

Tobacco Disease Control

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Disease Control Products for Plant Beds (Greenhouse and Outdoor)

Disease	Product	Rate	Remarks*
Angular leaf spot, wildfire, blue mold (suppression)	streptomycin sulfate (Agri-Mycin, Harbour, Firewall)	8-16 oz/100 gals. spray (100-200 ppm)	Begin applications when plants are dime-sized or larger and repeat at 5-7 day intervals until disease is under control. Also aids in control of black leg and bacterial soft rot if applied in sufficient spray volume to run down stem.
Anthrachnose, blue mold, Rhizoctonia damping off, target spot (suppression)	Manzate ProStick	0.5 lb./100 gals. spray	Apply 3-12 gals./1000 sq. ft. beginning when plants are dime-sized and continuing on a 5-7 day schedule. For damping off/stem rot, use enough volume to run down the stem.
Target spot	Quadris	0.14 fl. oz. (4 ml)/1,000 sq. ft.	Only one application prior to transplanting. Use only if target spot begins to build.
Blue mold	Aliette WDG	0.5 lb./50 gals. spray	Apply 3-12 gals./1000 sq. ft. May cause leaf burn if washed into the root zone or float water when other products such as Admire or other Group 4A insecticides are used. Do not exceed 0.6 lb. product/1000 sq. ft./application or 1.2 lb. product/1000 sq. ft./season.
Mosaic (tobacco mosaic virus)	whole or skim milk	Hand dip: 1 pt. in 1 gal. dip water	Dip hands every 20 minutes while handling plants.
		Plant spray: 5 gals./100 gals. spray	Spray plants with milk solution 24 hrs. before handling.
Pythium root rot	Terramaster 4EC	Preventive: 0.7-1.0 fl. oz./100 gals. float water. Follow-up applications: 1.0 fl oz/100 gals. Curative: 1.0-1.4 fl. oz. /100 gals. float water when symptoms first appear. Follow-up applications if symptoms recur: 1.0-1.4 fl. oz./100 gals.	Apply no sooner than 2 wks. (preventive rate) or 3 wks. (curative rate) after seeding. Additional applications can be made at 3-wk. intervals, up to 5 days before transplanting. No more than 3.8 fl. oz./100 gals. float water may be applied per crop. Even distribution in floatbed water is essential. Mix with water in a bucket to form a dilute emulsion, and distribute emulsion evenly into floatbed water.

*Refer to product label for details on methods of application and restrictions.

Disease Control Products for the Field

A. Foliar Diseases

Disease	Product Choices	Rate	Season Limit (per A)	PHI (days)	Remarks*
Angular leaf spot, wildfire	streptomycin sulfate (Agri-Mycin, Harbour, Firewall)	8-16 oz/100 gals. (100-200 ppm)	no limit	0	The low rate is for preventive action, the high rate for curative.
Blue mold	Actigard 50WG	0.5 oz./A	1.5 oz	21	Begin applications after plants reach a height of 12 inches for dark tobacco, 18 inches for burley. Apply on a preventative schedule when blue mold threatens. Other labeled fungicides may be applied for early season control. Make up to three applications at 10-day intervals. Apply in at least 20 gals./A. Do not apply to plants that are stressed from drought, cold weather, excessive moisture, or herbicide damage. Do not mix with foliar fertilizers or crop oils.
	Aliette WDG	2.5-4.0 lbs./A	20 lbs	3	Begin with a minimum spray volume of 20 gals./A, increasing with each application to a maximum of 100 gals./A. Do not tank mix with copper compounds, surfactants, or foliar fertilizers.
	Forum	2-8 fl. oz./A	30 fl. oz.	0	Apply on 5-7 day schedule, beginning when blue mold threatens and continuing until weather becomes less favorable for disease. Increase rate and spray volume (20-100 gals./A) as crop size increases. Forum must be tank mixed with another effective blue mold fungicide with a different mode of action. Do not mix with surfactants, foliar fertilizers, or sucker control materials.
	Manzate Pro-Stick	1.5-2 lbs./100 gals.	no limit	30	Useful in resistance management programs for other fungicides. However, mancozeb residues on marketed leaf are undesirable, and use is prohibited by some contracts.
	Quadris	6-12 fl. oz./A	31.2 fl. oz.	0	Begin applications before blue mold symptoms appear. Continue sprays on a 7-14 day schedule. If blue mold is present in the field, initiate applications with Forum plus mancozeb. Quadris must be alternated with a fungicide with a different mode of action. If blue mold is present, the alternation partner must have blue mold activity.
	Orondis Ultra A + Orondis Ultra B	1.64 fl oz/A 8 fl oz/A	2 applications	7	For 2016, Orondis will be available as multi-packs. Mix A with B at the indicated rates. This rate of Ultra A is a 2(ee) recommendation and is lower than the labeled rate, which is designed for use of the product by itself.
	Presidio	4 fl oz/A	2 applications	7	Must be tank mixed with a blue mold fungicide with a different mode of action (not Group 43). All currently-registered fungicides qualify. Begin applications before blue mold symptoms appear.
	Revus	8 fl oz/A	32 fl oz	7	Begin applications before blue mold symptoms appear. Continue on a 7-10 day schedule. Make no 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 may enhance activity.
Frogeye, Target spot	Quadris	6-12 fl. oz./A	31.2 fl. oz.	0	Must alternate with fungicides effective against the target disease. Can be used up to the day of harvest; however, the lack of effective rotation products that can be used after topping restricts the use of Quadris after topping to one application. Do not tank mix with EC-type insecticides or sucker control materials. Quadris enhances weather flecking on leaves, but this has not been a major problem.

