



Presidio® - A New Fungicide for Black Shank and Blue Mold Control in Tobacco

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PRESIDIO®
FUNGICIDE

What is Presidio® Fungicide?



- **Active ingredient: fluopicolide**
 - Tested as V-10161
- **Chemistry: new – benzamide**
- **MOA: novel**
 - Delocalisation of spectrin-like proteins
 - MOA Code - B5
 - FRAC Group – 43 (sole member)



What is Presidio® Fungicide?



- **Route of activity: contact, systemic (soil applied), locally systemic (foliar applied), translaminar**
- **Pest spectrum: wide range of oomycetes**
 - Downy Mildews, *Phytophthora* and *Pythium* species
- **Formulation: 4 lb/gal SC**



Presidio® - Spectrum



- **Phytophthora**

- *P. infestans* (late blight of potato & tomato)
- *P. capsici* (crown, root and fruit rot of cucurbits, pepper, eggplant)
- *P. capsici*, *P. parasitica* (buckeye rot of tomato)
- *P. cactorum* (foliar blight and root rot of ginseng)
- *P. nicotianae* (black shank of tobacco)

- **Downy Mildews**

- *Plasmopara viticola* (grapes)
- *Bremia lactucae* (lettuce)
- *Peronospora parasitica* (brassica vegetables)
- *Peronospora farinosa* f.sp. *spinaciae* (spinach)
- *Peronospora tabacina* (blue mold of tobacco)
- *Pseudoperonospora cubensis* (cucurbits)

- **Pythium**

- *Pythium aphanidermatum* (turf, tomato, watermelon)



Mode of Action



- **Presidio works by interrupting the pathogen's cell structure**
 - **Preventive**
 - ▣ Stops zoospore mobility and viability
 - ▣ Disturbs germ tube integrity
 - **Curative reach-back action**
 - ▣ Inhibits mycelial growth
 - ▣ Prevents production of sporangia (anti-sporulant)

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FUNGICIDE

Movement in Plants



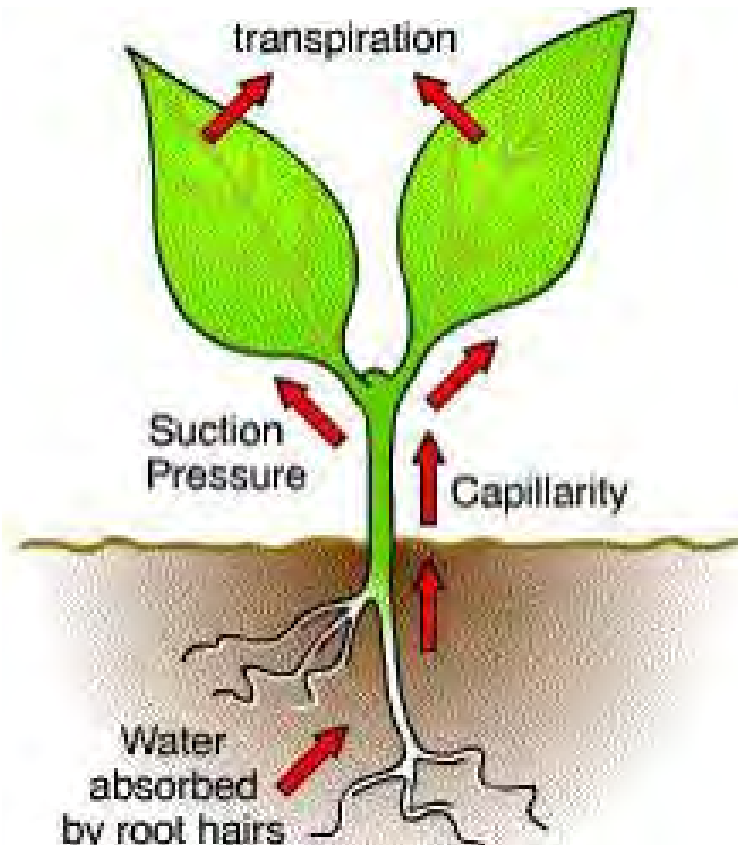
- **Systemic root uptake**
 - acropetal systemic = xylem movement from roots
- **Moves in foliage**
 - Locally systemic
 - Translaminar
- **Presidio is not phloem mobile**
 - Does not move out of a treated leaf to those above or below.



