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UT Extension

SP91

2009 TOBACCO PEST CONTROL

THE UNIVERSITY of TENNESSEE
INSTITUTE of AGRICULTURE

Tobacco Insect Control

Gene Burgess, Professor & Frank Hale, Professor
Entomology & Plant Pathology

Treatments for Insects in Beds

Insect	Insecticide*/ Formulation	Rate Per 100 Sq. Yd. Bed (For Spray Mixtures, Use Rec. Rate in 3-6 Gals. of Water Per 100 Sq. Yd. Bed)	Remarks
Aphids	Orthene 97PE (acephate)	3/4 lb (12 ozs)	Apply to foliage at the equivalent of 3/4 tablespoon in 1 gallon of water every 1,000 sq ft of bed. Apply evenly to insure thorough coverage. **Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per season. This includes the use of Orthene in transplant water, plant bed, soil, float bed (greenhouse) and foliar applications.
Flea Beetles	Sevin 80SP (carbaryl) Sevin XLR Plus	15 T / 6 gals / 100 sq yds 1.0-2.0 qts / A 0.656-1.31 fl oz / 100 sq yds	Apply as needed and before pulling plants. A tight canvas on the bed will help control flea beetles.
	Orthene 97PE (acephate)	¾ lb (12 ozs)	Apply to foliage at the equivalent of ¾ tablespoon in 1 gallon of water every 1,000 sq ft of bed. Apply evenly to insure thorough coverage. Do not apply more than 4 1/8 lbs/A (4 lbs ai) per season. This includes the use of Orthene in transplant water, plant bed, soil, float bed (greenhouse) and foliar applications.
Slugs	Slaked lime (hydrated lime, $Ca(OH)_2$)	4 lbs	Dust when plants are dry. Burns when plants are wet.

Soil Insect Control for Fields

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Wireworms	Platinum 2SC (thiamethoxam) 75SG	1.3 fl ozs / 1,000 plants 0.43 oz / 1000 plants	Apply at transplant using one of the following methods. **Tray treatment**. Apply to transplants while still in trays. Thoroughly water transplants. Then apply the chemical evenly to the transplants. Immediately after treatment, spray transplants with enough water to wash the chemical off the foliage and into the soil. Set transplants in the field within two days after treatment. During transplanting, workers handling transplants must wear waterproof gloves. **Do not** apply Platinum 2SC or 75SG to float-bed water. **Soil (drench transplants)**. Mix appropriate amounts of Platinum in water and drench transplants as they are being placed in the ground. Make only one soil or tray treatment application per season. **Do not** exceed a total of 8 fl ozs (0.125 lb a.i.) of Platinum 2 SC or 2.67 ozs (0.125 lb ai) 75 SG per acre per growing season.
	Admire Pro 4.6F (imidacloprid)	**Seedling Tray Drench** 0.6-1.2 fl ozs / 1000 plants **In-Furrow or Transplant-Water** 0.8-1.2 fl ozs / 1000 plants	Uniform broadcast foliar spray to seedlings in trays (tray drench) not more than 7 days prior to transplanting followed immediately by overhead irrigation to wash Admire Pro from foliage into potting media. In-furrow spray or transplant-water drench during setting. 14 days PHI. Maximum Admire Pro allowed per crop season is 14.0 fluid ozs / Acre (0.5 lb ai / Acre).

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Wireworms (Cont'd)	Brigade 2EC (bifenthrin)	4.0-6.4 fl ozs/ A	**Pre-Transplant Soil Applications**. Apply 0.0624 - 0.1 lb ai / A in a minimum of 10 gals / A to control soil pests. Use of suitable equipment to incorporate into top 4" of the soil. **At-Transplant Water Treatment Application**. Apply 0.0625 - 0.1 lb ai / A in a water treatment application volume of 10 - 200 gals / A. **Do not** apply more than 0.2 lb ai / A per season. **Do not** apply later than layby. May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.
	Mocap 15G (ethoprop)	40 lbs / A 13 lbs / A	Apply anytime from one week before planting to at-planting time. **Banded.** Apply in a band 18 to 24 inches wide on the row (42-inch row spacing) after the fertilizer has been listed or bedded. Mix with the top 2 to 4 inches of soil with mechanical equipment right after application. **Broadcast.** Mix with the top 2 to 4 inches of soil with mechanical equipment right after application. Use a double gang disc harrow or other equipment that will do a good job of mixing Mocap with the soil. After mixing, apply fertilizer and, for best results, shape a wide bed with a tractor equipped with 4 disc tillers and wide sweeps for running out the middles. Be sure that only the treated soil (top 2 to 4 inches) is used to make beds. **Broadcast.** Mix with top two to four inches of soil right after application. Use a disc harrow or other cultivating equipment that will mix the Mocap with the soil. Make only 1 application of this product per growing season.
	Lorsban Advanced 3.755EW (chlorpyrifos)	2 pts / A	Preplant broadcast spray. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 2 to 4 inches using suitable incorporation equipment. Knock down beds to final shape for transplanting. Use PTO-driven implements that will incorporate Lorsban Advanced to a depth of 4 inches. **Do not** make more than one application per season. Maximum single application rate is 1 lb ai chlorpyrifos per acre. REI 24 hrs.
	Lorsban 4EC (chlorpyrifos)	2 pts	Apply as a preplant broadcast spray. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gal / A or more. Incorporate immediately to a depth of 2 to 4 inches. Before broadcast application into existing beds, knock down beds to final shape for transplanting. Use a PTO-driven implement that will incorporate Lorsban-4E to a depth of 4 inches. 24 hr REI.
	Lorsban 15G (chlorpyrifos)	13.5 lbs. / A	Use as pre-plant soil incorporated treatment. Apply one week before transplanting, using equipment that will evenly distribute granules over a treated area. Immediately following application, incorporate granules into the soil to a depth of 2-4 inches using suitable equipment. **Do not** apply within seven days of transplanting. **Do not** make more than one application per season. 24 hr REI.

