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PLANT PATHOLOGY FACT SHEET

2016 FUNGICIDE GUIDE FOR BURLEY AND DARK TOBACCO

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Modified from 2015 Fungicide Guide for Burley and Dark Tobacco and prior versions

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CHEMICALS LABELED FOR TOBACCO DISEASE MANAGEMENT IN KENTUCKY, 2016

The number of fungicides that are registered for use on tobacco in Kentucky is relatively small in comparison to the large array of products available to producers of other crops. Although growers have a limited number of fungicides from which to choose, those that are available are effective against most of the major diseases of roots, stems, and foliage. One new fungicide is available for disease management this year, along with an update to an existing labeled product. The following is a summary of recent changes to this guide:

- The **transplant water treatment of Presidio** for black shank management **has been removed from the label** by Valent Corp., the company that produces Presidio. While no ill effects have been reported to date on any Kentucky tobacco after using the transplant water application of Presidio, tobacco growers in other states reported issues with phytotoxicity, which prompted removal of the transplant water use. Presidio may still be used at first cultivation and layby for management of black shank, provided a copy of the supplemental label is in-hand. This supplemental label can be attained from chemical dealers, local Cooperative Extension offices, or at the CDMS web site located at www.cdms.net .

- **Orondis Gold 200** has recently been labeled for management of black shank on tobacco. This contains oxathiapiprolin, a new mode of action for managing oomycete diseases. No more than two sequential applications of Orondis Gold may be made, so if producers intend three black shank-specific applications, the third must utilize a fungicide with a different mode of action.

- **Orondis Ultra A** is another oxathiapiprolin formulation recently labeled for management of blue mold of tobacco. This formulation is specific to foliar diseases and should not be combined or applied in sequence with Orondis Gold 200. A field may be treated with either Orondis Gold 200 or Orondis Ultra A, but not both. Like Orondis Gold, Orondis Ultra may not be applied more than two times sequentially.

The following tables list labeled chemicals that are available to growers in Kentucky for use in the production of burley and dark tobacco in 2016. As always, read all product labels carefully and follow all directions provided by the manufacturers. Each product has specific use directions that should be followed to minimize the risk of injury to the crop and applicator, and to maximize the effectiveness of the product. These tables are provided as a general set of guidelines to aid in product selection, but are not intended to replace product labels.

For additional information on diseases and recommendations for their control, refer to the 2015-2016 Kentucky-Tennessee Tobacco Production Guide (ID-160). This publication can be obtained from Cooperative Extension offices around Kentucky or online at http://www.ca.uky.edu/agc/pubs/id/id160/id160.pdf.

Table 1. Guide to Chemicals Available for Control of Tobacco Diseases, 2016 – Transplant Float-bed Production

Product(s)	Product rate: Per application[a]	Product rate: Per season	Diseases controlled	REI[b]	Label notes
Agricultural Streptomycin Repar Streptomycin 17 Agri-Mycin 17 Harbour	0.5-1 lb/100 gal H_2O (1/3-1 tbsp./gal)	no limit	Wildfire blue mold	12 hrs.	Apply in 3-5 gal/ 1000 sq. ft.
Aliette WDG	1 lb/100 gal H_2O (1 tbsp./gal)	1.2 lb per 1000 sq. ft.	blue mold	12 hrs.	Apply 3 gal of solution per 1000 sq. ft. on small plants; increase to a maximum of 12 gal as plants grow. Do not tank-mix with copper compounds.
Manzate Pro-Stick (must have 24(c) label)	0.5 lb/100 gal H_2O (1 tsp./gal)	no limit	blue mold anthracnose damping-off target spot stem rot	24 hrs.	Apply 3-12 gallons/1000 sq. ft. as a fine spray. Begin when plants are dime-sized or larger, and continue on a 5-7 day schedule until transplanting.
Milk					
Whole/Skim	5 gal/100 gal H_2O (¾ cup/gal)	no limit	tobacco mosaic virus (plant-to-plant spread)	0 hrs.	Apply to plants at least 24 h prior to handling. Mix will treat 100 sq. yd.
Dry	5 lb/100 gal H_2O (5 tbsp./gal)	no limit			For washing hands, add 1 pt of milk to 1 gal of water, dip hands every 20 minutes while handling plants.
Abrasive hand soap			tobacco mosaic virus (plant-to-plant spread)		Similar to dry milk above, anyone handling transplants should regularly wash their hands with abrasive soaps to minimize spread of TMV.
Quadris 2.08SC (must have 24(c) label) FRAC group 11	0.14 fl oz/5 gal H_2O (4 cc/5 gal)	1 application	target spot	4 hrs.	Apply once to plants before disease onset, around first or second clipping. Use 0.14 fl oz per 1000 sq. ft. of bed. Application counts toward seasonal limit in field.
Terramaster 4EC	1-1.4 fl oz / 100 gal H_2O	3.8 fl oz	damping-off (*Pythium* spp.) root rot (*Pythium* spp.)	12 hrs.	Apply to float-bed water no earlier than 2 weeks after seeding. Additional applications can be made at 3-week intervals. Use high rate for curative treatments; begin no sooner than 3 weeks after seeding. Do not apply later than 5 days before transplanting.

