

## List of end points

Rapporteur Member State	Month and year	Microbial or Viral Agent (Name)
The Netherlands (RMS) France (co-RMS)	January 2018	<i>Lecanicillium muscarium</i> Ve6

### FORMAT FOR THE LISTING OF END POINTS FOR A MICROBIAL OR VIRAL PEST CONTROL AGENT (MPCA) USED IN PLANT PROTECTION

#### General remark:

Testing of microorganisms will often be made using specifically tailored studies. Therefore, e. g. toxicity/effects endpoints may differ from case to case. This endpoint list can therefore be seen as indicative only, to be adapted in order to fit individual cases.

#### Identity, Biological properties, Details of uses, Further information, and Proposed Classification and Labelling

Active microorganism:	<i>Lecanicillium muscarium</i> Ve6
Function (e.g. control of fungi):	Insecticide. (Control of whitefly and thrips)
Rapporteur Member State:	The Netherlands
Co-rapporteur Member State:	France
<b>Identity of the Microbial or Viral Agent used in plant protection / Active Substance ) (Regulation (EU) N° 283/2013, Annex Part B, point 1 )</b>	
Name of the organism:	<i>Lecanicillium muscarium</i> Ve6
Taxonomy:	Kingdom: Fungi, Phylum: Deuteromycotina Order: Hyphomycetes (syn. Moniliales) Genus: <i>Lecanicillium</i> Species: <i>muscarium</i>
Species, subspecies, strain:	Strain Ve6
Identification / detection:	Morphological identification: Colony size 18-22 mm, white or pale yellow, cotton wool like, hyphae rarely in bundles (10 days at 20°C, Malt Extract Agar. Colony underside colourless, yellow or ochraceous. Phialids detached or in few whorls on conidiophores or slightly differentiated hyphae from the aerial mycelium, needle form, high variability in size, 12-40 * 0.8-3 µm. Conidia one-celled in heads, often parallel to phialide tip, cylindrical with both ends well rounded or ellipse, 2.3-10 * 1.0-2.6 µm. Chlamydospores absent. Spore sizes of the Mycotal-strain 4.2±0.9 µm - 1.6±0.2 µm. (6 days at 23°C, Saboureaud Dextrose agar).
Culture collection:	CABI (=IMI) 268317, CBS 102071, ARSEF 5128
Minimum and maximum concentration of the MPCA used for manufacturing of the formulated product (cfu; g/kg):	The material used for solid medium manufacturing of formulated product contains ± 1x10 <sup>11</sup> spores per gram technical spore powder (97-99%, dried conidiospores, 1-3 % media remnants). The material used for liquid medium manufacturing of formulated product contains ± 2-5x10 <sup>10</sup> spores per gram technical spore powder (49-52%, dried blastospores, 48-51% additives).

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Identity and content of relevant impurities, additives, contaminating organisms in the technical grade of MPCA:	No relevant human/mammalian metabolites or toxins present in product or being produced by <i>Lecanicillium muscarium</i> Ve6; microbial contaminants are in compliance with OECD limits
Is the MPCA genetically modified; if so provide type of modification	No

## Biological properties of the microorganism (Regulation (EU) N° 283/2013, Annex Part B, point 2)

Origin and natural occurrence, Background level:	Natural habitat: soil pathogen, hyper parasite on rusts, parasite on cyst-nematodes, saprophyte on ripening grain and various insects, especially on aphids and scales. Whiteflies are also parasitized by <i>L. muscarium</i> by nature in greenhouses. Inoculum is often available in the soil. The entomopathogenic fungus <i>L. muscarium</i> occurs worldwide.
Target organism(s):	Whiteflies ( <i>Bemisia tabaci</i> , <i>Trialeurodes vaporariorum</i> ) and thrips ( <i>Frankliniella occidentalis</i> ).
Mode of action:	The insect dies after formation of a great number of hyphal bodies inside the body cavity. The mode of action has not been completely elucidated.
Host specificity:	<i>Lecanicillium muscarium</i> has, under for a fungus favourable conditions a broad spectrum, but especially affects homoptera. Especially aphids and scales are affected. Rusts are also affected. Large differences between isolates exist. <i>L. muscarium</i> has never been observed as a pathogen on plants or warm-blooded animals.
Life cycle:	The fungus reproduces asexually forming conidia (spores) directly from the vegetative state.
Infectivity, dispersal and colonisation ability:	Spores of <i>Lecanicillium muscarium</i> strain Ve6 germinate and grow radially between 5 and 30°C. <i>L. muscarium</i> will not multiply on crops when its nutrients supply is limited to that with which it is applied. The mechanism of dispersal is not exactly known. It has been speculated that insects and soil organisms take spores with them from the soil to the leaves, after which other insects can be infected too. Spores are not spread by air.
Relationships to known plant, animal or human pathogens:	<i>Lecanicillium muscarium</i> is not closely related to known plant or human pathogens
Genetic stability:	Fungi possess low genome plasticity and considering that horizontal gene transfer HGT is still considered to be anecdotal in fungi the issue of genetic stability is not considered to be of concern for <i>Lecanicillium muscarium</i> Ve6.
Information on the production of relevant metabolites (especially toxins):	Destruxins are produce in small quantities by the fungus in a laboratory scale production process (liquid still culture), not used commercially. No destruxins were identified in Mycotal nor in Mycotal-treated crops.
Resistance/ sensitivity to antibiotics / anti-microbial agents used in human or veterinary medicine:	<i>Lecanicillium</i> spp. can be treated with several antibiotics. <i>L. muscarium</i> is not known to be resistant to any of these antibiotics.

