Appendix F: Example output from T-REX v.1.4.1

Upper Bound Kenaga Residues For RQ Calculation

Chemical Name:	Iprodione
Use	Almonds
Formulation	Iprodione
Application Rate	0.5 lbs a.i./acre
Half-life	35 days
Application Interval	7 days
Maximum # Apps./Year	4
Length of Simulation	1 year

Acute and Chronic RQs are based on the Upper Bound Kenaga Residues.

The maximum single day residue estimation is used for both the acute and reproduction RQs.

RQs reported as "0.00" in the RQ tables below should be noted as <0.01 in your assessment. This is due to rounding and significant figure issues in Excel.

Endpoints

Avian	Bobwhite quail	LD50 (mg/kg-bw)	930.00
	Bobwhite quail	LC50 (mg/kg-diet)	5620.00
	Mallard duck	NOAEL(mg/kg-bw)	0.00
	Bobwhite quail	NOAEC (mg/kg-diet)	324.00
Mammals		LD50 (mg/kg-bw)	4468.00
		LC50 (mg/kg-diet)	
		NOAEL (mg/kg-bw)	18.50
		NOAEC (mg/kg-diet)	300.00

Dietary-based EECs (ppm)	Kenaga Values
Short Grass	394.58
Tall Grass	180.85
Broadleaf plants/sm Insects	221.95
Fruits/pods/seeds/lg insects	24.66

Avian Results

Avian Class	Body Weight (g)	Ingestion (Fdry) (g bw/day)	Ingestion (Fwet) (g/day)	% body wgt consumed	FI (kg-diet/day)
Small	20	5	23	114	2.28E-02
Mid	100	13	65	65	6.49E-02
Large	1000	58	291	29	2.91E-01

Avian Body Weight (g)	Adjusted LD50 (mg/kg-bw)
20	670.00
100	852.94
1000	1204.81

Dose-based EECs (mg/kg-bw)	Avian Classes and Body Weights		
	small 20 g	mid 100 g	large 1000 g
Short Grass	449.39	256.26	114.73
Tall Grass	205.97	117.45	52.58
Broadleaf plants/sm Insects	252.78	144.15	64.54
Fruits/pods/seeds/lg insects	28.09	16.02	7.17

Dose-based RQs (Dose-based EEC/adjusted LD50)	Avian Acute RQs		
	20 g	100 g	1000 g
Short Grass	0.67	0.30	0.10
Tall Grass	0.31	0.14	0.04
Broadleaf plants/sm insects	0.38	0.17	0.05
Fruits/pods/seeds/lg insects	0.04	0.02	0.01

Dietary-based RQs (Dietary-based EEC/LC50 or NOAEC)	RQs	
	Acute	Chronic
Short Grass	0.07	1.22
Tall Grass	0.03	0.56
Broadleaf plants/sm Insects	0.04	0.69
Fruits/pods/seeds/lg insects	0.00	0.08

Note: To provide risk management with the maximum possible information, it is recommended that both the dose-based and concentration-based RQs be calculated when data are available

Mammalian Results

Mammalian Class	Body Weight	Ingestion (Fdry) (g bwt/day)	Ingestion (Fwet) (g/day)	% body wgt consumed	FI (kg-diet/day)
Herbivores/ insectivores	15	3	14	95	1.43E-02
	35	5	23	66	2.31E-02
	1000	31	153	15	1.53E-01
Grainvores	15	3	3	21	3.18E-03
	35	5	5	15	5.13E-03
	1000	31	34	3	3.40E-02

Mammalian Class	Body Weight	Adjusted LD50	Adjusted NOAEL
Herbivores/ insectivores	15	9819.91	40.66
	35	7945.35	32.90
	1000	3436.61	14.23
Grainvores	15	9819.91	40.66
	35	7945.35	32.90
	1000	3436.61	14.23

Dose-Based EECs (mg/kg-bw)	Mammalian Classes and Body weight					
	Herbivores/ insectivores			Granivores		
	15 g	35 g	1000 g	15 g	35 g	1000 g
Short Grass	376.20	260.01	60.28			
Tall Grass	172.43	119.17	27.63			
Broadleaf plants/sm Insects	211.61	146.25	33.91			
Fruits/pods/seeds/lg insects	23.51	16.25	3.77	5.23	3.61	0.84

Dose-based RQs (Dose-based EEC/LD50 or NOAEL)	15 g mammal		35 g mammal		1000 g mammal	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Short Grass	0.04	9.25	0.03	7.90	0.02	4.24
Tall Grass	0.02	4.24	0.01	3.62	0.01	1.94
Broadleaf plants/sm insects	0.02	5.20	0.02	4.45	0.01	2.38
Fruits/pods/lg insects	0.00	0.58	0.00	0.49	0.00	0.26
Seeds (granivore)	0.00	0.13	0.00	0.11	0.00	0.06

