

Table C-9. Plant survival and growth data used for RQ derivation. Units are in ib a.e./A.					
	Seedling I	Emergence	Vegetati	ve Vigor	
Plant type	EC25	NOAEC	EC25	NOAEC	
Monocot	5	5	0.16	0.07	
Dicot	5	5	0.074	0.049	

Plant Type	Listed Status	Dry	Semi-Aquatic	Spray Drift
Monocot	non-listed	<0.1	0.13	0.36
Monocot	listed	<0.1	0.13	0.82
Dicot	non-listed	<0.1	0.13	0.78
Dicot	listed	<0.1	0.13	1.17

*If RQ > 1.0, the LOC is exceeded, resulting in potential for risk to that plant group.

Table C-11. Chemical Identity.		
Chemical Name	Glyphosate potassium salt	
PC code	103613	
Use	Sweet Corn	
Application Method	ground	
Application Form	liquid	
Solubility in Water		
(ppm)	12,000	

Table C-12. Input parameters used to derive EECs.					
Input Parameter	Symbol	Value	Units		
Application Rate	A	3.71	lb a.e./A		
Incorporation		1	none		
Runoff Fraction	R	0.05	none		
Drift Fraction	D	0.01	none		

Table C-13. EECs for Glyphosate IPA salt. Units in Ib a.e./A.				
Description	Equation	EEC		
Runoff to dry areas	(A/I)*R	0.1855		
Runoff to semi-aquatic areas	(A/I)*R*10	1.855		
Spray drift	A*D	0.0371		
Total for dry areas	((A/I)*R)+(A*D)	0.2226		
Total for semi-aquatic areas	((A/I)*R*10)+(A*D)	1.8921		

Table C-14. Plant survival and growth data used for RQ derivation. Units are in lb a.e./A.					
	Seedling I	Emergence	Vegetative Vigor		
Plant type	EC25	NOAEC	EC25	NOAEC	
Monocot	5	5	0.16	0.07	
Dicot	5	5	0.074	0.049	

able C-15. RQ values for plants in dry and semi-aquatic areas exposed to Glyphosate II hrough runoff and/or spray drift.*				ate IPA sait
Piant Type	Listed Status	Dry	Semi-Aquatic	Spray Drift
Monocot	non-listed	<0.1	0.38	0.23
Monocot	listed	<0.1	0.38	0.53
Dicot	non-listed	<0.1	0.38	0.50
Dicot	listed	<0.1	0.38	0.76

*If RQ > 1.0, the LOC is exceeded, resulting in potential for risk to that plant group.

P

Table C-16. Chemical Ide	entity.	
Chemical Name	Glyphosate potassium salt	
PC code	103613	
Use	Sweet Corn	
Application Method	Aerial	
Application Form	liquid	
Solubility in Water		
(ppm)	12,000	

Table C-17. Input parameters used to derive EECs.					
Input Parameter	Symbol	Value	Units		
Application Rate	A	3 71	ibae/A		
Incorporation		1	none		
Runoff Fraction	R	0.05	none		
Drift Fraction	D	0.05	none		

Table C-18. EECs for Glyphosate IPA sait. Units in ib a.e./A.				
Description	Equation	EEC		
Runoff to dry areas	(A/I)*R	0.1855		
Runoff to semi-aquatic areas	(A/I)*R*10	1.855		
Spray drift	A*D	0.1855		
Total for dry areas	((A/I)*R)+(A*D)	0.371		
Total for semi-aquatic areas	((A/I)*R*10)+(A*D)	2.0405		

Ī

Table C-19. Plant survival and growth data used for RQ derivation. Units are in lb a.e./A.					
	Seedling I	Emergence	Vegetati	ve Vigor	
Plant type	EC25	NOAEC	EC25	NOAEC	
Monocot	5	5	0.16	0.07	
Dicot	5	5	0.074	0.049	

Plant Type	Listed Status	Dry	Semi-Aquatic	Spray Drift
Monocot	non-listed	<0.1	0.41	1.16
Monocot	listed	<0.1	0.41	2.65
Dicot	non-listed	<0.1	0.41	2.51
Dicot	listed	<0.1	0.41	3.79

Table 21. Chemical Iden	lity.
Chemical Name	Glyphosate potassium salt
PC code	103613
Use	Sweet Corn
Application Method	Ground
Application Form	Liquid
Solubility in Water	
(ppm)	12,000

Table C-22. Input parameters used to derive EECs.				
Input Parameter	Symbol	Value	Units	
Application Rate	A	1 35	ib a.e.(A	
Incorporation	l	1	none	
Runoff Fraction	R	0.05	none	
Drift Fraction	D	0.01	none	

Table C-23. EECs for Glyphosate IPA salt. Units in ib a.e./A.				
Description	Equation	EEC		
Runoff to dry areas	(A/I)*R	0.0675		
Runoff to semi-aquatic areas	(A/I)*R*10	0.675		
Spray drift	A*D	0.0135		
Total for dry areas	((A/I)*R)+(A*D)	0.081		
Total for semi-aquatic areas	((A/I)*R*10)+(A*D)	0.6885		

Table C-24. Plant survival and growth data used for RQ derivation. Units are in lb a.e./A.				
	Seedling I	Emergence	Vegetative Vigor	
Plant type	EC25	NOAEC	EC25	NOAEC
Monocot	5	5	0.16	0.07
Dicot	5	5	0.074	0.049

Plant Type	Listed Status	Dry	Semi-Aquatic	Spray Drift
Monocot	Non-listed	<0.1	0.14	<0.1
Monocot	listed	<0.1	0.14	0.19
Dicot	Non-listed	<0.1	0.14	0.18
Dicot	listed	<0.1	0.14	0.28

Table C-26. Chemical identity.		
Chemical Name	Glyphosate potassium salt	
PC code	103613	
Use	Sweet Corn	
Application Method	Aerial	
Application Form	Liquid	
Solubility in Water		
(ppm)	12,000	

Table C-27. Input parameters used to derive EECs.				
Input Parameter	Symbol	Value	Units	
Application Rate	A	1 35	lb a.e /A	
Incorporation	1	1	none	
Runoff Fraction	R	0.05	none	
Drift Fraction	D	0.05	none	

Table C-28. EECs for Glyphosate IPA salt. Units in Ib a.e./A.				
Description	Equation	EEC		
Runoff to dry areas	(A/I)*R	0.0675		
Runoff to semi-aquatic areas	(A/I)*R*10	0.675		
Spray drift	A*D	0.0675		
Total for dry areas	((A/I)*R)+(A*D)	0.135		
Total for semi-aquatic areas	((A/I)*R*10)+(A*D)	0.7425		

IF.

Table C-29. Plant survival and growth data used for RQ derivation. Units are in ib a.e./A.				
	Seedling I	Emergence	Vegetative Vigor	
Plant type	EC25	NOAEC	EC25	NOAEC
Monocot	5	5	0.16	0.07
Dicot	5	5	0.074	0.049

Plant Type	Listed Status	Dry	Semi-Aquatic	Spray Drift
Monocot	Non-listed	<0.1	0.15	0.42
Monocot	listed	<0.1	0.15	0.96
Dicot	Non-listed	<0.1	0.15	0.91
Dicot	listed	<0.1	0.15	1.38

24