

APPENDIX F

Example Output from T-REX and T-HERPS

The following pages provide examples of output from runs with the T-REX and T-HERPS models that were conducted for the assessment of direct and indirect risks of malathion to the California Tiger Salamander.

Upper Bound Kenaga Residues For RQ Calculation

Chemical Name:	Malathion
Use	Citrus
Formulation	0
Application Rate	7.5 lbs a.i./acre
Half-life	6.1 days
Application Interval	0 days
Maximum # Apps./Year	1
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	ring-necked pheasant	LD50 (mg/kg-bw)	167.00
	Japanese quail	LC50 (mg/kg-diet)	2128.00
	Mallard duck	NOAEL(mg/kg-bw)	0.00
	Bobwhite quail	NOAEC (mg/kg-diet)	110.00
Mammals		LD50 (mg/kg-bw)	852.00
		LC50 (mg/kg-diet)	0.00
		NOAEL (mg/kg-bw)	85.00
		NOAEC (mg/kg-diet)	1700.00
Dietary-based EECs (ppm)		Kenaga Values	
Short Grass		1800.00	
Tall Grass		825.00	
Broadleaf plants/sm Insects		1012.50	
Fruits/pods/seeds/lg insects		112.50	

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
Granivores	20	5	5	25	5.06E-03
	100	13	14	14	1.44E-02
	1000	58	65	6	6.46E-02

Avian Body Weight (g)	Adjusted LD50 (mg/kg-bw)
20	93.54
100	119.08
1000	168.21

Dose-based EECs (mg/kg-bw)	Avian Classes and Body Weights (grams)					
	small 20	mid 100	large 1000	Granivores(grams)		
				20	100	1000
Short Grass	2050.02	1169.01	523.38			
Tall Grass	939.59	535.80	239.88			
Broadleaf plants/sm Insects	1153.14	657.57	294.40			
Fruits/pods/seeds/lg insects	128.13	73.06	32.71	28.47	16.24	7.27

Dose-based RQs (Dose-based EEC/adjusted LD50)	Avian Acute RQs Size Class (grams)		
	20	100	1000
Short Grass	21.92	9.82	3.11
Tall Grass	10.04	4.50	1.43
Broadleaf plants/sm insects	12.33	5.52	1.75
Fruits/pods/seeds/lg insects	1.37	0.61	0.19
Seeds (granivore)	0.30	0.14	0.04

Dietary-based RQs (Dietary-based EEC/LC50 or NOAEC)	RQs	
	Acute	Chronic
Short Grass	0.85	16.36
Tall Grass	0.39	7.50
Broadleaf plants/sm Insects	0.48	9.20
Fruits/pods/seeds/lg insects	0.05	1.02

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

Malathion

Citrus

Upper bound Kenaga Residues

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	1872.55	186.82
	35	1515.09	151.15
	1000	655.32	65.38
Grainvores	15	1872.55	186.82
	35	1515.09	151.15
	1000	655.32	65.38

Dose-Based EECs (mg/kg-bw)	Mammalian Classes and Body weight					
	Herbivores/ insectivores (grams)			Granivores(grams)		
	15	35	1000	15	35	1000
Short Grass	1716.16	1186.10	275.00			
Tall Grass	786.57	543.63	126.04			
Broadleaf plants/sm Insects	965.34	667.18	154.69			
Fruits/pods/seeds/lg insects	107.26	74.13	17.19	23.84	16.47	3.82

Dose-based RQs (Dose-based EEC/LD50 or NOAEL)	Small mammal 15 grams		Medium mammal 35 grams		Large mammal 1000 grams	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Short Grass	0.92	9.19	0.78	7.85	0.42	4.21
Tall Grass	0.42	4.21	0.36	3.60	0.19	1.93
Broadleaf plants/sm insects	0.52	5.17	0.44	4.41	0.24	2.37
Fruits/pods/lg insects	0.06	0.57	0.05	0.49	0.03	0.26
Seeds (granivore)	0.01	0.13	0.01	0.11	0.01	0.06

