Plant protection challenges in organic fruit and berry growing

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Sigrid Mogan, NLR
Who am I

• Sigrid Mogan
• Office: Lier near Drammen
• From 2008 50-60% Coordinator for fruit and berry in NLR (Norwegian Agricultural Extension service)
• Responsible for plant protection tasks for both conventional and organic growing
• Adviser for ribes and cherries in NLR Viken 50-40%
• Worked with several organic projects and trials since 1998
Contentious inputs in fruit and berry growing?

• Foregangsfylkeprosjektet (motivation project):
  Lack of plant protection preparats in Norway limit the organic fruit and berry production!

• Organic-Plus:
  Pathways to phase-out contentious inputs from organic agriculture in Europe
  Focus on:
    - copper
    - sulphur
    - mineral oil

!?
Fruit and berry field as ecosystem

Ideal:
Balance between the living organisms and the abiotic factors

But:
Pests and fungi can be very harmful and cost big loss in yield and money for the grower
Pests and diseases
Plant protection - the principles

- Strong species and varieties
- Crop rotation
- Mecanical management
- Facilitate for beneficials
- Thermal treatment
- .......
Resistant varieties (black currant)

• Important to grow resistant or strong varieties
• But when we planted varieties strong against *Drepanopeziza ribis*, it turned out that they were very susceptibel for *Mycosphaerella ribis*
Remove infected leaves early spring

But the fungi also survived on the cluster stems! Cupper was wanted – dispensation from May 2011
Facilitate for beneficials and pollinators
Beneficials for spider mite (black currant field)
Other beneficials
Plastic cover/ tunnel (red currant) for rain protection before and during harvest
Stikkelsbærbladveps - Nematus ribesii
Stikkelsbærbladveps - Nematus ribesii
- sprayed with Neem-oil (trial) to the right, unsprayed to the left
Restriction for approval of plant protection preparations for organic

• National legislation, strict pracsis
• High application fee (feromones about 25,000 €)
Madex – against codling moth
Application (søknad) and approval (godkjent) in Norge, Sverige og Danmark. Not approved in Norway!
(Smartcrop, Valborg Kvakkestad)

<table>
<thead>
<tr>
<th>År</th>
<th>DK</th>
<th>SE</th>
<th>NO</th>
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<tbody>
<tr>
<td>2005</td>
<td>Søknad for Madex3</td>
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<td>2007</td>
<td>Søknad godkjent</td>
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<td>2011</td>
<td>Søknad for Madex</td>
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<td>2012</td>
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<td>2015</td>
<td>Søknad trukket</td>
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1. Preparates from animal or vegetarian origin
red colour – not approved
green colour - approved

<table>
<thead>
<tr>
<th>Preparat</th>
<th>Crop</th>
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</thead>
<tbody>
<tr>
<td>NeemAzal (azadirachtin)</td>
<td>Fruit and berry crops</td>
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<tr>
<td>Basisstoffer – bakery</td>
<td>Apple</td>
</tr>
<tr>
<td>powder (Na-bikarbonat)</td>
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<tr>
<td>Feromoner</td>
<td>Apple</td>
</tr>
<tr>
<td>Plantoil</td>
<td>Fruit</td>
</tr>
<tr>
<td>Pyretriner – Raptol</td>
<td>Ribes, blueberry, raspberry</td>
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<tr>
<td>Kvassia</td>
<td>Fruit</td>
</tr>
</tbody>
</table>
2. Microorganisms and prepares produced by microorganisms

red colour – not approved

green colout - approved

Preparat

Granulosevirus (Madex)
Serenade

Bacillus thurenginesis
Preferal
Spinosad (Conserve)

Crop

Apple
Strawberry, black currant, raspberry

Strawberry; indoor
Raspberry and blackberry indoor
3. Other preparations
red colour – not approved
green colour - approved

<table>
<thead>
<tr>
<th>Preparat</th>
<th>Crop</th>
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</thead>
<tbody>
<tr>
<td>Nordox (Cu)</td>
<td>Fruit and berry</td>
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<tr>
<td>Fatty acids (soap)</td>
<td></td>
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<tr>
<td>Green soap</td>
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<tr>
<td>Lime sulphor (Curatio)</td>
<td>Apple</td>
</tr>
<tr>
<td>Paraffin oil/ mineral oil (Fibro)</td>
<td>Fruit</td>
</tr>
</tbody>
</table>
Last word:

- We want
  - Resistant varieties
  - New methods for plant protection
  - Lower application fee
  - The same plant protection preparations as our neighbour countries
  - Still approval for Cu, sulphur and mineral oil