



4°

# CORSO REGIONALE SUI PRODOTTI FITOSANITARI

15 NOVEMBRE | 27 NOVEMBRE 2018  
Palazzo Grandi Stazioni – Sala Polifunzionale | VENEZIA

**I prodotti fitosanitari di maggior utilizzo: impatto sulla salute dei residenti e dei consumatori**

*Relatore*  
*Francesca Metruccio – ICPS*

- Cenni di tossicologia
- Rame, lambda cyhalotrina, metolachlor, pendimethanil: effetti sugli animali
- Valutazione del rischio residenti e consumatori

- Cenni di tossicologia
- Rame, lambda cyhalotrina, metolachlor, pendimethanil: effetti sugli animali
- Valutazione del rischio residenti e consumatori

# STUDI TOSSICOLOGICI E SUL METABOLISMO

**STUDI SULL'ASSORBIMENTO, DISTRIBUZIONE, ESCREZIONE E METABOLISMO NEI MAMMIFERI**



## TOSSICITA' ACUTA

Orale  
Cutanea  
Inalatoria  
Irritazione cutanea  
Irritazione oculare  
Sensibilizzazione cutanea

## TOSSICITA' A BREVE TERMINE

Studio di tossicità orale a 28 giorni.  
Studio di tossicità orale a 90 giorni.

## GENOTOSSICITA'

Studi in vitro.  
Studi in vivo su cellule somatiche

## TOSSICITA' SULLA RIPRODUZIONE

Studi multigenerazionali.  
Studi di tossicità sullo sviluppo

## TOSSICITA' A LUNGO TERMINE E CANCEROGENESI

## ALTRI STUDI TOSSICOLOGICI

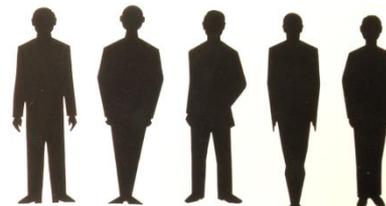
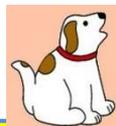
Studi di tossicità dei metaboliti  
Studi supplementari sulla sostanza attiva

## STUDI DI NEUROTOSSICITA' TARDIVA

## STUDI DI NEUROTOSSICITA' ACUTA

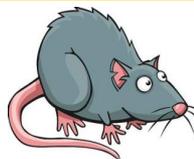
## STUDI DI ASSORBIMENTO CUTANEO

## DATI CLINICI



# STUDI TOSSICOLOGICI E SUL METABOLISMO

**STUDI SULL'ASSORBIMENTO, DISTRIBUZIONE, ESCREZIONE E METABOLISMO NEI MAMMIFERI**



## TOSSICITA' ACUTA

Orale  
Cutanea  
Inalatoria



Irritazione cutanea  
Irritazione oculare  
Sensibilizzazione cutanea

## TOSSICITA' A BREVE TERMINE

Studio di tossicità orale a 28 giorni.  
Studio di tossicità orale a 90 giorni.



STOT



STOT

## GENOTOSSICITA'

Studi in vitro.  
Studi in vivo su cellule somatiche

MUT.



## TOSSICITA' SULLA RIPRODUZIONE

Studi multigenerazionali.  
Studi di tossicità sullo sviluppo

REPR.



