

Renewal Assessment Report

***Lecanicillium muscarium* Ve6**

- Mycotal -

Volume 3MP – B.3 Data on application and efficacy

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Rapporteur Member State: The Netherlands

Co-Rapporteur Member State: France

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B.3 Data on application and efficacy

The representative formulation of *Lecanicillium muscarium*VE6 is Mycotal.

B.3.1 Field of use envisaged

*Lecanicillium muscarium*strain Ve 6 is used in protected crops as insecticide against thrips and white-fly. The representative uses are cucumber, ornamentals, strawberries, sweet pepper and tomato. Please refer to the table of representative uses in paragraph B 3.3 for more information.

B.3.2 Mode of action

Lecanicillium muscarium strain Ve6 is an insecticide.

Spores of *L. muscarium* strain Ve6 germinate on the insects cuticle, penetrate and affect tissue within 48 hours after infection. Once in the host, *Lecanicillium muscarium* forms blastospores which spread through the haemolymph of the arthropod host and lead to further infection. After 7-10 days, when a great number of hyphal bodies has been formed inside the body cavity the insect dies. At a high relative humidity the fungus can grow outside through the cuticle and can start to sporulate there. The mode of action of MYCOTAL is not based on causing an epidemic, but on a direct action by increasing contact between spores and insects.

B.3.3 Details of intended use

Table B.3.3-1: Summary of intended uses of

PPP (product name/code): MYCOTAL Formulation type: WG
Active Substance: *Lecanicillium muscarium* Ve6 (19-79) Conc. of a.s.: 48 g/kg; 1×10^{13} spores/kg

Applicant: Koppert B.V. professional use ☒
Zone(s): EU non professional use ☐

Safener: - Conc. of safener: -
Synergist: - Conc. of synergist: -

Verified by RMS: y

1	2	3	4	5	6	7	8	9	10	11	12	13
Use- No.	Member state(s)	Crop and/ or situation ^{a)} (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application			Application rate			PHI (days)	Remarks: ^{b)} e.g. g safener/synergist per ha
					Method / Kind	Timing / Growth stage of crop & season	Max. number (min. interval between applications) a) per use b) per crop/season	kg product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha (spores/ha) a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		
1	EU	Fruiting vegetables of Cucurbitaceae with edible peel and inedible peel	G	Nymphs of whitefly and thrips: <i>Bemisia tabaci</i> ; <i>Trialeurodes vaporariorum</i> ; <i>Frankliniella occidentalis</i> ; <i>Thrips tabaci</i>	Spray application	At first sign of infestation Jan-Dec., BBCH 0-99	a) 12 (7) b) 36 (7)	a) 2 b) 72	a) 96 (2 × 10 ¹³) b) 3456 (7.2 × 10 ¹⁴)	1000/2000	1	3 cycles/year

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2	EU	Fruiting vegetables of Solanaceae,	G	Nymphs of whitefly and thrips: <i>Bemisia tabaci</i> ; <i>Trialeurodes vaporariorum</i> ; <i>Frankliniella occidentalis</i> ; <i>Thrips tabaci</i>	Spray application	At first sign of infestation Jan-Dec., BBCH 0-99	a) 12 (7) b) 12 (7)	a) 2 b) 24	a) 96 (2×10^{13}) b) 1152 (2.4×10^{14})	1000/2000	1	1 cycle/year
3	EU	Strawberry	G	Nymphs of whitefly and thrips: <i>Bemisia tabaci</i> ; <i>Trialeurodes vaporariorum</i> ; <i>Frankliniella occidentalis</i> ; <i>Thrips tabaci</i>	Spray application	At first sign of infestation Jan-Dec., BBCH 0-99	a) 12 (7) b) 24 (7)	a) 1 b) 24	a) 48 (1×10^{13}) b) 1152 (2.4×10^{14})	1000	1	2 cycles/year
4	EU	Strawberry	F	Nymphs of whitefly and thrips: <i>Bemisia tabaci</i> ; <i>Trialeurodes vaporariorum</i> ; <i>Frankliniella occidentalis</i> ; <i>Thrips tabaci</i>	Spray application	At first sign of infestation Jan-Dec., BBCH 0-99	a) 12 (7) b) 24 (7)	a) 1 b) 24	a) 48 (1×10^{13}) b) 1152 (2.4×10^{14})	1000	1	2 cycles/year; to be applied in closed plastic tunnels
5	EU	Floriculture crops, except cut roses	G	Nymphs of whitefly and thrips: <i>Bemisia tabaci</i> ; <i>Trialeurodes vaporariorum</i> ; <i>Frankliniella occidentalis</i> ; <i>Thrips tabaci</i>	Spray application	At first sign of infestation Jan-Dec., BBCH 0-99	a) 4 (7) b) 24 (7)	a) 2 b) 48	a) 96 (2×10^{13}) b) 2304 (4.8×10^{14})	1000/2000	1	1-7 cycles/year; max. number of applications per year: 24
6	EU	Cut roses	G	Nymphs of whitefly and thrips: <i>Bemisia tabaci</i> ; <i>Trialeurodes vaporariorum</i> ; <i>Frankliniella occidentalis</i> ; <i>Thrips tabaci</i>	Spray application	At first sign of infestation Jan-Dec., BBCH 0-99	a) 24 (7) b) 24 (7)	a) 3 b) 72	a) 144 (3×10^{13}) b) 3456 (7.2×10^{14})	1000/3000	0	per 12 month

