

O.20 - Trap crops for pollen beetles in oilseed rape: is push-pull compatible with conservation biocontrol?

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There is an urgent need to manage pollen beetles and insecticide resistance in oilseed rape by adopting sustainable crop protection strategies less reliant on insecticides. A durable strategy should integrate multiple tactics. There is growing interest in the value of enhanced agro-ecosystem diversity and “push-pull” strategies for suppression of oilseed rape pests; trap crops have potential as the “pull” element of such a strategy. Recent studies in Europe have also highlighted the value of parasitoids in biocontrol of pollen beetles, 20-50% parasitism being common. For strategies using trap crops to be durable, they must conserve biocontrol agents and maximise their effects. Trap crops attract, intercept and retain pests by exploiting the cues used by the pest for host location and acceptance. Parasitoids also use these cues, host-habitat location being preliminary to the detection of more specific and scarce cues from their insect hosts. Care must be taken that manipulation of plant cues should not impair the host location processes of parasitoids. We describe the behavioural ecology underlying the success of turnip rape as a trap crop for pollen beetles in oilseed rape, and the importance of plant growth stage, volatiles and colour cues. We report the responses of pollen beetles and two parasitoids to choices of oilseed rape and turnip rape and to choices of plants with different petal characters with potential for trap cropping. Pest and parasitoid responses to habitat cues were generally similar. Therefore trap-cropping and conservation biocontrol should form compatible and durable elements of a sustainable crop protection strategy for pollen beetles in oilseed rape.