[a]Rate range of product. In general, use higher rates when disease pressure is high. Refer to product label for application information, restrictions, and warnings.
[b]Restricted-entry interval.

Table 2. Guide to Chemicals Available for Control of Tobacco Diseases, 2015 – Soilborne Diseases (Field)

Product(s)	Product rate: Per application[a]	Product rate: Per season	Target diseases	Label notes
Presidio (must have supplemental label) FRAC group 43 *1st cultivation or layby*	4 fl oz	8 fl oz	black shank	One application of Presidio can be made at either first cultivation or layby. Direct nozzles to cover soil beneath lower leaves; incorporate immediately with cultivator. No more than 2 applications per season with minimum 14 days between applications.
Orondis Gold		38.6 fl oz		May not be applied more than two times sequentially (recommendation is to apply once per season).
transplant (setter) water FRAC group U15	4.8 – 19.2 fl oz		black shank	
pre-plant *OR* *1st cultivation* *OR* *layby*	4.8 – 19.2 fl oz 4.8 – 19.2 fl oz 4.8 – 19.2 fl oz		black shank	For best results, incorporate into soil after application.
Ridomil Gold SL[b]		3 pt total		Apply in a minimum volume of 200 gal/A. Follow up application at layby and/or 1st cultivation is often needed. Ridomil Gold SL is the only group 4 fungicide approved for setter water.
transplant (setter) water FRAC group 4 (must have 24(c) label)	4-8 fl oz (0.25 – 0.5 pt)		black shank	
pre-plant only *pre-plant + layby* *pre-plant + 1st cultivation + layby*	1-3 pt 1 pt + 1 pt 1 pt + 1 pt + 1 pt	3 pt	black shank damping off (*Pythium* spp.)	Incorporate after application.
Ultra Flourish[b] FRAC group 4 *pre-plant only* *pre-plant + layby* *pre-plant + 1st cultivation + layby*	 2-6 pt 2 pt + 2 pt 2 pt + 2 pt + 2 pt	6 pt	black shank damping off (*Pythium* spp.)	Incorporate after application.
Meta Star 2EC FRAC group 4 *pre-plant only* *pre-plant + layby* *pre-plant + 1st cultivation + layby*	 8-12 pt 4 pt + 4-8 pt 4 pt + 4 pt + 2 pt	12 pt	black shank	Incorporate after application.

[a]Rate range of product *PER ACRE*. In general, use higher rates when disease pressure is high. Refer to product label for application information, restrictions, and warnings.

[b]First application of Ridomil Gold can be made as late as 1st cultivation; for Ultra Flourish, the first application can be made up to a week after transplanting. Use of a variety with moderate (≥4/10) resistance to black shank is recommended when using this application schedule. If needed, a follow-up application of fungicide can be made at layby.

