



# FruitGrowth

Novel organic solutions securing future growth  
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Ministry of Food, Agriculture and Fisheries



DET BIOVIDENSKABELIGE FAKULTET  
KØBENHAVNS UNIVERSITET

# Challenges for Danish organic apple production

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- The production is small and unstable due to yield and quality loss from key pest and diseases
- Lack of suitable cultivars for producers
- Lack of suitable weed control strategies
- Lack of suitable storage strategies
- In market competition with imported organic apples



# Aim and objectives

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To increase the Danish production of high quality organic apples through delivering:

- New robust cultivars
- Storage solutions to extend seasonality
- Implement novel mechanical/biological technologies and compounds to optimally manage weed, diseases, pests and beneficials during production



# FruitGrowth partners

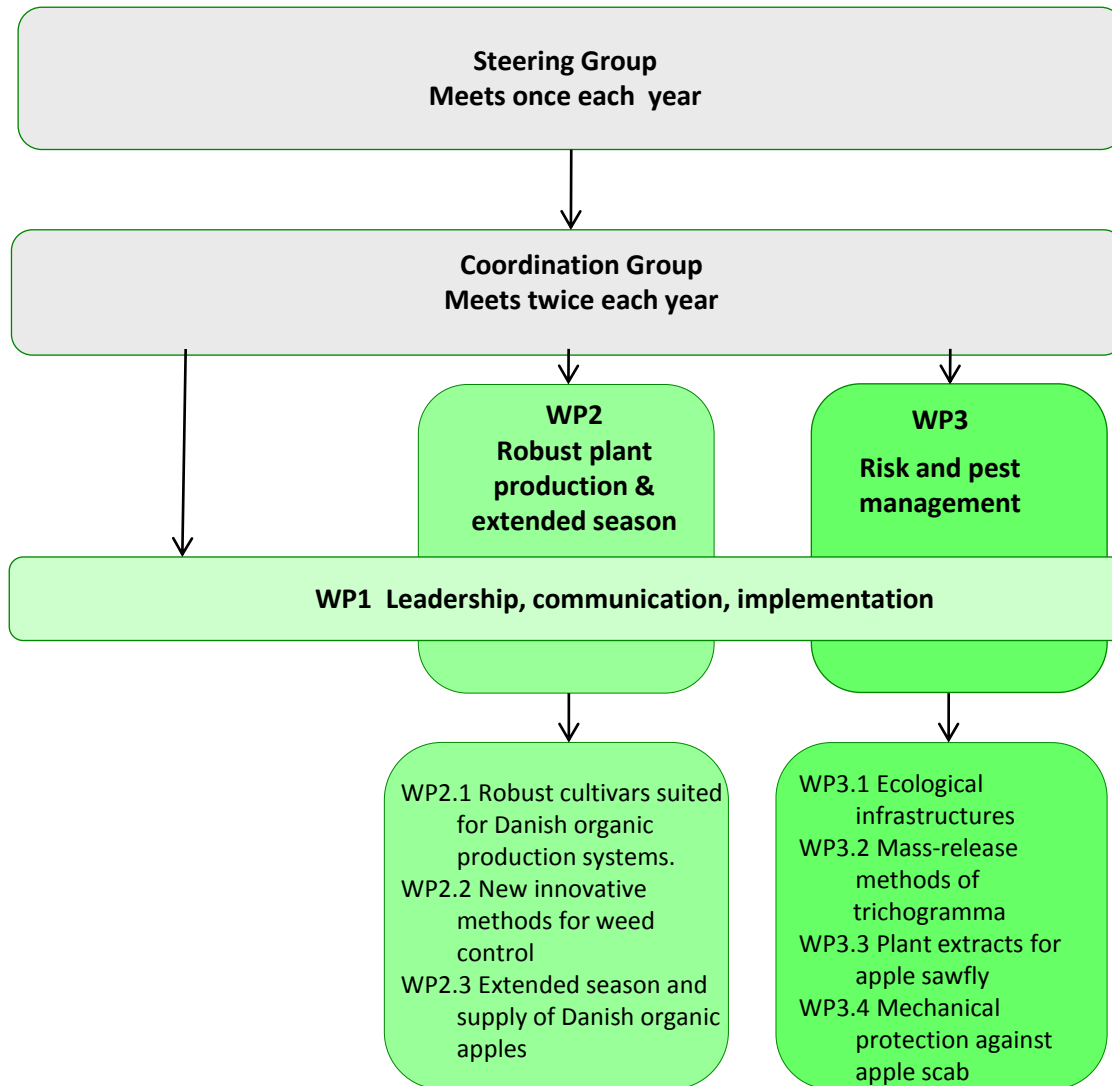
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- **AU**, Department of Food Science and Department of Agroecology
- **KU-LIFE**, Department of Agriculture and Ecology
- **SDU**, Department of Chemical Engineering, Biotechnology and Environmental Technology
- **GartneriRådgivningen**
- **Landboforeningen Gefion**
- **ENVO-DAN**
- **Danske Frugtavlere**
- **Ventegodtgaard (organic grower)**
- **Strandegaard (organic grower)**