Dietary-based RQs (Dietary-based EEC/LC50 or NOAEC)	Mammal RQs	
	Acute	Chronic
Short Grass	#VALUE!	1.32
Tall Grass	#VALUE!	0.60
Broadleaf plants/sm insects	#VALUE!	0.74
Fruits/pods/seeds/lg insects	#VALUE!	0.08

Note: To provide risk management with the maximum possible information, it is recommended that both the dose-based and concentration-based RQs be calculated when data are available

Seed Treatment Output

Maximum Application Rate (lbs ai/A)	Maximum Seed Application Rate (mg ai/kg seed)	Avian Nagy Dose (mg ai/kg-bw/day)	Mammalian Nagy Dose (mg ai/kg-bw/day)	Available AI (mg ai ft-2)
0.13	1250.00	316.36	264.84	1.30
0.67	6670.00	1688.10	1413.19	6.96
0.33	3330.00	842.79	705.53	3.47
0.13	1250.00	316.36	264.84	1.30
0.13	1250.00	316.36	264.84	1.30
0.42	4170.00	1055.38	883.51	4.35
1.50	15000.00	3796.33	3178.08	15.65
0.17	1670.00	422.66	353.83	1.74
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Individual Effect Output

Fish

IEC V1.1 - Individual Effect Chance Model Version 1.1

Predictor of chance of individual effect using probit dose-response curve slope and median lethal estimate

Enter LC_{50} or LD_{50}	3100	
Enter desired threshold	0.26	
Enter slope of dose-response	10	
z score result	-5.85026652	z is the standard normal deviate
Probability associated with z	2.45E-09	Uses Excel NORMDIST function to estimate P with lower reporting limit of 1.0 E-16
Chance of individual effect, **~1 in . . .**	4.08E+08	Calculated as 1/P

This is based on the formula $\log LC_k = \log LC_{50} + (z/b)$

where: z is the standard normal deviate and b equals slope

Works for dose-response models based on a probit assumption (i.e. log normal distribution of individual sensitivity)

Note: Excel cannot calculate probabilities for extremes in z scores beyond -8.2
Probability is defaulted to 10^{-16}, which is the limit of Excel reporting.

Ed Odenkirchen, June 22, 2004 EFED/OPP/USEPA

Invertebrates

IEC V1.1 - Individual Effect Chance Model Version 1.1

Predictor of chance of individual effect using probit dose-response curve slope and median lethal estimate

Enter LC_{50} or LD_{50}	240	
Enter desired threshold	0.05	
Enter slope of dose-response	3.45	
z score result	-4.48855349	z is the standard normal deviate
Probability associated with z	3.59E-06	Uses Excel NORMDIST function to estimate P with lower reporting limit of 1.0 E-16
Chance of individual effect, **~1 in . . .**	2.79E+05	Calculated as 1/P

This is based on the formula $\log LC_k = \log LC_{50} + (z/b)$

where: z is the standard normal deviate and b equals slope

Works for dose-response models based on a probit assumption (i.e. log normal distribution of individual sensitivity)

Note: Excel cannot calculate probabilities for extremes in z scores beyond -8.2
Probability is defaulted to 10^{-16}, which is the limit of Excel reporting.

Ed Odenkirchen, June 22, 2004 EFED/OPP/USEPA

Invertebrates (High)

IEC V1.1 - Individual Effect Chance Model Version 1.1

Predictor of chance of individual effect using probit dose-response curve slope and median lethal estimate

Enter LC_{50} or LD_{50}	240	
Enter desired threshold	3.42	
Enter slope of dose-response	3.45	
z score result	1.84239007	z is the standard normal deviate
Probability associated with z	9.67E-01	Uses Excel NORMDIST function to estimate P with lower reporting limit of 1.0 E-16
Chance of individual effect, **~1 in . . .**	1.03E+00	Calculated as 1/P

This is based on the formula $\log LC_k = \log LC_{50} + (z/b)$

where: z is the standard normal deviate and b equals slope

Works for dose-response models based on a probit assumption (i.e. log normal distribution of individual sensitivity)

Note: Excel cannot calculate probabilities for extremes in z scores beyond -8.2
Probability is defaulted to 10^{-16}, which is the limit of Excel reporting.

Ed Odenkirchen, June 22, 2004 EFED/OPP/USEPA