*Refer to product label for details on methods of application and restrictions.

B. Black Shank

Fungicide	Season Rate/A	Pre-plant or at-planting applications			Post-plant applications	
		Method	Rate/A*	Remarks	Rate/A*	Remarks
Ridomil Gold SL	3 pt	Pre-plant only	1-2 pt	Apply to soil within 1 week before planting and incorporate into the top 2-4 inches of soil.	--	--
		Pre-plant + post-plant	1 pt	Apply to soil within 1 week before planting and incorporate into the top 2-4 inches of soil.	1 pt	Make 1 st application as near as possible to transplanting if no pre-plant application was made or if black shank is expected early in the season. Otherwise, make application(s) at layby or at 1 st cultivation and layby.
		Transplant water	¼-½ pt	Apply in no less than 200 gallons of transplant water per acre.	1 pt	Make subsequent application(s) at 1 st cultivation and/or layby.
Ultra Flourish	6 pt	Pre-plant only	2-4 pt	Apply to soil within 1 week before planting and incorporate into the top 2-4 inches of soil.	--	--
		Pre-plant + post-plant	2 pt	Apply to soil within 1 week before planting and incorporate into the top 2-4 inches of soil.	2 pt	Make 1 st application as near as possible to transplanting if no pre-plant application was made or if black shank is expected early in the season. Otherwise, make application(s) at layby or at 1 st cultivation and layby.
MetaStar 2E	6 qt	Pre-plant only	4-6 qt	Apply to soil just prior to planting and incorporate into the top 2-4 inches of soil.	--	--
		Pre-plant + post-plant	2 qt	Apply to soil just prior to planting and incorporate into the top 2-4 inches of soil.	2 qt	Do not make a post-plant application of MetaStar if more than 2 qt was used pre-plant or if none was used pre-plant. Post-plant application(s) may be made at layby or at 1 st cultivation and layby.
Orondis Gold 200 + Orondis Gold B (Ridomil Gold SL)	19 fl oz 32 fl oz	Transplant water	3.4-4.8 fl oz + 4-8 fl oz	Use 4-8 fl oz transplant water per plant. For 2016, Orondis will be sold as multi-packs. Mix Gold 200 with Gold B (Ridomil) at the indicated rates. This rate of Gold 200 is a 2(ee) recommendation and is lower than the labeled rate.	3.4-4.8 fl oz + 4-8 fl oz	Direct spray to the soil at 1 st cultivation and layby. Make no more than 2 consecutive applications before rotating to a fungicide with a different mode of action. Do not follow soil applications of Orondis Gold 200 with foliar applications of Orondis Opti A or Orondis Ultra A.
Presidio	8 fl oz	--	--	--	4 fl oz	Presidio can no longer be used in the transplant water. Do not make consecutive applications of Presidio. In order to use Presidio at layby, a different fungicide must be used at 1 st cultivation.

* Rate range of product. In general, use the highest labeled rates when disease pressure is high. Refer to product label for application information, restrictions, and warnings.

Table 1. 2015 New and Selected^a Burley Tobacco Varieties—Relative Disease Resistance, Yield Scores, and Maturity.