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## Summary of uses supported by available data (Regulation (EU) N° 283/2013, Annex Part B, point 3) Summary GAP

Crop and/ or situation	Product name	F G or I	Pests or Group of pests controlled	Formulation		Application				Application rate    per treatment				PHI days	Remarks:
				Type	Conc. of as CFU/g (g/kg)	method kind	growth stage & season	number min    max	interval between applications (min)	Kg as/hL (CFU/hL) min    max	water L/ha min    max	Kg as/ha (CFU/ha) min    max			
Cucumber	Mycotal	G	Whitefly, thrips	WP	1x10 <sup>10</sup> (161)	Spray application	Nymphs, all year round	2    12*	7	0.0161 (1x10 <sup>12</sup> )	0.0161 (1x10 <sup>12</sup> )	2000	0.322 (2x10 <sup>13</sup> )	0**	
Tomato	Mycotal	G	Whitefly,	WP	1x10 <sup>10</sup> (161)	Spray application	Nymphs, all year round	2    12*	7	0.0161 (1x10 <sup>12</sup> )	0.0161 (1x10 <sup>12</sup> )	2000	0.322 (2x10 <sup>13</sup> )	0**	
Sweet pepper	Mycotal	G	Whitefly, thrips	WP	1x10 <sup>10</sup> (161)	Spray application	Nymphs, all year round	2    12*	7	0.0161 (1x10 <sup>12</sup> )	0.0161 (1x10 <sup>12</sup> )	2000	0.322 (2x10 <sup>13</sup> )	0**	
Strawberry	Mycotal	G	Whitefly, thrips	WP	1x10 <sup>10</sup> (161)	Spray application	Nymphs, all year round	2    12*	7	0.0161 (1x10 <sup>12</sup> )	0.0161 (1x10 <sup>12</sup> )	1000	0.161 (1x10 <sup>13</sup> )	0**	
Strawberry	Mycotal	F	Whitefly, thrips	WP	1x10 <sup>10</sup> (161)	Spray application	Nymphs, all year round	2    12*	7	0.0161 (1x10 <sup>12</sup> )	0.0161 (1x10 <sup>12</sup> )	1000	0.161 (1x10 <sup>13</sup> )	0**	
Ornamentals	Mycotal	G	Whitefly, thrips	WP	1x10 <sup>10</sup> (161)	Spray application	Nymphs, all year round	2    12*	7	0.0161 (1x10 <sup>12</sup> )	0.0161 (1x10 <sup>12</sup> )	1000    2000	0 <sup>b</sup> 0.322 (2x10 <sup>13</sup> )	0**	

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## Further information, Efficacy

### Effectiveness (Regulation (EU) N° 284/2013, Annex Part A, point 6.2)

It concerns a renewal, current registrations of the product show that the proposed GAP is realistic.  
The GAP of the representative uses is supported.

### Adverse effects on crops (Regulation (EU) N° 284/2013, Annex Part A, point 6.4)

The representative product has been authorised at Member State level for > 10 years and have therefore been assessed in line with Uniform Principles. No unacceptable adverse effects are known.

### Observations on other undesirable or unintended side-effects (Regulation (EU) N° 284/2013, Annex Part A, point 6.5)

The representative product has been authorised at Member State level for > 10 years and have therefore been assessed in line with Uniform Principles. No unacceptable adverse effects are known.