Float Beds / Greenhouse

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Slugs	Deadline 4G Bullets (metaldehyde)	1 lb ./ 1,100-3,600 sq ft	Apply in evening. Especially beneficial if applied following rain or watering. Apply every 3 to 4 weeks during growing season or as needed.
	Orthene 97PE (acephate)	3/4 lb (12 ozs)	Apply to foliage at the equivalent of 3/4 tablespoon in 3 gallons of water every 1,000 sq ft of bed. Apply evenly to insure thorough coverage. **NOTE:** Floatbed water should be disposed of in the transplanted field in either transplant water or foliar spray. **Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per season. This includes the use of Orthene in transplant water, plant bed, soil, float bed (greenhouse) and foliar applications.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Aphids	Orthene 97PE (acephate)	**Transplant Water Treatment** 1½ lbs (24 ozs) (Burley) (24C Registration) 3/4 lb (12 ozs) (Dark) **Foliar** 1½ lbs (24 ozs) (Burley) (24 C Registration) ½ lb (8 ozs) (Dark)	**Transplant Water.** Provides control of early season aphids for approximately 3-4 weeks after transplanting. Apply in a minimum of 100 gallons (200 gallons for burley) of transplant water per acre. Premix in water to form a slurry solution prior to adding to the transplant water tank. **Foliar.** Apply as a foliar spray for later season insects. Apply in 10 to 50 gallons water per acre with ground equipment or a minimum of 3 gallons per acre by air. Apply on a 7-day schedule or as needed. 3-day PHI. **All. Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per crop cycle. This includes the use of Orthene in transplant water, plant bed, soil, float bed (greenhouse) and foliar applications.
	Platinum 2SC (thiamethoxam) 75SG	0.5-1.3 fl ozs / 1,000 plants 0.17-0.43 oz / 1000 plants	Apply at transplant using one of the following methods. **Tray treatment.** Apply to transplants while still in trays. Thoroughly water transplants. Then apply the chemical evenly to the transplants. Immediately after treatment, spray transplants with enough water to wash the chemical off the foliage and into the soil. Set transplants in the field within two days after treatment. During transplanting, workers handling transplants must wear waterproof gloves. **Do not** apply Platinum 2 SC or 75 SG to float-bed water. **Soil (drench transplants).** Mix appropriate amounts of Platinum in water and drench transplants as they are being placed in the ground. Make only one soil or tray treatment application per season. **Do not** exceed a total of 8 fl ozs (0.125 lb ai) of Platinum 2SC or 2.67 ozs (0.125 lb ai) 75 SG per acre during each growing season.
	Actara 25WDG (thiamethoxam)	2.0-3.0 ozs / A	**Foliar.** Apply before pests reach damaging levels. Apply higher rates for heavy infestations. **Do not** exceed a total of 3.0 ozs (0.047 lb ai) / A during each growing season. 14 days PHI. Use a minimum of 20 gals of water per acre. **Do not** use a foliar application of Actara following an in-furrow or soil application of Platinum.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Aphids (Cont'd)	Admire Pro 4.6F (imidacloprid)	**Seedling Tray Drench** 0.5 fl oz / 1,000 plants **In-Furrow or Transplant-Water** 0.6 fl oz / 1,000 plants	Uniform broadcast foliar spray to seedlings in trays (tray drench) not more than 7 days prior to transplanting followed immediately by overhead irrigation to wash Admire Pro from foliage into potting media. In-furrow spray or transplant-water drench during setting. 14 days PHI. Maximum Admire Pro allowed per crop season is 14.0 fl ozs / Acre (0.5 lb ai / Acre).
	Belay 16WSG (clothianidin) 50WDG	**TPW & TD** 10 ozs / A **Foliar** 1.5-2.0 ozs / A	Apply to the soil in TPW or by drench to trays or flats prior to transplanting. Plants in flats or trays should be watered by overhead irrigation to wash Belay 16 WSG from the foliage into the potting media. Soil application sometimes causes yellowing of foliage present at the time of transplanting. This does not have an impact on growth and yields. **Do not** apply more than a total of 0.2 lb ai per acre per season. **Do not** apply more than 6.4 ozs of Belay 50 WDG per acre per season. **Do not** apply treatments less than 7 days apart. **Do not** apply within 14 days of harvest. **Do not** apply Belay 50 WDG through any type of irrigation system.
	Brigade 2EC (bifenthrin)	2.56-6.4 fl ozs / A	**Foliar**. Apply 0.04 - 0.10 lb ai / A per foliar application up to & including layby in a minimum of 10 gals / A. **Do not** make more than 2 foliar applications per season. **Do not** apply more than 0.2 lb ai / A per season. May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.
	Fulfill 50WDG (pymetrozine)	**Foliar** 2.75 ozs / A	Apply when aphids first appear, before populations build to damaging levels. Two applications may be needed to control persistent aphid populations. Thorough foliage coverage is essential. Use minimum of 20 gals / A when applied by ground. **Do not** apply by air. The addition of a penetrating type spray adjuvant, at the mfg. rate is recommended to provide optimum coverage and penetration. **Do not** apply more than 2.75 ozs / A / application. **Do not** exceed a total of 5.5 ozs / A per crop per season. Allow a minimum of 7 days between applications. 14 days PHI between last application and harvest.
