

# TOBACCO: TOBACCO PLANT BED INSECT CONTROL

J. Michael Moore, Extension Agronomist – Tobacco

INSECT	MOA	CHEMICAL	RATE PER 100 SQ YD	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Aphids, flea beetles (preventive control)	1B	<i>disulfoton</i> Di-Syston 15G	9 oz	48 H/ NA	Apply granules broadcast just before seeding or over top of small plants – water in immediately. Do not exceed recommended rate.
Aphids, flea beetles or vegetable weevils	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	1 Tbsp in 3 gal of water 0.75 Tbsp in 3 gal water 0.75 Tbsp in 3 gal water	24 H/ 3 D	Apply to foliage as needed.
Budworms	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	1 Tbsp in 3 gal of water 0.75 Tbsp in 3 gal water 0.75 Tbsp in 3 gal water	24 H/ 3 D	Apply to foliage as needed.
Cutworms	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	1 Tbsp in 3 gal of water 0.75 Tbsp in 3 gal water 0.75 Tbsp in 3 gal water	24 H/ 3 D	Apply to foliage in late afternoon or at dusk. Scatter bait evenly at dusk around margins, walkways, and open spaces in bed. Keep off plants as much as possible.
	1A	<i>carbaryl</i> Sevin 5% B	0.5-1 lb	12 H/ 0 D	
Green June beetle grubs	1A	<i>carbaryl</i> Sevin XLR Plus	5.5 oz in 50-100 gal water	12 H/ 0 D	Apply only to uprooted areas of bed.
Mole Crickets	1A	<i>Carbaryl</i> 5% B as applied for cutworms gives helpful control.		12 H/ 0 D	See remarks under cutworms.
Slugs and snails	5B	<i>metaldehyde</i> Deadline Bullets	1 lb/1,100-3,600 sq ft	12 H/ 0 D	Scatter bait evenly at dusk around margins, walkways, and open spaces in bed.  Do not apply directly to plants

# INSECT CONTROL IN TOBACCO TRANSPLANTS GROWN IN GREENHOUSES

J. Michael Moore, Extension Agronomist – Tobacco

INSECT	MOA	CHEMICAL	RATE PER 100 SQ YD	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Aphids, cutworms, or flea beetles	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	1 Tbsp in 3 gal of water 0.75 Tbsp in 3 gal water 0.75 Tbsp in 3 gal water	24 H/ 3 D	Apply to foliage as a spray. Do not apply through an irrigation system. Over application can cause plant injury.
Aphids or flea beetles	4A	<i>imidacloprid</i> Admire Pro 4.6 Alias and others 2F	0.45-0.6 oz/1000 plants 1-1.4 oz/1000 plants	12 H/ 14 D	To control aphids or flea beetles in the field, apply as a drench to trays or flats not more than 7 days prior to transplanting. Water in immediately, using sufficient water volumes to remove any white residue from foliage.
	4A	<i>thiamethoxam</i> Platinum and T-Moxx 2SC	0.8-1.3 oz/1000 plants	12 H/ 14 D	
Slugs and snails	5B	<i>metaldehyde</i> Deadline Bullets	1 lb/1,100 - 3,600 sq ft	12 H/ Day of harvest	Apply to margins, walkways, and vacant areas at dusk. Do not apply to float water or directly to plants.
Mole crickets or wireworms  Wireworms (only)	4A	<i>imidacloprid</i> Admire Pro 4.6 Alias and others 2F	0.6-1.2 oz/1000 plants 1.4-2.8 oz/1000 plants	12 H/ 14 D	To control mole crickets or wireworms in the field, apply as a drench to trays or flats prior to transplanting. Water in immediately, using sufficient water volumes to remove any white residue from foliage.  To control wireworms in the field, apply as a drench to trays or flats prior to transplanting.
	4A	<i>thiamethoxam</i> Platinum and T-Moxx 2S	1.3 oz/1000 plants	12 H/ 14 D	

## TOBACCO PLANT BED DISEASE CONTROL

Paul Bertrand, Extension Plant Pathologist  
J. Michael Moore, Extension Agronomist