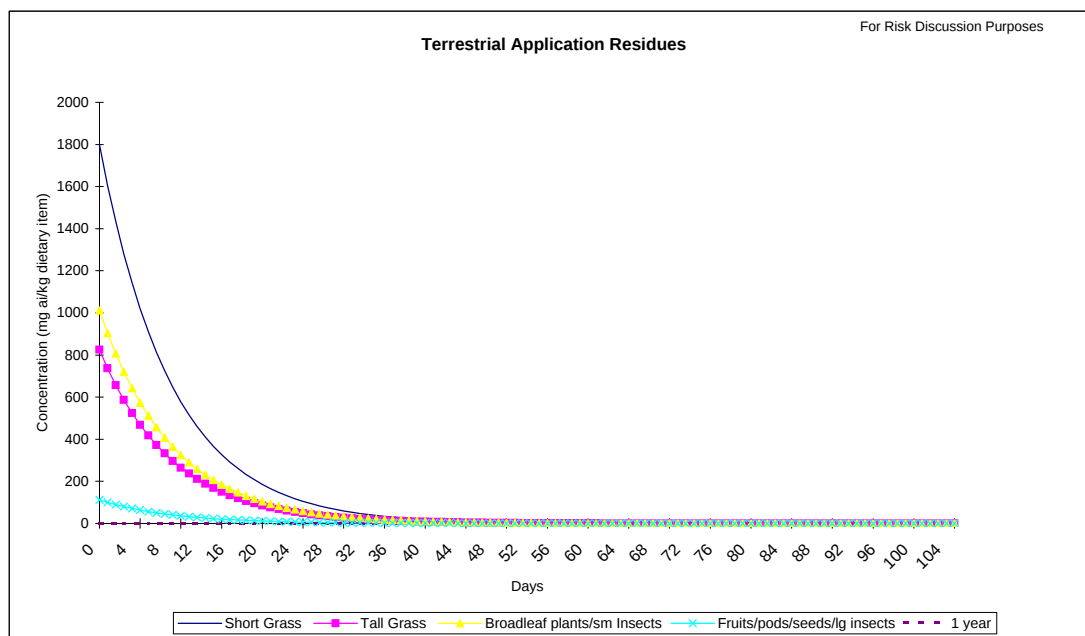
Dietary-based RQs (Dietary-based EEC/LC50 or NOAEC)	Mammal RQs	
	Acute	Chronic
Short Grass	#DIV/0!	1.06
Tall Grass	#DIV/0!	0.49
Broadleaf plants/sm insects	#DIV/0!	0.60
Fruits/pods/seeds/lg insects	#DIV/0!	0.07

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

Malathion

Citrus

Upper bound Kenaga Residues

Terrestrial Residues Graph

Upper Bound Kenaga Residues For RQ Calculation

Chemical Name:	Malathion
Use	Citrus
Formulation	0
Application Rate	7.5 lbs a.i./acre
Half-life	6.1 days
Application Interval	0 days
Maximum # Apps./Year	1
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	Ring-necked pheasant	LD50 (mg/kg-bw)	167.00
	panese quail (juvenile)	LC50 (mg/kg-diet)	2128.00
	Mallard duck	NOAEL(mg/kg-bw)	0.00
	Mallard duck	NOAEC (mg/kg-diet)	110.00

Dietary-based EECs (ppm)	Kenaga Values
Short Grass	1800.00
Tall Grass	825.00
Broadleaf plants/sm Insects	1012.50
Fruits/pods/seeds/lg insects	112.50
Small herbivore mammals	4930.16
Medium herbivore mammal	1806.60
Large herbivore mammal	662.00
Small insectivore mammals	308.13
Medium Insectivorous mammal	112.91
Large Insectivorous mammal	41.38
Small terrestrial phase amphibians	61.65
Medium terrestrial phase amphibians	36.56
Large terrestrial phase amphibians	21.67

Terrestrial Herpetofauna Results

Weight Class	Body Weight (g)	Ingestion (Fdry) (g bw/day)	Ingestion (Fwet) (g/day)	% body wgt consumed	FI (kg-diet/day)
Small	2	0.022	0.1	3.2	6.35E-05
Mid	20	0.132	0.7	3.3	6.59E-04
Large	200	0.781	3.9	2.0	3.90E-03

Body Weight (g)	Adjusted LD50 (mg/kg-bw)
2	136.84
20	147.41
200	158.79

Dose-based EECs (mg/kg-bw)	Herpetofaunal Size Classes and Body Weights		
	small (g)	mid (g)	large (g)
	2	20	200
Short Grass	57.12	59.27	35.14
Tall Grass	26.18	27.17	16.11
Broadleaf plants/sm Insects	32.13	33.34	19.77
Fruits/pods/seeds/lg insects	3.57	3.70	2.20
Herbivore mammals	3286.77	1204.40	441.34
Insectivore mammals	205.42	75.27	27.58
Reptile/Terrestrial phase amphibian	41.10	24.37	14.45

Dose-based RQs (Dose-based EEC/adjusted LD50)	Amphibian/Reptile Acute RQs for Small, Medium, and Large Species (grams)		
	2	20	200
Short Grass	0.42	0.40	0.22
Tall Grass	0.19	0.18	0.10
Broadleaf plants/sm insects	0.23	0.23	0.12
Fruits/pods/seeds/lg insects	0.03	0.03	0.01
Herbivore mammals	24.02	8.17	2.78
Insectivore mammals	1.50	0.51	0.17
Terrestrial phase amphibian	0.30	0.17	0.09

Dietary-based RQs (Dietary-based EEC/LC50 or NOAEC)	RQs	
	Acute	Chronic
Short Grass	0.85	16.36
Tall Grass	0.39	7.50
Broadleaf plants/sm Insects	0.48	9.20
Fruits/pods/seeds/lg insects	0.05	1.02
Herbivore mammals	0.85	16.42
Insectivore mammals	0.05	1.03
Terrestrial phase amphibian	0.02	0.33

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