# FruitGrowth organization

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# WP2 Robust plant production and extended season

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## Participants

**AU – Marianne Bertelsen**

**AU – Lillie Andersen**

**SDU – Rasmus N. Jørgensen**

**SDU – Keld B. Bertelsen**

**ENVO DAN – Ole Jensen**





# WP2 Robust plant production and extended season

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**WP2.1 Robust cultivars suited for Danish organic production systems**

**WP2.2 New innovative methods for weed control**

**WP2.3 Extended season and supply of Danish organic apples**

# WP3 Risk and pest management

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## Participants

**KU-LIFE – Lene Sigsgaard**

**Gefion – Maren Korsgaard**

**AU – Klaus Paaske**

**AU – Marianne Bertelsen**

**Strandegaard – Bent Jensen**

**Ventegodtgaard – Søren Thorsen**





# WP3 Risk and pest management

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**WP3.1 Ecological infrastructures**

**WP3.2 New mass-release methods of Trichogramma**

**WP3.3 Plant extracts for apple sawfly**

**WP3.4 Mechanical protection against apple scab**

# WP3.1 Ecological infrastructures

- Initiated in 2011. Lene Sigsgaard, KU-LIFE. Strandegaard, Ventegodtgaard
- Status according to plan.
- 10 organic orchards, 5 with grass, 5 with flower strips sampled in 2011.
- Flower strips re-sown spring 2011, same mixture in all flower-strip orchards
- Annual and perennial flora data collected for orchard characterization.
- Codling moth infestation in orchards assessed in summer
- Corrugated cardboard bands (30-40 per orchard) set-up and later collected for laboratory analysis for codling moths and natural enemies in process.
- Over 1000 codling moths in rearing for experiments in 2012.
- 2012 trials in orchards with flower strips + Pometum new planting



# WP3.2 New mass-release methods of Trichogramma

- Contact with biocontrol companies (AMW + EWH) and JKI- Institut Darmstadt regarding rearing and mass release of *Trichogramma cacoeciae* / *T. dendrolimi*
- Can purchase codling moth eggs from biocontrol company allowing larger scale trials with sentinel prey
- Small scale field trials in 2012
- Field trials in 2013



