

Control of pyrethroid resistant pollen beetles

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In the last years control of pollen beetle (*Meligethes aeneus* F.) in Germany was mainly based on the application of synthetic pyrethroids. The extensive and indiscriminate use of this insecticide class resulted in a high selection pressure on the beetles, ensuing in the formation of resistance, which has spread over many European countries.

Insecticide applications should reduce yield loss by bud feeding and the reproduction of the beetles to minimize the infestation pressure in following cultures, e.g. vegetable crops and winter oilseed rape in the following year.

To test the effect of insecticides on the reproduction of pollen beetles a field trial was carried out near Braunschweig in 2013. Egg laying was significantly reduced by application of the neonicotinoid Biscaya (active ingredient thiacloprid) in BBCH 60 or 65. Consequently a reduced number of larvae and new pollen beetles hatched.

Application of the pyrethroid insecticide Karate Zeon (active ingredient lambda-cyhalothrin) resulted in an increase of the next generation. In 2014 the effect of Biscaya and Mavrik (active ingredient tau-fluvalinat) on population dynamic was investigated. The insecticides were applied in different growth stages (BBCH 55 or 60).

Shortly before and after application the number of beetles was counted in the different plots. Additionally the number of eggs per bud and the number of larvae dropping to the ground for pupation was recorded. The larvae were investigated for parasitization with the key larval parasitoids *Tersilochus heterocerus* and *Phradis* spp.

Furthermore the new pollen beetle generation emerging from treated and untreated plots was trapped in photoelectors. In the field trial 2014 the application of the insecticides Biscaya and Mavrik had an effect on the population dynamic whereby Biscaya was more effective.