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## Classification and proposed labelling (Symbol, Indication of danger, Risk phrases, Safety phrases)

with regard to physical/chemical data:	
with regard to toxicological data:	The active substance should be classified as potentially sensitising by inhalation and skin contact.
with regard to fate and behaviour:	No classification and labelling for the micro-organism regarding the environment is proposed
with regard to ecotoxicological data:	No classification and labelling for the micro-organism regarding the environment is proposed

**Methods of analysis** (Regulation (EU) N° 283/2013, Annex Part B, point 4 and Regulation (EU) N° 284/2013, Annex Part B, point 5)

## Analytical methods for the microorganism (MA 4.1 & MP 5.1)

Manufactured microorganism (principle of method):	Genetic fingerprinting (RFLP), ITS and mtDNA were used for identification on strain level.
Impurities and contaminating microorganisms in manufactured material (principle of method):	Microbial contaminants are to be analyzed with the standard ISO methods
Microbial Pest Control Product (principle of method):	<i>L. muscarium</i> Ve6 is produced on solid culture media and blended with formulants after harvest.

## Analytical methods for residues (viable and non-viable) in exposed compartments and organisms (MA 4.2 & MP 5.2)

of the active microorganism (principle of method):	Residues of the active micro-organism are determined by plating samples onto malt agar extract or selective medium (Rose bengal chloramphenicol agar). Colonies can be identified by morphological identification methods.
of relevant metabolites (principle of method):	No method is required since no toxins were detected on the crop

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**Impact on Human and Animal Health** (Regulation (EU) N° 283/2013, Annex Part B, point 5 and Regulation (EU) N° 284/2013, Annex Part B, point 7)

Medical data: (including medical surveillance on manufacturing plant personnel) (MA 5.1.1) )	Based on the total toxicological package of the active substance <i>L. muscarium</i> , it is concluded that the active substance and its products do not exhibit infectivity nor pathogenicity. <i>Lecanicillium muscarium</i> strain Ve6 is not indicated to be significantly allergenic, even to a more highly allergenic population than average. The strains do not appear to be toxic.
Sensitisation: (MA 5.2.1 & MP 7.2.3 )	No evidence was found that exposure under pilot plant conditions had resulted in sensitisation of any sort in these subjects who were all healthy and without symptoms. The use of <i>Lecanicillium</i> was not related to any symptoms of sensitization and inflammatory lung diseases among greenhouse workers. Exposure to microbial biopesticides containing <i>Lecanicillium muscarium</i> may confer a risk of IgE-mediated sensitization. In future research there is a need to identify allergenic components in the preparations, perform studies on non-exposed controls and analyze the relation between sensitization and health parameters. <i>L. muscarium</i> spp (strain not indicated) was negative in a Maximisation test.
Acute oral infectivity, toxicity and pathogenicity: (MA 5.2.2.1 & MP 7.1.1)	No adverse toxicological effects. Rat oral LD <sub>50</sub> >3.0 x 10 <sup>8</sup> spores/animal. No indication of infectivity or pathogenicity
Acute intratracheal/inhalation infectivity, toxicity and pathogenicity: (MA 5.2.2.2 & MP 7.1.2)	No adverse toxicological effects. Rat inhalation LD <sub>50</sub> > maximal practical dose (1.08×10 <sup>9</sup> CFU/m <sup>3</sup> ). No indication of infectivity or pathogenicity, however inadequate description of method.
Acute intravenous/intraperitoneal infectivity: (MA 5.2.2.3)	Mortality, clinical signs, changes in clinical pathology (rat, high dose (ca10 <sup>8</sup> cfu/animal), BW loss, lesion in the abdominal cavity (rat and mouse, low and high dose:ca 10 <sup>6</sup> -10 <sup>7</sup> or ca 10 <sup>8</sup> cfu/animal), considered to be an acute immune-reaction rather than a toxicity reaction. Rat i.p. LD <sub>50</sub> >1.2 x 10 <sup>8</sup> spores/animal. No indication of infectivity or pathogenicity
Genotoxicity: (MA 5.2.3)	No genotoxic potential
Cell culture study: (MA 5.2.4)	Not required
Information on short-term toxicity and pathogenicity: (MA 5.2.5)	Local effects were noted in the lungs, possibly immune (irritation) related, since the formulation was tested, which contains - in addition to <i>L. muscarium</i> Ve6 - a rather large

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	quantity of a known respiratory sensitiser as a co-formulant. NOAEL: 1 mg/m <sup>3</sup> .
Dermal toxicity: (MP 7.1.3)	No further testing is required.
Specific toxicity, pathogenicity and infectivity: (MA 5.3)	No further testing required.
Genotoxicity – <i>in vivo</i> studies in germ cells: (MA 5.5)	No genotoxic potential.