7	EU	Tree nursery	G	Nymphs of whitefly and thrips: <i>Bemisia tabaci</i> ; <i>Trialeurodes vaporariorum</i> ; <i>Frankliniella occidentalis</i> ; <i>Thrips tabaci</i>	Spray application	At first sign of infestation Jan-Dec., BBCH 0-99	a) 24 (7) b) 24 (7)	a) 2 b) 48	a) 96 (2×10^{13}) b) 2304 (4.8×10^{14})	1000/2000	0	per 12 month
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a) Apply the product in the evenings in greenhouses and in closed tunnel systems to provide high humidity for at least 12 hours

B.3.4 Application rate

Please refer to the table of representative uses in paragraph B 3.3.

B.3.5 Content of micro-organism in material used (e.g., in the diluted spray, baits or treated seed)

Please refer to the table of representative uses in paragraph B 3.3.

B.3.6 Method of application

Please refer to the table of representative uses in paragraph B 3.3.

B.3.7 Number and timing of applications

Please refer to the table of representative uses in paragraph B 3.3.

B.3.8 Necessary waiting periods or other precautions to avoid phytopathogenic effects on succeeding crops

Not applicable.

B.3.8.1 Proposed instructions for use

It concerns a renewal. Mycotal is authorised in a wide range of crops against whitefly and thrips. Please refer to national authorisations of *Lecanicillium muscarium* Ve6.

B.3.9 Efficacy data / Effectiveness

Considering that the substance is approved and that the extant authorizations of plant protection products containing *Lecanicillium muscarium* have already been evaluated according to the Uniform Principles, no other efficacy information is considered to be necessary at this time.

B.3.10 Information on the development of resistance

Resistance of whitefly or thrips against *L. muscarium strain* Ve6 has not been reported since introduction of this strain as microbial insecticide in the 80 s. *Lecanicillium muscarium strain* Ve6 does not have an IRAC mode of action classification.

The EPPO standard on principles of efficacy evaluation for microbial plant protection products PP1/276(1) states that when the mode of action of a micro-organism is based on direct toxicological or infective interaction with a pest, adaptation of the pest is more likely to occur.

The mode of action of *Lecanicillium muscarium* is not based on the presence of toxins in the fungus. Spores of *Lecanicillium muscarium* germinate on the whitefly cuticle, penetrate and affect tissue within 48 hours after infection. Once in the host, *L.muscarium* forms blastospores which spread through the haemolymph of the arthropod host and lead to further infection. After 7-10 days, the insect dies after formation of a great number of hyphal bodies inside the body cavity.

Thrips are probably killed as a result of multiple lesions of the cuticle by enzymatic degradation, as no fungal material was found in the haemolymph of the insect at the time of death.

Taking into account the mode of action, and the absence of reported cases of resistance, for renewal of the active substance there is no concern regarding the development and occurrence of resistance.

B.3.11 Adverse effects on treated crops

Mycotal does not have any known adverse effect on treated crops.

Considering that the substance is approved and that the extant authorizations of plant protection products containing *Lecanicillium muscarium* have already been evaluated according to the Uniform Principles, no other information on adverse effects on treated crops is considered to be necessary at this time.

B.3.12 Observations on undesirable or unintended side-effects, e.g. on beneficial and other non-target organisms, on succeeding crops, other plants or plants used for propagating purposes (e.g. seeds, cuttings, runners)

Considering that the substance is approved and that the extant authorizations of plant protection products containing *Lecanicillium muscarium* have already been evaluated according to the Uniform Principles, no other information on undesirable side-effects on treated crops is considered to be necessary at this time.

B.3.13 Other/special studies

None.

B.3.14 Summary and evaluation of efficacy data (3.2)

According to the latest guidance on the preparation of dossiers for the renewal of active substances, information on efficacy is not required (SANCO/10181/2013 – rev. 2.1, 13 May 2013). The representative products have all been authorised at Member State level for > 10 years and have therefore been assessed in line with Uniform Principles.

B.3.15 References relied on

No references relied on.