DISEASE	MOA	CHEMICAL	RATE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Blue mold and Pythium damping off	M3	<i>mancozeb</i> Dithane 75 DF Manzate Pro Stick Penncozeb	1 lb/100 gal (1 level Tbsp/gallon) (sprayed)	24 H/ 21 D	Use as an over-the-top spray on a 5-7 day schedule as long as conditions warrant. Start with 3 gallons/900 sq ft when plants are small and increase to 5 gal/900 sq ft.
Rhizoctonia damping off and Target Spot	M3	Manzate Pro Stick Penncozeb	1 lb/100 gal (1 level Tbsp/gallon) (sprayed)	24 H/ 21 D	Apply when needed. Spray twice a week beginning when plants are dime sized – continue through transplanting. Thoroughly cover all plants. Use as a drench when damping-off is present in the bed.
Tobacco mosaic virus	a) Rinse hands with milk or soap prior to each plant handling operation. b) Do not handle tobacco products or weeds around plant beds during or prior to handling plants.				

## TOBACCO PLANT BED NEMATODE AND WEED CONTROL

Paul Bertrand, Extension Plant Pathologist  
J. Michael Moore, Extension Agronomist

DISEASE	MOA	CHEMICAL	RATE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Root-knot and lesion nematodes and weeds	8A	<i>methyl bromide</i> 98% <i>methyl bromide</i> 68.6%	9 lb/100 sq yds 10-12 lb/100 sq yds	24 H/ 21 D	APPLY <i>METHYL BROMIDE</i> WHEN SOIL TEMPERATURE IS ABOVE 50°F.  Cans: Release gas under plastic covering. Plastic should be raised and sealed around the edges with soil. Leave covered for 24 hours. Seed bed 72 hours after the cover is removed.
	1A/M3	Vapam	37.5 gal/A	24 H/ 21 D	Cylinders: Inject into well-prepared soil with chisel applicators. Cover immediately with plastic and seal all edges. Leave covered for 48 hours. Remove cover 72 hours prior to seeding
	1A/M3 + 8A	Vapam + Telone C-17	37.5 gal/A + 10 gal/A	24 H/ 21 D  48 H/ 21 D	Spray on and incorporate with rototiller 6" deep ahead of plastic tarp.  Wait 7 days before punching and removing tarp. Wait 7-14 days from tarp removal before seeding.  Spray on and incorporate 6" deep with rototiller.  Apply by chisel in front of tiller, but ahead of plastic tarp. Wait 7 days before punching or removing tarp. Wait 14-21 days from tarp removal before seeding.

## TOBACCO GREENHOUSE TRAY SANITATION

J. Michael Moore, Extension Agronomist – Tobacco

DISEASE	MOA	CHEMICAL	RATE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Rhizoctonia, Sclerotinia, and Pythium	8A	<i>methyl bromide</i> 98%	3 lb/1 000 cu ft	24 H/ 3 D	Stack polystyrene trays loosely with sticks separating trays after every 10 trays in the stack to improve movement of the gas into the trays. Release gas into and maintain a closed environment (plastic tarp or other container) for at least 72 hours when air temperature is at least 50° F. Greenhouses should not be used as fumigation chambers as they cannot be properly sealed. Trays should be ventilated prior to filling with media. Proper precautions should be taken to avoid worker injury from remaining gas when the cover is opened.
Rhizoctonia, Sclerotinia, and Pythium		Steam	175°F for 30 minutes		Excessive heat for an extended period of time can cause trays to be brittle and warped resulting in problems during mechanical seeding.

## TOBACCO GREENHOUSE DISEASE CONTROL

Paul Bertrand, Extension Plant Pathologist  
J. Michael Moore, Extension Agronomist