## Reference values

AOEL:	Not applicable, lack of adverse effects due to <i>L. muscarium</i> Ve6 in studies performed.
ADI:	Not applicable, lack of adverse effects due to <i>L. muscarium</i> Ve6 in studies performed.
ARfD:	Not applicable, lack of adverse effects due to <i>L. muscarium</i> Ve6 in studies performed.

<b>Exposure (operator, workers, bystander, consumer):</b> (MA 6.1 & MP 7.3, 8.0)	No risk when proper PPE by operators and workers is used
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**Residues** (Regulation (EU) N° 283/2013, Annex Part B, point 6 and Regulation (EU) N° 284/2013, Annex Part B, point 8)

Viable residues:	No risk for the consumer is expected since an increase of spore numbers or mycelium on leaves and fruits is deemed not to occur under practical conditions and spore numbers decrease quickly over time.
Non-viable residues:	No risk for the consumer is expected, since no toxins are expected to occur during and after application of Mycotol.

**Fate and Behaviour in the Environment** (Regulation (EU) N° 283/2013, Annex Part B, point 7 and Regulation (EU) N° 284/2013, Annex Part B, point 9)

Persistence and multiplication (competitiveness) in soil, water and air:	<i>Lecanicillium muscarium</i> has a global natural distribution in soil. The persistence of <i>L. muscarium</i> Ve6 in the environment upon application will depend among others things on the presence of suitable substrates and on competition with the <i>in situ</i> microbial community. It is expected that numbers of <i>L. muscarium</i> Ve6 will decline during a time course after application to eventually return to background numbers. The persistence in air is expected to be low, due to settling out or due to death of the microorganism due to desiccation or UV-radiation.
Mobility:	No leaching of <i>Lecanicillium muscarium</i> was detected in three soils tested.

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	Short-range dispersal can occur through rain-splash or by arthropods. Long-range transport through air is not expected to play an important role. Long-range transport may occur in free-flowing water.
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**Effects on non-target organisms** (Regulation (EU) N° 283/2013, Annex Part B, point 8 and Regulation (EU) N° 284/2013, Annex Part B, point 10)

### Effects on birds (MA 8.1 & MP 10.1)

Single application rate (kg CFU/ha)	Test substance	Crop	Test species	Time-scale	Toxicity, infectivity and pathogenicity (endpoint, value or other description of effects)
3x10 <sup>13</sup>	<i>L. muscarium</i> (Mycotal TGAI)	Strawberry (F)	Japanese quail ( <i>Coturnix coturnix japonica</i> )	5d exposure, 30 d observation	<u>Toxicity:</u> LD <sub>50</sub> > 1.2 × 10 <sup>9</sup> CFU/kg bw  <u>Infectivity/pathogenicity:</u> Tissues, faeces and blood samples showed no occurrence of the a.s.. Therefore no infectivity/pathogenicity was indicated.

### Effects on aquatic organisms (MA 8.2 & 10.2)

Group	Test substance	Time-scale	Toxicity, infectivity and pathogenicity (endpoint, value or other description of effects)
<b>Laboratory tests</b>			
<b>Fish species:</b> rainbow trout ( <i>Oncorhynchus mykiss</i> )	Unknown product with <i>L. muscarium</i> , VE6-58 SSP, white powder, 8.8×10 <sup>9</sup> CFU/g	96 h	<u>Toxicity:</u> LC <sub>50</sub> > 97 mg a.s./kg bw/day (corresponding with > 6.2×10 <sup>9</sup> CFU/L) <sup>a</sup>  <u>Infectivity/pathogenicity:</u> No signs of infectivity or pathogenicity  Endpoint considered as supporting information due to short study duration
<b>Invertebrate species:</b> <i>Daphnia magna</i>	MYCOTAL, as dry powder with <i>L. muscarium</i>	24 h	<u>Toxicity:</u> 24-h EC <sub>50</sub> of > 6.0 mg a.s./L (> 3.8 × 10 <sup>8</sup> CFU/L) <sup>b</sup>  <u>Infectivity/pathogenicity:</u> No signs of



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			infectivity or pathogenicity  Endpoint considered as supporting information due to short study duration
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<b>Effects on algae:</b> (species, growth, growth rate, capacity to recover) (MA 8.2.3 & MP 10.2)	No data available. Based on WoE presented (Vol. 3 MP, B.9.2) considered acceptable by RMS.
<b>Effects on aquatic plants</b> (species, growth, growth rate, capacity to recover)(MA 8.2.4 & MP 10.2)	No data available. Based on WoE presented (Vol. 3 MP, B.9.2) considered acceptable by RMS.