Movement in Plants – Soil Applied



- **Systemic root uptake**
 - **acropetal systemic = xylem movement from roots**

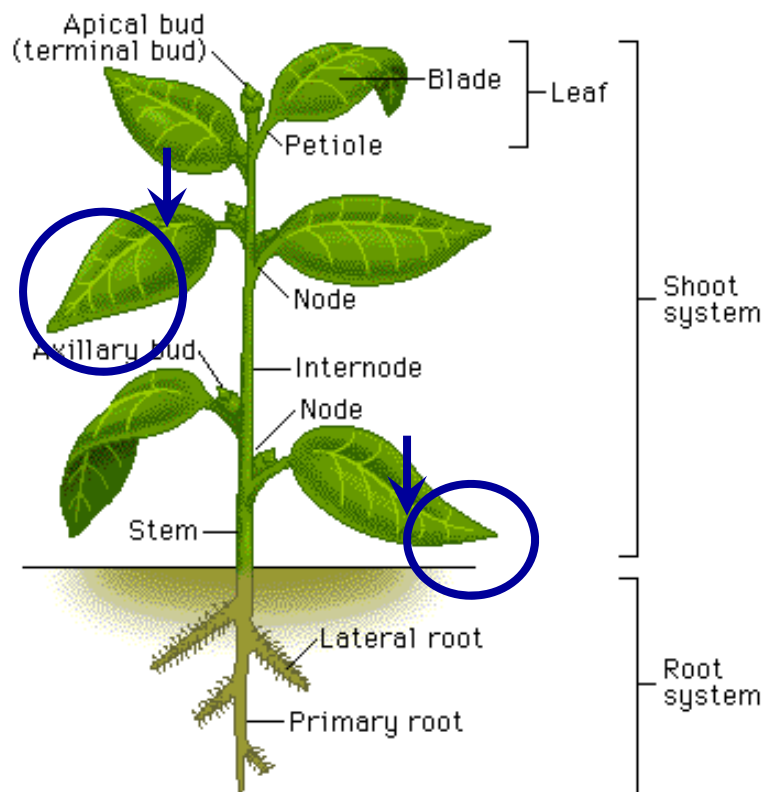


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Movement in Plants – Foliar Applied



- **Locally systemic = xylem movement within treated leaf**

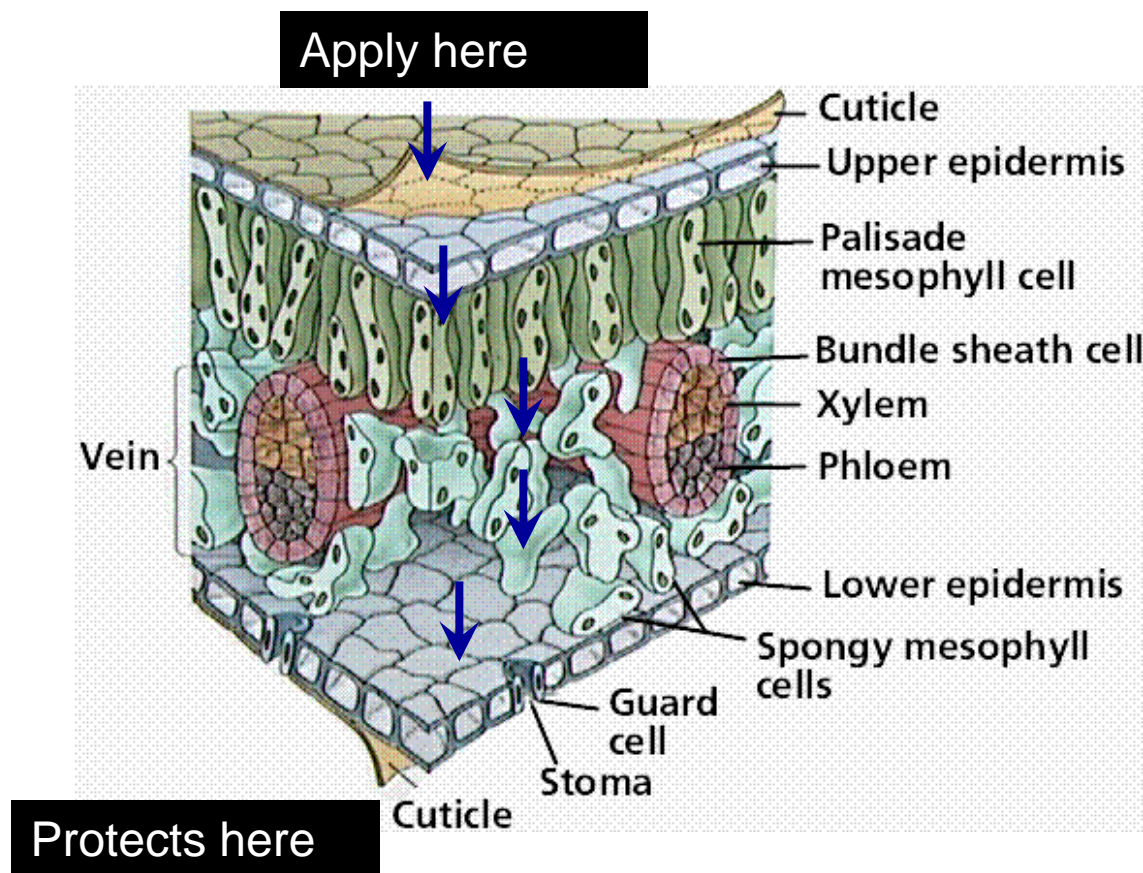


Movement in Plants – Foliar Applied



■ Translaminar

- Moves through the leaf



Presidio® - Use Parameters



- **REI – 12 hours**
- **Rainfast after 2 hours**
- **PPE:**
 - **Coveralls**
 - **Shoes and socks**
 - **Chemical resistant gloves made of any waterproof material such as natural rubber \geq 14 mils**