DISEASE	MOA	CHEMICAL	RATE/1000 SQ FT	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Blue Mold, Rhizoctonia (Damping Off & Target Spot)	M3	<i>mancozeb</i> Dithane 75 DF Manzate Pro Stick Penncozeb 75DF	0.5 lb (1 level tsp/gal)	24 H/ 21 D	Use 0.5 lb/100 gal of water. Spray to run-off (3 gal/1000 sq ft) every 5-7 days when plants reach dime size (0.5-1" tall). Gradually increase the spray volume to 6-12 gal/1000 sq ft as plants enlarge until transplanting to the field.
	11	<i>azoxystrobin</i> Quadris F	0.14 oz (4 ml)	12 H/ 100 D	This application is allowed by GA 24c Labeling. Apply in enough water for thorough coverage (5 gal/1000 sq ft). Make only 1 application prior to transplanting. Additional field applications may be made according to the Quadris federal label.
Pythium	14	<i>etrizazole</i> Terramaster 35 WP Terramaster 4 EC	2 oz 1 fl oz	12 H/ 3 D	Mix Terramaster per 100 gal of water 2-3 weeks after seeding and again up to 8 weeks after seeding as needed. Mix Terramaster with water in a bucket and add to float water while providing thorough mixing. A sequential application may be made 3 weeks after the initial application as needed.
If Pythium shows up, a second treatment can be made up until 8 weeks after seedling. The plant producer assumes all responsibility for any stunting or plant injury that may occur.					

# TOBACCO FIELD INSECT CONTROL

J. Michael Moore, Extension Agronomist – Tobacco

INSECT	MOA	CHEMICAL	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Aphids	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	Good coverage is essential for control for all products. The use of drop nozzles will improve control by depositing insecticides on the underside of the leaves where aphids feed. Do not apply <i>bifenthrin</i> later than layby and do not apply more than 0.2 lb ai/A/season.  See Tobacco Field Disease Control Section for recommendations to suppress tomato spotted wilt virus with <i>imidacloprid</i> as a tray drench in the greenhouse.
	4A	<i>acetamiprid</i> Assail 80SG	1.5-4 oz	0.075-2	12 H/ 7 D	
	3	<i>bifenthrin</i> Brigade 2EC Capture LFR	2.56-6.4 oz 3.4-6.8 oz	0.04-0.10	12 H/ 30 D Capture 12 H	
	4A/ NC	<i>imidacloprid</i> Admire Pro	0.7-1.4 oz	0.025-0.05	12 H/ 30 D	
	1A	<i>methomyl</i> Lannate 90SP 2.4LV	0.5 lb 24 oz	0.45 0.45	7 D/ 30 D	
	9B	<i>pymetrozine</i> Fulfill 50WG	2.75 oz	0.09	12 H/ 14 D	
	4A	<i>thiamethoxam</i> Actara 25WG	2-3 oz	0.03-0.05	12 H/ –	
Aphids (transplant water treatment)	4A/ NC	<i>imidacloprid</i> Admire Pro 4.6 Alias and others 2F	0.45-0.6 oz/1000 plants 1-1.4 oz/1000 plants	0.016-0.02/1000 plants 0.01-0.02/1000 plants	12 H/ 30 D	Apply in transplant water. Mix thoroughly. Use 100+ gal of water/A for optimum control.  See Tobacco Field Disease Control Section for recommendations to suppress tomato spotted wilt virus with <i>imidacloprid</i> as a transplant water application.
	4A	<i>thiamethoxam</i> Platinum and T-Moxx 2SC	0.8-1.4 oz/1000 plants	0.013-0.022/1000 plants	12 H/ 14 D	
	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	
Budworms	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	Use 8-10 gal of spray/A, using 1 hollow-cone nozzle per row when tobacco is less than 12-14” high. For the remainder of the season, apply 20-40 gal of spray using 3 hollow cone nozzles per row. Operate equipment at 60 lb pressure and do not exceed 4 miles per hour. Apply uniformly in the root zone or poor performance will occur  For best results apply when worms are very small (less than 1/4” long). Bt must be eaten by the insect to be effective. Worms will die several days after feeding.  Coragen is labeled for a transplant water treatment to give systemic control of all worms (TBW, THW, Cutworms) Apply in 110 gal of transplant water/A. Maintain soil moisture conditions to improve Coragen uptake by the plants and improve worm control and longevity. Control may often be expected to extend 49 days after transplanting.  Belt is no longer being manufactured. Available supplies may be purchased and used.
	28	<i>chlorantraniliprole</i> Coragen 1.67	5-7.5 oz	0.065-0.098	4 H/ 1 day	
	6	<i>emamectin benzoate</i> Denim 16EC (not available)	8-12 oz	0.01-0.015	48 H/ 14 D	
	28	<i>flubendiamide</i> Belt SC (no longer manufactured)	2-3 oz	0.06-0.09	12 H/ 14 D	

