<table>
<thead>
<tr>
<th>Fungicides</th>
</tr>
</thead>
</table>

SipcamAdvan
Kurt Schwartau
IR-4 Food Use 2009
Sipcam-Oxon Today

- SipcamAdvan is a wholly owned subsidiary of Sipcam-Oxon.
- Privately owned, Italian HQ multinational group founded in 1946
- Business focuses on:
  - Synthesis/formulation of crop protection products
  - Production of chemical intermediates
  - Custom synthesis
  - Contract manufacturing
  - Development and registration
Crop Protection standard products

Proprietary formulations and pre-mixtures

Bio-rationals - a new generation

SipcamAdvan Products

New Products to US market

Tetraconazole
- Eminent® sugarbeet
- Eminent pecans
- Eminent peanuts
- Echo Eminent peanuts

Chlorothalonil
- Echo®
- Registration holder
- Long term, back-integrated technical production

TPTH
- Sugarbeet
- Pecans
New Fungicide Products

- Contans®
- ActinoGro™
- Tenet™
New Agricultural Products

• Contans®
  – Soil-active – works in the soil or on crop residue attacking Sclerotinia, the source of the disease, before it infects plants
  – Similar to how a herbicide attacks the weed seed bank, Contans goes after the source of the disease, reducing the fungus population year after year
  – Exempt from EPA requirements for food tolerance means no plant back or rotational crop issues
  – Zero hour re-entry interval
Contans® - Product Summary

- Contans – Active ingredient is *Coniothyrium minitans* – a naturally occurring fungus
- Contans attacks Sclerotinia at the source
- *C. minitans* attacks and destroys the sclerotia & mycelia of
  - *Sclerotinia sclerotiorum*
  - *Sclerotinia minor*
- Commercial focus on soybeans, dry beans, snap beans, other legume crops, leafy vegetables, canola and sunflowers
- Development focus on potato and other crops
Contans® - Features & Benefits

• Works in the soil
  – Controls Sclerotinia at the source before plants become infected
  – Long term benefit of reducing Sclerotinia populations/pressure over time

• Flexible application
  – Compatible with many herbicides for one pass application
  – Apply through conventional spray equipment
  – Can be applied pre-plant, at planting, whenever soil is disrupted or to harvest residue

• Fits both conventional & organic use
  – OMRI® Listed product
  – Excellent IPM Tool
Control of Sclerotinia on Dry Beans, 2006

- **Contans** ® WG applied 5/19
- La Paz navy
- Planted 5/30, 75,000 seeds/A, 30” rows
- Flowering 7/10
- Dis. assessments, 8/11, 250 plants/tr
- CP irrigated
- 4.4” rain, flowering to assessment
- Peak temperatures: 26 days 86F+, 17 days 90F+, 5 days 95F+

Englevale, ND, Irrigated Navy Beans
Wisconsin no till soybean field 2006
Grower combine equipped with GPS yield monitor. Color coded printout. Blue/Green = high yield, Red/Yellow = low yield. Contans applied 2 weeks pre plant tank mixed with Glyphosate

Untreated
52 bu/A

Contans WG
61 bu/A

51.78 bu/acre
59.72 bu/acre

62.19 bu/acre
Univ. of AZ – B. Pryor, 2006
-Healthy heads - *S. sclerotiorum* on lettuce

*S. sclerotiorum*

No. of healthy heads/plot

<table>
<thead>
<tr>
<th>Inoculum levels</th>
<th>Control</th>
<th>P.p-011</th>
<th>P.p-095</th>
<th>Contans 2lb</th>
<th>Contans 10lb</th>
<th>Endura</th>
</tr>
</thead>
<tbody>
<tr>
<td>No inoculum</td>
<td><img src="Image" alt="Bar Chart" /></td>
<td></td>
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<td>100ml</td>
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<tr>
<td>1000ml</td>
<td><img src="Image" alt="Bar Chart" /></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>
Salinas, CA – K. Subbarao, 2006/07
-Sclerotinia minor on lettuce

Dynamics of sclerotia

![Bar chart showing sclerotia per 100 cc soil for different treatments and seasons: Fall 2006, Spring 2007, Fall 2007.](chart.png)
New Fungicide Product

- **ActinoGro™**
  - Marketing label registration pending
  - Powerful disease management tool, provides a fast start for seedlings, healthy crops and big yields
  - Protects seedlings & crops from attack by root rots and soil fungus.
  - Active on *Pythium, Phytophthora, Rhizoctonia* & *Fusarium* spp.
  - Healthy, treated roots aid water & nutrient uptake thus providing a yield benefit.
  - Can be tank mixed or pre mixed with most chemicals
ActinoGro™ Fungicide Summary

