

NEEMAZAL-T/S - REGISTRATION SITUATION IN EU AND OTHER METHODS OF APPLICATION

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INTRODUCTION

On 8th of December 2008 with decision No. C(2008) 7803 of the European Commission the non- inclusion of Azadirachtin in Annex I of Reg. 91/414 has been published. The publication of the non- inclusion is a result of voluntary withdrawal of the dossier from side of Trifolio-M, because it was not possible to finish long-term studies and to submit the results to the dossier for completion of the same. Trifolio-M has planned to re-submit the dossier in May 2009. In those countries, where the national registration is valid until 31st of December 2010 or longer, the current situation should have no effect on the national approval and no activities are necessary. The registration of NeemAzal-T/S in Germany will end on 31st of December 2010 too. For the re-registration for the next 10 years Trifolio-M prepared the dossier with several new indications for orchards, vegetable, ornamentals, forest, vine and field crops. The main target pests are sucking and free feeding insects which are controlled by normal spray application of 2 to 3 Liters aqueous NeemAzal-T/S solution per hektare (Hummel, Ruch, Kleeberg, 2006). New application techniques are under development like baits, soil and hydroponic application, drip irrigation and stem injection too.

RESULTS OF THE DIFFERENT APPLICATION TECHNIQUES

Stem injection

Trifolio-M developed a new formulation NeemProTree-5 with 5% of active substance Azadirachtin A for the stem injection against Horse Chestnut Leafminer *Cameraria ohridella* and Oak Processionary Moth *Thaumetopoea processionea*. Pavla and Barnett (2005) tested this formulation in the Czech Republic in the doses of 0.8, 0.15 and 0.25 g of Azadirachtin per cm of stem diameter at breast

height (dbh) and detect a long-lasting insecticidal activity against *C. ohridella*. The 0.15 and 0.25 g. a.i. concentration resulted in 100% pupae reduction in all generations; the 0.08 g a.i. was effective against this pest for at least 23 weeks and led to 70-80% pupae reduction. Treated trees lost their leaves much later than untreated. Labanowski et al. (2009) injected 20 ml of NeemAzal-formulation per 1 m of trunk circumference in March-April and protected the trees from *C. ohridella* and it was enough to control of this pest in the year of the treatment and one year after application.

Drip irrigation

Palumbo et al. (2001) compared in small plot field studies the soil-applied treatments, foliar sprays and application through sub-surface irrigation with the NeemAzal-preparation AZA-Direct and chemicals against Green Peach Aphid (GPA) and Lettuce Aphid (LA). The results showed that after drip irrigation GPA populations never build up and against LA three drip irrigations at 24 oz/acre provided comparable control to 5 foliar applications.

Soil application

Thoeming and Poehling (2006) examined integration of soil application of Azadirachtin with two predatory mite species to control *Frankliniella occidentalis* (Pergande) on *Phaseolus vulgaris*.

The release of a single predatory mite species reduced thrips numbers only to the lowest degree under this set of experimental conditions.

Predator combinations increased corrected thrips mortality ranging from 54 to 85%. NeemAzal-U (17% Azadirachtin), a formulation developed for root uptake, caused mortalities from 70 to 98% after soil application.

A combination of Azadirachtin with predatory mites enhanced not only consistency in thrips control but also resulted in efficacies of up to 99%.

The survival of both predatory mite species was not significantly affected by NeemAzal-U. However, a significant reduction of the population of *Hypoaspis aculeifer* indicates an influence of NeemAzal-U on reproduction of the soil dwelling mites.

Bait application

In first experiments of Koeppler et al. (2006) with a bait formulation with NeemAzal-T/S (5-20% solution) against Cherry Fruit Fly *Rhagoletis cerasi* showed that the application of 30 ml bait/tree has an efficacy of up to 42%. In following trials in the laboratory with NeemAzal-T/S at 1 and 5% concentration the survival of flies was reduced significantly, when feeding only on Neem containing bait (Koeppler et al. 2008).

Furthermore, a significant reduction of egg-deposition, the number of hatched larvae as well as the number of pupae was obtained.

Comparing two age groups of flies, significant difference in survival and reproduction got obvious, when adult flies were fed with Neem in an earlier stage of their pre-oviposition phase.

Hydroponic application

The effect of a low concentration of NeemAzal-U (17% AzA) applied systemically through the roots of tomato plants on the development of Greenhouse White Fly *Trialeurodes vaporariorum* has been studied by Pavela et al. in 2006.

He found that the effectiveness increased, dependent on dosage (5 and 0,5 ppm AzA) and the number of applications. Two applications at 5 ppm or 3 applications at 0,5 ppm reduced each stage by 70-80%. Such a significant decrease in the *T. vaporariorum* population can be sufficient for pest regulation in tomato plants grown in hydroponics and may serve as model basis for other crops and ornamentals grown hydroponically.

CONCLUSIONS

The presented application techniques showed the new possibility of using of NeemAzal-formulation in plant protection.

ABSTRACT

The registration of NeemAzal-T/S will end on 31th of December. A new dossier for the next 10 year is prepared. It is possible to use of this formulation as the bait, soil and hydroponic application, as a drip irrigation and the stem injection too.

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