Presidio® - Environmental



- **Fluopicolide presents a low risk for non-target organisms in the environment:**
 - Fish
 - Birds
 - Earthworms
 - Plants (including aquatics)
 - Beneficial insects including bees

Presidio® - Labeled Crops



- **Brassicas (Head and Stem, Leafy)**
- **Cucurbits**
- **Fruiting Vegetables**
- **Grapes**
- **Leafy Vegetables**
- **Root and Tuber Vegetables (except potato)**



Presidio® - Tobacco



- **Waiting results from the smoke test that is being conducted by the tobacco companies**
- **EPA registration anticipated by April 1, 2015**



Presidio® - Tobacco Label



■ Black Shank:

- Use rate of 0.125 lb ai/A (4 fl oz/A)
- Can be applied in the transplant water, at first cultivation, or at layby
- Maximum of 2 applications (0.25 lb ai/A/season or 8 fl oz/A/season)
- No tank mix requirement
- No back-to-back applications
- Alternate with another fungicide that has a different mode of action on the target pathogen before making a second application of Presidio



Presidio® - Tobacco Label



■ Blue Mold:

- Use rate of 0.125 lb ai/A (4 fl oz/A)
- Can be applied via ground or aerial application
- Minimum 20 GPA (ground) or 10 GPA (aerial)
- Maximum of 2 foliar applications (0.25 lb ai/A/season or 8 fl oz/A/season)
- Minimum interval of 7 days between applications
- Must be tank mixed with a labeled rate of another fungicide, with a different mode of action, that is active on the target pathogen



