Control of citrus post-harvest diseases
Don’t let your hard work go to waste
CHAIRMAN highlights

• Controls Blue Mould, Green Mould and Sour Rot the major post harvest diseases in citrus

• Contains two modes of action, which strengthens the disease spectrum and manages resistance

• Both active ingredients are approved as food additives with Import tolerances set in Japan, maximising export opportunities for growers

• Syngenta is cooperating with regulatory authorities to open other export markets, ensuring ongoing market access

• CHAIRMAN is your post-harvest partner, protecting your investment
The Product

- Product specifications
- Diseases controlled
- How does it works
- Application guidelines
Product specifications

- **Product:** Chairman™
- **Actives:** 240g/L Fludioxonil + 102.5g/L Propiconazole
Product specifications

- **Product:** Chairman™

- **Actives:** 240g/L Fludioxonil + 102.5g/L Propiconazole

- **Resistance Management:**
  - Group 12 Fungicide
  - Group 3 Fungicide
Product specifications

- **Product:** Chairman™

- **Actives:** 240g/L Fludioxonil + 102.5g/L Propiconazole

- **Resistance Management:**
  
- **Formulation:** Suspo-emulsion

A suspo-emulsion contains both solid and liquid active ingredients dispersed in an aqueous phase (stable for at least 2 years)
Diseases controlled

- Blue Mould
  *Penicillium italicum*

- Green Mould
  *Penicillium digitatum*

- Sour Rot
  *Galactomyces citri-auranti*

Wound pathogens
Need a wound
Diseases controlled

Blue Mould
*Penicillium italicum*

Green Mould
*Penicillium digitatum*

Sour Rot
*Galactomyces citri-auranti*

Spores are common in the atmosphere, spreading on the wind.

Spores found in the soil, spread by rain splash.
Take a quick detour
Plants have developed natural defense mechanisms to ward off unwanted organisms.
Natural plant defences

Blue and green mould and sour rot

- Fungus
- MAMP receptor
- Cell wall
- Nucleus
- Cell membrane
- Bacterium
- Pathogen recognition signal
- Defense response
- Antimicrobial substances
- Defense
- NLR proteins
- Immunosuppressive molecules
- Attack
- Chaperone complex
- Defense response
- Defense preparation
- Pathogen recognition signal
- Pathogen invasion signal
- Cell death
Natural plant defences

Blue and green mould and sour rot

How do they get in?
Natural plant defences
Plants have developed natural defense mechanisms to ward off unwanted organisms
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Plants have developed natural defense mechanisms to ward off unwanted organisms.
Natural plant defences

Citrus black spot

*(Guignardia citricarpa)*

http://www.idtools.org/id/citrus/diseases/factsheet.php?name= Citrus%20black%20spot
Back on track
How does CHAIRMAN work?

1. Spore lands on the fruit.
2. Germinates.
3. Penetrates.
How does CHAIRMAN work?

Spore lands on the fruit

Germinates

Fludioxonil

Propiconazole

Penetrates
How does CHAIRMAN work?

Fludioxonil
Protectant
Non-systemic

Spore lands on the fruit

germinates

penetrates
How does CHAIRMAN work?

- **Fludioxonil**
  - Protectant
  - Non-systemic

- **Propiconazole**
  - Protectant and curative
  - Systemic

Spore lands on the fruit

Germinates

Penetrates
Application Guidelines

Product: Chairman
Rate: 250mL/100L
Adjuvant: Not Required
Spray volume: Expose fruit for a minimum 30 seconds
Safety: DO NOT re-handle treated fruit until the product has dried, unless wearing chemical resistant gloves
Trial Results

• Efficacy

• Crop Safety
Chairman controls green mould

Infection rate of green mould in Oranges cv Washington, Lemons cv. Lisbon and Mandarins cv Afourer inoculated with green mould (*Penicillium digitatum*), assessed 3 days after inoculation / treatment.
Infection rate of green mould in Oranges cv Washington, Lemons cv. Lisbon and Mandarins cv Afourer inoculated with green mould (*Penicillium digitatum*), assessed 3 days after inoculation / treatment.
Chairman controls blue mould

Infection rate of blue mould in Oranges cv Washington, Lemons cv. Lisbon and Mandarins cv. Afourer after inoculating with blue mould (*Penicillium italicum*), assessed 3 days after inoculation / treatment.
Infection rate of sour rot in Oranges cv Washington, Lemons cv. Lisbon and Mandarins cv Afourer inoculated with a 90:10 blend of sour rot (*Geotrichum citri-aurantii*) and green mould (*Penicillium digitatum*), assessed 3 (Oranges and Lemons) and 7 days (Mandarins) after inoculation / treatment.
Crop safety

Compared with other registered products...

- No significant weight loss
- No impact on calyx health
- No blemishes
Maximising performance

• How does it compare to other products
• Resistance management
• Compatibility
• Best practice
Chairman, how does it compare?

<table>
<thead>
<tr>
<th></th>
<th>CHAIRMAN</th>
<th>Panoctine</th>
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<tbody>
<tr>
<td>Active ingredient</td>
<td>Fludioxonil + Propiconazole</td>
<td>Guazatine acetates</td>
</tr>
<tr>
<td>MOA Group</td>
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<td>FRAC Resistance Risk Classification</td>
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<tr>
<td>Sour rot</td>
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</tr>
<tr>
<td>MRL established in key markets</td>
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</tr>
<tr>
<td>Japanese food additive designation</td>
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### Chairman, how does it compare?

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<tr>
<th></th>
<th>CHAIRMAN</th>
<th>Panoctine</th>
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<th>TECTO</th>
<th>SCHOLAR</th>
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<td><strong>MOA Group</strong></td>
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**Note:** The blue mould has been confirmed in key markets and the Japanese food additive designation has been established.
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**Post-harvest MRL’s**

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</table>

**MRL will be reduced to 0.01 mg/kg at end of 2019**
Best practice

- Shake the container prior to use and maintain agitation throughout the treatment operation.

- Apply Chairman™ at 250mL/100L as a dip, drench or flood spray.

- Immerse fruit in dip or expose to solution for 30 seconds.

- Treat citrus with 24 hours of harvest.

- Thorough and even coverage is essential.

- DO NOT let the treatment mixture stand overnight in the tank.
Safety and environment

- Safety Directions
- Protecting the environment
Safety directions

• Chairman™ is an S6 scheduled POISON

• Will irritate the eyes. Avoid contact with the eyes

• When opening the container, and preparing the dip or spray, wear:
  ✓ Cotton overalls buttoned to the neck and wrist
  ✓ Elbow-length chemical resistant gloves
  ✓ Face shield or goggles

• DO NOT re-handle treated fruit until the product has dried, unless wearing chemical resistant gloves
Protecting the environment

- Toxic to aquatic life
- **DO NOT** contaminate wetlands or watercourses with this product or used containers
Chairman™

your post-harvest partner
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