	Lannate 90SP (methomyl) 2.4LV	1/2 lb / A 1 1/2 pts / A	Preharvest interval of 14 days for air- or fire-cured. 5 days PHI for flue-cured. 48 hours REI.
	Nuprid 1.6F (imidacloprid)	2.0-4.0 fl ozs / A	**Foliar**. 14-day PHI. Minimum interval between applications is 7 days. Maximum amount allowed per season is 22.4 fl ozs / A.
	Provado 1.6F (imidacloprid)	2.0-4.0 fl ozs / A	**Foliar**. 14-day PHI. 7 days minimum interval between applications. 22.4 ozs / A maximum allowed per season.
	Penncap-M 2EC (methyl parathion)	2 qts / 25 gals (2.5 Tbsp / gal)	**Do not** apply within 15 days of harvesting. Avoid contact with plant juices when priming tobacco. 48 hour re-entry period. **Do not** use screens or nozzles finer than 50 mesh. May be harmful to honey bees during bloom.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Aphids (Cont'd)	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	**FOR SUPPRESSION ONLY**. Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications are based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior**. **Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate**. **Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl oz / A	
	Assail 30SG (acetamiprid)	1.5-4.0 ozs / A	Apply in a minimum finished spray volume of 5 gals per acre by air or 20 gals per acre by ground. Thorough coverage is important to obtain optimum control. **Do not** make more than 4 applications per season. **Do not** apply more than once every 7 days. **Do not** apply less than 7 days before harvest. **Do not** exceed a total of 0.3 lb ai (6.8 ozs 70WP or 16 ozs 30SG) per acre per crop.
	70WP	0.6-1.7 ozs / A	
Budworms	Supracide 2EC (methidathion)	4 pts / 25 gals (5 Tbsp / gal)	**Caution**. Plant injury may occur if concentrated in bud with hand sprayer. **Do not** use after transplanting (until plants are established), after drought or other periods of stress. Preharvest interval of three days.
	Belay 50WDG (clothianidin)	2 ozs / A	**Foliar**. For suppression of budworms and hornworms. **Do not** apply more than 6.4 ozs of Belay 50 WDG per season. **Do not** apply treatments less than 7 days apart. **Do not** apply within 14 days of harvest. **Do not** apply through any type of irritation system.
	Belt 4SC (flubendiamide)	2.0-3.0 ozs / A	**Do not** apply more than 3 fl ozs per acre (0.094 lb ai / A) per 5-day interval. **Do not** apply more than 12 fl ozs per acre (0.375 lb ai / A) per crop season. **Do not** apply more than 4 times per crop season. Minimum application volume: 10.0 GPA - Ground; 5.0 GPA – aerial. Application should be timed to coincide with early threshold level in a developing larval population. 'PHI 14 days. REI 12 hours.
	Orthene 97PE (acephate)	3/4 lb / 25 gals	Apply when economic threshold is reached. **Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per season. This includes the use of Orthene in transplant water, plant bed, soil, float bed (green house) and foliar applications. 3 day PHI. 24 hr REI.
	Dipel 2XWP (*Bacillus thuringiensis*)	Use sprays and baits by label direction.	
		Pinch in bud. (10-25 lbs / A of bait)	Mix 1/2-1 lb / 50 lbs of cornmeal. Mix thoroughly.
	Tracer Naturalyte (spinosad)	1.4-2.9 fl ozs / A 0.045-0.089 lb ai / A (Treats 90-45 A per gallon)	Make no more than 3 applications per 30 days or 6 applications per crop. Use a minimum of 20 gallons of water per acre to obtain full coverage of foliage, increasing volume and nozzles per row as necessary with crop maturity.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Budworms (Cont'd)	Denim 0.16EC (emamectin benzoate)	8.0-12.0 fl ozs / A	Application should be targeted at small (1/4 inch) larvae. At least 2 applications may be needed to control a generation during an extended egg laying period. Apply in a minimum of 20 gals / A. **Do not** make more than two sequential applications without rotating to another product with a different mode of action. **Do not** apply more than a total of 36 oz / A on crop per season. Allow a minimum of 5 days between applications. 14 days PHI. **Do not** allow livestock to graze treated area.
	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	**SUPPRESSION ONLY.** Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior**. **Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate**. **Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl oz / A	
	Sevin 80SP XLR Plus	1 1/4-2 1/4 lbs / 25 gals (2-3 Tbsp / gal) 1.0-2.0 quarts / A	Low rate on plants up to knee high and higher rates on mature plants. Sevin gives only fair control.
	Lannate 90SP (methomyl) 2.4LV	1/2 lb / A. 1 1/2 pts / A (2 Tbsp / gal)	**Do not** apply within 14 days of harvest for air- or fire-cured. Preharvest interval of 5 days for flue-cured. 48 hours REI.
	Assail 30SG (acetamiprid) 70WP	1.5-2.5 ozs 1.1 ozs	Apply in a minimum finished spray volume of 5 gals per acre by air or 20 gals per acre by ground. Thorough coverage is important to obtain optimum control. **Do not** make more than 4 applications per season. **Do not** apply more than once every 7 days. **Do not** apply less than 7 days before harvest. **Do not** exceed a total of 0.3 lb ai (6.8 ozs 70 WP or 16 ozs 30 SG per acre per crop.