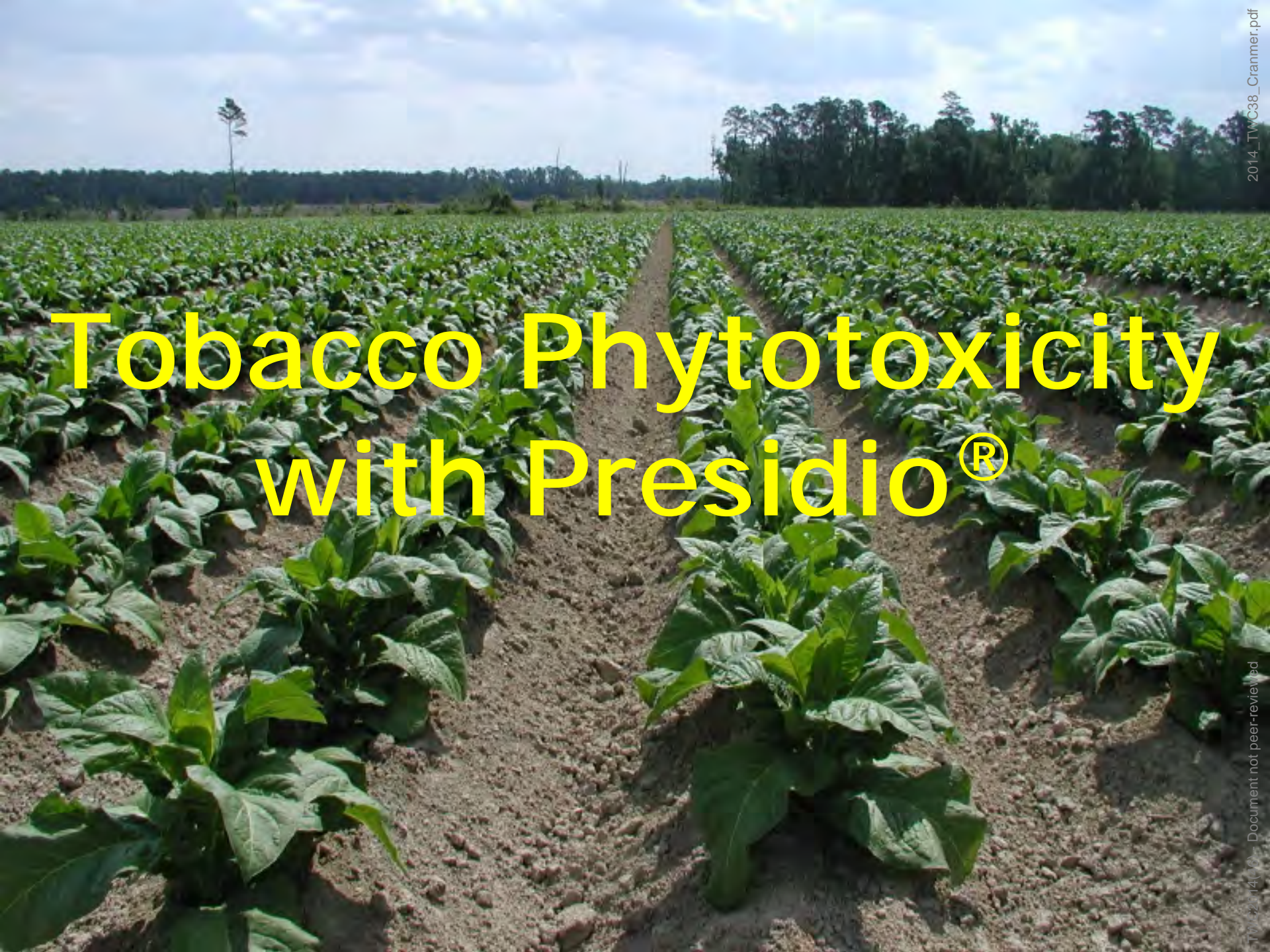
Presidio® - Tobacco Label



■ Blue Mold:

- Apply prior to disease onset or at first indication that blue mold is in the area
- PHI of 7 days





Tobacco Phytotoxicity with Presidio®

Presidio® - Tobacco



- No tobacco injury has been observed in any trial to date when Presidio at 4.0 or 8.0 fl oz/A was applied in the transplant water, at first cultivation, and at layby
- No tobacco injury has been observed in any trial to date when Presidio at 4.0 fl oz/A was applied foliar



