

Using dropleg technique during flowering of oilseed rape to avoid pollinator exposure

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Spraying of insecticides and fungicides during the flowering stage of oilseed rape can be necessary to control insect pests (*Ceutorhynchus obstrictus* and *Dasineura brassicae*) and pathogens (*Sclerotinia sclerotiorum*). In contrast to conventional application technique dropleg nozzles are kept below the flowering canopy. So the exposure of pollinators to active ingredients is reduced and it was demonstrated that chemical residues in honey decreased significantly.

The JKI tested the efficacy of different insecticides applied with dropleg technique compared to conventional technique against insect pests in field trials conducted in the area of Braunschweig from 2014-2017. Furthermore the effects of the dropleg technique on parasitoids of oilseed rape pests were examined.

The crop was treated at full flowering (BBCH 65) with insecticides. After application until harvest adults and larvae of oilseed rape pests were collected using water trays at soil level of each plot. The emerging of new generation beetles was recorded by photoelectors, closed at BBCH 78. At least two times during each season oilseed rape plants were cut and

the pod damage by *D. brassicae* was examined.

The new technique showed similar efficacy compared to conventional spraying technique. The number of larvae of

D. brassicae dropping to the ground was reduced and effects on the pod infestation with pod midge were observed for about 3 weeks after application. An explanation for the effects of dropleg technique might be that insect pests also hide in the vegetation layer that shelters against unfavorable weather conditions. Nevertheless pest abundance, especially of cabbage seed weevil was not always sufficient to get clear results. In all years yields did not differ significantly regarding the use of conventional or dropleg application technique.

Dissection of pollen beetle larvae from 2015-2017 for eggs of *Tersilochus heterocerus* showed very high parasitism rates up to 90%. There are hints that parasitism rates were higher in the first days after application using dropleg technique compared to conventional spraying. Further studies and a closer look at other parasitoids will be necessary for the future.