

EXTRAPOLATION TABLE for EFFECTIVENESS of FUNGICIDES ► DISEASES ON LEAFY 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 products 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.

Column 5 identifies whether data on other crops 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 further 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 supporting data from other crop groups.

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.

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 LEAFY VEGETABLES:

Asteraceae : LACSA lettuce *Lactuca sativa*, LACSE prickly lettuce *Lactuca serriola*, CICEN endive *Cichorium endivia*, CICIN chicory *Cichorium intybus*, CICIF chicory witloof *Cichorium intybus* var. *foliosum*, TAROF dandelion *Taraxacum officinale*.

Crucifereae : LEPSA garden cress *Lepidium sativum*, BARVE landcress *Barbarea verna*, DIPER Rockets *Diplotaxis eruroides* and ERUVE *Eruca vesicaria* subsp. *Sativa*, NAAOF watercress *Nasturtium officinale*, BRSJU leaf mustard *Brassica juncea*.

Chenopodioideae : SPQOL spinach *Spinacia oleracea*, BEAVV chard *Beta vulgaris* subsp. *vulgaris*.

Other: VLLLO lamb's lettuce *Valerianella locusta*, SANMI burnet *Sanguisorba minor*, VERBE cow cress *Veronica beccabunga*, VLLER Italian corn salad *Valerianella eriocarpa*, POROS purslane *Portulaca oleracea* subsp. *sativa*.

Pests		Crops: within the leafy vegetables		Crops: outside the leafy 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>Bremia</i> sp. BREMSP	Downy Mildew	Lettuce LACSS	Leafy vegetables of the Asteraceae 1COMF, Prickly lettuce LACSE, Dandelion TAROF, Endive CICEN, chicory CICIN		Artichoke CYUSC, Fresh herbs,
<i>Peronospora</i> sp.		Spinach or Rocket	Crucifereae 1CRUF, Chenopodioideae 1CHES (Spinach SPQOL, Chard BEAVV), Rocket ERUVE, Lamb's lettuce VLLLO, Italian corn salad VLLER	All brassicaceae	All brassicaceae, Red beet BEAVD
<i>Septoria</i> sp. SEPTSP, <i>Cercospora</i> sp. 1CERCG, <i>Ramularia</i> sp. RAMUSP	Leaf spot disease	Lettuce LACSS, Spinach SPQOL	Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES	Parsley PARCR, Carrot DAUCA	Celery APUGV, Celeriac APUGR, Parsnip PAVSA, Artichoke CUYSC
<i>Phoma</i> sp. PHOMSP, <i>Alternaria</i> sp. ALTESP		Lamb's Lettuce VLLLO	Italian corn salad VLLER, witloof CICIF, Endive CICEN, Wild lettuce LACSE,	Tomato LYPES, Potato, Brassicaceae, Carrot, Cucurbitaceae 1CUCF	Parsley PARCR

<i>Microdochium panattonianum</i> sp. MARSPA,		Lettuce LACSS	Leaf spot disease in Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES Italian corn salad VLLER, Witloof CICIF, Endive CICEN, Wild lettuce LACSE,		Parsley PARCR
<i>Cladosporium</i> sp. CLADSP, <i>Colletotrichum</i> sp. 1COLLG		Spinach SPQOL,	Lettuce LACSS	Tomato LYPES, Cucurbitaceae 1CUCF	Ornamentals
<i>Erysiphe</i> sp. ERYSSP	Powdery mildew	Lambs Lettuce VLLLO, Chicory CICIN	Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES (particularly Prickly lettuce LACSE, Dandelion TAROF), Lamb's lettuce VLLLO, Italian corn salad VLLER, Endive CICEN	Cucurbitaceae 1CUCF, Tomato LYPES,	Fresh herbs
<i>Puccinia</i> sp. PUCCSP	Rust	Lettuce LACSS or Chicory CICIN	Leafy vegetables of the Asteraceae (particularly Prickly lettuce LACSE, dandelion TAROF)	Asparagus ASPOF, Liliaceae 1LILF, Cereals*,	

The following extrapolation possibilities are proposed to be addressed in tables covering generic pests

<i>Botrytis</i> sp. BOTRSP, <i>Sclerotinia</i> sp. 1SCLEG	Moulds	Lettuce LACSS	Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES, (particularly prickly lettuce LACSE, , chicory CICIN, endive CICEN, witloof CICIF, rocket ERUVE), Italian corn salad VLLER, , lamb's lettuce VLLLO	Cucurbitaceae 1CUCF, Tomato LYPES, Brassicaceae 1CRUF, leguminous vegetables	Tobacco NIOSS, fresh herbs, ornamentals ^a , Tomato LYPES, Cabbage BRSOX, Brussels sprouts BRSOX, Flower head brassicas, Leafy brassicas
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<i>Rhizoctonia sp.</i> RHIZSP	Rhizoctonia disease	Lettuce LACSS	Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES (particularly prickly lettuce LACSE, dandelion TAROF, spinach SPQOL, witloof CICIF, chard BEAVV), lamb's lettuce VLLLO, Italian corn salad VLLER, Endive CICEN	Potato SOLTU, Brassicaceae 1CRUF, Tomato LYPES	Tomato LYPES, leafy herbs
<i>Pythium sp.</i> PYTHSP <i>Phytophthora</i>	Pythium disease	Lettuce LACSS or Spinach SPQOL	Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES, (particularly endive CICEN, chicory CICIN, witloof CICIF, chard BEAVV), Italian corn salad VLLER,	Cucurbitaceae 1CUCF, Brassicaceae 1CRUF, Solanaceae 1SOLF, beets BEAVX	Tobacco NIOSS, ornamentals, fresh herbs, Tomato LYPES
<i>Thielaviopsis sp.</i> THIESP <i>Fusarium</i>	Soil borne fungi	Witloof CICIF	Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES	Carrot DAUCA, Leguminosae 1LEGF	
<i>Acidovorax valerianella</i> ACVRVA, <i>Pseudomonas sp.</i> , ERWICA, <i>Xanthomonas sp.</i> XANTSP	Bacterium disease	Lettuce LACSS	Leafy vegetables of the Asteraceae 1COMF, Crucifereae 1CRUF, Chenopodioideae 1CHES, (particularly endive CICEN, chicory CICIN, witloof CICIF), lamb's lettuce VLLLO, Italian corn salad VLLER	Liliaceae 1LILF, Umbelliferae 1UMBF, Brassicaceae 1CRUF, Solanaceae 1SOLF	ornamentals, fresh herbs

^a Can be used in some circumstances to support indicator crop