

APPENDIX I to PP 1/95 (4) Slugs

Appendix 1 – Extrapolation of evidence of control between crops and situations for pelleted molluscicide products

Often authorization is sought for molluscicides on a broad range of crops, rather than an individual or a small number of named crops. Generating appropriate data that encompasses both major/ most susceptible crops, and major slug species with representative biology, can permit subsequent extrapolation to all crops and all slug species.

An appropriate data package to support such claims is given below in Table, and is based on the following principles. The effectiveness of pelleted bait is dependent on it being sufficiently palatable in comparison with the treated crop for it to be consumed in lethal quantities. Use in crops considered to be highly palatable e.g. oilseed rape and lettuce, therefore provides a particularly challenging situation for the product, since if the product is not highly palatable, the crop will be consumed in preference to the bait, resulting in poor or no control.

Because of the importance of the relative palatability of the product to the crops in which it is applied, evidence for reduction of shoot damage in cereals caused by slugs cannot be extrapolated to crops considered to be more palatable such as oilseed rape. Similarly evidence of control in cereals cannot be extrapolated to general use on edible and non-edible crops in the home garden situations, because the latter may include more susceptible/palatable plants.

For approval of use to prevent shoot damage in cereal crops, given the importance of cereal crops, at least some evidence should be supplied from the use of the product in wheat (the worst affected or the most susceptible cereal crop). Evidence of control or the reduction of slug shoot damage in wheat may be extrapolated to other cereal crops. However, evidence generated with other cereal crops may not be extrapolated to support use in wheat.

With regard to the support of slug control claims in oilseed rape, because of the high palatability of this crop to slugs specific evidence of control from use in this crop is required (with this relating to use in the most palatable double low varieties). Providing adequate evidence of control of slug shoot damage has been demonstrated from the use of the product in highly palatable double low oilseed rape crops and that this evidence includes use against appropriate slug species, claims for control of slug shoot damage may also be agreed for other arable crops (except cereals), with further evidence of control not normally being required.

Based on the above rationale, the following key indicator crops/slug species are considered relevant to support wide ranging claims for *professional* slug pellet products. The actual number, location, use of spring/winter timings, will be related to the extent of Member States where authorization is sought, and major slug species associated with the particular crop. Reference should be made to EPPO Zonal Principles for further details (PP1/278 *Principles of zonal*

data production and evaluation). The extrapolations assume the recommendations in each crop, in terms of applied dose, are identical/very similar. These principles, in terms of key crops and key slug species are also relevant to other potential product types.

Extrapolation of evidence of control from agricultural and horticultural use products to home garden use

1) Extrapolation of evidence of control previously supplied in support of agricultural and horticultural use to home garden use in edible and non-edible crops is acceptable providing that:

adequate evidence has been supplied of control in crops known to be particularly palatable to slugs, e.g. oilseed rape (BRSNN), lettuce (LACSA), Brussel sprouts (BRSOF) or kale (BRSOA), Chinese cabbage (BRSPK); and susceptible ornamentals e.g. *Tagetes* (TAGSS) *Cymbidium* (CMFSS), *Alstroemeria* (ALTAU), *Gerbera* (GEBJA), *Chrysanthemum* (CHYIN).

2) at least some evidence has been supplied relating to control of garden slugs (*Arion vulgaris* ARIOVU, *A. hortensis* ARIOHO and/or *A. distinctus* ARIODI).

The above assumes that the proposed home garden product is equivalent in formulation to the professional product and that it is also applied at an equivalent dose. Where dose for the proposed home garden product is stated in terms of distance between individual broadcasted pellets, compared with an amount of product per ha stated for the professional product, information should be supplied in the submission enabling the two dose descriptions to be related.

It is possible to have a home garden product approved where the data have been generated on non-arable crops such as lettuce, Chinese cabbage, and susceptible ornamentals. In such instances it is not possible to extrapolate from a home garden product in support of a professional product.

