My name: Kees van der Vijver

✓ Regional phytosanitary specialist Amsterdam Airport/ Flower auction FloraHolland

✓ First line inspector
The purpose of my presentation:

- To tell something about import inspections
- How do you recognize damage caused by caterpillars
- What are the main characteristic differences between the Helicoverpa and Thaumatotibia (FCM) caterpillars/eggs
- To practice with the participants the Quiz “who am I?”
Specifications recognized phytosanitary import inspection post

- Inspection table – smooth and clean surface of at least 1 m²
- Sufficient light over the entire table – at least 60 lux or led light between 3000 – 5000 k
- The light source about 1 meter above the inspection table
### Sample size import inspection cutflowers per shipment

<table>
<thead>
<tr>
<th>Number of stems per genus</th>
<th>number of stems to inspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 400</td>
<td>50%</td>
</tr>
<tr>
<td>400 – 10.000</td>
<td>200 stems</td>
</tr>
<tr>
<td>10.001 – 25.000</td>
<td>300 stems</td>
</tr>
<tr>
<td>25.001 – 40.000</td>
<td>400 stems</td>
</tr>
<tr>
<td>40.001 – 55.000</td>
<td>500 stems</td>
</tr>
<tr>
<td>55.001 – 70.000</td>
<td>600 stems</td>
</tr>
<tr>
<td>70.001 – 85.000</td>
<td>700 stems</td>
</tr>
<tr>
<td>85.001 – 100.000</td>
<td>800 stems</td>
</tr>
<tr>
<td>100.001 – 125.000</td>
<td>900 stems</td>
</tr>
<tr>
<td>125.001 – 150.000</td>
<td>1000 stems</td>
</tr>
<tr>
<td>150.001 – 200.000</td>
<td>1100 stems</td>
</tr>
<tr>
<td>&gt; 200.000</td>
<td>1200 stems</td>
</tr>
</tbody>
</table>

Samples for at least out of 2 boxes. A maximum of 200 stems per box.
Damage caterpillar
Egg + damage caused by FCM
Caterpillars Noctuidae mostly found eating on the outer petals

Caterpillar Thaumatotibia eating from the outside of the rosebud towards the stamens
Overview of caterpillars found in Rosa cutflowers from Kenya from the beginning of 2016 till the end of August 2019 in the region Amsterdam

- A total of 332 caterpillars
- 58% of caterpillars were Other species no Q organism
- 30% were Spodoptera exigua no Q organism
- 6% were Helicoverpa a. no Q organism
- 4% were Th remotis spp. (FCM) – Q in the EU
- 1% were Spodoptera littoralis – Q in the EU
- 1% were Spodoptera frugiperda – Q in the EU

Kwaliteits-Controle-Bureau
Noctuidae (including Helicoverpa a.)
Crochets in a row

Tortricidae (including Thaumatomibia l.)
Crochets in a complete circle
Noctuidae

2 Lateral- setae on Thorax1
L1 and L2

Tortricidae

3 Lateral setae on Thorax1
L1, L2 and L3
Helicoverpa *fam.* Noctuidae  Thaumatotibia *subfam.* Olethreutinae

A9 Pinaculum with 1 setae (hair)

A9 Pinaculum with 2 setae (2 hairs)
The younger caterpillars:
Orange in color, the head and thorax shield are brown.

The younger caterpillars:
Color is somewhat white, both the head and thorax shield are dark brown.
Helicoverpa

The skin is covered with clear visible sharp spines/thorns

Thaumatomotibia

short spines are closer to each other than Helicoverpa
Different stages
Thaumatotibia leucotreta (FCM)
Larvae of Helicoverpa armigera

First instar dorsal

Second instar dorsal

Third instar dorsal

Fourth instar dorsal

Lateral view

Lateral view

Lateral view

Lateral view
Other moths: cotton armyworm (Spodoptera littoralis)

Note dark spot on 1st abdominal segment: first brown, later black

Download EPPO-protocol at https://gd.eppo.int/standards/PM7/
Spodoptera frugiperda - Noctuidae (an increasing number of interceptions)

Pinacula on A8 in a square
Pinacula on A9 like a trapezium

Ringed pinaculum SD1

Info: idtools.org/id/leps/lepintercept
Eggs....
Eggs

Helicoverpa

Egg is laid separate on the outside of rosebud. The egg has ribs and on top there is Bump.

Thaumatotibia

The egg is laid seperately and is quite flat. The egg looks like a fried egg
Eggs Spodoptera sp.

Eggs always placed in egg packages covered with hair
Flowchart caterpillars most found in Roses Kenya

- Crochets in a complete circle
  - A9: 2 setae (hairs) on D + SD pinaculum
  - A9: Lateral pinaculum 3 L setae
  - Thorax 1: L1 + L2 + L3
  - Thaumatotibia leucotreta (FCM) = Q EU

- Crochets in a row
  - A9: 1 setae D + SD
  - Pinaculum
  - Thorax 1: L1 + L2
  - Noctuidae

- Skin covered with sharp spines
  - Helicoverpa
  - No Q

- No spines, dark spots on T1
  - Spodoptera littoralis = Q EU

- No spines, A8 pinacula in a square, A9 in a trapezium
  - Spodoptera frugiperda = Q EU

Q = Quarantine organism
Info: idtools.org/id/leps/lepintercept
The Quiz: Who am I?
Thank you for your attention!