Cydia pomonella eggs



Trichogramma female

# Bekæmpelse af Æblebladhvepse

Fruitgrowth WP 3.3

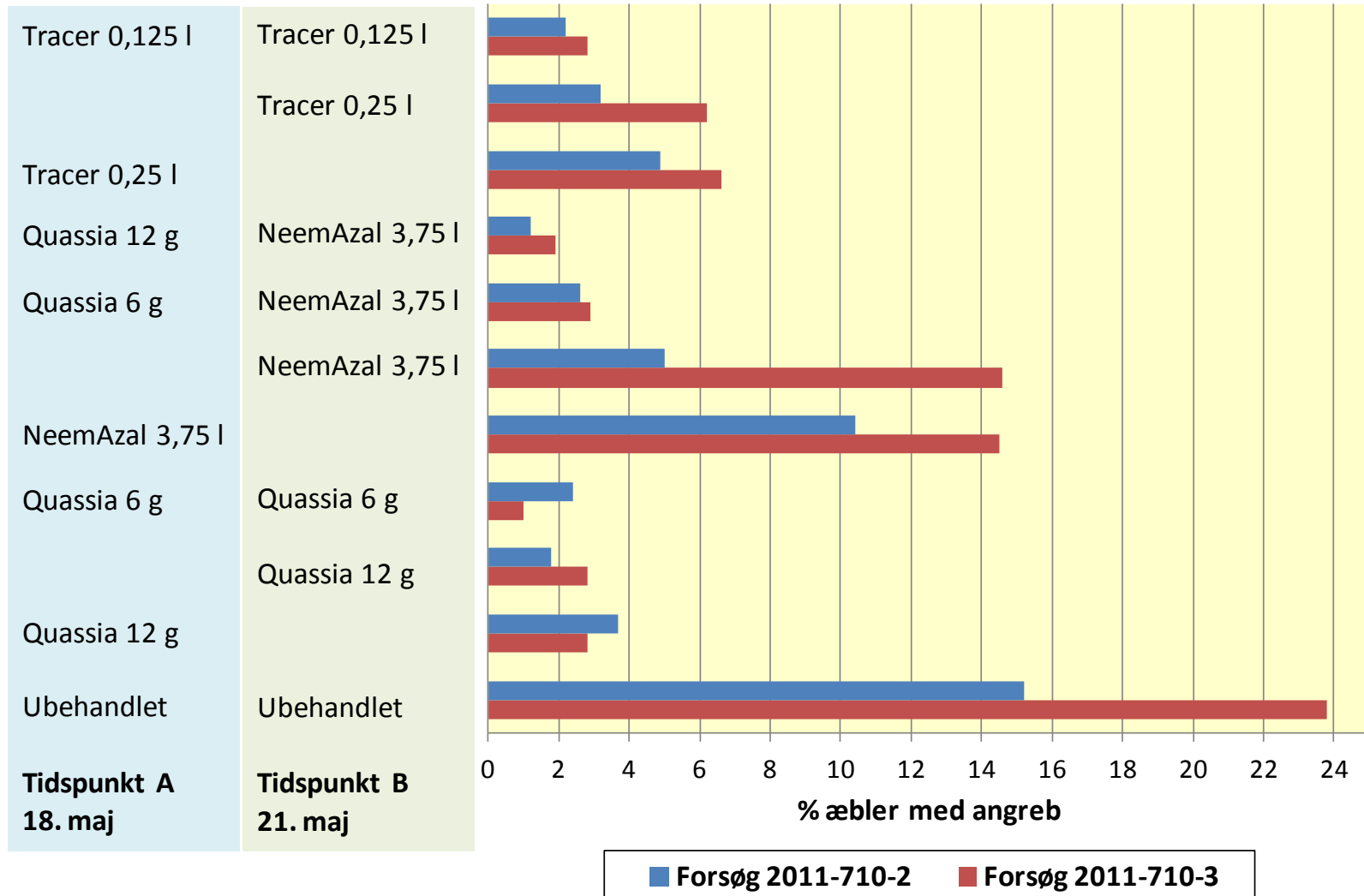


Klaus Paaske  
Institut for Agroøkologi  
AU Flakkebjerg

# Resultat begge forsøg

spinosad

% æbler med angreb





# WP3.2 Strategisk vanding mod æbleskurv

- Denne del af WP-3 påbegyndes i januar 2012 og varetages af Maren Korsgaard, KU-LIFE.
- I 2011 blev der i et pilotprojekt i Økologisk Rådgivning anlagt vandingssystemer og gennemført strategisk vandingsforsøg i fem økologiske forsøgsplantager.
- Vi vil i 2012 etablere strategisk vanding på Pometet.
- Vi vil optimere vandingen på baggrund af erfaringer fra pilotforsøget. Desuden skal vi gennemføre detailstudier af ascosporenes reaktion på forskellige vandmængder og vandingsmetoder samt lydpåvirkning.