Cutworms	Orthene 90PE (acephate)	**Transplant Water Treatment** 1 ½ lbs (24 ozs) (Burley) (24C Registration) 3/4 lb (12 ozs) (Dark) **Foliar** 1 ½ lbs (24 ozs) (Burley) (24C Registration) 3/4 lb (12 ozs) (Dark)	**Transplant Water.** Provides control of early season cutworms for approximately 3-4 weeks after transplanting. Apply in a minimum of 100 gallons (200 gallons for burley) of transplant waster per acre. Premix in water to form a slurry solution prior to adding to the transplant water tank. **Foliar**. Apply as a foliar spray for later season insects. Apply in 10 to 50 gallons water per acre with ground equipment or a minimum of 3 gallons per acre by air. 3-day PHI. **All. Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per crop cycle. This includes the use of Orthene in transplant water, plant bed, soil, float bed (greenhouse) and foliar applications.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Cutworms (Cont'd)	Lorsban Advanced .755EW (chlorpyrifos)	2 pts / A	Preplant broadcast spray. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 2 to 4 inches using suitable incorporation equipment. Knock down beds to final shape for transplanting. Use PTO-driven implements that will incorporate Lorsban Advanced to a depth of 4 inches. **Do not** make more than one application per season. Maximum single application rate is 1 lb ai chlorpyrifos per acre. REI 24 hrs.
	Lorsban EC (chlorpyrifos)	2 pts / A	Apply as a preplant broadcast spray. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gal / A or more. Incorporate immediately to a depth of 2 to 4 inches. Before broadcast application into existing beds, knock down beds to final shape for transplanting. Use a PTO-driven implement that will incorporate Lorsban-4E to a depth of 4 inches. 24 hrs REI.
	Lorsban 5G (chlorpyrifos)	13.5 lbs / A	Use as preplant soil incorporated treatment. Apply one week before transplanting, using equipment that will evenly distribute granules over a treated area. Immediately following application, incorporate granules into the soil to a depth of 2-4 inches using suitable equipment. **Do not** apply within seven days of transplanting. **Do not** make more than one application per season. 24 hrs REI.
	Warrior CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A 0.015-0.03 lb ai / A	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	
\	Brigade 2EC (bifenthrin)	**Transplant Application** 4.0-6.4 fl ozs / A **Foliar** 2.56-6.4 fl ozs / A	**Pre-Transplant Soil Applications.** Apply 0.0624 - 0.1 lb ai / A in a minimum of 10 gals / A to control soil pests. Use of suitable equipment to incorporate into top 4" of the soil. **At-Transplant Water Treatment Application**. Apply 0.0625 - 0.1 lb ai / A in a water treatment application volume of 10 - 200 gals / A. **Foliar**. Apply 2.56 - 6.4 fl oz / A per foliar application up to and including, layby in a minimum of 10 gals / A. **Do not** make more than 2 foliar applications per season. **All Rates. Do not** apply more than 0.2 lb ai / A per season. **Do not** apply later than layby. May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Cutworms (Cont'd)	Admire Pro 4.6F (imidacloprid)	**Seedling Tray Drench** 0.6-1.2 fl ozs / 1000 plants **In-Furrow or Transplant-Water** 0.8-1.2 fl ozs / 1000 plants	Uniform broadcast foliar spray to seedlings in trays (tray drench) not more than 7 days prior to transplanting followed immediately by overhead irrigation to wash Admire Pro from foliage into potting media. In-furrow spray or transplant-water drench during setting. 14 days PHI. Maximum Admire Pro allowed per crop season is 14.0 fl ozs / Acre (0.5 lb ai/Acre).
	Mocap 15G (ethoprop)	13 lbs / A	Broadcast: Mix with top 2 to 4 inches of soil with mechanical equipment right after application. Use a disc harrow or other cultivating equipment that will mix the Mocap with the soil.
Flea Beetles	Admire Pro 4.6F (imidacloprid)	**Seedling Tray Drench** 0.5 fl oz / 1000 plants **In-Furrow or Transplant-Water** 0.6 fl oz / 1000 plants	Uniform broadcast foliar spray to seedlings in trays (tray drench) not more than 7 days prior to transplanting followed immediately by overhead irrigation to wash Admire Pro from foliage into potting media. In-furrow spray or transplant-water drench during setting. 14 days PHI. Maximum Admire Pro allowed per crop season is 14.0 fl ozs / Acre (0.5 lb ai Acre).
	Actara 25WG (thiamethoxam)	2.0-3.0 ozs / A	Apply before pests reach damaging levels. Apply higher rates for heavy infestations. **Do not** exceed a total of 3.0 ozs (0.047 lb ai) / A during each growing season. 14 days PHI. Use a minimum of 20 gals of water per acre. **Do not** use a foliar application of Actara following an in-furrow or soil application of Platinum.