**TOBACCO FIELD INSECT CONTROL**

INSECT	MOA	CHEMICAL	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Budworms (continued)	1A	<i>methomyl</i> Lannate 90SP 2.4LV	0.5 lb 24 oz	0.45 0.45	48 H/ 5 D	
	5	<i>spinosad</i> Tracer 4SC Blackhawk	1.4-2.9 oz 1.6-3.2 oz	0.044-0.09 0.044-0.09	4 H/ 3 D	
	11	<i>Bacillus thuringiensis</i> Dipel ES Dipel DF Agree S Biobit XL Biobit HP Condor OF Crymax WDG Javelin WG Lepinox WDG	2 pt 0.5-1 lb 1-2 lb 3 pt 1 lb 1.6 qt 1-1.5 lb 1-1.25 lb 1-2 lb		4 H/ 0 D	
Cabbage looper	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	Apply thoroughly. Good lower leaf coverage is essential for control. See remarks under Budworms.
	6	<i>emamectin benzoate</i> Denim 16EC (not available)	8-12 oz	0.01-0.015	48 H/ 14 D	
	28	<i>flubendiamide</i> Belt SC (no longer manufactured)	2-3 oz	0.06-0.09	12 H/ 14 D	Belt is no longer being manufactured. Available supplies may be purchased and used.
	1A	<i>methomyl</i> Lannate 90SP 2.4LV	0.5 lb 24 oz	0.45 0.45	7 D. 14 D	
	11	<i>Bacillus thuringiensis</i> See rates for budworms	2-2.9 oz	0.063-0.09	4 H/ 0 D	For best results apply when worms are small (0.5" long or less). Bt must be eaten by the insect to be effective. Worms will die several days after feeding.
	5	<i>spinosad</i> Tracer 4SC Blackhawk	1.4-2.9 oz 1.6-3.2 oz	0.045-0.089	4 D/ 3 D	
Cutworms	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	Apply 25-50 gal of spray overtop of plants. Make application during late afternoon.
	3A	<i>bifenthrin</i> Brigade 2EC Capture LFR	4-6.4 oz 3.4-8.5 oz	0.0625-0.10 0.04-0.1	24 H/ 3 D Capture 12 H	Apply <i>bifenthrin</i> as a pre-transplant broadcast application incorporated into the top 4" of the soil and no more than 0.2 lb ai/A/season.
	28	<i>chlorantroniliprole</i> Rynaxypyr Coragen	5-7.5 oz	0.065-0.098	4 H/ 1 D	