Variety	Black Shank		Virus Complex	Black root rot	TM V	Fusarium Wilt	Relative Yield Score ^b	Maturity
	Race 0	Race 1						
ms KY 14 X L8LC	10	0	S	M	R	6	8	Early
KY 907LC	2	2	R	H	R	1	8	Med-Late
KT200LC	6	6	R	H	R	0	8	Late
KT204LC	7	7	R	H	R	1	9	Med-Late
KT206LC ^e	10	7	R	H	R	1	9	Med-Late
KT209LC	10	8	R	H	R	1	9	Med-Late
KT210LC	10	7	S	H	R	5	8	Late
KT212LC	10	4	S	H	R	5	8	Early
NC BH 129LC	1	1	S	H	R	1	7	Med-Early
NC 3LC ^d	2	2	R	H	R	1	7	Med-Late
NC 7LC ^d	10	4	R	H	R	5	8	Late
NC 2000LC ^f	0	0	S	L	R	1	4	Late
NC 2002LC ^f	0	0	R	M	R	0	5	Medium
TN 86LC	4	4	R	H	S	0	6	Late
TN 90LC ^e	4	4	R	H	R	0	5	Medium
TN97LC	4	4	R	H	R	0	6	Med-Late
HYBRID 403LC	0	0	S	M	R	6	9	Medium
HYBRID 404LC	0	0	S ^c	H ^c	R ^c	4	9	Medium
HYBRID 501LC	5	5	S	H	R	4	5	Med-Early
N 126LC	0	0	S	M	R	3	8	Medium
N 777LC	2	2	S	M	S	0	3	Med-Late
N 7371LC	4	4	-	-	-	5	7	Late
NBH 98LC	2	2	S	M	R	3	5	Medium
HB04PLC	0	0	S	H	R	0	9	Med-Early
HB3307PLC	10	4	R ^c	H ^c	S	3	8	Late
HB4488PLC	10	4	-	-	-	3	9	Late
R 610LC	4	4	S	M	-	3	5	Medium
R 630LC	3	3	R	M	R	4	5	Early
R7-12LC	0	0	S	H	R	4	8	Late

^a For an extensive list of varieties visit: <http://www.uky.edu/Ag/Tobacco>

^b Relative yield scores are based on growth under disease-free conditions.

^c Based on a limited number of field tests and subject to change.

^d Resistant to root knot nematode (*Meloidogyne incognita*, Races 1 and 3).

^e Low resistance to blue mold (*Peronospora tabacina*).

^f Medium resistance to blue mold (*Peronospora tabacina*).

- Resistance not rated for this disease

Table 2. Characteristics of Dark Tobacco Varieties

Variety	Maturity	Black Shank (0-10) ^a		Use ^b	Relative Yield Score ^c	Relative Quality Score ^c	Black Root Rot	TMV ^d	Wildfire
		Race 0	Race 1						
NL Mad LC	Med-Late	0	0	F/A	7	9	None	None	None
TR Madole	Early-Med	0	0	F	6	6	None	None	None
Lit Crit	Med-Late	0	0	A/F	5	9	None	None	None
KY 160	Medium	0	0	A	3	9	None	High	None
KY 171 ^e	Medium	0	0	A/F	7	7	High	High	None
DF 911	Medium	0	0	F	8	6	High	High	High
VA 309	Early-Med	2	2	A/F	6	7	Low	None	-
VA 359	Medium	1	1	A/F	6	7	Low	None	-
TN D950	Early	3	3	F	8	6	High	High	High
KT D6LC	Early-Med	3	3	F	8	7	High	High	High
KT D8LC	Medium	4	4	F/A	9	5	None	None	None
KT D14LC	Medium	10	5	F/A	8	7	High	High	High
DT 538LC	Medium	4	4	F/A	8	6	High	-	-
DT 558LC	Medium	4	4	F/A	8	7	High	-	-
PD 7302LC ^e	Medium	10	0	F/A	6	7	High	High	-
PD 7305LC	Early	10	3	F	8	6	High	High	High
PD 7309LC	Medium	10	0	F/A	7	8	None	None	-
PD 7312LC	Medium	0	0	A/F	7	8	High	High	None
PD 7318LC	Medium	10	0	F/A	8	7	High	High	-
PD 7319LC	Medium	10	2	F/A	8	7	-	High	-

^a Black shank resistance levels are based on a limited number of field tests and subject to change.

^b F or A refers to use as a fire-cured (F) or air-cured variety (A). Multiple letters indicates either use, with predominant use given first.

^c Relative yield scores based on performance under disease-free conditions. Relative yield and quality scores given on a 0-10 scale, with 10 being best relative quality.

^d Dash (-) means that resistance level is unknown or not rated presently.

^e KY 171, PD 7302LC, and PD 7312LC have medium resistance to Fusarium wilt.