Table 1. Extrapolation table

(A)

Crops	Species	Permissible Authorised Uses	Multi-crop data packages	Permissible Authorised Uses
Field Crops (including combinable crops*, root/tuber but not leafy vegetable crops)				
Oilseed rape BRSNN	<i>Deroceras reticulatum</i> DERORE and <i>Arion vulgaris</i> ARIOVU and some data on other common <i>Deroceras</i> DEROSP or <i>Arion</i> species ARIOSP (including sub-surface feeders)	All oilseed crops and field crops (except cereals and potato)	Oilseed rape and wheat†	All field crops (except potato)
Wheat TRZAX		All cereal crops		
Potato SOLTU	Keeled slug species e.g. <i>Milax</i> MILXSP, <i>Tandonia</i> TANDSP, <i>Boettgerilla</i> sp. BOEGSP	All root and tuber field crops attacked by keeled slug species	Oilseed rape and wheat† and potato	All combinable* field crops, sugar beet, potato and other root/tuber field crops
Horticultural Field Leafy Crops, Horticultural Protected Crops (including Brassica vegetables), Ornamentals‡				
Lettuce LACSA or Chinese cabbage BRSPK; and Brussels sprouts BRSEF or kale BRSEA. Plus one other crop type, from cauliflower BRSEB or broccoli BRSEK or head cabbage BRSEL	<i>Deroceras reticulatum</i> DERORE and <i>Arion vulgaris</i> ARIOVU. And some data on other common <i>Deroceras</i> DEROSP, <i>Arion</i> ARIOSP, <i>Limax</i> species LIMXSP	All leafy vegetables	Lettuce or Chinese cabbage and Strawberry	All leafy vegetables, fruit
Strawberry FRAAN		All fruit crops		
Susceptible ornamental crops e.g. <i>Tagetes</i> TAGSS, <i>Cymbidium</i> CMFSS, <i>Alstroemeria</i> ALTAU, <i>Gerbera</i> GEBJA, <i>Chrysanthemum</i> CHYIN		All ornamentals (field and protected)	Lettuce or Chinese cabbage and Strawberry and Susceptible ornamental species	All leafy vegetables, fruit, ornamentals

(B)

Authorised Use in All situations (both all Edible and Non Edible) may be supported by a substantial data package based on the following key representative crops and slug species		
Crop	Species	Observation
Oilseed rape BRSNN	<i>Deroceras reticulatum</i> DERORE and <i>Arion vulgaris</i> ARIOVU. Plus some data on other common <i>Deroceras</i> DEROSP, <i>Arion</i> ARIOSP species	Trials on wheat and other cereals, potato and oilseed rape should be full plot size field trials when demonstrating effectiveness. Further supporting evidence may be provided from semi-field small plot barriered trials. E.g. initial work on proposed rate, or changes in formulation. However, only oilseed rape plants are suitable in these circumstances§
Wheat TRZAX		
Potato SOLTU	Keeled slug species e.g. <i>Milax</i> MILXSP, <i>Tandonia</i> TANDSP, <i>Boettgerilla</i> sp. BOEGSP	
Lettuce LACSA or Chinese cabbage BRSPK; and Brussels sprouts BRSEF or kale BRSEA. Plus one other crop type, from cauliflower BRSEB or broccoli BRSEK or head cabbage BRSEL	<i>D. reticulatum</i> DERORE and <i>A. vulgaris</i> ARIOVU. Plus some data on other common <i>Deroceras</i> DEROSP, <i>Arion</i> ARIOSP, <i>Limax</i> species LIMXSP	Trials may be conducted in semi-field small plot barriered trials rather than full sized field trials (provided appropriate field trials described above have been conducted). This is because in horticultural situations, due to the high value of the crop, it is unlikely to find commercial sites with significant slug populations§
Strawberry FRAAN		
Susceptible ornamental plant e.g. <i>Tagetes</i> TAGSS, e.g. <i>Cymbidium</i> CMFSS, <i>Alstroemeria</i> ALTAU, <i>Gerbera</i> GEBJA, <i>Chrysanthemum</i> CHYIN		

* All types of crops gathered by use of a combine harvester separating out edible parts of the plant (seeds/beans) e.g. cereals, oilseeds, legumes (beans, peas, lupines), and vetches.

† Oilseed rape, should have a comprehensive data set which forms the greater proportion of the data package.

‡ Trials on lettuce/Chinese cabbage, strawberry, and ornamentals may be conducted as semi-field barriered small plot trials, rather than full scale field trials. See 1/289 *The design and use of Molluscicide field small plot cage (barriered) trials* for further details.

§ Full details on use of semi-field barriered small plot trials are given in PP 1/289.