## TOSSICITA' A LUNGO TERMINE E CANCEROGENESI



STOT



CANC

## ALTRI STUDI TOSSICOLOGICI

Studi di tossicità dei metaboliti  
Studi supplementari sulla sostanza attiva

## STUDI DI NEUROTOSSICITA' TARDIVA

## STUDI DI NEUROTOSSICITA' ACUTA

## STUDI DI ASSORBIMENTO CUTANEO

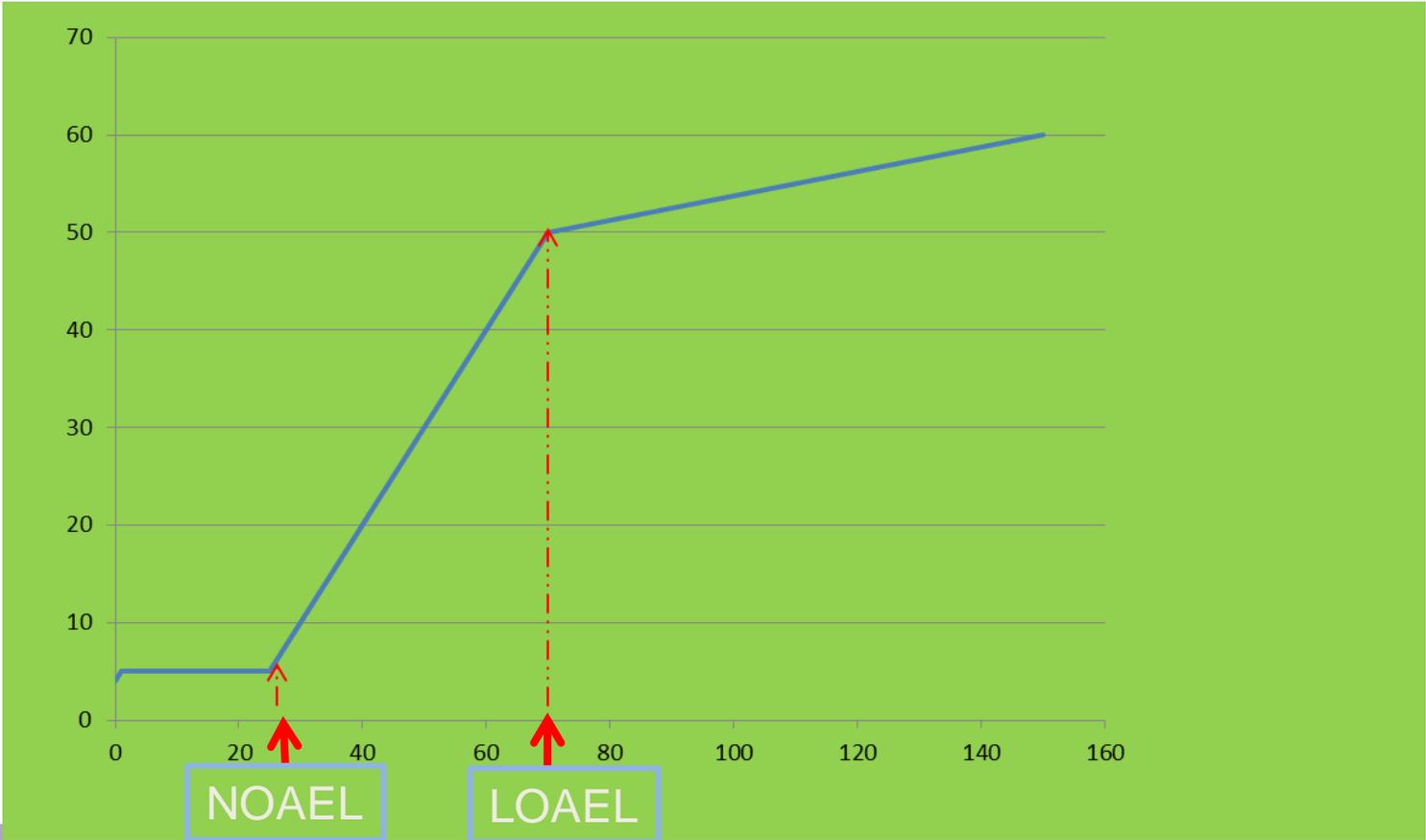


STOT

**DATI CLINICI**

# Curva dose-risposta

RISPOSTA %



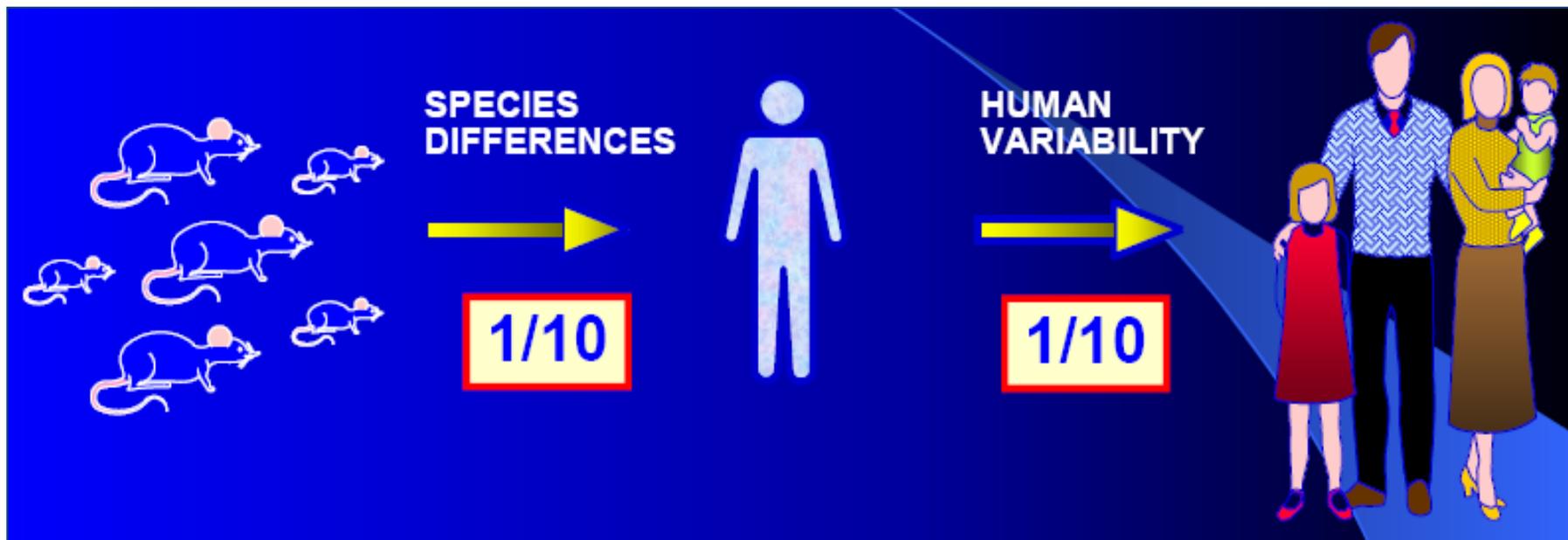
DOSE

dose (mg/giorno)	% ratti con steatosi epatica
0	4
1	5
5	5
10	5
25	5
70	50
150	60

# VALORI DI RIFERIMENTO

ADI  
AOEL  
ARfD

$$= \frac{\text{NOEL}}{\text{SF}}$$



**SF:** fattore di sicurezza intraspecie, interspecie, per tenere conto delle incertezze dovute all'estrapolazione dei dati

- Cenni di tossicologia
- Rame, lambda cyhalotrina, metolachlor, pendimethanil: effetti sugli animali
- Valutazione del rischio residenti e consumatori

# Copper (EFSA CONCLUSION 2017)

## TOXICITY AND METABOLISM

**Metabolism:** human diets naturally include between 1 and 2 mg person per day of copper.  
 Oral absorption of copper varies according to the copper content of the diet between 12% and 56%.



**Acute toxicity:**

Rat LD50 oral

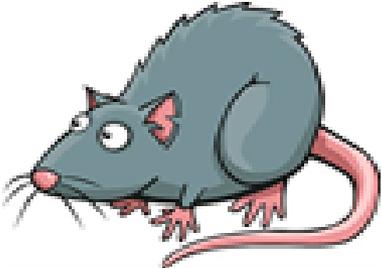
Copper hydroxide:	489 mg/kg bw	H302
Copper oxychloride:	299 mg/kg bw	H301
Bordeaux Mixture:	>2000 mg/kg bw	
Tribasic copper sulphate:	300-500 mg/kg bw	H302
Copper (I) oxide:	300-500 mg/kg bw	H302

Eye irritation

Copper hydroxide:	Irritating Cat. 1	H318
Copper oxychloride:	Not irritating	
Bordeaux Mixture:	Irritating Cat. 1	H318
Tribasic copper sulphate:	Not irritating	
Copper (I) oxide:	Irritating Cat. 1	H318



- Genotoxicity :** not mutagenic
- Reproductive toxicity:** not reprotoxic
- Carcinogenicity :** not carcinogenic
- No Endocrine disrupting properties**



# Copper (EFSA CONCLUSION 2017)

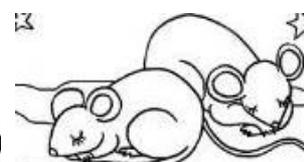
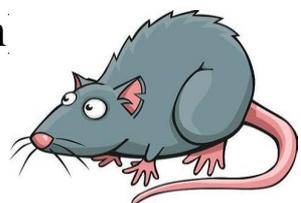
## TOXICITY AND METABOLISM

**Short term Toxicity:** Target organs of excess of copper intake are the liver (inflammation), kidneys (histopathological changes) and hyperplasia and hyperkeratosis of the stomach and haematological changes in rats, while mice are less sensitive,