<sup>a</sup> average highest initial concentrations over the two top-dose replicates and the top-dose without fish

<sup>b</sup> actual concentration; probably limited exposure due to the low dispersibility of the test substance (recoveries of 0.29-0.66% of nominal)

### Effects on bees (MA 8.3 & MP 10.3)

Species	Crop	Test Substance	Route/time-scale*	Toxicity, infectivity and pathogenicity (endpoint, value or other description of effects)
<b>Laboratory Tests</b>				
		<i>L. muscarium</i> , Mycotal technical grade, white powder, actual concentration $9.4 \times 10^{10}$ CFU/g (c. 98% w/w)	4 d, topical exposure	LR <sub>50</sub> >100 µg a.s./bee (corresponding with $>6.3 \times 10^6$ CFU/bee)
		<i>L. muscarium</i> , Mycotal technical	4 d, oral exposure	LR <sub>50</sub> >112 µg a.s./bee (corresponding with $>7.1 \times 10^6$ CFU/bee) <sup>a</sup>

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		grade, white powder, actual concentration $9.4 \times 10^{10}$ CFU/g (c. 98% w/w)		
<sup>a</sup> intake, based on the actual feed consumption (nominal application rate was 100 µg a.s./bee)				
* Note: The study duration according to OPPTS 885.4380 should be 30 days. Therefore, with regard to infectivity and pathogenicity the studies are considered as less reliable, and supporting information only for the risk assessment.				

**Effects on terrestrial arthropods other than bees (MA 8.4 & MP 10.4)**

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Species	Test substance	Maximum exposure in study	Author / summary provided in	RMS conclusion
<b>Laboratory tests</b>				
<i>Trichogramma cacoecidae</i>	Micro Germin (a.s. <i>Verticillium lecanii</i> )	0.4% product 4 kg product/ha; laboratory  (RMS: content of a.s. unknown)	Vol.3, MA B.9, Section 8.4 (Sterk <i>et al.</i> , 1999) (DAR 2007)	<b>No toxic, infective or pathogenic effects to NTAs were observed.</b>  <b>Not useful for quantitative r.a. since exposure unknown, but considered as supporting info.</b>
<i>Encarsia formosa</i>				
<i>Aphidius matricariae</i>				
<i>Phytoseiulus persimilis</i>				
<i>Typhlodromus pyri</i>				
<i>Chrysoperla carnea</i>				
<i>Forficula auricularia</i>				
<i>Semiadalia notata</i>				
<i>Agonum dorsale</i>	In fact two isolates of the former V. lecanii were used: C3, isolated from the aphid Macrosiphonionella sanborni or 170.76, isolated from Cydia pomonella. Whereas in view of the target arthropod the C3 isolate probably refers to L. longisporum, the muscarium/longisporum option is more difficult to determine for the 170.66 isolate. As both isolates suppressed six hemipteran species, amongst them various aphids, both isolates were probably L. longisporum. Therefore it is difficult to extrapolate these test results to L. muscarium.	$1 \times 10^7$ spores/mL in spray solution 3 mL applied on $80 \times 50$ mm; laboratory	Vol.3, MA B.9, Section 8.4 (Sitch and Jackson, 1997) (DAR 2007)	<b>No toxic, infective or pathogenic effects to NTAs were observed.</b>  <b>Less useful for r.a. due to the use of different species/strains than L. Muscarium.</b>
<i>Bembidion lampros</i>				
<i>Bembidion obtusum</i>				
<i>Demetrias atricapillus</i>				
<i>Harpalus rufipes</i>				
<i>Pterostichus cupreus</i>				
<i>Trechus quadristriatus</i>				
<i>Tachyporus hypnorum</i>				
<i>Folsomia candida</i>				
<i>Lasius niger</i>				
<i>Episyrphum balteatus</i> (larvae)				
<i>Chrysoperla carnea</i>				
<i>Forficula auricularia</i>				
<i>Erigone sp.</i>				
<i>Oniscus sp.</i>				
<i>Encarsia formosa</i>	<i>Verticillium lecanii</i>	$3.6 \times 10^7$ spores/mL	Vol.3, MA B.9, Section 8.4	<b>No or slight mortality to adult parasitoid E. formosa. Test methodology and results are difficult to verify, therefore less useful</b>