- SipcamAdvan has exclusive rights to market in:
  - Potato, Peanut, Soybean, Edible beans, Cereals, Corn, Sugarbeets, Oilseeds and other row crops
ActinoGro™ Features & Benefits

• Active Ingredient: *Streptomyces lydicus* strain WYEC 108
  – Controls soil borne diseases and suppresses foliar diseases
  – Labeled for both soil and foliar applications
  – Controls damping off and root rot fungi
  – Disarms defense mechanisms of fungal pathogens
  – Increases crop yield
• Fits both conventional & organic use
  – OMRI® Listed product
  – Excellent IPM Tool
• Can be applied up to and including day of harvest with no plant back, rotational crop or livestock feeding restrictions
Yield Comparison of Potato Seed Piece Treatments Idaho Potato
Michelle Hamby Salove,
U of ID, M.S. thesis 2002
Title: Streptomyces as plant growth promoting Rhizobacteria

![Graph showing yield comparison with bars for Total Yield, US #1, and US #2 for Actinovate, Maxim MZ, and Untreated treatments.]
ActinoGro Soybean treatment Infurrow & Post R1
Cedar Falls, IA, Dr Bert Schou 2006

Yield bu/ac

Untreated
Actinovate 1 oz/A IF + R1
Corn Yield comparison Untreated vs ActinoGro 1 oz/Ac infurrow fb 1oz/Ac 8 leaves
Cedar Falls, IA, Dr Bert Schou, 2007
New Fungicide Product

Tenet™

- EPA Registration is pending
- *Phytophthora capsici* control (outperformed chemical std)
- Protects crops from attack by root rots and assorted fungus
- Healthy roots provide a yield benefit.
- Commercial focus on tomato, pepper, cucurbit, ornamentals and other vegetable crops.
Tenet™ - Features & Benefits

- Two active ingredients *T. asperellum* + *T. gamsii*
  - Controls soil borne diseases and-suppresses foliar diseases
  - Provides consistent performance
- Rigorous selection of active ingredient strains
  - results in dependable disease control
- Quality of formulation:
  - Persistent fungal spore viability
  - High wettability and dispersibility
- Useful tool for fungicide resistance management strategy
- Zero (0) hour REI
  - no disruption of crop production labor schedules
- OMRI® Listing is pending.
- Meets sustainable production standards

<table>
<thead>
<tr>
<th>Product</th>
<th>Active Ingredient</th>
<th>Rate/Ac</th>
<th>%Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenet 2%+2%</td>
<td>Trichoderma asperellum &amp; gamsii</td>
<td>2.2 lb</td>
<td>20%</td>
</tr>
<tr>
<td>Omega 500 F</td>
<td>Fluazinam</td>
<td>1.5 pt</td>
<td>29%</td>
</tr>
<tr>
<td>Ranman 400 SC</td>
<td>Cyazofamid</td>
<td>0.34 pt</td>
<td>32%</td>
</tr>
<tr>
<td>Presidio 4 F</td>
<td>Fluopicolide</td>
<td>0.5 pt</td>
<td>39%</td>
</tr>
<tr>
<td>Reason+Previcur</td>
<td>Fenamidone+Propamocarb</td>
<td>0.5+1.2 pt</td>
<td>40%</td>
</tr>
<tr>
<td>Ridomil Gold</td>
<td>Mefenoxam</td>
<td>1.0 pt</td>
<td>44%</td>
</tr>
<tr>
<td>Prophyt</td>
<td>Phosphite</td>
<td>4.0 pt</td>
<td>54%</td>
</tr>
<tr>
<td>Forum</td>
<td>Dimethomorph</td>
<td>0.375 pt</td>
<td>55%</td>
</tr>
<tr>
<td>Revus</td>
<td>Mandipropamid</td>
<td>1.0 pt</td>
<td>58%</td>
</tr>
<tr>
<td>Untreated</td>
<td></td>
<td></td>
<td>74%</td>
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</table>

Note: Results from Inoculated trial
# Soilborne Disease Fungicide Summary

<table>
<thead>
<tr>
<th>Disease Target/A.I.</th>
<th>Contans</th>
<th>Tenet</th>
<th>ActinoGro</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coniothyriam minitans</td>
<td>T.asperellum + T. gamsii</td>
<td>Streptomyces lydicus</td>
</tr>
<tr>
<td>Sclerotinia spp.</td>
<td>X</td>
<td>?</td>
<td>X</td>
</tr>
<tr>
<td>S. rolfsi</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Rhizoctonia spp</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pythium spp</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>P. capsici</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fusarium spp</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Thielaviopsis</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Foliar fungus</td>
<td>No</td>
<td>?</td>
<td>suppression</td>
</tr>
</tbody>
</table>
Thank You!

Contact: KSchwartau@SipcamAdvan.com
Tel. 916 719 6176