### Long term Toxicity:

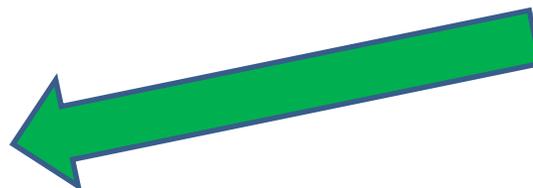
liver (hypertrophied hyperchromatic parenchymal cells, necrosis and marked inflammatory reaction) kidneys (changes on the proximal convoluted tubule)



**ADI = 0.15 mg Cu/kg bw per day**

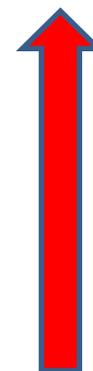
**AOEL = 0.08 mg Cu/kg bw per day.**

**ARfD = not necessary**



# Copper (EFSA CONCLUSION 2017)

Crop and/or situation (a)	Member State	Product Name	F C I (b)	Pests or group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks (m)
					Type (d-f)	Conc of a.i. g/kg (i)	Method kind (f-h)	Growth stage and season (j)	Number min max (k) a) per use b) per crop/season	Interval between applications (min)	Kg a.i./hl min max (g/hl)	Water l/ha min max	kg a.i./ha a) max. rate per appl. b) max. total rate per crop/season		
Grape	C/S	Funguran-OH	F	<i>Bacterial necrosis Elsinoë ampelina</i>	WP	500	Airblast sprayer	BBCH 91 - 11	a) 3 b) 3	21 days	n.a.	400-1000	a) 1.25 b) 3.75	90	
Grape	C/S	Funguran-OH	F	<i>Plasmopara viticola, Elsinoë ampelina</i>	WP	500	Airblast sprayer Knapsack Sprayer	BBCH 12 - 89	a) 8 b) 8	7 days	n.a.	100-1200	a) 1.25 b) 6.0	21	Annual application must not exceed 5 kg/ha during the bird breeding season
Tomato	C/S	Funguran-OH	F	<i>Phytophthora spp Alternaria, Colletotrichum, Pseudomonas, Xanthomonas</i>	WP	500	Foliar spray	BBCH 12 - 89	a) 8 b) 8	7 days	n.a.	200-1000	a) 0.85 b) 6.0	3	Annual application must not exceed 5 kg/ha during the bird breeding season RMS remarks: No Northern trials were available.
Tomato	C/S	Funguran-OH	G	<i>Phytophthora spp Alternaria, Colletotrichum, Pseudomonas, Xanthomonas</i>	WP	500	Foliar spray	BBCH 12 - 89	a) 8 b) 8	7 days	n.a.	200-1000	a) 1.25 b) 6.0	3	Annual application must not exceed 5 kg/ha during the bird breeding season



## BYSTANDERS

no concerns for

## RESIDENTS:

residents (child) exposure may exceed the AOEL already after three applications in grapes and 21 days interval or eight applications in grapes and 7 days interval according to the EFSA calculator.



## CONSUMER

No chronic or acute intake concerns were identified: 72.3% of the ADI.

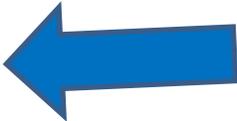
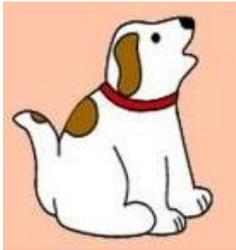
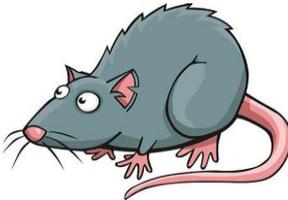
In addition to food of plant and animal origin, the consumer exposure that would result from copper present in drinking water was also estimated. The calculated exposures range between 0.62% and 15.1% of the ADI when considering median and average concentrations of copper in tap water and the water consumption data recommended by the WHO.



# Lambda-cyhalothrin (EFSA CONCLUSION 2014)

## TOXICITY AND METABOLISM

**Metabolism:** rapidly but incompletely absorbed (25 % in rat and 50 % in dogs ).

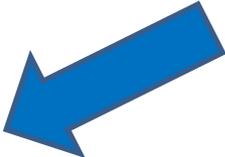
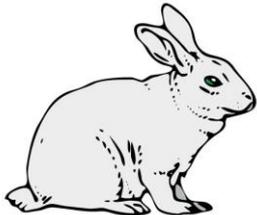
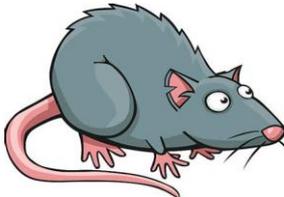


**Acute toxicity:**

- H300 (mouse):** Fatal if swallowed
- H301 (rat):** Toxic if swallowed
- H311:** Toxic in contact with skin
- H330:** Fatal if inhaled
- H317:** May cause allergic skin reaction



- Genotoxicity :** not mutagenic
- Reproductive toxicity:** not reprotoxic
- Carcinogenicity :** not carcinogenic
- Endocrine disrupting properties ?**

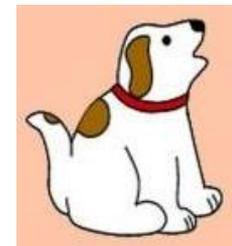


# Lambda-cyhalothrin (EFSA CONCLUSION 2014)

## TOXICITY AND METABOLISM

**Short term Toxicity:** Clinical signs of neurotoxicity characteristics of poisoning by type II pyrethroids (such as salivation, incoordination, postural abnormalities, hyperexcitability, tremors)

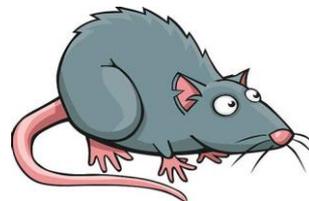
Dogs appear to be more sensitive



### Long term Toxicity:

Rat: Reduced bw gain, increased liver weight and clinical chemistry changes;

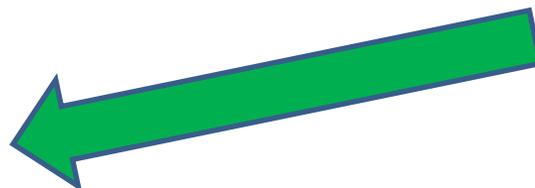
Mouse: CNS (clinical signs of neurotoxicity), reduced bw gain