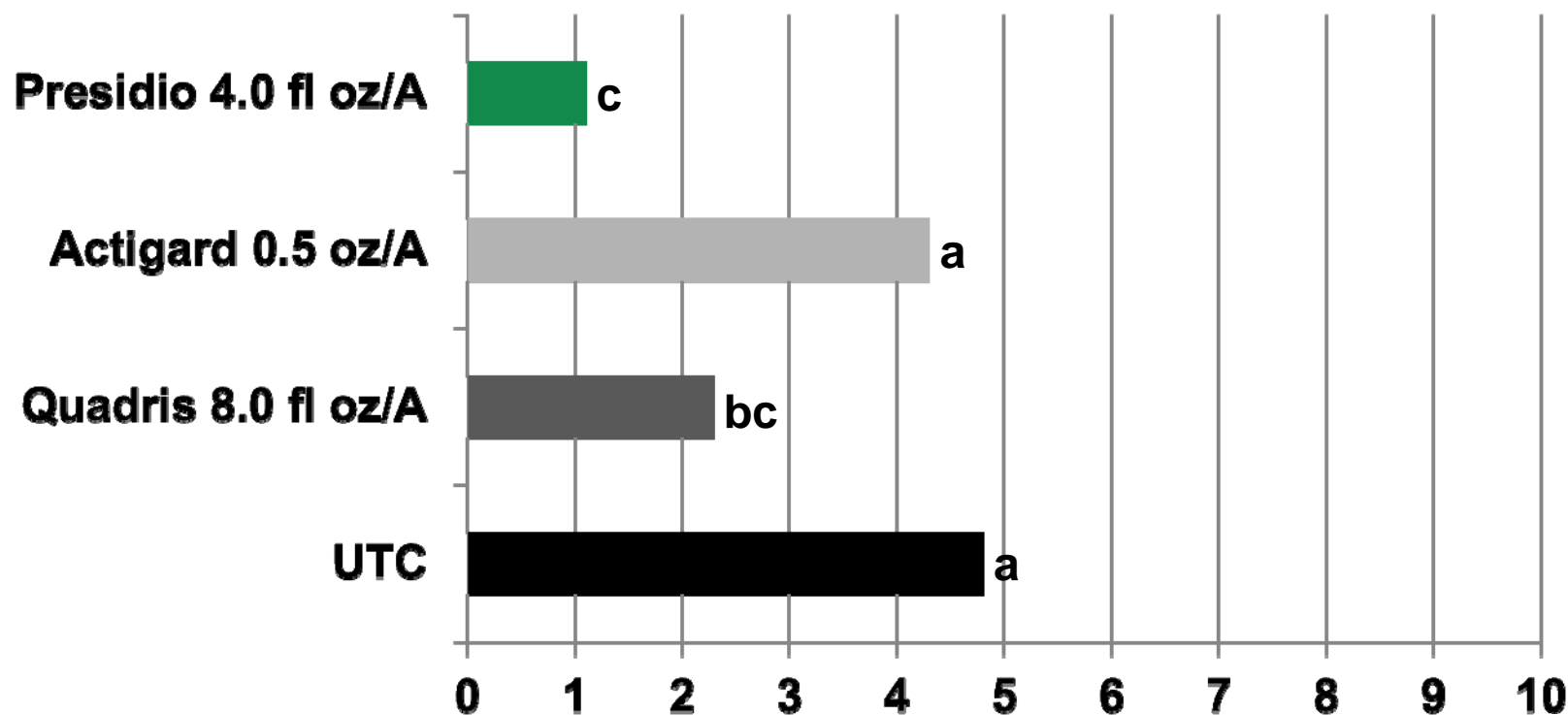


Blue Mold Control with Presidio®

Presidio® - Blue Mold Control



Severity (0-10) – 12 DAA2



**Trial conducted by Dr. Kenny Seebold, University of Kentucky, 2006.
Fungicides applied on June 30 and July 14, 2006.**

Severity on a 0 to 10 scale where 0 = no symptoms and 10 = 100% of leaf area with symptoms.

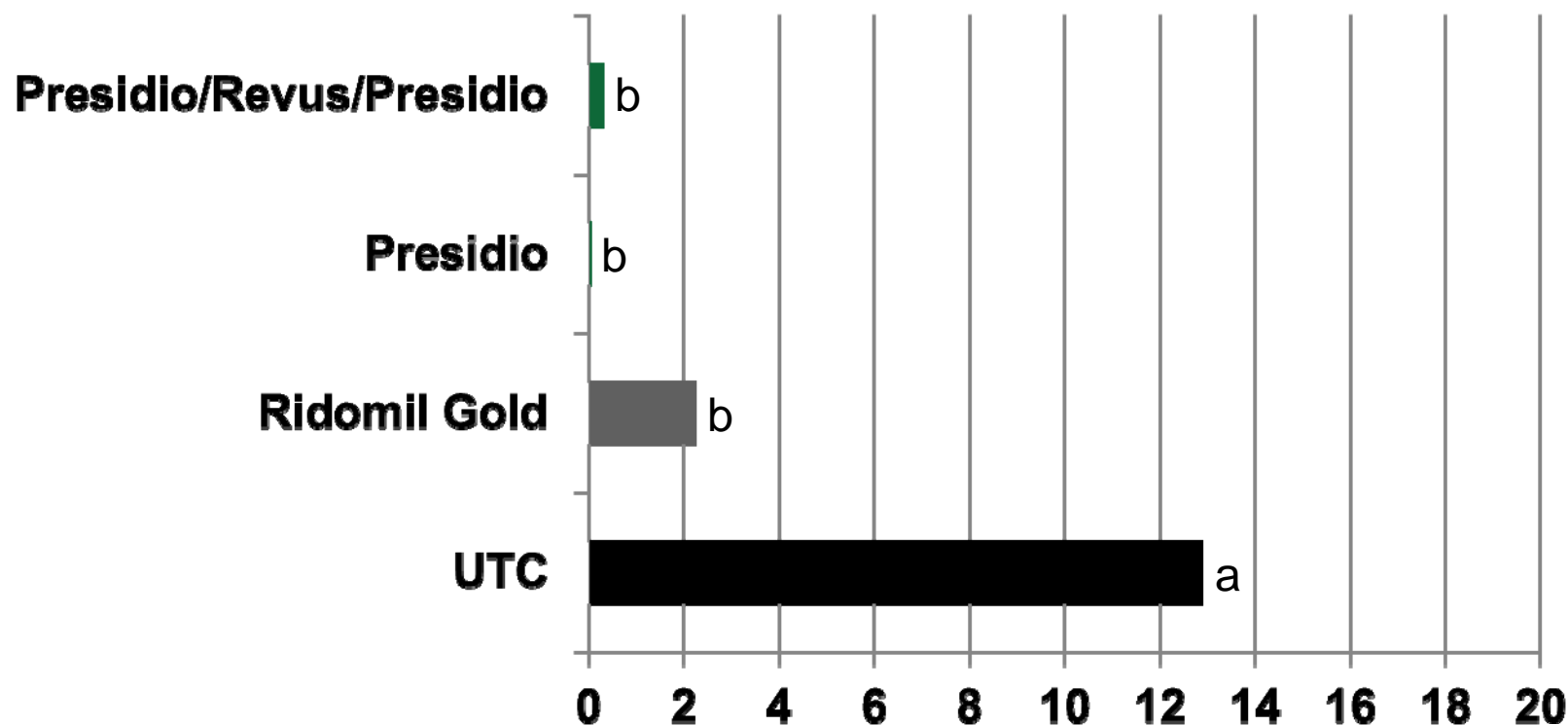


Black Shank Control with Presidio®

Presidio® - Black Shank Control



% Black Shank Incidence - 6-7 WAT*



*WAT = Weeks After Transplanting.

Ridomil Gold applied at 0.25-0.5 pt/A in the transplant water followed by 1.0 pt/A applied at first cultivation and at layby.