# TOBACCO FIELD INSECT CONTROL

INSECT	MOA	CHEMICAL	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Cutworms (continued)	1B	<i>chlorpyrifos</i> Chlorfos 15G 4E Lorsban Advanced	13.5-20 lb 2-3 qt 2 qt	2-3 2-3 2	24 H/ 35 D	
	28	<i>flubendiamide</i> Belt SC	2-3 oz	0.06-0.09	4 H/ 1 D	Belt is no longer being manufactured. Available supplies may be purchased and used.
Cutworms (transplant water treatment)	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	Apply in transplant water. Mix thoroughly. No more than 0.2 lb ai/A of <i>bifenthrin</i> can be applied per season.
Flea beetles (transplant water treatment)	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	Apply in transplant water. Mix thoroughly.
	4A/NC	<i>imidacloprid</i> Admire Pro 4.6 Alias and Others 2F	0.45-0.6 oz/1000 plants 1-1.4 oz/1000 plants	0.016-0.02/1000 plants 0.016-0.02/1000 plants	12 H/ 30 D	
	4A	<i>thiamethoxam</i> Platinum and T-Moxx 2SC	0.8-1.3 oz/1000 plants	0.01-0.02/1000 plants	12 H/ 14 D	
Flea beetles	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	10.5-16 oz 13.28 oz 8-12 oz	0.5-0.75 0.74 0.5-0.73	24 H/ 3 D	Use lower rates for small plants. Use higher rates for large plants and thoroughly cover the lower leaves. Do not apply <i>bifenthrin</i> later than layby and do not apply more than 0.2 lb ai/A/season.
	1A	<i>carbaryl</i> Sevin 80S Sevin XLR Plus	1.25-2.5 lb 1-2 qt	1-2 1-2	12 H/ 0 D	
	4A/NC	<i>imidacloprid</i> Admire Pro 4.6	0.7-1.4 fl oz	0.025-0.05	12 H/ 30 D	
	4A	<i>thiamethoxam</i> Actara 25WG	2-3 oz	0.03-0.05	12 H/ 14 D	
	1A	<i>methomyl</i> Lannate 90SP 2.4LV	0.25-0.5 lb 12-24 oz	0.23-0.45 0.23-0.45	48 H/ 5 D	
Grasshoppers	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	0.3-0.67 lb 0.28-0.5 lb 0.26-0.6 lb	0.25-0.5 0.2-0.5 0.25-0.5	24 H/ 3 D	Apply thoroughly. Spraying around field borders may aid in preventing infestations. Do not apply <i>bifenthrin</i> later than layby and do not apply more than 0.2 lb ai/A/season.
	1A	<i>carbaryl</i> Sevin 80S 4F Sevin XLR Plus	0.625-1.875 lb 0.5-1.5qt 0.5-1.5 qt	0.5-1.5 0.5-1.5 0.5-1.5	12 H/ 0 D	

**TOBACCO FIELD INSECT CONTROL**

INSECT	MOA	CHEMICAL	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Hornworms	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	0.3-0.67 lb 0.28-0.5 lb 0.26-0.6 lb	0.25-0.5 0.2-0.5 0.25-0.5	24 H/ 3 D	Apply thoroughly. Good coverage is essential for control. See remarks under Budworms.
	1A	<i>carbaryl</i> Sevin 80S Sevin XLR Plus	1.25-2.5 lb 1-2 qt	1-2 1-2	12 H/ 0 D	Allow 14 days between application of Coragen until harvest to allow for reduced residues in harvested tobacco.
	28	<i>chlorantraniliprole</i> Coragen 1.67	5-7.5 oz	0.065-0.098	4 H/ 1 day	Belt is no longer being manufactured. Available supplies may be purchased and used.
	6	<i>emamectin benzoate</i> Denim .16EC	8-12 oz	0.01-0.015	48 H/ 14 D	
	28	<i>flubendiamide</i> Belt SC	2-3 oz	0.06-0.09	12 H/ 14 D	
	3	<i>lambda-cyhalothrin</i> Warrior 1CS	1.9-3.8 oz	0.015-0.03	24 H/ 40 D	Do not apply <i>lambda-cyhalothrin</i> fewer than 40 days before harvest. Although labeled for budworm control this product is not recommended due to the presence of resistance in the budworm population in Georgia. Bt must be eaten by the insect to be effective. Worms will die several days after feeding.
	1A	<i>methomyl</i> Lannate 90SP 2.4LV	0.25-0.5 lb 12-24 oz	0.23-0.45 0.23-0.45 0.044-0.09	48 H/ 5 D	
	5	<i>spinosad</i> Tracer 4SC Blackhawk	1.4-2.9 oz 1.6-3.2 oz	0.045-0.089	4 D/ 3 D	
	11	<i>Bacillus thuringiensis</i> Dipel ES Dipel DF Agree S Biobit XL Biobit HP Condor OF Crymax WDG Javelin WG Lepinox WDG	0.5-1 pt 0.25-0.5 lb 1-2 lb 0.5-1 pt 0.25-0.5 lb 0.6-1 qt 0.5-1.5 lb 1-1.25 lb 1-2 lb		4 H/ 0 D	
Mole crickets	3A	<i>bifenthrin</i> Brigade 2EC Capture LFR	4-6.4 oz 3.4-6.8 oz	0.0625-0.10 0.04-0.10	24 H/ 3 D Capture 12 H	Apply broadcast to the soil surface 1 week before transplanting and mix into the top 3-6" of soil immediately. Do not apply more than 0.2 lb ai/A of <i>bifenthrin</i> /season.
	1B	<i>chlorpyrifos</i> Chlorfos 4E	2-3 qt	2-3	24 H/ 3 D	Lorsban Advanced use rates are in excess of the product label and are supported by a GA 24c.
		<i>chlorpyrifos</i> Lorsban Advanced	2 qt	2		
	1B	<i>ethoprop</i> Mocap 6EC	1-2 gal	6-12	48 H/ NA	