	Belay 16WSG (clothianidin) 50WDG	**TPW or TD** 5-10 ozs / A **Foliar** 1.5-2.0 ozs / A	Apply to the soil in **TPW** or by **drench to trays** or flats prior to transplanting. Plants in flats or trays should be watered by overhead irrigation to wash Belay 16 WSG from the foliage into the potting media. Soil application sometimes causes yellowing of foliage present at the time of transplanting. This does not have an impact on growth and yields. **Do not** apply more than a total of 0.2 lb ai per acre per season. **Do not** apply more than 6.4 ozs of Belay 50 WDG per acre per season. **Do not** apply treatments less than 7 days apart. **Do not** apply within 14 days of harvest. Do not apply Belay 50 WDG through any type of irrigation system.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Flea Beetles (Cont'd)	Brigade 2EC (bifenthrin)	**PPI or TPW** 4.0-6.4 fl ozs /A **Foliar** 2.56-6.4 fl ozs / A	**PPI.** Apply in a minimum of 10 gals / A. Incorporate into top 4" of the soil. **TPW.** Apply in a volume of 10-200 gals /A. **Foliar.** Apply 0.04 - 0.10 lb ai / A per foliar application up to and including layby in a minimum of 10 gals / A. **Do not** make more than 2 foliar applications per season. **All. Do not** apply more than 0.2 lb ai / A per season. **Do not** apply later than layby. May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.
	Nuprid 1.6F (imidacloprid)	4 ozs / A	**Foliar.** 14 day PHI. Minimum interval between applications is 7 days. Maximum amount allowed per season is 22.4 fl ozs / A.
	Sevin 80SP (carbaryl) XLR Plus	1¼ - 2½ lbs (2-3 Tbsp / gal) 1.0-2.0 qts / A	
	Orthene 97PE (acephate)	**Transplant Water Treatment** 1½ lbs (24 ozs) (Burley) (24C Registration) ¾ lb (12 ozs) (Dark) **Foliar** 1 lb (16 ozs) (Burley) (24C Registration) ½ lb (8 ozs) (Dark)	**Transplant Water.** Provides control of early-season flea beetles for approximately 3-4 weeks after transplanting. Apply in a minimum of 100 gallons (200 gallons for burley) of transplant waster per acre. Premix in water to form a slurry solution prior to adding to the transplant water tank. **Foliar.** Apply as a foliar spray for later season insects. Apply in 10 to 50 gallons water per acre with ground equipment or a minimum of 3 gallons per acre by air. Three-day PHI. **All. Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per crop cycle. This includes the use of Orthene in transplant water, plant bed, soil, float bed (greenhouse) and foliar applications.
	Platinum 2SC (thiamethoxam) 5SG	0.8-1.3 fl ozs / 1,000 plants 0.27-0.43 oz / 1,000 plants	Apply at transplant using one of the following methods. **Tray treatment.** Apply to transplants while still in trays. Thoroughly water transplants. Then apply the chemical evenly to the transplants. Immediately after treatment, spray transplants with enough water to wash the chemical off the foliage and into the soil. Set transplants in the field within two days after treatment. During transplanting, workers handling transplants must wear waterproof gloves. **Do not** apply Platinum 2SC or 75 SG to float-bed water. **Soil (drench transplants).** Mix appropriate amounts of Platinum in water and drench transplants as they are being placed in the ground. Make only one soil or tray treatment application per season. **Do not** exceed a total of 8 fl ozs (0.125 lb ai) of Platinum 2 SC or 2.67 ozs (0.125 lb ai) of 75 SG per acre per growing season.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Flea Beetles (Cont'd)	Vydate 2L (oxamyl)	**Row Treatment** 1 gal in an 18" to 24" band in at least 20 gals water / A (12,000 row feet of tobacco) **Broadcast** 1 gal / A in at least 40 gals water / A.	Apply by ground. Thoroughly incorporate 4 to 6 inches into the soil. **Do not** transplant tobacco for 48 hours after soil treatment. **Do not** apply more than 8 pts (1 gal) per acre per season.
	Supracide 2EC (methidathion)	2-3 pts / 25 gals. (2.5-4 Tbsp / gal)	Three-day preharvest interval.
	Lannate 90SP (methomyl) 2.4L	1/4-1/2 lb / A 3/4-1 1/2 pts / A.	Preharvest interval of 14 days for air- or fire-cured. 5 days PHI for flue-cured. 48 hours REI.
	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	
	Lorsban Advanced 3.755EW (chlorpyrifos)	2 pts / A	Preplant broadcast spray. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 2 to 4 inches using suitable incorporation equipment. Knock down beds to final shape for transplanting. Use PTO-driven implements that will incorporate Lorsban Advanced to a depth of 4 inches. **Do not** make more than one application per season. Maximum single application rate is 1 lb ai chlorpyrifos per acre. REI 24 hrs.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Flea Beetles (Cont'd)	Lorsban 15G (chlorpyrifos)	13.5 lb / A	Use as pre-plant soil incorporated treatment. Apply one week before transplanting, using equipment that will evenly distribute granules over a treated area. Immediately following application, incorporate granules into the soil to a depth of 2-4 inches using suitable equipment. **Do not** apply within seven days of transplanting. **Do not** make more than one application per season. 24 hrs REI
	4E	2 pts / A	Apply as a preplant broadcast spray. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gal / A or more. Incorporate immediately to a depth of 2 to 4 inches. Before broadcast application into existing beds, knock down beds to final shape for transplanting. Use a PTO-driven implement that will incorporate Lorsban-4E to a depth of 4 inches. 24 hrs REI.
	Provado 1.6F (imidacloprid)	4.0 fl ozs / A	**Foliar.** 14 day PHI. 7 days minimum interval between applications. 22.4 ozs / A maximum allowed per season.
	Brigade 2EC (bifenthrin)	2.56-6.4 fl ozs /A	**Foliar.** Apply 0.04 - 0.10 lb ai / A per foliar application up to and including layby in a minimum of 10 gal / A. **Do not** make more than 2 foliar applications per season. **Do not** apply more than 0.2 lb ai / A per season. **Do not** apply later than layby. May be tank-mixed with Command, Spartan and other herbicides approved for tobacco use.
