

Biology and control of apple fruit moth (rognebærmøll) in apple – what can we learn before the next major attack?

Suitable for MSc thesis or Internship at NIBIO. Contents must be tailored to student's interests, project resources and covid-regulations at the time of study.

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Background: Females of the apple fruit moth (*Argyresthia pomonella*) invade orchards to oviposit on apple fruitlets if their preferred host (rowan berries) is not available. The risk of attack in apple is forecasted annually by comparing the abundance of rowan berries that year to the abundance of moths produced the preceding year (<https://www.vips-landbruk.no/applefruitmoth/>). The moth has traditionally been the most damaging pest insect in Norwegian apple orchards, but in the new millennium its importance has declined. However, in 2020 we have had the greatest attack in apple since the 1990s, and it is vital to learn what we can from the experiences of 2020, including which control strategies were most successful and how well the moth survives in different apple cultivars.



Apple fruit moth: Damaged apple (left), larva (middle), overwintering cocoons (right). Photos: N. Trandem, NIBIO.

Examples of research questions and methods (timing of study in parentheses):

- Survival in apple: To what extent do adult apple fruit moth emerge from left over fruits and surrounding soil in unsprayed orchards in 2021? Method would be to put emergence traps and kairomone traps near apple trees of various cultivars at Campus Ås and other suitable sites (must be done in May-June 2021).
- Oviposition pattern: How long does the oviposition period last? Use kairomon traps near rowan trees and dissect females caught in these (weekly during July-August any year).
- Explore novel methods for control. Screening of less toxic alternatives to chemical pesticides (for example vegetable oil, plant extracts or entomopathogenic fungi) on rowan berries (June/July, monitor result in August, any year with rowan berries present)
- How well can the amount of rowanberries in a year be forecasted by quick observations of flower bud abundance made well before the growing season? Data collection during winter/ early spring to be compared with data collected during flowering (May-June).
- What was the best control practice from 2020 and why? Analyse data collected from growers in 2020 + literature study (any time in 2021, in close cooperation with the Norwegian Agricultural Extension Service, NLR).