**ADI = 0.0025 mg/kg bw per day**

**AOEL = 0.00063 mg/kg bw per day**

**ARfD = 0.005 mg/kg bw**



# Lambda-cyhalothrin (EFSA CONCLUSION 2014)

(a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (day) (l)	Remarks: (m)
					Type (d-f)	Conc. of a.s. (i)	method kind (f-h)	growth stage & season (i)	number min max (k)	interval between applications (min)	g a.s./hL min max	water L/ha min max	g a.s./ha min max		

Spring Wheat	EU-N	Karate 10CS Kaiso sorbie	F	Cereal aphids (Sitobio, Rhopalosiphon padi, Metapolophium etc) Aphids as virus vectors	CS EG	100 g/L 50 g/kg	foliar spray	BBCH 10-85	2	18	1.25-3,75	200-600	7.5	The last application should be made no later than at growth stage BBCH 83-85  STF
Winter Wheat	EU-N	Karate 10CS Kaiso sorbie	F	Psammotettix alienus (Wheat dwarf virus vector), Zabrus, Oulemma, Delia sp., Gall midges (Sitodiplosis and Contarina sp.) and thrips.	CS EG	100 g/L 50 g/kg	foliar spray	BBCH 10-85	2	18	1.25-3,75	200-600	7.5	



# Lambda-cyhalothrin (EFSA CONCLUSION 2014)

## RESIDENT and consumers RISK ASSESSMENT

### BYSTANDERS

no concerns for: cereals, potatoes and tomatoes outdoor.

No concerns only under certain conditions: orchard

### RESIDENTS:

No concerns at a minimum distance of 10 m from the spray application



### CONSUMER

No chronic or acute intake concerns were identified: 10.8 % of ADI

46.5 % of ARfD for tomatoes, BE child.



# S-Metolachlor (EC CONCLUSION 2004)

**Metabolism:** The substance undergoes extensive and rapid metabolism

## Acute toxicity

Rat LD<sub>50</sub> oral:

Rat LD<sub>50</sub> dermal:

Rat LC<sub>50</sub> inhalation:

Skin irritation:

Eye irritation:

Skin sensitization (test method used and result):

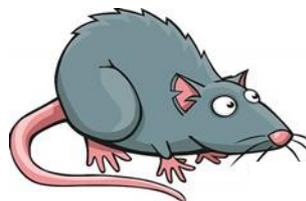
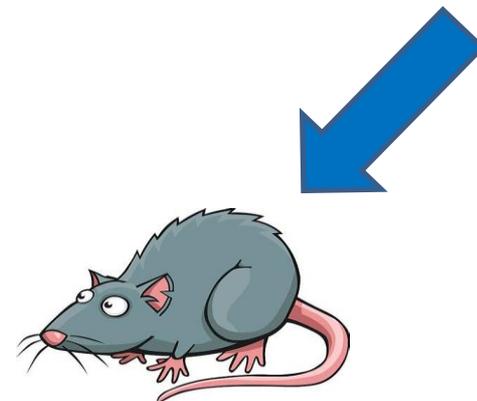
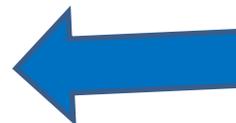
M :3267 mg/kg bw
F :2577 mg/kg bw
>2000 mg/kg bw
>2.91 mg/l air
not irritant
not irritant
Guinea Pig Maximization Test, Bühler: sensitising

**Genotoxicity :** not mutagenic

**Reproductive toxicity** Repr 2

**Carcinogenicity :** not carcinogenic

## TOXICITY AND METABOLISM

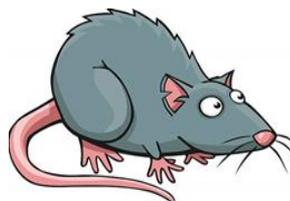


# S-Metolachlor (EC CONCLUSION 2004)

## TOXICITY AND METABOLISM

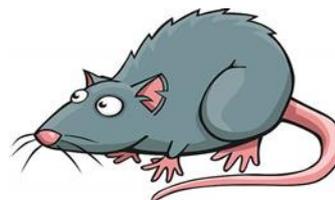
### Short term Toxicity:

The target organs is the **liver** (Alkaline Phosphatase, Liver weight change)



### Long term Toxicity:

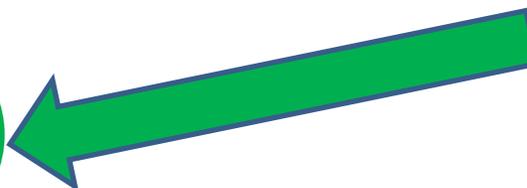
The target organs is the **liver** (liver focal changes, eosinophilic foci and neoplastic nodules )



**ADI = 0.1 mg/kg bw per day**

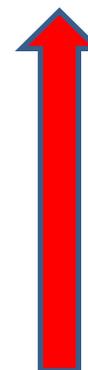
**AOEL = 0.15 mg/kg bw per day**

**ARfD = not necessary**



# S-Metolachlor (EC CONCLUSION 2004)

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks: (m)
					Type (d-f)	Conc. of as (i)	method kind (f-h)	growth stage & season (j)	number min max (k)	interval between applications (min)	kg as/hl min max	water l/ha min max	kg as/ha min max		
Maize	N/S	DUAL GOLD 960 EC	F	Annual weeds	EC	960 g/l	spray	BBCH 00-12 of the weeds, spring	1	-	0.200-0.600	300	0.58-1.54	NA	
Sweet corn	N/S	DUAL GOLD 960 EC	F	Annual weeds	EC	960 g/l	spray		1	-	0.200-0.600	300	0.58-1.54	NA	
Sorghum	S	DUAL GOLD 960 EC	F	Annual weeds	EC	960 g/l	spray		1	-	0.200-0.600	300	0.58-1.54	NA	
Sugar beets/beets	N/S	DUAL GOLD 960 EC	F	Annual weeds	EC	960 g/l	spray		1	-	0.200-0.600	300	0.58-1.2 1.5	NA	
Soybean	S	DUAL GOLD 960 EC	F	Annual weeds	EC	960 g/l	spray		1	-	0.200-0.600	300	0.58-1.54	NA	
Sunflower	S	DUAL GOLD 960 EC	F	Annual weeds	EC	960 g/l	spray		1	-	0.200-0.600	300	0.58-1.54	NA	
Potato	S	DUAL GOLD 960 EC	F	Annual weeds	EC	960 g/l	spray		1	-	0.200-0.600	300	0.58-1.54	NA	