	Orthene 97PE (acephate)	1/4-½ lb ./ 25 gals (4-8 ozs)	Spray at threshold level. Preharvest interval of three days. Apply in 10 to 50 gals water per acre with ground equipment or a minimum of 3 gals per acre by air.
	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Japanese Beetles	Orthene 97PE (acephate)	3/4 lb (12 ozs)	Apply in 10 to 50 gals water per acre with ground equipment or a minimum of 3 gals per acre by air. **Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per season. 3 day PHI.
	Sevin 80SP (carbaryl)	1 1/4-2 1/2 lbs / 25 gals (2-3 Tbsp / gal) 1.0-2.0 qts / A	Cover entire tobacco plant. For grazing purposes, read time limits on label for pastures.
	Platinum 2SC (thiamethoxam)	0.8-1.3 fl ozs / 1,000 plants	Apply at transplant using one of the following methods. **Tray treatment.** Apply to transplants while still in trays. Thoroughly water transplants. Then apply the chemical evenly to the transplants. Immediately after treatment, spray transplants with enough water to wash the chemical off the foliage and into the soil. Set transplants in the field within two days after treatment. During transplanting, workers handling transplants must wear waterproof gloves. **Do not** apply Platinum 2 SC or 75 SG to float-bed water. **Soil (drench transplants).** Mix appropriate amounts of Platinum in water and drench transplants as they are being placed in the ground. Make only one soil or tray treatment application per season. **Do not** exceed a total of 8 fl ozs (0.125 lb ai) of Platinum 2 SC or 2.67 ozs (0.125 lb ai) of 75 SG per acre during the growing season.
	75SG	0.27-0.43 oz/ 1,000 plants	
	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl oz or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	
	Actara 25WG (thiamethoxam)	2.0-3.0 ozs / A	Apply before pests reach damaging levels. Apply higher rates for heavy infestations. **Do not** exceed a total of 3.0 ozs (0.047 lb ai) / A during each growing season. 14 days PHI. Use a minimum of 20 gals of water per acre. **Do not** use a foliar application of Actara following an in-furrow or soil application of Platinum.
	Provado 1.6F (imidacloprid)	4.0 fl ozs / A	**Foliar.** 14 day PHI. 7 days minimum interval between applications. 22.4 ozs / A maximum allowed per season.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Hornworms	Supracide 2EC (methidathion)	2-3 pts / 25 gals (2.5-4 Tbsp / gal)	Three-day preharvest interval.
	Orthene 97PE (acephate)	½ lb (8 ozs)	Apply in 10 to 50 gals water per acre with ground equipment or a minimum of 3 gals per acre by air. **Do not** apply more than 4 1/8 lbs / A (4 lbs ai) per season. Three-day PHI.
	Bacillus Thuringiensis	Use sprays and baits by label directions.	
	Belay 50WDG (clothianidin)	2.0 ozs /A	**Foliar.** For suppression of budworms and hornworms. **Do not** apply more than 6.4 ozs of Belay 50 WDG per season. **Do not** apply treatments less than 7 days apart. **Do not** apply within 14 days of harvest. **Do not** apply through any type of irritation system.
	Belt 4SC (flubendiamide)	2.0-3.0 ozs / A	**Do not** apply more than 3 fl ozs per acre (0.094 lb ai / A) per 5-day interval. **Do not** apply more than 12 fl ozs per acre (0.375 lb ai / A) per crop season. **Do not** apply more than 4 times per crop season. Minimum application volume: 10.0 GPA - Ground; 5.0 GPA – aerial. Application should be timed to coincide with early threshold level in a developing larval population. PHI 14 days. REI 12 hours.
	Tracer Naturalyte (spinosad)	1.4-2.9 fl ozs / A (Treats 90-45 A per gallon)	Make no more than 3 applications per 30 days or 6 applications per crop. Use a minimum of 20 gallons of water per acre to obtain full coverage of foliage, increasing volume and nozzles per row as necessary with crop maturity.
	Denim 0.16EC (emamectin benzoate)	8.0-12.0 fl ozs / A	Application should be targeted at small (1/4 inch) larvae. At least 2 applications may be needed to control a generation during an extended egg laying period. Apply in a minimum of 20 gals / A. **Do not** make more than two sequential applications without rotating to another product with a different mode of action. **Do not** apply more than a total of 36 ozs / A on crop per season. Allow a minimum of 5 days between applications. 14 days PHI. **Do not** allow livestock to graze treated area.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Hornworms (Cont'd)	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	
	Lannate 90SP (methomyl) 2.4LV	1/4-1/2 lb / A 3/4-1 1/2 pts / A.	Preharvest interval of 14 days for air- or fire-cured. 5 days PHI for flue-cured. 48 hours REI.
Stink Bugs	Orthene 97PE (acephate)	½-3/4 lb (8-12 ozs)	Apply in 10 to 50 gallons of water per acre with ground equipment or a minimum of 3 gals per acre by air. Three-day PHI.
	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs /A	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	
	Brigade 2EC (bifenthrin)	2.56-6.4 fl ozs / A	**Foliar.** Apply 0.04 - 0.10 lb ai / A per foliar application up to and including layby in a minimum of 10 gals / A. **Do not** make more than 2 foliar applications per season. **Do not** apply more than 0.2 lb ai / A per season. **Do not** apply later than layby. May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.

