Integral Pro
A tool within an integrated pest management
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Overview

- Challenges in OSR
- Difference between “biologicals” & chemical active ingredients
- What is Integral Pro?
- Summary
- Registration timeline
Extract the yield potential of oilseed rape

OSR yield evolution – (Growers vs. Official variety reg. trials (DE))

- yield dt/ha variety reg. trial
- Average farm yield dt/ha


How can different measures stabilize the OSR yield on farm scale
Multiple factors limiting the yield potential

- Pre harvest management
- Soil preparation
- Nitrogen management
- Sowing
- Weed control
- Diverse sowing practices
- Pest & Insects control
- Weather is not predictable
- Weather root fly
- Straw / residues from previous crop
- Problematic weeds
- Grass weeds
- Cabbage
- Broad-spectrum
- Cruciferous
Seed Treatment: “Biologica ls” vs “Chemicals”

**Biologica ls**
- Multiple sources of biological active substances such as bacteria, seaweed extracts, etc.
- Multiple but more broadly unknown modes of action
- Living organisms with diverse behavior depending on various factors:
  - Weather
  - Microbiological soil activity
  - Soil properties
  - Crop rotation (etc.)

**Chemicals**
- Generally well known chemical active ingredients
- Well-known mode of action and clear classification
- Chemical synthesized active ingredients easier to study and understand

Opportunities for innovation, new generation products and addition value for the seeds
<table>
<thead>
<tr>
<th><strong>What is INTEGRAL PRO ?</strong></th>
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<tbody>
<tr>
<td><strong>Product profile</strong></td>
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<table>
<thead>
<tr>
<th><strong>Integral Pro</strong></th>
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<tbody>
<tr>
<td><strong>Active ingredients</strong></td>
<td><em>Bacillus amyloliquefaciens</em></td>
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<td><strong>Mode of action</strong></td>
<td>Multiple MoA</td>
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<tr>
<td><strong>Formulation</strong></td>
<td>FS Formulation, Uncolored formulation min 2,2 x 10^10 cfu/ml</td>
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<td><strong>Crops</strong></td>
<td>OilSeed Rape</td>
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<td><strong>Claims</strong></td>
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<tr>
<td></td>
<td>• Fungicide effects/Damping off - <em>Phoma lingam (Leptosphaeria maculans)</em></td>
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<td></td>
<td>• Plant strengthening:</td>
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<tr>
<td></td>
<td>o improved plant establishment</td>
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<tr>
<td></td>
<td>o flea beetle reduction</td>
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<td><strong>Application rate</strong></td>
<td>160 ml / 100 kg seeds</td>
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<td><strong>Compatibility</strong></td>
<td>Large range of chemical seed treatments (Thiram based formulations)</td>
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<td><strong>On-Seed Survival (OSS)</strong></td>
<td>Internal Studies indicates OSS &gt; 15 months (ongoing study)</td>
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What is INTEGRAL PRO?
Pathways of biologically induced resistance in plants
Mode of Action MBI 600 (DRAFT)

**Plant strengthening activated by „stress“ factors:**
- Disease attack
- Pest Attack
- Hot / Cold weather
- Etc.

**Plant strengthening activated by „Inductors“:**
- Plant growth promoters
- Non-pathogenic microorganisms
- Etc.

MBI-600 stimulates Plant Strengthening & Defense
Summary
Integral Pro

Fungicide activity

Increased plant establishment

Partial efficacies in different areas

Activation of plant’s defense mechanisms

Rises crop vigor in early stages

Increases tolerance to pests/diseases
Summary
Integral Pro a tool for early protection

Increases chances to achieve the potential yield

Integral Pro
Fungicide
Insecticide

Tolerance through breeding
Soil management

IPM Strategie
Summary
Integral Pro a tool for early protection

Increases chances to achieve the potential yield

Integral Pro
Fungicide Control

Tolerance through breeding

IPM Strategie

INTEGRAL PRO
Expected Registration timelines

Expected registration in Q4 2017. Launch in 2018 (Q1/Q2).

Status in June 2017

- Already Registered
- Countries where ST will be allowed
  - 2017 (Q4)
  - 2018 (Q1/Q2)
- Circulation of treated seeds (export)

Expected Countries where treated seeds can circulate in the future:
CZ, DE, DK, FI, FR, HU, LT, NL, PL, RO, SE, UK
Thank you for your attention

Integral Pro®
Multi-protection and strength
Right from the start