# S-Metolachlor (EC CONCLUSION 2004)

## RESIDENT and consumers RISK ASSESSMENT

### BYSTANDERS

no concerns

### RESIDENTS:

Not performed



### CONSUMER

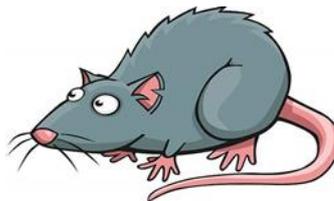
**0.0458 % of the Acceptable Daily Intake (ADI)**

current limited use pattern

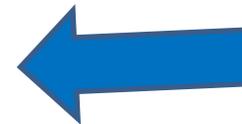


# Pendimethalin (EFSA CONCLUSION 2016)

**Metabolism:** The substance undergoes extensive metabolism and is mostly excreted within 96 hours. Bioavailability 57%



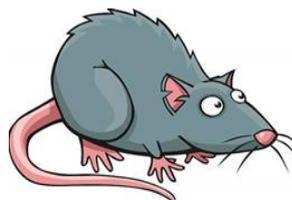
## TOXICITY AND METABOLISM



### Acute toxicity:

**Not acutely toxic by oral, dermal, inhalation route**

**H317:** May cause allergic skin reaction



**Genotoxicity :** not mutagenic

**Reproductive toxicity:** Repr 2

**Carcinogenicity :** not carcinogenic

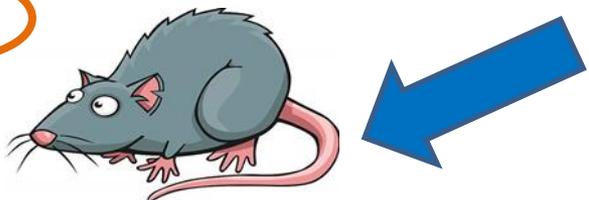


# Pendimethalin (EFSA CONCLUSION 2016)

## TOXICITY AND METABOLISM

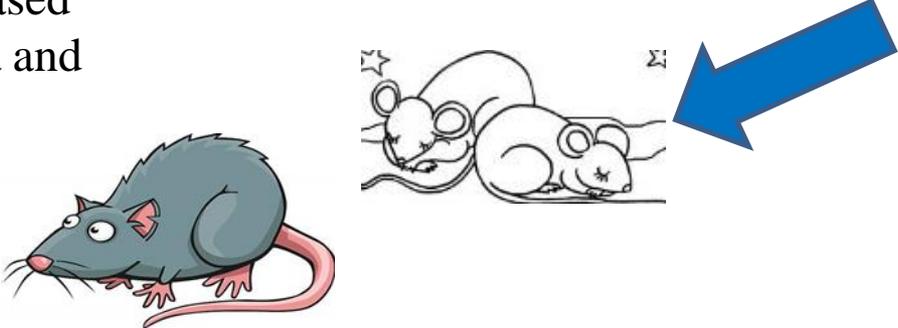
### Short term Toxicity:

The target organs of pendimethalin are the **liver** (increased weight and alkaline phosphatase, and histopathological changes) in all species tested and the **thyroid** (increased weight, histopathological changes) in rats.



### Long term Toxicity:

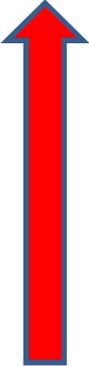
Long term exposure to rats produced an increased incidence of **thyroid** follicular cell hyperplasia and follicular adenoma  
low relevance to humans. no classification



**ADI = 0.125 mg/kg bw per day**  
**AOEL = 0.17 mg/kg bw per day**  
**ARfD = 0.3 mg/kg bw**

# Pendimethalin (EFSA CONCLUSION 2016)

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks: (m)
					Type (d-f)	Conc. of as g/L (i)	Method Kind (f-h)	Growth stage & season (j)	Number max (k)	interval between applications (min)	L Product/ha max	water L/ha min max	g as/ha max		
Wheat (represents small grain cereals)	AT, BE, CZ, DK, DE, GR, IT, IE, LU, PT, SI, ES, UK	Stomp aqua	F	Broadleaved weeds and grasses	CS	455	spray	pre- or post-em (BBCH 00-29) autumn	1	-	3.5	100-400	1593	n.a.	
Carrot	AT, BE, CZ, DK, ET, DE, GR, IT, IE, LV, LT, LU, PO, PT, SI, ES, UK	Stomp aqua	F	Broadleaved weeds and grasses	CS	455	spray	pre- or post-em (BBCH 00-14)	1	-	3.5	100-600	1593	42	



# Pendimethalin (EFSA CONCLUSION 2016)

## RESIDENT and consumers RISK ASSESSMENT

### BYSTANDERS

no concerns

### RESIDENTS:

No concerns



### CONSUMER

No chronic or acute intake concerns were identified

1.4% ADI (FR toddler)

5.7% of the ARfD (carrots)