Insect Control in Field Tobacco

Insect	Insecticide*/ Formulation	Rate Per Acre	Remarks
Vegetable Weevil	Orthene 97PE (acephate)	½-3/4 lb (8-12 ozs)	Apply in 10 to 50 gals water per acre with ground equipment or a minimum of 3 gals per acre by air. 3 day PHI.
	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	
Thrips	Platinum 2SC (thiamethoxam)	0.8 fl ozs / 1,000 plants (Suppression) 1.3 ozs / 1,000 plants 0.27 oz / 1,000 plants (Suppression) 0.43 oz / 1,000 plants	Apply at transplant using one of the following methods. **Tray treatment.** Apply to transplants while still in trays. Thoroughly water transplants. Then apply the chemical evenly to the transplants. Immediately after treatment, spray transplants with enough water to wash the chemical off the foliage and into the soil. Set transplants in the field within two days after treatment. During transplanting, workers handling transplants must wear waterproof gloves. **Do not** apply Platinum 2 SC or 75 SG to float-bed water. **Soil (drench transplants).** Mix appropriate amounts of Platinum in water and drench transplants as they are being placed in the ground. Make only one soil or tray treatment application per season. **Do not** exceed a total of 8 fl ozs (0.125 lb ai) of Platinum 2 SC or 2.67 ozs (0.125 lb ai) 75 SG per acre per growing season.
	Brigade 2EC (bifenthrin)	2.56-6.4 fl ozs / A	**Foliar.** Apply 0.04 - 0.10 lb ai / A per foliar application up to and including layby in a minimum of 10 gals/A. **Do not** make more than 2 foliar applications per season**. Do not** apply more than 0.2 lb ai / A per season. May be mixed with Command, Spartan and other herbicides approved for tobacco use.
	Warrior 1CS (lambda-cyhalothrin)	1.92-3.84 fl ozs / A	**SUPPRESSION ONLY.** Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications based on reaching economic threshold. Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. By air, apply in a minimum of 2 gals. of water / A. **Do not** apply within 40 days of harvest. **Warrior. Do not** apply more than 0.09 lb ai (0.72 pts) / A per year. **Karate. Do not** apply more than 0.09 lb ai (5.76 fl ozs or 0.36 pts of product) / A per year.
	Karate 2.08CS (lambda-cyhalothrin)	0.96-1.92 fl ozs / A	

The spoon dosages indicate the amount of insecticide to add to each gallon of spray water when you are using 25 gallons of water per acre. If, for example, 50 gallons of water are used per acre, use only one-half the shown spoon dosage in each gallon of water. If only 12.5 gallons of water per acre are used, use double the given spoon dosage in each gallon. **Do not** apply insecticides in heat of day or overdose. Keep spray nozzle 8-10 inches from bud. Use the smaller given dosages for plants up to 3 feet and larger dosages for larger plants. Plow down stubble after harvest to reduce next year's insects.

Key to Abbreviations

EC = Emulsifiable	L = Liquid Concentrate
D = Dust	LV = Low Volume
D = Dust	WP= Wettable Powder
F = Flowable	CS = Capsulated Suspension
G = Granules	
PE = Water Soluble Pellet	
SC = Soluble Concentrate	
WDG = Water-dispersible granules	
SP = Soluble powder	

* Caution: All insecticides are toxic and should be handled with great care and used in accordance with label recommendations. By following label directions, you will be able to protect yourself, the environment and prevent groundwater contamination.

Tobacco Insect Economic Threshold Levels *

Tobacco Budworms	5 infested plants/50 plants (10%)
Tobacco Hornworms	
1" length	5 worms/50 plants (10%)
Parasitized	25 worms/50 plants (50%)
Tobacco Flea Beetles	
Young transplants	Average 3 beetles/plant
Older transplants	Average 10 beetles/plant
Tobacco Aphid	Before Topping: 10% of plants have 50 aphids on any upper leaf. After Topping: 20% or more of plants are infested.

* Economic threshold is the population level of an insect in which it is economically feasible to apply a chemical control.

Precautionary Statement

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

INSECTICIDE	Restricted Entry Intervals (Hours)	Preharvest Interval (Days)
Foliar treatments		
Acephate (Orthene)	24	3
Bacillus thuringiensis (Agree, Biobit, Condor, Dipel, Javelin, MVP)	4	0
Bifenthrin (Brigade)	12	Layby
Carbaryl (Sevin)	12	0
Clothianidin (Belay)	12	14
Flubendiamide (Belt)	12	14
Spinosad (Tracer)	24	5
Methdathion (Supracide)	4	3
Methomyl (Lannate)	48	3
Imidacloprid (Provado, Nuprid)	48	7
Pymetrozine (Fulfill)	12	14
Thiamethoxam (Actara)	12	14
Lambda-cyhalothrin (Warrior, Karate)	24	40
Emamectin benzoate (Denim)	48	14
Acetamiprid (Assail)	12	7
Soil Treatments		
Aldicarb (Temik) (Check label for reentry restrictions after first rainfall or irrigation	48	Apply before transplanting
Carbofuran (Furdan)	48	“
Chlorpyrifos (Lorsban)	24	”
Ethoprop (Mocap)	48	“
Fenamiphos (Nemacur)	48	”
Fonofos (Dyfonate)	48	“
Metaidehyde (Deadline Bullets)	12	”
Oxamyl (Vydate)	48	“
TPW		
Acephate (Orthene)	24	
Bifenthrin (Brigade)	12	
Clothianidin (Belay)	12	
Tray & Soil (TPW) Treatments		
Clothianidin (Belay)	12	
Bifenthrin (Brigade)	12	
Imidacloprid (Admire)	12	
Thiamethoxam (Platinum)	12	

Tobacco Disease Control

Darrell Hensley, Extension Specialist and Steve Bost, Professor
Entomology and Plant Pathology

Disease Control Products for Plant Beds (Greenhouse and Outdoor)

Disease	Product	Rate	Remarks*
Angular leaf spot, wildfire, blue mold (suppression)	streptomycin sulfate (Agri-Mycin, 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.
Anthracnose, blue mold, Rhizoctonia damping off, target spot (suppression)	mancozeb (Dithane DF, Manzate ProStick, Penncozeb)	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.
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: 1 fl. oz./100 gals. float water. Curative: 1.4 fl. oz. /100 gals. float water when symptoms first appear. A 2nd application of 1-1.4 fl. oz./100 gals. float water can be made if symptoms recur.	Apply no sooner than 2 wks. (preventive rate) or 3 wks. (curative rate) after seeding. Additional applications can be made at 3-wk. intervals, but do not apply later than 8 wks. after seeding. No more than 2.8 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