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INSECT	MOA	CHEMICAL	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Stink bugs	1B	<i>acephate</i> acephate 75 acephate 90 acephate 97	0.67-1 lb 0.56-0.83 lb 0.48-0.77 lb	0.5-0.75 0.75 0.5-0.75	24 H/ 3 D	Apply in sufficient water to give thorough coverage.
	3A	<i>bifenthrin</i> + <i>imidacloprid</i> Brigadier 2SC	2.56-6.4 oz	0.04-0.10	12 H/ —	Do not apply after layby.
	3A	<i>bifenthrin</i> Brigade 2EC Capture LFR	2.56-6.4 oz 3.4-6.8 oz	0.04-0.10 0.04-0.10	24 H/ 3 D Capture 12 H	Do not apply after layby.
Thrips		The foliar treatments for flea beetles give helpful control.				See Tobacco Field Disease Control Section for recommendations to suppress tomato spotted wilt virus with <i>imidacloprid</i> . <b>Thrips are the vector for this disease.</b>
Tobacco splitworm or potato tuberworm (transplant water treatment)	Timely foliar sprays of <i>bifenthrin</i> , <i>l-cyhalothrin</i> or <i>chlorantraniliprole</i> , (also can be applied in transplant water) provide some control. See hornworm control for rates when applying foliar applications.					
	28	<i>chlorantraniliprole</i> Coragen 1.67	5-7.5 oz	0.065-0.098	4 H/ 1 day	Apply transplant water uniformly in the root zone or poor performance will occur.
Wireworms	3A	<i>bifenthrin</i> Brigade 2EC Capture LFR	4-6.4 oz 3.4-6.8 oz	0.0625-0.10 0.04-0.1	24 H/ 3 D Capture 12 H	Apply all insecticides to the soil surface 1-2 weeks before transplanting and mix into the top 3-6” of soil immediately. <i>Bifenthrin</i> can also be applied at these rates as a transplant water treatment instead of a broadcast application. Lorsban Advanced use rates are in excess of the product label and are supported by a GA 24c.
	1A	<i>carbofuran</i> Furadan 4F	1.5 gal	6	48 H/ apply before transplanting	
	1B	<i>chlorpyrifos</i> Chlorfos 15G 4E Lorsban Advanced	13.5-20 lb 2-3 qt 2 qt	2-3 2-3 2	24 H/ 3 D	Broadcast treatment for wireworm control only. Use 1-2 gal of Mocap 6EC for both nematode and wireworm control.
	1B	<i>ethoprop</i> Mocap 6EC	1.3 qt	2	48 H/ NA	
Mole crickets or wireworms (transplant water treatment)  Wireworms (only)	3A	<i>bifenthrin</i> Brigade 2EC Capture LFR	4-6.4 oz 3.4-6.8 oz	0.0625-0.10 0.04-0.10	24 H/ 3 D Capture 12 H	Apply in transplant water. Mix thoroughly. Do not apply more than 0.2 lb ai/A of <i>bifenthrin</i> /season.
	4A	<i>imidacloprid</i> Admire Pro 4.6 Alias and Others 2F	0.6-1.2 oz/1000 plants 1.4-2.8 oz/1000 plants	0.02-0.04/1000 plants 0.02-0.04/1000 plants	12 H/ 30 D	Timely foliar sprays prior to layby of Brigade and Warrior can provide some control. See hornworm control for rates
	4A	<i>thiamethoxam</i> Platinum and T-Moxx 2SC	1.3 oz/1000 plants	0.02/1000 plants	12 H/ 14 D	