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			(Flexner et al, 1986)  (DAR 2007)	for r.a., but considered as supporting info.
<i>Phytoseiulus persimilis</i>	<i>L. muscarium</i> Ve24	Spray residues on leaves using spraying solutions with $2 \times 10^6$ and $2 \times 10^7$ spores/mL	Vol.3, MA B.9, study 8.4/02  (Donka et al, 2008) (submitted for purpose of renewal)	A low risk is indicated for predatory mites exposed to spray residues on leaves using spraying solutions with $2 \times 10^6$ and $2 \times 10^7$ spores/mL. From the study, the target organisms of Ve24 appear to be comparable with Ve6. However, no further information is available to support extrapolation between these strains.
<i>Encarsia formosa</i>	MYCOTAL	$3.9 \times 10^4$ spores <i>L. muscarium</i> Ve6/cm <sup>2</sup> leaf surface	Vol.3, MA B.9, study 8.4/03  (Hamdi et al, 2011) (submitted for the purpose of renewal)	Although there may be a slight reduction in parasitisation efficacy by <i>E. formosa</i> , the study indicates that <i>L. muscarium</i> (product Mycotal) poses a low risk for natural enemies (bugs ( <i>M. caliginosus</i> ) and parasitic wasps ( <i>E. formosa</i> )) at the recommended dose rate (0.1%, corr. to $3.9 \times 10^4$ CFU/cm <sup>2</sup> , corr to $3.9 \times 10^{12}$ CFU/ha).
<i>Macrolophus caliginosus</i>				
<i>Encarsia formosa</i>	MYCOTAL & Addit	MYCOTAL & Addit was applied at the recommended dosages: 1 g/L (= $1 \times 10^{10}$ CFU/L) and 0.25%, respectively three times with an interval of a week	Vol.3, MA B.9, study 8.4/04  (Anonymous, 2006c) (submitted for the purpose of renewal)	<25% adverse effect according to authors/applicant. RMS noted reduction in parasitisation for <i>E. formosa</i> may be >50%. However, the report was very concise, therefore no firm conclusions can be drawn, al-though RMS considers that the company
<i>Phytoseiulus persimilis</i>				
<i>Macrolophus caliginosus</i>				

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				would not benefit if their product would adversely affect beneficials whilst stating that this is not the case to the users. The report is considered as supporting information.
<i>Aphidius colemani</i>	MYCOTAL	dose rates of 0.0, $2.5 \times 10^{10}$ , $5 \times 10^{10}$ and $10 \times 10^{10}$ conidia/L	Vol.3, MA B.9, study 8.4/06  (Aqueel, 2013) (submitted for the purpose of renewal)	<p><b>Reduced reproductive success of <i>A. colemani</i> (ca. 5% and 15% reduction in parasitisation and emergence resp. (visual assessment RMS)).</b></p> <p><b>RMS notes that it was unclear in the article for which treatment rates the results were presented. Therefore the study is less useful for quantitative r.a., but considered as supporting info.</b></p>
<i>Harmonia axyridis</i>				

### Effects on other terrestrial invertebrates (MA 8.5 & MP 10.5)

Species	Test substance	Test duration	Method	Observations	Results/Endpoint
<i>Eisenia fetida</i>	<i>L. muscarium</i> , Mycotol technical grade white powder, actual concentration $9.5 \times 10^{10}$ CFU/g (98% w/w)	14 d exposure	Mixing through artificial soil (10% OM)	Mortality, infectivity, pathogenicity	LC <sub>50</sub> 1000 mg a.s./kg soil dw, corresponding with $6.3 \times 10^{10}$ CFU/kg soil dw

### Effects on soil microorganisms (MA 8.6 & MP 10.6)

No data available, no relevant articles were found in the literature search. Based on WoE presented (Vol. 3 MP, B.9.6) considered acceptable by RMS.

## List of end points

Rapporteur Member State	Month and year	Microbial or Viral Agent (Name)
The Netherlands (RMS) France (co-RMS)	January 2018	<i>Lecanicillium muscarium</i> Ve6

Additional studies (MA 8.7 & MP 10.7)

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