European and Mediterranean Plant Protection Organization
Organisation Européenne et Méditerranéenne pour la Protection des Plantes

PP 1/257 IEET 76 (1)
First published in 2017

EXTRAPOLATION TABLE for EFFECTIVENESS of INSECTICIDES
► PESTS ON CHENOPODIACEOUS VEGETABLES

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 **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*)**
Delia platura HYLEPL	Root and soil flies	Melon CUMME or Cucumber CUMSC	All crops within the crop group	Field bean VICFX, potato SOLTU, Soybean GLXMA, *Phaseolus* sp. PHSSS, spinach SPQOL, asparagus ASPOF, Allium vegetables	*Freesia* 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 CHENOPODIACEOUS VEGETABLES

Spinach *Spinacia oleracea* SPQOL, Chard *Beta vulgaris* BEAVV, Swiss chard *Beta vulgaris* subsp. *vulgaris* var. *flavescens* BEAVF, Beetroot *Beta vulgaris* subsp. *vulgaris* var. *conditiva* BEAVD, Garden beet *Beta vulgaris* subsp. *vulgaris* var. *lutea* BEAVL, Quinoa *Chenopodium quinoa* CHEQU, White goosefoot (wild spinach) *Chenopodium album* CHEAL

Pests		**Crops: within the chenopodiaceous vegetables**		**Crops: outside the chenopodiaceous vegetables**	
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*)**
Atomaria linearis ATOMLI	Coleoptera	Beetroot BEAVD or any other chenopodiaceous vegetable	All chenopodiaceous vegetables	Sugarbeet BEAVA*	
Onychiurus sp. ONYCSP	Springtails pre emergence	Beetroot BEAVD or or any other chenopodiaceous vegetable	All chenopodiaceous vegetables	Sugarbeet BEAVA*	
Collembola 1COLLO	Springtails post emergence	Spinach SPQOL or any other chenopodiaceous vegetable	All chenopodiaceous vegetables	Sugarbeet BEAVA*, *Collembola* 1COLLO in any crop	Sugarbeet BEAVA, *Collembola* 1COLLO in any crop

Aphis fabae APHIFA, *Macrosiphum euphorbiae* MACSEU, *Myzus persicae* MYZUPE	Aphids	Spinach SPQOL or beetroot BEAVD or any other chenopodiaceous vegetable	All chenopodiaceous vegetables	Sugarbeet BEAVA*, Ornamentals, Peach PRNPS, Cucumber CUMSC, Chinese cabbage BRSPK Lettuce LACSS, Leafy vegetables, Brassica vegetables, Carrot DAUCA, Sweet pepper CPSAN, Tomato LYPES, Strawberry FRASS	Herbs, Ornamentals, Legume vegetables Lettuce LACSS, Leafy vegetables, Brassica vegetables, Carrot DAUCA, Sweet pepper CPSAN, Tomato LYPES, Strawberry FRASS
Myzus persicae MYZUPE, *Macrosiphum euphorbiae* MACSEU					
Liriomyza sp. LIRISP	Leaf miner flies	Spinach SPQOL or any other chenopodiaceous vegetable	All chenopodiaceous vegetables	Tomato LYPES*, Ornamentals, Leafy vegetables, Vegetable brassicas, Legume vegetables	Tomato LYPES, Cucurbitaceae 1CUCF, Alliaceae 1ALLF, Legume vegetables, Ornamentals
Pegomya hyoscyami PEGOHY		Any chenopodiaceous vegetable	All chenopodiaceous vegetables	Sugarbeet BEAVA*	Solanaceae
Blitophaga opaca, BLITOP	Carrion beetles	Spinach SPQOL	All chenopodiaceous vegetables	Sugarbeet BEAVA*	
Autographa gamma PYTOGA	Caterpillars	Any chenopodiaceous vegetable	All chenopodiaceous vegetables	*Autographa gamma* PYTOGA in any crop*	*Autographa gamma* PYTOGA in any crop*
Spodoptera exigua LAPHEG				*Spodoptera exigua* LAPHEG in any crop*	*Spodoptera exigua* LAPHEG in any crop*
Trichoplusia ni TRIPNI				*Trichoplusia ni* TRIPNI in any crop*	*Trichoplusia ni* TRIPNI in any crop*
Helicoverpa zea HELIZE				*Helicoverpa zea* HELIZE in any crop*	*Helicoverpa zea* HELIZE in any crop*
Aubeonymus mariaefranciscae AUBEMA	Weevils	Spinach SPQOL	All chenopodiaceous vegetables	Sugarbeet BEAVA*	

The following extrapolation possibilities are proposed to be addressed in the EPPO Generic Tables available on the EPPO website: https://www.eppo.int/PPPRODUCTS/minor_uses/minor_uses.htm					
Thrips sp. THRISP *Thrips angusticeps* THRIAN	Thrips	Any chenopodiaceous vegetable	All chenopodiaceous vegetables	Legume vegetables, Solanaceae 1SOLF, Peach PRNPS, Strawberry FRAAN	All other relevant crops effected by thrips under field conditions
Blaniulus sp. BLANSP, *Scutigerella immaculata* SCUTIM	Myriapods (Soil insects)	Spinach SPQOL or beetroot BEAVD	All chenopodiaceous vegetables	Sugarbeet BEAVA*, Potato SOLTU	Any relevant crop (seedlings)
Agriotes sp. AGRISP	Wireworms (Soil insects)	Any chenopodiaceous vegetable	All chenopodiaceous vegetables	Any relevant crop*	Any relevant crop*
Agrotis sp. AGROSP *(A. segetum* AGROSE, *A. ipsilon* AGROYP), *Peridroma saucia* PERRSA	Cutworms (Soil insects)	Beetroot BEAVD	All chenopodiaceous vegetables	Any relevant crop*	Any relevant crop*
Longidorus 1LONGG	Free living nematodes	Spinach SPQOL or beetroot BEAVD	All chenopodiaceous vegetables	Sugarbeet BEAVA*, Strawberry FRAAN, Stone fruit, Grapes VITVI	Any other relevant crop
Trichodorideae 1TRIHF (*Trichodorus* sp. TRIHSP, *Paratrichodorus* sp. PATRSP)				Sugarbeet BEAVA*, Carrot DAUCS, Onion ALLCE, Leek ALLPO, Potato SOLTU, Bulb flowers	Any other relevant crop
Pratylenchus penetrans PRATPE	Root lesion nematodes			Sugar beet BEAVA*, Potato SOLTU or Carrot DAUCS or Strawberry FRAAN	Any other relevant crop
Heterodera schachtii HETDSC or *H. betae* HETDBT	Cyst nematodes			Sugar beet BEAVA*, Small radish RAPSR*	Any other relevant crop
Meloidogyne sp. MELGSP	Root knot nematodes (outdoor)			Sugar beet BEAVA*, Carrot or Potatoes or Strawberry FRAAN	Any other relevant crop
Lygus sp. LYGUSP	Miridae	Spinach SPQOL	All chenopodiaceous vegetables	Sugar beet BEAVA, Strawberry FRASS, Leafy vegetables	Leafy vegetables