

EXTRAPOLATION TABLE for EFFECTIVENESS of FUNGICIDES
► DISEASES 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:

Diseases		Crops: within the Vegetable Brassicas		Crops: outside the Vegetable Brassicas	
1 Pathogen species	2 Disease 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>Alternaria sp. (Alternaria brassicicola ALTEBI, A. brassicae ALTEBA, A. raphani ALTERP)</i>	Alternaria	Cauliflower BRSOB or broccoli BRSOK or Brussels sprouts BRSOF	Leafy and flower head and root brassicas	Oilseed rape BRSNN, Mustard SINSS	Carrot DAUCS, Tomato LYPES

E.g.: In the first row above, in order to support a claim for *Alternaria sp* on leafy and flower head and root brassicas, data can be generated on Cauliflower or Broccoli or Brussels sprouts. The number of trials required on this crop can be reduced if there are existing relevant data for *Alternaria spp* on oilseed rape or mustard. Data on *Alternaria sp* generated on Vegetable Brassicas can also be used to support claims on minor use crops such as carrot and tomato, 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 FUNGICIDES

► **DISEASES 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

Diseases		Crops: within the chenopodiaceous vegetables		Crops: outside the chenopodiaceous vegetables	
1 Pathogen species	2 Disease 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>Aphanomyces cochlioides</i> APHACO <i>Aphanomyces cladogamus</i> APHACL	Root rot	Beetroot BEAVD or Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA*	
<i>Phytophthora</i> PHYTSP				Sugarbeet BEAVA	
<i>Pythium</i> PYTHSP, <i>Fusarium</i> FUSASP				Sugarbeet BEAVA, Carrot DAUCA, Lettuce LACSA	Carrot DAUCA, Lettuce LACSA, Rocket ERUVE/DIPER, Fennel FOEVA
<i>Thanatephorus cucumeris</i> RHIZSO				Sugarbeet BEAVA, Lettuce LACSA, Brassica 1BRSG, Carrot DAUCA	
<i>Pleospora betae</i> PLEOBJ				Sugarbeet BEAVA*, Any umbelliferous (Phoma)	Any umbelliferous

<i>Thanatephorus cucumeris</i> (= <i>Rhizoctonia solani</i>) RHIZSO	Black rot, crown rot, stem rot	Beetroot BEAVD	Garden beet BEAVL	Sugarbeet BEAVA*, Lettuce LACSA, Brassica 1BRSG, Carrot DAUCA, Potato SOLTU	Lettuce LACSA, Brassica 1BRSG, Carrot DAUCA, Strawberry FRAAN
<i>Pleospora betae</i> PLEOBJ	Dry heart rot, black rot	Beetroot BEAVD	Garden beet BEAVL	Sugarbeet BEAVA*, Any umbelliferous (<i>Phoma</i> sp. PHOMSP)	Any umbelliferous
<i>Helicobasidium brebissonii</i> HLCBBR	Violet root rot	Beetroot BEAVD	Garden beet BEAVL	Sugarbeet BEAVA*, Carrot DAUCA*	Any umbelliferous, Asparagus ASPOF, Rhubarb RHERH, Potato SOLTU
<i>Cercospora</i> sp CERCBE	Leaf spots	Beetroot BEAVD or Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA*, Carrot DAUCA	Rhubarb RHERH, Herbs Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF Celery APUGV, Celeriac APUGR, Parsnip PAVSA, Artichoke CUYSC
<i>Stemphylium</i> sp. STEMSP		Beetroot BEAVD, Spinach SPQOL	Beetroot BEAVD, Spinach SPQOL, Garden beet BEAVL	Sugarbeet BEAVA, Asparagus ASPOF	Asparagus ASPOF
<i>Ramularia</i> sp. RAMUBE		Beetroot BEAVD	To all <i>Beta</i> sp. BEASS	Sugarbeet BEAVA*	Rhubarb RHERH, Herbs, Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF Celery APUGV, Celeriac APUGR, Parsnip PAVSA, Artichoke CUYSC
<i>Cladosporium</i> sp. CLADSP		Spinach SPQOL		Tomato LYPES, Cucurbitaceae 1CUCF	Lettuce LACSA, Ornamentals

<i>Pleospora betae</i> PLEOBJ		Beetroot BEAVD or Spinach SPQOL	To all <i>Beta</i> sp., Spinach SPQOL	Sugarbeet BEAVA*, Any umbelliferous (<i>Phoma</i> sp. PHOMSP)	
<i>Pleospora calvescens</i> PLEOCA		Beetroot BEAVD or Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA	
<i>Colletotrichum dematium</i> f.sp. <i>spinaciae</i> COLLDS	Anthraconose	Spinach SPQOL	To all chenopodiaceous vegetables		
<i>Uromyces betae</i> URMBE	Rust	From any <i>Beta</i> sp.	To all <i>Beta</i> sp.	Sugarbeet BEAVA*	
<i>Erysiphe polygoni</i> ERYSBE	Powdery mildew	From any <i>Beta</i> sp.	To all <i>Beta</i> sp.	Sugarbeet BEAVA*	
<i>Peronospora farinosa</i> PEROFA	Downy mildew	Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA	Lamb's lettuce VLLLO, Italian corn salad VLLER, All brassicas
<i>Albugo occidentalis</i> ALBUOC	White rust	Spinach SPQOL	To all <i>Chenopodium</i> sp. CHESS		
<i>Verticillium</i> VERTSP	Wilt	Beetroot BEAVD	To all chenopodiaceous vegetables	Sugarbeet BEAVA*, Strawberry FRAAN	Strawberry FRAAN
<i>Fusarium oxysporum</i> FUSAOX		Beetroot BEAVD or Spinach SPQOL	Beetroot BEAVD, Spinach SPQOL	Sugarbeet BEAVA*, Asparagus ASPOF,	Asparagus ASPOF, Allium Species ALLSS
<i>Pleospora betae</i> PLEOBJ	Black leg of beet	Beetroot BEAVD or Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA*, Any umbelliferous (<i>Phoma</i> sp. PHOMSP)	

The following extrapolation possibilities are proposed to be addressed in tables covering generic pests ¹					
<i>Pythium</i> PYTHSP, <i>Phytophthora</i> PHYTSP, <i>Fusarium</i> FUSASP	Damping-off diseases	Beetroot BEAVD or Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA*, Carrot DAUCA	Carrot DAUCA
<i>Aphanomyces cochlioides</i> APHACO		Beetroot BEAVD or Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA*	
<i>Thanatephorus cucumeris</i> RHIZSO		Beetroot BEAVD, Spinach SPQOL	To all chenopodiaceous vegetables	Sugarbeet BEAVA, Lettuce LACSA, Brassica 1BRSG, Carrot DAUCA	
<i>Sclerotinia sclerotiorum</i> SCLESC		From any chenopodiaceous vegetables	To all chenopodiaceous vegetables	Any other crop*	
<i>Sclerotium sp.</i> SCLOSP		From any chenopodiaceous vegetables	To all chenopodiaceous vegetables		
<i>Streptomyces scabiei</i> STRESC	Bacterium diseases	Beetroot BEAVD	Garden beet BEAVL	Sugarbeet BEAVA*, Potato SOLTU	
<i>Agrobacterium tumefaciens</i> AGRBTU		Beetroot BEAVD	Garden beet BEAVL	Sugarbeet BEAVA*	
<i>Pseudomonas syringae</i> PSDMSX		Spinach SPQOL	To all chenopodiaceous vegetables		

¹ The following lines will be deleted from the table once the Generic tables will be approved and published.