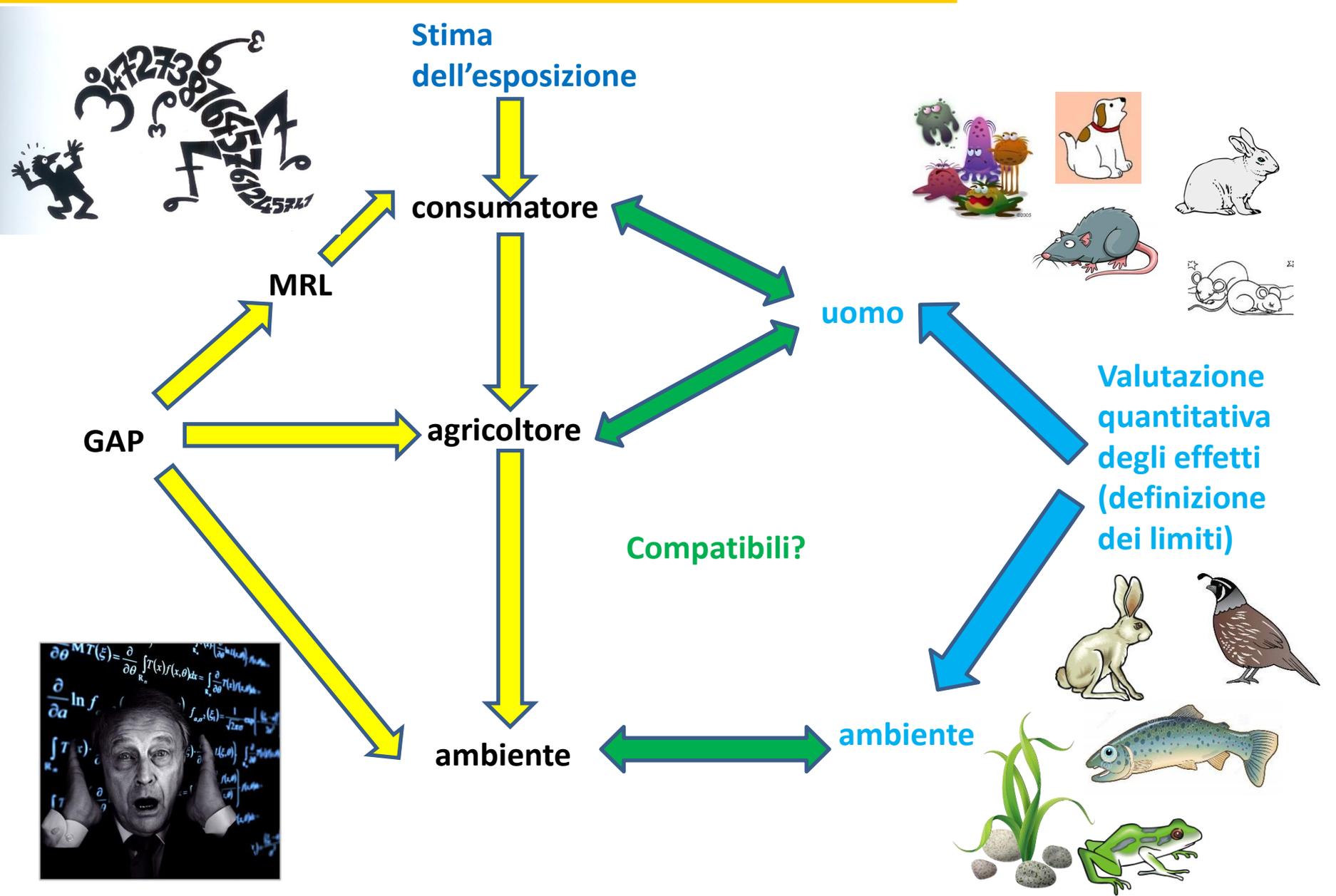


# Confronto

substance	ADI	AOEL	ARfD	Resident	Consumer
Copper	0,15	0,08	Not necess.	Child!	Ok
Lambda-chyalthrin	0,0025	0,00063	0,005	10 m	Ok
Metolachlor	0,1	0,15	Not necess.	na	Ok
Pendimathanil	0,125	0,17	0,3	Ok	Ok

- Introduzione
- Cenni di tossicologia
- Rame, lambda cyhalotrina, metolachlor, pendimethanil: effetti sugli animali
- **Valutazione del rischio residenti e consumatori**

# VALUTAZIONE DEL RISCHIO

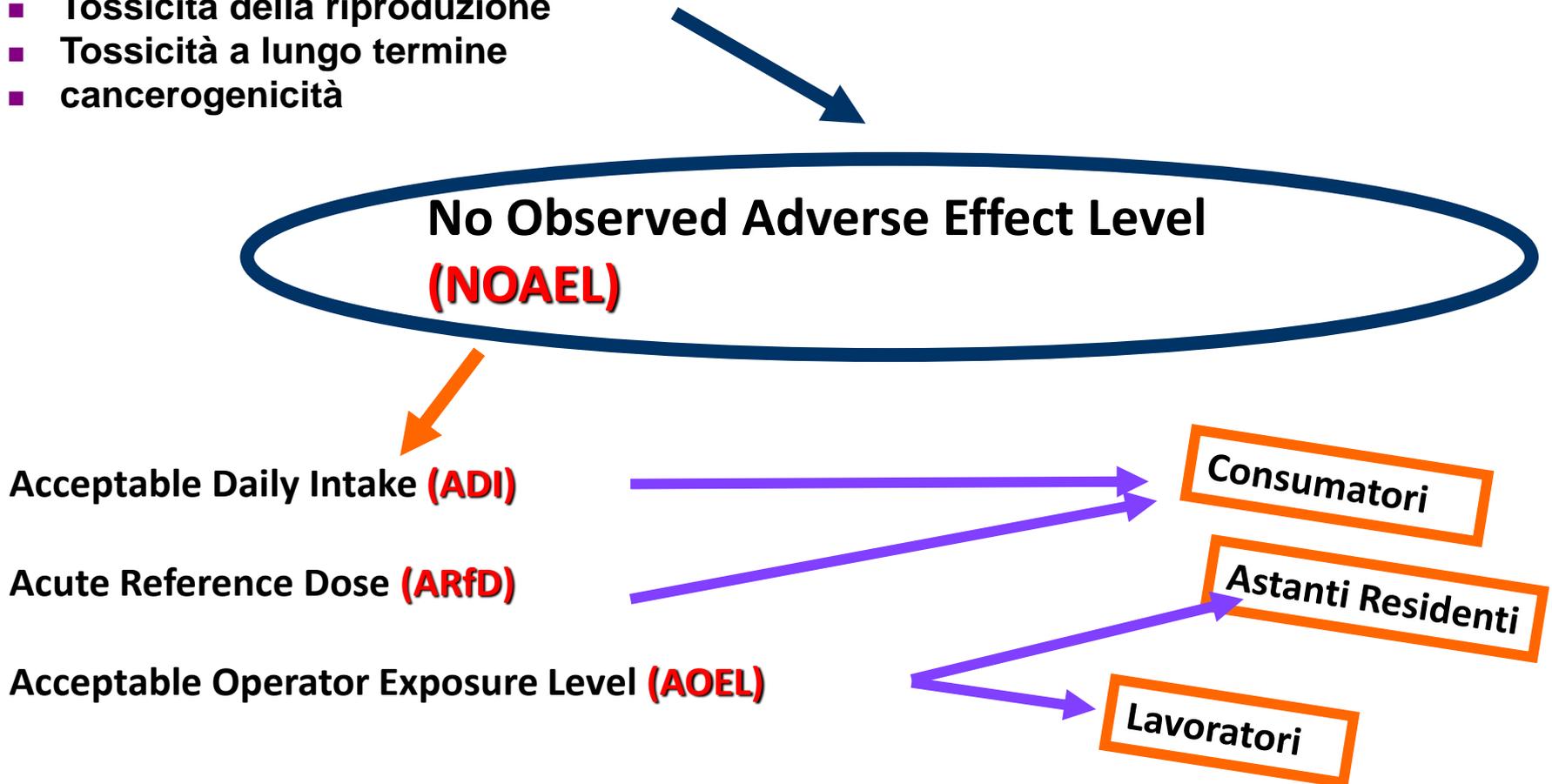


- Introduzione
- Cenni di tossicologia
- Rame, lambda cyhalotrina, metolachlor, pendimethanil: effetti sugli animali
- **Valutazione del rischio** residenti e consumatori