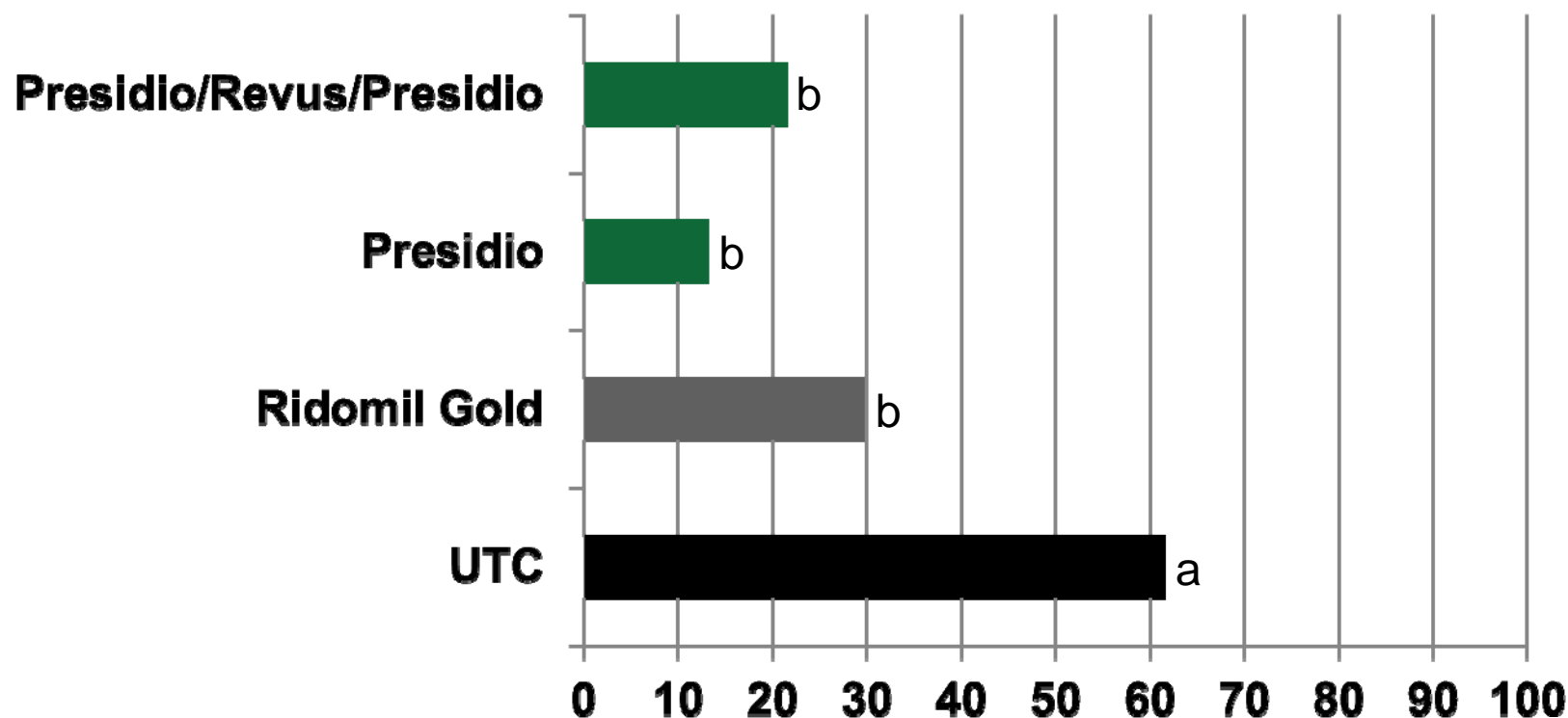
Presidio applied at 4.0 fl oz/A in the transplant water followed by 4.0 fl oz/A applied at first cultivation and at layby.

Presidio applied at 4.0 fl oz/A in the transplant water followed by Revus at 22.0 fl oz/A applied At first cultivation followed by Presidio at 4.0 fl oz/A applied at layby.

Presidio® - Black Shank Control



% Black Shank Incidence - 11-12 WAT*



*WAT = Weeks After Transplanting.

Ridomil Gold applied at 0.25-0.5 pt/A in the transplant water followed by 1.0 pt/A applied at first cultivation and at layby.

