

**EXTRAPOLATION TABLE for EFFECTIVENESS of INSECTICIDES**  
**► PESTS ON CITRUS FRUIT**

**INTRODUCTION**

The table provides detailed lists of acceptable extrapolations organized by crop groups, for regulatory authorities and applicants, in the context of the registration of plant protection products for minor uses. The table should be used in conjunction with the EPPO Standard PP1/257(1) - *Efficacy and crop safety extrapolations for minor uses*. It is important to ensure that expert judgment and regulatory experience are employed when using these tables. EPPO excludes liability as to the reliability of the information provided through these tables.

The scope for extrapolation may be extended as data and experience with a certain plant protection product increases. The applicant should always provide appropriate justification and information to support the proposed extrapolation. For example, comparability of target biology may be a relevant factor, either in extrapolating to other target species or for the same target onto another crop. For crops, factors such as comparable growth habit, structure etc. should be considered.

**TABLE FORMAT**

The main pest species for the crop group are listed in Column 1 (although this is not exhaustive), and the pest group to which they belong is specified in Column 2. Companies may choose if they wish to provide data only for individual named species, which would then appear individually listed on the label. But underlined species have been identified as key major targets and as such it is advisable to generate data on these. Furthermore, data on these species then allow a claim to be made for the whole pest group (as specified in Column 2), if required. If a claim for the whole pest group is required but there is no underlined species, then data must be generated on all listed species.

Column 3 indicates the key indicator crop(s) for the crop group. In some instances this may be only one specified crop. In other cases, when separated by an 'or', the company may choose from a range of alternatives within the group. Data generated on crops in Column 3 may be used to extrapolate to all crops listed in Column 4. However, it is preferable to have data on several of the crops within the crop group, but data on the indicator crop should be available. In specific circumstances data from crops outside of the crop group highlighted by an asterisk in column 5 can replace the need for any data on the indicator crop in column 3.

Column 5 identifies whether relevant data on crops outside the crop group, against the same target, may help to reduce the amount of required data on the indicator crop. It may be possible for a direct extrapolation without the need for data on the indicator crop (marked with an asterisk (\*)). However, this is dependent on the extent of available data and similarity of crop/target biology. The company should provide an appropriate reasoned case when wanting to use data from crops outside the crop group.

Column 6 gives examples of acceptable extrapolations for a particular pest claim onto other minor use crops. This is not a comprehensive list. Whether extrapolation may be direct (no data, marked with an asterisk (\*)), or require additional supporting data on the minor use crop, will again be dependent on the extent and relevance of the existing database and companies should provide an appropriate reasoned case. If the crop is considered to be a major crop in some countries then it may not be appropriate to include in this column, and further data would be required. Companies will need to justify the status of the major crop/minor use.

**EXAMPLE OF HOW TO USE THE TABLE:**

Pests		Crops: within the Cucurbitaceae		Crops: outside Cucurbitaceae	
1	2	3	4	5	6
Pest species	Pest group name	Indicator crops	Extrapolation to other crops	Data from these crops can support the indicator crops (reduced data or no data *)	Extrapolation to crops (reduced or no data*)
<i>Delia platura</i> HYLEPL	Root and soil flies	Melon CUMME or Cucumber CUMSC	All crops within the crop group	Field bean VICFX, potato SOLTU, Soybean GLXMA, <i>Phaseolus</i> sp. PHSSS, spinach SPQOL, asparagus ASPOF, Allium vegetables	<i>Freesia</i> sp. FRESS, Allium vegetables, Asparagus ASPOF

**E.g. :** In the first row above, in order to support a claim for *Delia platura* on all Cucurbitaceae crops, data can be generated either on cucumber, or melon. The number of trials required on these crops can be reduced if there are existing relevant data for *Delia platura* on field bean or potato or soybean or *Phaseolus* spp. or spinach or asparagus or allium vegetables. Data on *Delia platura* generated on Cucurbitaceae can also be used to support claims on a minor use crop such as *Freesia*, Allium vegetables or Asparagus, but further additional data may be required. The company may also need to consider and justify the minor use status of the specified crop.

**EXTRAPOLATION REGARDING PROTECTED/OUTDOOR SITUATIONS**

Please note that where crops may be grown in both protected and field situations, and where significant differences are expected in pest relevance or crop agronomy between indoor and outdoor situations, it is important to generate a proportion of the data on crops grown in both situations to ensure the product has been tested under a suitable range of typical and challenging conditions.

**EXTRAPOLATION TABLE for EFFECTIVENESS of INSECTICIDES**

**► PESTS ON CITRUS FRUIT**

CIDPA Grapefruit *Citrus paradisi*, CIDSI Orange *Citrus sinensis*, CIDLI Lemon *Citrus limon*, CIDAF Lime *Citrus aurantifolia*, CIDRE Mandarin *Citrus reticulata sensu stricto*, FOLMA and FOLJA Kumquats *Fortunella margarita*, *F. japonica*