# Impatto salute umana

## ■ Test tossicologici

- Assorbimento e metabolismo
- Tossicità acuta
- Tossicità a breve termine
- Genotossicità
- Tossicità della riproduzione
- Tossicità a lungo termine
- cancerogenicità



# Limite Massimo di Residuo (LMR o MRL)

- NON è un limite “sanitario”
- È un limite basato sulle “buone pratiche agricole” (GAP)

PERO’

- Deve essere compatibile con la salute
  - Dell’uomo
  - Dell’animale
  - Dell’ambiente

# Come stimare l'assunzione attraverso la dieta

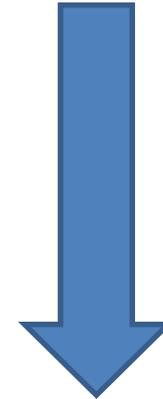
- Informazioni sulla **dieta**

- Quali alimenti
- Quantità
- Frequenza

Informazioni sulla dieta mediante sondaggi  
([www.inran.it/files/download/INRAN-SCAI/](http://www.inran.it/files/download/INRAN-SCAI/))



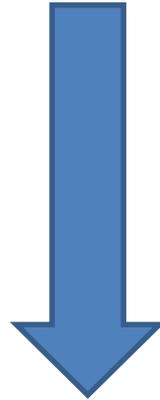
Espressi in grammi di derrata  
per kg di peso corporeo



- Consumi medi giornalieri
- Consumi di picco giornalieri
- Distribuzione dei consumi (grandi e piccoli consumatori)
- Distribuzione per fasce d'età

# Come stimare l'assunzione attraverso la dieta

Informazioni sulla **concentrazione dei contaminanti** nelle derrate  
– Trasformazioni delle derrate in alimenti



Espressi in mg per kg di  
derrata

- Concentrazioni medie
- Distribuzione delle concentrazioni

# Stime deterministiche



- CONSUMI: media (eventualmente per fasce d'età)
- CONCENTRAZIONI: media / mediana / massima

## PRIMO – Pesticide Residue Intake Model

**Input values for dietary risk assessment**
Reset
Allow expand/collaps function (+)

Results - Overview

Details - acute risk assessment/children

Details - acute risk assessment/adults

Details - chronic risk assessment

Active substance:			
ADI (value, unit, source, year of assessment)		mg/kg bw per day	
ARfD (value, unit, source, year of assessment)		mg/kg bw	
Residue definition: enforcement / plants (unprocessed)		enf. plants (processed)	
Residue definition: enforcement / animals (unprocessed)		enf. animals (processed)	not fat soluble
Residue definition: risk assessment / plants (unprocessed)		RA plants (processed)	
Residue definition: risk assessment / animals (unprocessed)		RA animals (processed)	
<b>Normal mode</b>	All commodities for which input values are inserted in the input table below (i.e. MRL, HR and/or STMFR) are considered in the exposure calculations.		<a href="#">Show results for all crops</a>

Level	Code no.	Commodity or group of commodities to which the MRLs apply	Source / type of MFL	MRL/ proposed MFL /CXL (mg/kg)	LOQ	CF <sub>res</sub> for residue definition	PaF (peeling factor RD enforcement)	STMR-RAC (median residue)	HR-RAC (highest residue)	VF (alternative variability factor)	GAP under assessment	Post-harvest treatment	Chronic RA label	Chronic RA input value	Acute RA label	Acute RA input value	Acute RA IESTI new label	Acute RA IESTI new input value	Comment
1	100000	FRUIT AND TREE NUTS																	
2	110000	Citrus fruit																	
4	110010	Grapefruits																	
4	110020	Oranges																	
4	110030	Lemons																	
4	110040	Limes																	
4	110050	Mandarins																	
4	110990	Other citrus fruit																	
2	120000	Tree nuts																	
4	120010	Almonds																	
4	120020	Brazil nuts																	
4	120030	Cashew nuts																	

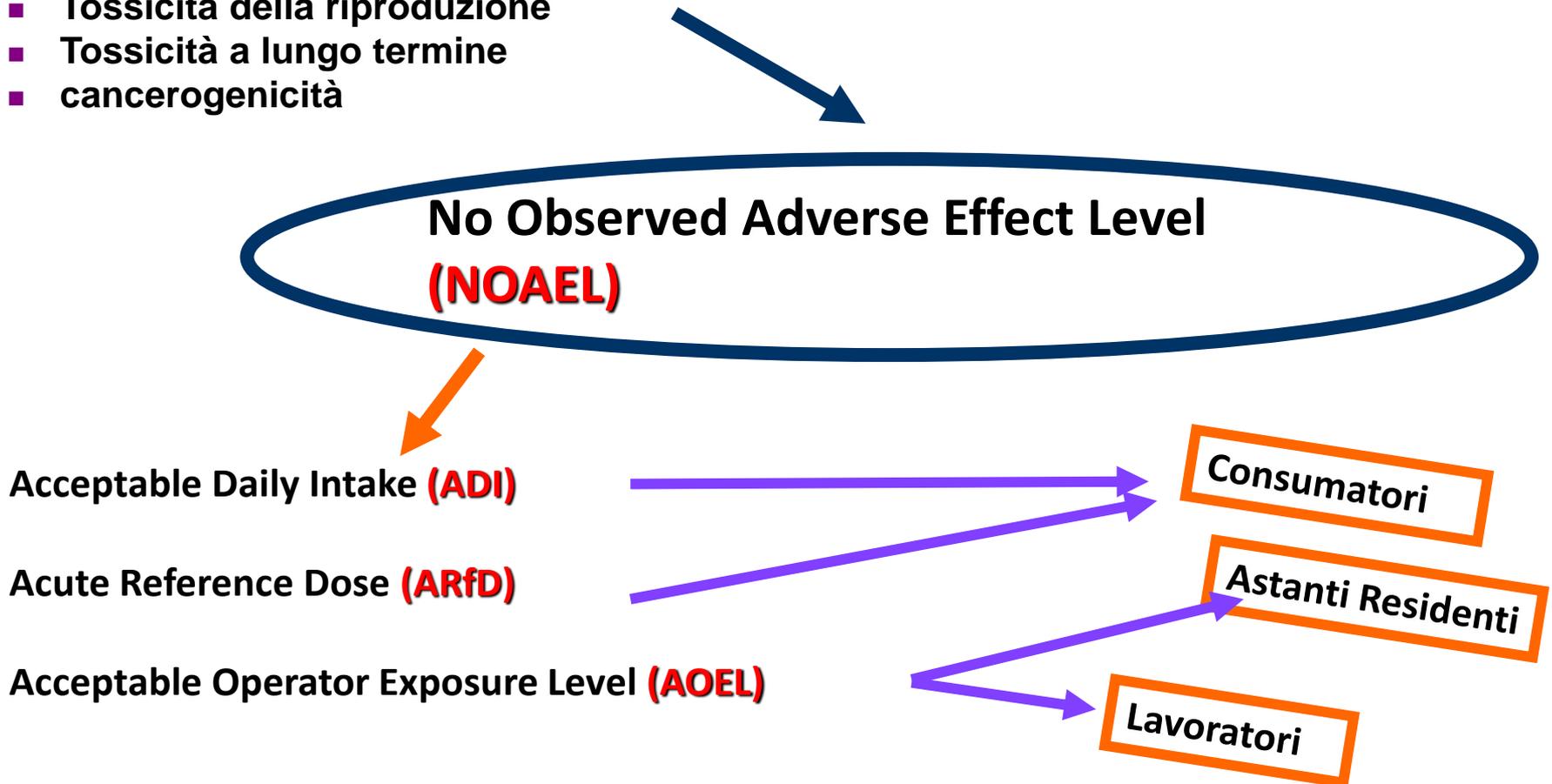
Background information
input\_values
Results
Summary\_input\_values
Supplementing\_results\_chronic
chronic\_intake\_assessment
acute\_overview\_children
acute\_ove ...