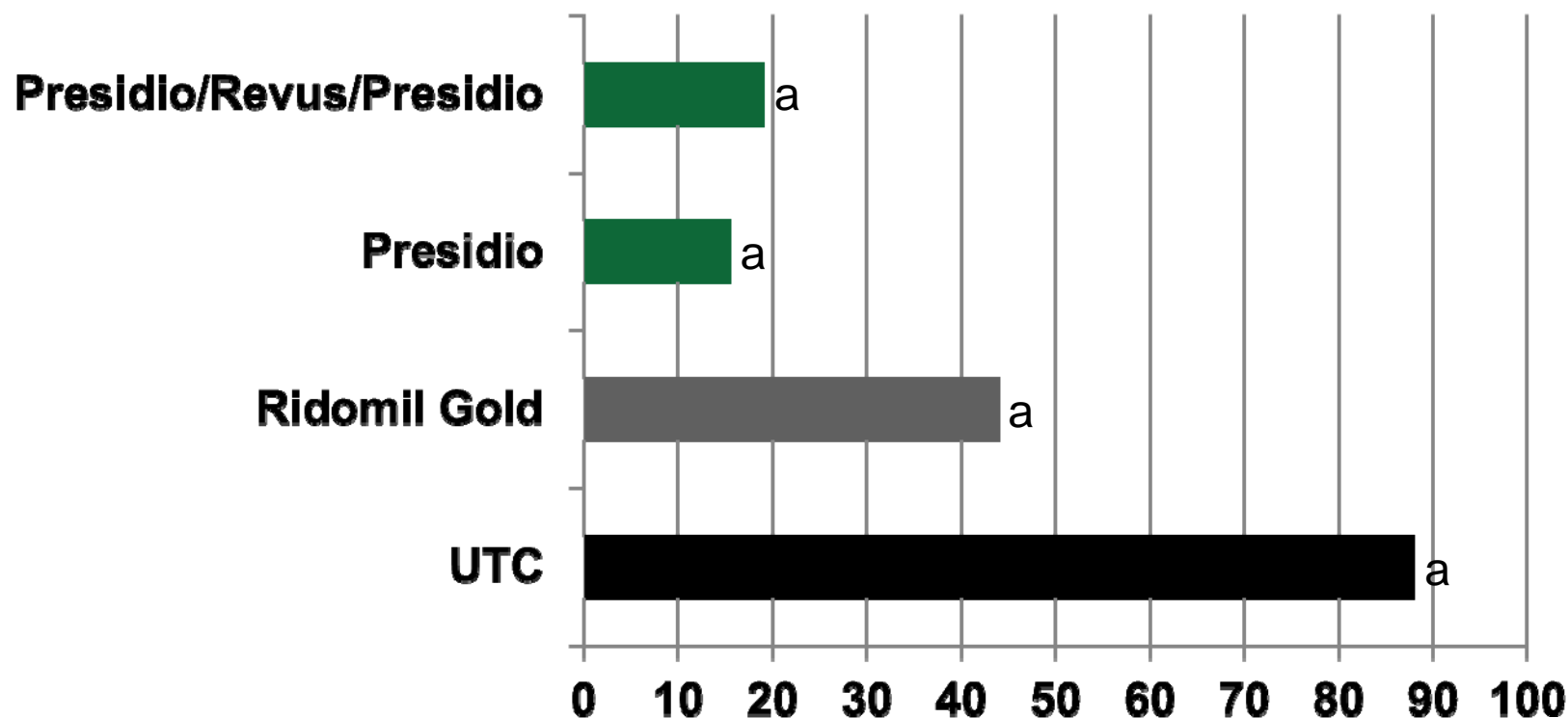
Presidio applied at 4.0 fl oz/A in the transplant water followed by 4.0 fl oz/A applied at first cultivation and at layby.

Presidio applied at 4.0 fl oz/A in the transplant water followed by Revus at 22.0 fl oz/A applied At first cultivation followed by Presidio at 4.0 fl oz/A applied at layby.

