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Dropleg-technique against insect pests in flowering oilseed rape

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In the traditional growing areas of oilseed rape (*Brassica napus* L.) in Europe, the chemical control of the insect pests cabbage seedpod weevil (*Ceutorhynchus obstrictus* M.) and brassica pod midge (*Dasineura brassicae* W.) is needed regularly at the flowering stage of the crop. When using dropleg-technique, the nozzles are kept below the inflorescence and the spray is directed sideways and downwards. The technology can significantly reduce the residues of pesticides in pollen and nectar of the crop. Thus, the use of dropleg-technique can save bees and other pollinators from lethal or sublethal effects of pesticides.

The efficacy of insecticides applied to the named insect pests at full flowering of oilseed rape using dropleg-technique was evaluated in four years of field trials from 2015-2018 and compared to traditional top-to-bottom application technique. All trials had a complete randomized block design and four replications. Between application and harvest adult insect pests and its larval instars were collected with water trays, placed at the ground of each plot. The proportion of infested pods was assessed twice by a visual rating of plants in each season. Only the brassica pod midge was abundant in higher numbers in all years at the trial site. The application of thiacloprid (72 g a.i. ha⁻¹) with traditional application technique significantly reduced the proportion of pods per plant, infested with the first generation of brassica pod midge larvae, between 66 and 98 % compared to the untreated control. In contrast, the efficiencies of thiacloprid using dropleg-technique ranged between 23 and 57 %. Larval numbers of brassica pod midge dropping to the ground for pupation over the season were reduced significantly compared to the control by conventional spraying in all years. Spraying with dropleg-technique resulted in even lower larval numbers in 2017. In the years 2015 and 2016 the efficacy was only slightly reduced compared to conventional spraying but in the year 2018 conventional spraying showed clearly better results. The pest pressure and weather conditions at the date of application which influence the location and mobility of insect pests in the crop as well as the stability of active ingredients might explain the different efficiencies between the years.

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