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Breeding perspectives for pest control in rapeseed

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PLENARY TALKS

Rapeseed (*Brassica napus*) is an attractive host for various insects throughout its growing season. In winter-type rapeseed, colonization starts with flea beetle (*Psylliodes chrysocephala*) and cabbage root fly (*Delia radicum*) in autumn and is followed in the 2nd year by cabbage stem weevil (*Ceutorhynchus napi*) and pollen beetle (*Brassicoglyphus aeneus*) among others. Pest infestation varies over years and regions and is generally controlled in the field by application of insecticides. To reduce synthetic pest control as part of a sustainable rapeseed production alternative solutions must be developed. Breeding of insect tolerant varieties is an obvious task to achieve, but resistance traits against individual pests are rare, if present at all, in the modern gene pool of rapeseed. To prevent feeding of pest insects on rapeseed we are investigating two major themes in the course of research projects: 1. identification of resistance traits in a broad genetic plant diversity ranging from non-adapted rapeseed to more distantly related cruciferous species. 2. we explore the potential of biological seed treatments as means to fend off flea beetle and cabbage root fly at early stages of plant development. This includes compounds that either repel insects, induce the plant defence system or directly interfere with insect performance. The validity of these compounds is tested under laboratory and field conditions. Also, biochemical analysis shall reveal insight into molecular mechanism of plant-insect interaction and thus enable new avenues to deter insects from rapeseed. Breeding for insect resistance in rapeseed still is at its infancy and will need intense effort in the coming years to become one tool in sustainable crop management.

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