Presidio® - Black Shank Control



% Black Shank Incidence - 15-16 WAT*



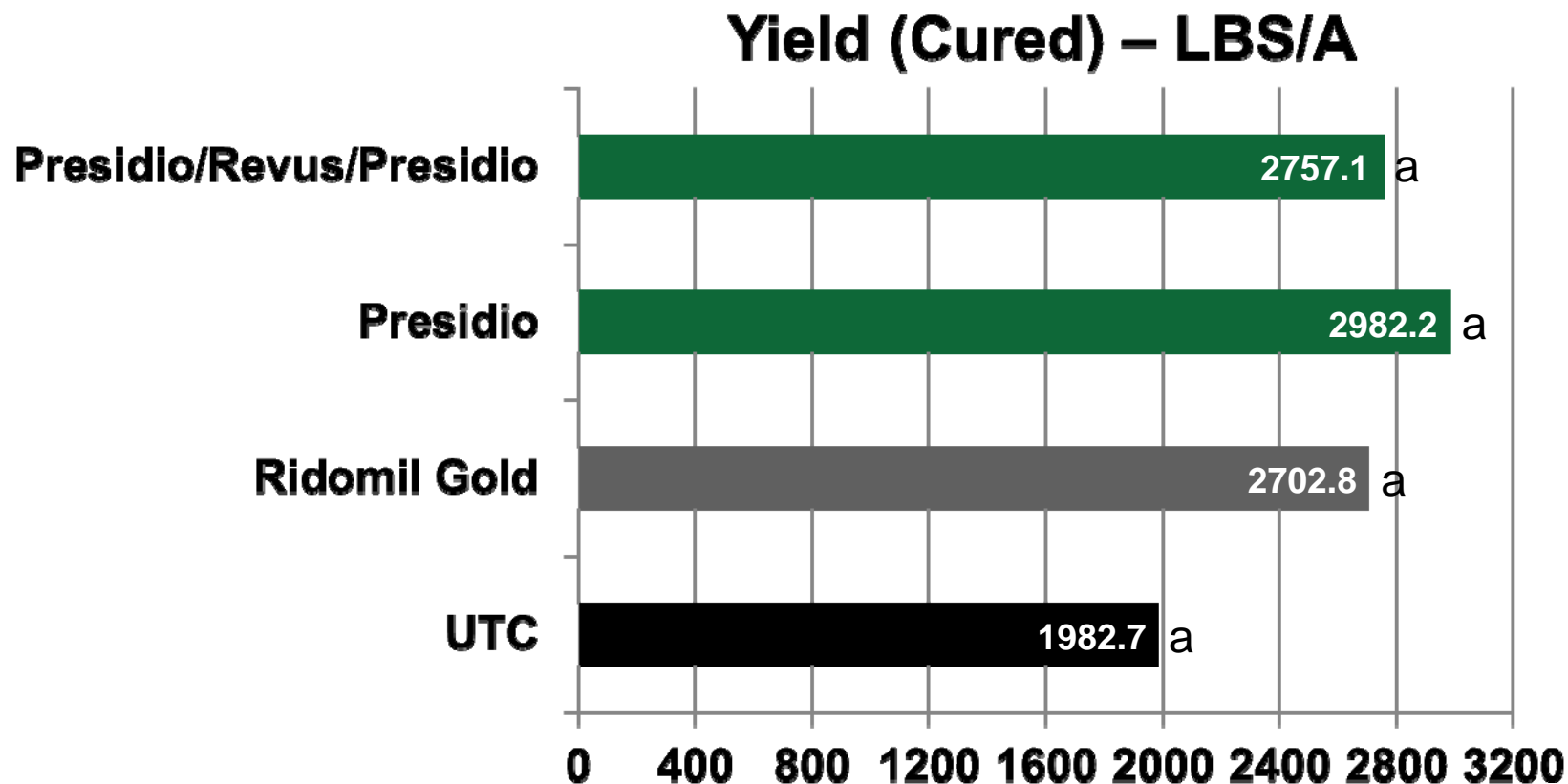
*WAT = Weeks After Transplanting.

Ridomil Gold applied at 0.25-0.5 pt/A in the transplant water followed by 1.0 pt/A applied at first cultivation and at layby.

Presidio applied at 4.0 fl oz/A in the transplant water followed by 4.0 fl oz/A applied at first cultivation and at layby.

Presidio applied at 4.0 fl oz/A in the transplant water followed by Revus at 22.0 fl oz/A applied At first cultivation followed by Presidio at 4.0 fl oz/A applied at layby.

Presidio® - Yield (Cured)



*WAT = Weeks After Transplanting.

Ridomil Gold applied at 0.25-0.5 pt/A in the transplant water followed by 1.0 pt/A applied at first cultivation and at layby.

Presidio applied at 4.0 fl oz/A in the transplant water followed by 4.0 fl oz/A applied at first cultivation and at layby.

Presidio applied at 4.0 fl oz/A in the transplant water followed by Revus at 22.0 fl oz/A applied at first cultivation followed by Presidio at 4.0 fl oz/A applied at layby.



Untreated Control – 8/1/11



**Presidio at 4 fl oz/A (TPW – 4/26) fb
Presidio at 4 floz/A (1st Cultivation –
5/16) fb Presidio at 4 fl oz/A (Layby
– 6/19) – Photo Taken 8/1/11**

UTC Row



**Presidio at 8 fl oz/A (TPW – 4/26) fb
Presidio at 8 floz/A (1st Cultivation –
5/16) fb Presidio at 8 fl oz/A (Layby
– 6/19) – Photo Taken 8/1/11**

UTC Row



Untreated Control – Photo Taken 7/24/12



Presidio at 4 fl oz/A (TPW, First Cultivation, and Layby) – Photo Taken 7/24/12



**Presidio at 4 fl oz/A (TPW) fb Revus 22 fl oz/A (First Cultivation) fb
Presidio at 4 fl oz/A (Layby) – Photo Taken 7/24/12**

Presidio® - Conclusions



- Presidio is very safe to tobacco when applied to the soil or foliage
- Presidio gave black shank control that was equal to the standard of Ridomil Gold
- Presidio gave blue mold control that was equal or greater than the standards



Presidio® - Conclusions



- **Waiting to hear from the tobacco companies on whether Presidio passed the smoke test**
- **Presidio tobacco label from the EPA is anticipated by April 1, 2015**
- **First sales of Presidio in tobacco expected in the spring of 2015**