Disease	Product Choices	Rate	Season Limit (per A)	PHI (days)	Remarks*
Angular leaf spot, wildfire	streptomycin sulfate (Agri-Mycin, 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.
	dimethomorph Acrobat 50WP Forum	 2-7 oz./A 2-8 fl. oz./A	 32 oz. 30 fl. oz.	 0 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. See label for instructions on methods of application other than tractor-driven sprayer. Acrobat or Forum **must be tank mixed** with another effective blue mold fungicide with a different mode of action. Mancozeb is recommended for this purpose. Do not mix with surfactants, foliar fertilizers, or sucker control materials.
	mancozeb (Dithane DF, Manzate ProStick, Penncozeb)	1.5-2 lbs./100 gals.	no limit	30	Some buyers have expressed concern over residues of mancozeb on tobacco. Consequently, use this product only as needed – as a tank mix with Acrobat or Forum or in alternation with Quadris.
	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 Acrobat or Forum tank mixed with 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.
Black shank	Ridomil Gold	A: 1-2 pts.	3 pts.		The preplant application is incorporated 2-4 inches deep. Apply the postplant treatments as a soil spray (not foliar), deposited under the plants and covered with soil by the cultivator. The Ridomil Gold SL label does not require a preplant application in order to make postplant applications. However, the first postplant treatment should be applied before symptoms appear.
		B: 1 pt. + 1 pt.			
		C: 1 pt. + 1 pt. + 1 pt.			
	Ultra Flourish	A: 2-3 qts.	3 qts.		
		B: 1 qt. + 1 qt.			
		C: 1 qt. + 1 qt. + 1 qt.			
	MetaStar	A: 4 -6 qts.	6 qts.		
		B: 2 qts. + 2 qts.			
		C: 2 qts. + 2 qts. + 2 qts			
Frogeye, Target spot	Quadris	6-12 fl. oz./A	31.2 fl. oz.	0	Must alternate with mancozeb or other non-related fungicides. 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.

A=Per-acre rate for preplant application only

B=Per-acre rate for preplant + layby

C=Per-acre rate for preplant + 1st cultivation + layby

Recommended Burley Tobacco Varieties - 2009

Variety	Yield[1]	Disease Resistance Ratings								
		Black Shank[2]		Black Root Rot	Fusarium wilt[2]	TMV[3]	TVMV	TEV	Blue Mold	Relative Maturity
		Race 0	Race 1							
Moderately High Black Shank Resistance										
KT 206 LC	9	10	7	High	1	High	High	Med.	4	Med - Late
KT 204 LC	9	7	7	High	1	High	High	Med.	0	Med - Late
Moderate Black Shank Resistance										
NC 7	9	10	4	High	5	High	High	Med.	0	Med.–Late
TN 90 LC	5	4	4	High	0	High	High	Med.	3	Med.- Late
R 610 LC	5	4	4	Med.	3	-	None	None	0	Med.
Hybrid 501LC	5	5	5	High	4	High	None	None	0	Med.- Early
Black Shank Susceptible (black shank free land only)										
ms KY14 x L8	7	10	0	Med.	6	High	None	None	0	Early
HB04P LC	8	0	0	High	0	High	None	None	0	Med.
NC 6	8	10	3	High	0	High	High	Med.	0	Med.–Late
N 126 LC	8	0	0	Med.	3	High	None	None	0	Med.
R 7-12 LC	8	0	0	High	4	High	None	None	0	Late
NC 2002*	3	0	0	Low	0	High	None	None	7	Late

[1] Rating of 1 – 10, with 10 being highest yield potential.
[2] Scale of 0 – 10, with 10 being greatest resistance
[3] TMV = Tobacco Mosaic Virus; TVMV = Tobacco Vein Mottling Virus; TEV = Tobacco Etch Virus; all varieties susceptible to PVY.
***** NC 2002 is blue mold resistant, but susceptible to black root rot and many viruses. Recommended only in situations of severe blue mold where adequate chemical control is not feasible, black shank is not present and black root rot is not a problem**.**

Disease Resistance Ratings - Dark Varieties

Variety	Maturity	Black shank Race 0	Black shank Race 1	Use*	Yield Score	Quality Score	Black Root Rot	Fusarium	TMV	Wildfire
NL Madole LC	Med-Late	None	None	F/A	7	9	None	None	None	None
TR Madole	Medium	None	None	F	6	9	None	None	None	None
Little Crittenden	Med-Late	None	None	A/F	5	9	None	None	None	None
DF 911	Medium	None	None	F	8	6	High	None	High	High
KY 160	Medium	None	None	A	3	9	None	None	High	None
KY 171	Medium	None	None	A/F	7	7	High	Medium	High	None
VA 309	Early-Med	Med	Low	A/F	6	8	Low	-	None	-
VA 359	Medium	Low	Low	A/F	6	8	Low	-	None	-
TN D950	Early	Med	Med	F	8	5	High	None	High	High
KT D4 LC	Medium	Med	Med	F/A	9	5	None	-	None	None
DT 538 LC	Medium	Med	Med	F/A	8	8	-	-	-	-
KT D6 LC	Medium	Med	Med	F	9	7	High	None	High	High
PD 7312 LC	Medium	None	None	F/A	7	8	High	Medium	High	None
PD 7302 LC	Medium	High	None	F/A	7	8	High	-	High	-
PD 7309 LC	Medium	High	None	F/A	7	8	None	-	None	-
KT D8 LC	Medium	Med	Med	F/A	9	6	None	-	None	None

* "F" or "A" refers to use as fire-cured or air-cured variety. F/A indicates either use, with predominate use given first. Relative yield and quality scores given on a 0-10 scale, with 10 being the best for the predominate use. Dash (-) means that resistance level is unknown or data not available. For more information concerning dark tobacco varieties, please visit: http://ces.ca.uky.edu/darktobacco.