Severe infestations of cabbage seed weevil and brassica pod midge in winter oilseed rape in Sweden.

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Plant Protection Centre

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### Sweden – arable land 2,6 million hectares

<table>
<thead>
<tr>
<th>Crop</th>
<th>Hectare 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter wheat</td>
<td>375 000</td>
</tr>
<tr>
<td>Spring barley</td>
<td>310 000</td>
</tr>
<tr>
<td>Oats</td>
<td>180 000</td>
</tr>
<tr>
<td>Winter oilseed rape (WOSR)</td>
<td>105 000</td>
</tr>
<tr>
<td>Spring oilseed rape (SOSR)</td>
<td>7 000</td>
</tr>
<tr>
<td>Sugarbeets</td>
<td>30 000</td>
</tr>
</tbody>
</table>

Map showing the regions of Östergötland and Scania.
Acreage of oilseed crops in Sweden 1940-2017
including white mustard and flax 1940-1984

Source: Swedish Board of Agriculture
Many insect pests in WOSR

- Cabbage stem flea beetle
- Pollen beetle

Last severe infection of cabbage seed weevil and brassica pod midge was in Scania 1970s and Östergötland 1992
Survey brassica pod midge
Östergötland 1992-2017 15 fields /year
Cabbage seed weevil

Brassica pod midge

2016
Brassica pod midge – middle of July 2016
Good condition for migration May 2017 Scania
proPlant – Bayer Digetal Farming

Winterkohlschotenrüssler
Zuflug 100%

Winterkohlschotenmücke
Zuflug 76%

Datumsbänder
Sonne (h)
Niederschlag
Temp.Max.
Temp. Quer (°C) 2m
Temp. Min.
Luftfeuchte (%) 2m
Wind Quer (m/s)
Taupunkt (°C) 14°
Regen (h) >0,1 mm
Temp. Min (°C) 20cm

Mai 17
Datum
4 6 8 10 12 14 16 18 20 22 24 26 28 30
Brassica pod midge - 29th May 2017 Scania
Foto: Anders Adholm HIR Skåne
### Brassica pod midge Scania - Monitoring (% damaged pods)

<table>
<thead>
<tr>
<th></th>
<th>Number of fields</th>
<th>Fieldborder (variation)</th>
<th>20-30 m in the field (variation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>20</td>
<td>23 (0-74)</td>
<td>8 (0-43)</td>
</tr>
<tr>
<td>2016</td>
<td>40</td>
<td>40 (5-90)</td>
<td>28 (1-80)</td>
</tr>
<tr>
<td>2017</td>
<td>27</td>
<td>38 (1-87)</td>
<td>18 (3-45)</td>
</tr>
</tbody>
</table>

2016 - Treated and untreated fields difficult to see difference
2017 web survey 200 farmers – 46 % satisfied with the efficacy of treatments
Threshold and treatment

**Threshold cabbage stem weevil - 1-2 weevil/plant**
Lowered the threshold 2016
Brassica pod midge no threshold

Application in flowering
thiachloprid, acetamiprid,
alpha-cypermethrin, tau-fluvalinate
indoxacarb (before GS 57)
Few samples tested for resistance – negative (so far)

Several applications, timing difficult

Damage natural enemies, parasitoides
Area of winter oilseed rape in Scania doubled last years
Summary

• Extensive cultivation of winter oilseed rape with a substantial increase in recent years in Scania
• Short distance between last and this years’ oilseed rape fields - benefits the pod midge which has poor flight ability
• The balance between the weevil /the pod midge and its’ natural enemies has been shifted – the parasitoid wasps requires time to multiply
• At present treatment is required to safeguard yields and enable cultivation of oilseed rape

In the longer term
• Adapt treatment to a strictly needs basis
• Improved thresholds
• Project based on pheromone traps to catch the podge midge
• Less or decreased oilseed rape cultivation in certain areas