Pests		Crops: within the Citrus fruit		Crops: outside the Citrus fruit	
1 Pest species	2 Pest group name	3 Indicator crops	4 Extrapolation to other crops	5 Data from these crops can support the indicator crops (reduced data or no data *)	6 Extrapolation to crops (reduced or no data*)
<i>Eutetranychus</i> sp. EUTESP <i>Eutetranychus orientalis</i> EUTEOR	Tetranychidae	Orange CIDSI or Mandarin CIDRE or Lemon CIDLI	Any Citrus	Apple MABSD	Avocado PEBAM, Papaya CIAPA, Guava PSISS Ornamental trees (only for <i>Eutetranychus orientalis</i> e.g. <i>Albizia</i> sp. ALBSS and <i>Acacia</i> sp. ACASS)
<i>Aceria sheldoni</i> ACEISH <i>Phyllocoptruta oleivora</i> PHYUOL	Eriophyidae				
<i>Hemitarsonemus</i> sp. HEMTSP, <i>Polyphagotarsonemus latus</i> HEMTLA	Broad mites	Any Citrus		Papaya CIAPA	
<i>Diaphorina citri</i> DIAACI, <i>Trioza erythrae</i> TRIZER	Psyllid	Orange CIDSI or Mandarin CIDRE or Lemon CIDLI			

<i>Prays citri</i> PRAYCI <i>Phyllocnistis citrella</i> PHYNCI	Citrus flower moth	Orange CIDSI or Mandarin CIDRE or Lemon CIDLI	Any Citrus		
<i>Toxoptera citricida</i> TOXOCI, <i>Toxoptera aurantii</i> TOXOAU, <i>Aphis spiraeicola</i> (=Aphis citricola) APHISI, <i>Aphis gossypii</i> APHIGO, <i>Myzus persicae</i> MYZUPE	Aphids				Banana MUBSS
<i>Ceratitis capitata</i> CERTCA	Fruit flies			Apple MABSD ,Peach PRPNS, Pear PYUCO, Fig FIUCA, Kaki DOSKA	Annonnacea ANUSS, Guava PSISS, Papaya CIAPA, Mango MNGIN, Passion fruit PAQSS, Apple MABSS, Litchi LINCH, Starfruit AVRCA, Peach PRNPS Apple MABSD Kiwi ATIDE Quince CYDOB Pomegranate PUNGR Kaki DOSKA
<i>Icerya purchasi</i> ICERPU, <i>Pseudococcus</i> sp. PSECSP, <i>Ceroplastes sinensis</i> CERPSI, <i>Aonidiella aurantii</i> AONDAU, <i>Aonidiella citrina</i> AONDCI, <i>Parlatoria</i> sp PARLSP, <i>Aspidiotus nerii</i> ASPDNE, <i>Chrysomphalus dictyospermi</i> CHRYDI, <i>Lepidosaphes ulmi</i> LEPSUL, <i>L. beckii</i> LEPSBE, <i>L. gloverii</i> LEPSGL, <i>Planococcus citri</i> PSECCI, <i>Saissetia oleae</i> SAISOL, <i>Coccus hesperidum</i> COCCHE, <i>Unaspis yanonensis</i> UNASYA	Scales			Fig FIUCA (for Ceroplastes), Olive OLVEU (for Saissetia)	Banana MUBSS, Guava PSISS, Mango MNGIN, Pineapple ANCHO, Papaya CIAPA, Avocado PEBAM, Common walnut IUGRE, Common hazelnut CYLAV, Pistachio, Sweet almond PRNDU (primarily affected by <i>Sphaerolectanium prunastri</i> ), Tree nuts are affected secondarily by <i>Ceroplastes</i> , <i>Coccus</i> , <i>Saissetia</i> , Ornamental shrubs

<i>Empoasca</i> sp. EMPOS, <i>Empoascini</i> spp. EMPOSP <i>Asymmetrasca decedens</i> EMPODC, <i>Metcalfa pruinosa</i> METFPR	Leafhoppers	Orange CIDSI or Mandarin CIDRE or Lemon CIDLI	Any Citrus	Vineyard VITSS, Peach PRNPS, Kiwi ATIDE	
<i>Zeuzera pyrina</i> ZEUPZY	Wood and root borers			Common walnut IUGRE, Sweet chestnut CSNSA, Common hazelnut CYLAV Pome fruit	Nut trees
<i>Tapinoma nigerrimum</i> TAPINI <i>Lasius grandis</i> LASIGR	Ants				Banana MUBSS, Passion fruit PAQSS, Pineapple ANHCO, Sugar cane SACSS
<i>Aleurothrixus floccosus</i> ALTHFL, <i>Dialeurodes citri</i> DIALCI, <i>Parabemisia myricae</i> PRABMY	Whiteflies	Any citrus			Avocado PEBAM, Guava PSISS, Papaya CIAPA, Banana MUBSS, Mango MNGIN, Palmtree
<i>Tylenchulus semipenetrans</i> TYLESE	Citrus nematodes	Orange CIDSI		Pear PYUCO Olive OLVEU	Banana MUBSS, Pineapple ANHCO, All tropical root vegetables
Species that, secondarily, affect <i>Citrus</i> sp.: <i>Xiphinema</i> <i>americanum</i> XIPHAM, <i>Helicotylechnus</i> sp. HELYSP				Grapevine VITVI for <i>Xiphinema americanum</i>	
<i>Scirtothrips aurantii</i> SCITAU, <i>Selenothrips rubrocinctus</i> SLENRU, <i>Heliothrips</i> <i>haemorrhoidalis</i> HELTHA, <i>Pezothrips kellyanus</i> PEZTKE	Thrips	Orange CIDSI or Mandarin CIDRE or Lemon CIDLI		Peach PRNPS	