

Topic/Title: Påvisning og håndtering av plantevernmidler hos et utvalgt skadedyr.

Topic/Title: Detection and management of pesticide resistance in a selected insect/mite species.

Picture: Examples of pest where resistant populations are found in Norway and other countries:

<p>Fig. 1. Adult and egg of two-spotted spider mite (Photo: K. Westrum, NIBIO)</p>	<p>Fig. 2. Adult pollen beetles on spring rape flower buds. (Photo: E. Fløistad, NIBIO)</p>	<p>Fig. 3 Larvae of diamondback moth (Photo: E. Fløistad, NIBIO).</p>

Summary

Background: Pesticide has become an increasing problem in Norwegian agriculture. Insect and mite pests of concern are the e.g. pollen beetles (*Brassicogethes/ Meligethes* spp.) and flea beetles in oilseed crops, diamondback moth (*Plutella xylostella*) in cruciferous crops and two-spotted spider mite (*Tetranychus urticae*) in soft fruits berry production. Some populations of these pests have developed resistance towards one or more of the approved pesticides. In order to obtain less and a more sustainable use of insecticides, and reduce the risk of resistance development, there is a need to develop anti-resistance strategies for use at farm and district level, and to include anti-resistance strategies in integrated pest management programs.

Thesis: Different approaches are relevant and will be made based on the student's field of interests. Examples of topics on pests in oilseed rape are:

- Participate in the ongoing monitoring of resistance in pollen beetles or flea beetles in oilseed rape crops: The work will include collection of pests from fields in May-June, resistance tests (bioassays) in laboratory and/or efficacy experiments in fields. Authorized persons at NIBIO will do the handling of insecticides.
- Investigate the relationship between the composition of the pollen beetle species-complex on resistance level: The work will include pollen beetle identification training, identification of pollen beetles collected from oilseed rape fields and resistance bioassays. Authorized persons at NIBIO will do the handling of insecticides.



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- Development of an anti-resistance strategy for pest control in oilseed rape for use at farm and district level: The work will include literature study, compilation of current knowledge on resistance management and interviews with agricultural advisors and farmers

Time for doing different tasks: Field collection of pests in May-August; resistance testing with bioassays in May-December; development of and anti-resistance strategies in January-December.

Subject area: Agricultural entomology, plant protection, pesticide resistance management, pests in oilseed crops, soft-fruit crops and cruciferous crops.

Language thesis: Norwegian and/or English

Master thesis: Master thesis

Credits: 30 or 60

Project/company:

- Management of pesticide resistance (running yearly from 2016), Financed by Norwegian Ministry of Agriculture and Food, project at NIBIO.
- Follow pesticide resistance development in pests of concerns in Norwegian plant production (running yearly from 2020), Financed by Norwegian Ministry of Agriculture and Food, project at NIBIO.

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