Table 3. Guide to Chemicals Available for Control of Tobacco Diseases, 2015 – Foliar Diseases (Field)

Chemical	Product rate		PHI[b] (days)	Target diseases	Label notes
	Per application[a]	Per season			
Agricultural streptomycin Agri-Mycin 17 Harbour	100-200 ppm (4-8 oz/50 gal H_2O)	no limit	0	wildfire blue mold	Application may occur weekly.
Actigard 50WG	0.5 oz	1.5 oz (3 apps.)	21	blue mold	Begin applications when plants are >18inches in height[c]. Make up to 3 applications on a 10-day schedule. Apply in a minimum of 20 gal/A.
Manzate Pro-Stick FRAC group M (must have 24(c) label)	1.5-2 lb	no limit	30	blue mold	Apply on weekly schedule; discontinue sprays when blue mold threat no longer exists.
Aliette WDG	2.5-4 lb	20 lb	3	blue mold	Make first application right after transplanting; continue on a 7-10 day schedule. Use a minimum spray volume of 20 gal/A; increase by 20 gal/A weekly to a maximum of 100 gal/A. Do not tank-mix with copper compounds.
Orondis Ultra FRAC group U15	2.0 – 4.8 fl oz	19.2 fl oz	7	blue mold	Apply as a foliar spray prior to blue mold disease onset. Ensure at least 7 days between applications. May not be applied more than two times sequentially before integrating a different mode of action.
Presidio FRAC group 43	4 fl oz	8 fl oz	7	blue mold	Presidio Fungicide must be tank mixed with a labeled rate of another fungicide active against the target pathogen, but with a different mode of action. Apply as a foliar spray prior to disease onset or at first indication that blue mold is in the area. Make no more than 2 foliar applications per season with at least 7 days between applications

[a]Rate range of product *PER ACRE*. In general, use higher rates when disease pressure is high. Refer to product label for application information, restrictions, and warnings.
[b]Pre-harvest interval.
[c]Actigard can be applied to dark tobacco varieties at the 12-inch stage.

Table 3 (cont'd). Guide to Chemicals Available for Control of Tobacco Diseases, 2015 – Foliar Diseases (Field)

Chemical	Product rate: Per application[a]	Product rate: Per season	PHI[b] (days)	Target diseases	Label notes
Quadris 2.08SC FRAC Group 11	6-12 fl oz	32 fl oz (incl. all group 11 fungicides)	0	target spot frogeye blue mold	Begin sprays at 1st signs of disease. Continue on 7 to 14 day interval as long as disease is a threat (use a shorter interval if weather favors disease). Do not make back to back sprays. *Do not use Quadris and generic azoxystrobins together or in alternation.* Alternate with fungicides that have a different mode of action (different FRAC group number). Can be applied up to the day of harvest; make only one application after topping. Do not exceed a total of 32 fl oz per acre in a season including all FRAC group 11 fungicides.
Satori 2.08SC (Generic for Quadris) FRAC Group 11	6-12 fl-oz	32 fl oz (incl. all group 11 fungicides)	0	target spot frogeye blue mold	
AzoxyStar FRAC Group 11	6-12 fl-oz	32 fl oz (incl. all group 11 fungicides)	0	target spot frogeye blue mold	
Azoxy 2 SC FRAC Group 11	6-12 fl-oz	32 fl oz (incl. all group 11 fungicides)	0	target spot frogeye blue mold	
Forum SC FRAC group 40	2-8 fl oz	30 fl oz	0	blue mold	Increase rate and app volume as crop size increases. Forum must be tank-mixed with another fungicide.
Revus FRAC group 40	8 fl oz	32 fl oz	7	blue mold	Begin applications before blue mold symptoms appear. Continue on a 7-10 day schedule. Do not make more than two consecutive sprays before switching to a fungicide with a different mode of action (do not alternate with Forum). Addition of a surfactant (spreader, penetrator, or non-ionic) may enhance activity.

[a]Rate range of product *PER ACRE*. In general, use higher rates when disease pressure is high. Refer to product label for application information, restrictions, and warnings.
[b]Pre-harvest interval
[c]Actigard can be applied to dark tobacco varieties at the 12-inch stage.

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