- Introduzione
- Cenni di tossicologia
- Rame, lambda cyhalotrina, metolachlor, pendimethanil: effetti sugli animali
- **Valutazione del rischio residenti e consumatori**

# Impatto salute umana

## ■ Test tossicologici

- Assorbimento e metabolismo
- Tossicità acuta
- Tossicità a breve termine
- Genotossicità
- Tossicità della riproduzione
- Tossicità a lungo termine
- cancerogenicità



# Scenario residenti

4 vie di esposizione:

- spray drift (at the time of application)
- vapour (may occur after the PPP has been applied)
- surface deposits
- entry into treated crops.

Children's object to mouth transfer



Table 16: Dermal and inhalation exposures for residents (75<sup>th</sup> percentile from data on potential dermal and inhalational exposures) (adapted and amended from EFSA PPP Panel, 2010)

Method of application (distance from sprayer)	These values are the 75 <sup>th</sup> percentiles for residents (assuming average breathing rates for inhalation exposures)			
	Dermal (mL spray dilution/person)		Inhalation (mL spray dilution/person)	
	Adults	Children	Adults	Children
<b>Arable/ground boom sprayer</b>				
2 m	0.47	0.33	0.00010	0.00022
5 m	0.24	0.22	0.00009	0.00017
10 m	0.20	0.18	0.00009	0.00013
<b>Orchard/broadcast air assisted applications <sup>(a)</sup></b>				
2-3 m	n.a.	n.a.	n.a.	n.a.
5 m	5.63	1.689	0.0021	0.00164
10 m	5.63	1.689	0.0021	0.00164

Children's hand to mouth transfer



75<sup>o</sup> percentile 24 h



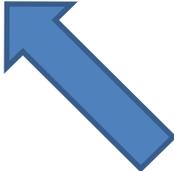
# Scenario astanti

4 vie di esposizione:

- spray drift (at the time of application)
- vapour (may occur after the PPP has been applied)
- surface deposits
- entry into treated crops.

Table 19: Dermal and inhalation exposures for bystanders (95<sup>th</sup> percentile) (adapted and amended from EFSA PPR Panel, 2010)

Method of application/distance from sprayer	95 <sup>th</sup> percentiles for bystanders (assuming high breathing rates for inhalation exposures)			
	Dermal (mL spray dilution/person)		Inhalation (mL spray dilution/person)	
	Adults	Children	Adults	Children
<b>Arable/ground boom sprayer</b>				
2 m	1.21	0.74	0.00050	0.00112
5 m	0.57	0.48	0.00048	0.00083
10 m	0.48	0.39	0.00051	0.00076
<b>Orchard/broadcast air assisted applications <sup>(a)</sup></b>				
2-3 m	n.a.	n.a.	n.a.	n.a.
5 m	12.9	3.87	0.0044	0.0035
10 m	12.9	3.87	0.0044	0.0035



95<sup>o</sup> percentile 2h

Children's object to mouth transfer

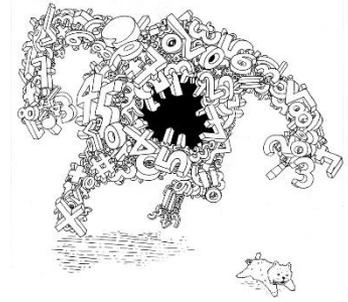


Children's hand to mouth transfer



18% correzione assorbimento cutaneo

# EFSA MODEL AOEM



EFSA\_model.xls - Excel

FILE HOME INSERISCI LAYOUT DI PAGINA FORMULE DATI REVISIONE VISUALIZZA

metruccio.francesca

Calibri 11 A A

Testo a capo

Generale

Formattazione condizionale

Formatta come tabella

Stili cella

Inserisci Elimina Formato

Celle

Somma automatica

Riempimento

Cancella

Ordina e filtra

Trova e seleziona

Modifica

i\_FormVal

Note: Some drop-down menus depend on others. To avoid errors, please fill-in from top to bottom

Substance name	
Product name	
Reference value non acutely toxic active substance (RVNAS)	mg/kg bw/day
Reference value acutely toxic active substance (RVAAS)	mg/kg bw/day
Crop type	
Substance properties	
Formulation type	
Minimum volume water for application (liquids)	L/ha
Maximum application rate of active substance	kg a.s./ha
50% Dissipation Time DT50	30 days
Initial Dislodgeable Foliar Residue	µg/cm <sup>2</sup> of foliage/kg a.s. applied/ha
Dermal absorption of product	100.00%
Dermal absorption of in-use dilution	100.00%
Oral absorption of active substance	100.00%
Inhalation absorption of active substance	100.00%
Vapour pressure of active substance	low volatile substances having a vapour pressure of <5*10 <sup>-3</sup> Pa
Scenario	
Indoor or Outdoor application	
Application method	
Application equipment	
Buffer strip	2-3 m
Number of applications	1
Interval between multiple applications	365 days
Season (upward spraying orchards only)	not relevant

Instructions Data entry Summary Operator Outdoor Spray AOEM Operator Granules Worker exposure Resident exposure Bystander exposure Recreational Exposure

PRONTO

