vian LD_{50}
dj. $LD_{50} = LD_{50}(AW/TW)^{(x-1)}$
Iammal LD_{50}
dj. $LD_{50} = LD_{50}(TW/AW)^{(0.25)}$
mmal NOAEL
dj. NOAEL = NOAEL (TW / AW)$^{(0.25)}$
e :
dj. $LD_{50} = adjustedLD_{50}$
$_0$ = *acute endpoint reported from bird or mammal study*
= *body weight of tested animal*(178*g bobwhite*; 1580*g mallard*; 350*g rat*)
= *body weight of assessed animal*(*avian* : 20*g*, 100*g*, 1000*g*; *mammals* : 15*g*, 35*g*, 1000*g*)
Mineau scaling factor for birds; *EFED default* 1.15
athbfScaling Factors
following scaling factors (USEPA, 1993) used in the consumption-weighted EECs are:
n consumption
$(0.648 * BW^{0.651})/(1 - W)$
mmal consumption
$(0.621 * BW^{0.564})/(1 - W)$
e :
food intake in grams of fresh weight per day
= *body mass of animal*(*avian* : 20*g*, 100*g*, 1000*g*; *mammal* : 15*g*, 35*g*, 1000*g*)
mass fraction of water in the food(0.8 *for herbivores and insectivores*, 0.1 *for granivores*)
Q Formulas Using Upper Bound Kenaga (EEC) Residues or Mean Kenaga Residues
EC equivalent dose (mg/kg-bw) = upper bound EEC*(% body weight consumed/100)
n
-based RQs = EEC equivalent dose / adjusted LD50
ary-based RQs
e: EEC / LC50
nic: EEC / NOAEC
mal
Dose-based RQs = EEC equivalent dose / adjusted N0AEL
Dietary-based RQs
cute: EEC / LC50
nic: EEC / NOEAC
***LD*$_{50}$ ft^{-2}**
Exposure Values
Banded granular applications
ng a.i. ft^{-2} = (*application rate x % a.i. x* 453, 590 *mg/lb*)/(*no. of rows*A^{-1}*x row length x bandwidth*)
xposed mg a.i. ft^{-2} = *mga.i.*ft^{-2}*x % unincorporation*
ded liquid applications
ng a.i. ft^{-2} = (*mg a.i.* 1000 ft^{-1} *row*)/(1000 $ft \times$ *bandwidth*)
xposed mg a.i. ft^{-2} = *mg a.i.* ft^{-2-2}*x % unincorporation*
adcast granular applications
ng a.i. ft^{-2} = (*application rate* $\times$ %*a.i.* $\times$ 453, 590*mg/lb*)/43, 560 $ft^2 acre^{-1}$
Broadcast liquid applications
.i. ft^{-2} = (*fl oz product* $A^{-1} \times$ 28349 *mg/oz* $\times$ % *a.i.*)/43, 560$ft^{-2} acre^{-1}$
$_0$ ft^{-2} Calculations
D_{50} ft^{-2} (*Avian*) = (*Exposed mg a.i.* ft^{-2})/(*Adjusted* $LD_{50} \times .02$)
D_{50} ft^{-2} (*Mammal*) = ((*Exposed mg a.i.* ft^{-2})/(*Adjusted* $LD_{50} \times .015$)
leed Treatments
ximum Seed Application Rate (mg a.i./kg seed) = (Application rate $\times$2.2 106)/(100 $\times$ 2.2) =

lication rate $\times 10,000$)

pplication Rate (lbs a.i./cwt) = (Application rate (fl oz/cwt) $\times$*decimal % of a.i. in formulation*)/128 *fl oz/ gallon*)$\times$
ity of product (*lbs/gallon*)
imum Application Rate(*lbs a.i./A*) = (*Maximum seeding rate*$\times$*application rate*(*lbs a.i./cwt*))/100 *lbs/cwt*
Avian and Mammalian Nagy Dose (mg a.i. /kg − bw) = (daily food intake g/day $\times$0.001 $kg/g \times$
imum seed application rate($mg/kg - seed$)/*body weight of animal* (kg)
vailable a.i. (mg a.i. /ft^2) = *The amount of available pesticide is calculated by converting the maximum application in lbs acre*$^{-1}$ *to mg a.i./*ft^2, *using the following equation* :
Maximum application rate (lbs/Acre)$\times$ 10^6 mg/kg)/(43,560 *square feet/acre* $\times$ 2.2 lb/kg)

cute and Chronic RQs
cute RQ ♯ 1 = (*Avian or Mammal*) *Nagy Dose* /(*adjusted LD*50)
cute RQ ♯ 2 = *Available a.i.*/(*Adjusted LD*50 $*$ *kg body weight*)
****

ulation of Dietary Concentrations on Selected Food Items
$_t = C_0 e^{-kt}$
r in natural log form:
n(C$_t$) = $ln(C_0)(-kt)$
Where:
$_t$ = *concentration, parts per million* (*ppm*), *at time T.*
$_0$ = *concentration* (*ppm*), *present initially* (*on day zero*) *on the surface of selected food items.*
alculating EEC Equivalent Dose s Based on Estimated Dietary Concentrations on Selected Avian Mammalian Food Items
ulating Food Intake for Different Size Classes of Birds and Mammals
vian consumption
= (0.648 * BW$^{0.651}$)/(1 − W)
here:
= food intake in grams of fresh weight per day (g/day)
W = body mass of animal (g)
V = mass fraction of water in the food (EFED value = 0.8 for herbivores and insectivores, for granivores)
Iammalian food consumption (g/day)
= (0.621 * BW$^{0.564}$)/(1 − W)
here:
= food intake in grams of fresh weight per day (g/day)
W = body mass of animal (g)
V = mass fraction of water in the food (EFED value = 0.8 for herbivores and insectivores, 0.1 granivores)
alculating Adjusted Toxicity Values
sted avian LD$_{50}$:
dj. LD$_{50}$ = $LD_{50}(AW/TW)^{(x-1)}$
here:
dj. LD$_{50}$ = *adjusted* LD_{50} ($mg/kg - bw$) *calculated by the equation*
D$_{50}$ = *endpoint reported from bird study* ($mg/kg - bw$)
W = body weight of tested animal (178g bobwhite; 1580g mallard)
W = body weight of assessed animal (avian: 20g, 100g, and 1000g)
= Mineau scaling factor for birds; EFED default 1.15
djusted mammalian NOAELs and LD$_{50s}$ (*note that the sameequation is used to adjust the NOAEL*) :
dj. NOAEL or LD$_{50}$ = *NOAEL or* $LD_{50}(TW/AW)(0.25)$
here:
dj. NOAEL or LD$_{50}$ = *adjusted NOAEL or* LD_{50} ($mg/kg - bw$)
OAEL or LD$_{50}$ = *endpoint reported from mammal study* ($mg/kg - bw$)
W = body weight of tested animal (350g rat)

W = body weight of assessed animal (15g, 35g, 1000g)