# TOBACCO FIELD DISEASE CONTROL

Paul Bertrand, Extension Plant Pathologist

J. Michael Moore, Extension Agronomist

DISEASE	MOA	CHEMICAL	RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Black shank	4	<i>mefenoxam</i> Ridomil Gold SL	16 oz	48 H/ NA	Broadcast-Incorporate at or just prior to setting.
	4	TRANSPLANT WATER: <i>oxathiapiprolin</i> Orondis Gold + <i>mefenoxam</i>  (for 2019 these materials will come as a co-pack to be used together)	4.8 oz + 8 oz	4-48 H/ 7 D  48 H/ NA	TRANSPLANT WATER: Apply in transplant furrow while planting tobacco seedlings for control of black shank caused by <i>Phytophthora nicotianae</i> . Apply 4-8 oz/A Ridomil Gold SL in at least 100-200 gal of transplant water/A. Use the high rate if the disease epidemic is expected to be severe. Make at least 1 field application of Ridomil Gold SL at first cultivation and/or layby if necessary.  <b>DO NOT APPLY ULTRA FLOURISH IN THE TRANSPLANT WATER.</b>
	4	FIELD: <i>mefenoxam</i> Ridomil Gold SL	1 pt PPI + 0.5-1 pt 1st cultivation + 0.5-1 pt last cultivation	48 H/ NA	FIELD: Broadcast-Incorporate at or just prior to setting. <i>Mefenoxam</i> may be applied to the beds at first plowing if heavy rainfall (> 1”) occurred between the PPI treatment and transplanting. Apply <i>mefenoxam</i> at layby using two drop nozzles per row. Direct spray to bed. Follow with layby plowing. Applying <i>mefenoxam</i> over the top to plant foliage will provide NO black shank control.
	4	<i>mefenoxam</i> Ultra Flourish	1 qt PPI + 1 qt 1st cultivation + 1 qt last cultivation	48 H/ NA	
	4	<i>metalaxyl</i> MetaStar 2E	2 qt. PPI + 1-2 qt 1st cultivation + 1-2 qt last cultivation	48 H/ NA	
	43	<i>fluopicolide</i> Presidio	4 oz	12 H/ 7 D	Apply Presidio to the soil at the first cultivation or layby in the same manner as <i>mefenoxam</i> . In order to delay the development of resistance to this material, growers are encouraged to make a soil application of Presidio at either the first cultivation or final cultivation with an alternate material used prior to and/or after the Presidio application. Multiple applications of Presidio without alternating to another fungicide results in continuous exposure of the fungus to this fungicide and likely earlier development of resistance by the black shank. In a two-application post-transplant program use Presidio once either at 1st cultivation or last cultivation (layby).

# TOBACCO FIELD DISEASE CONTROL

DISEASE	MOA	CHEMICAL	RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Blue Mold		<i>oxathiapiprolin</i> or <i>OXTP</i> Orondis Ultra + <i>mandipropamid</i> (Revus)  (For 2019 these materials will come as a premix.)	2-4.8 oz + 8 oz	4 H/ 7 D  4 H/ 7 D	Begin applications prior to disease development, and continue on a 7-10 day interval. Make no more than 2 consecutive applications before switching to a fungicide with a different mode of action. Do not follow soil applications of Orondis Gold with foliar applications of Orondis Ultra A. Use either soil applications or foliar applications but not both.
		<i>mancozeb</i> Dithane Rainshield 75 DF, Manzate Pro Stick, Penncozeb 75 DF	1.5-2 lb/100 gal	24 H/ 21 D	Begin application prior to disease development and continue throughout the season on a 7-10 day interval. Do not make consecutive applications before switching to an effective non-Group 40 fungicide. Orondis Ultra B may be tank-mixed with another fungicide labeled for blue mold that has a different mode of action. The addition of a spreading/penetrating type adjuvant such as a non-ionic based surfactant may improve activity.  As a part of a resistance management strategy: Apply a maximum of 4 sprays during one crop cycle. Do not apply sequential applications unless otherwise stated in the crop section.  Presidio applied to the row bed prior to the first cultivation may provide control of Blue Mold if taken up by the plant roots. Presidio may be applied as a foliar application to provide plant coverage. Control may be improved if another labeled material is applied with it.
		<i>fluopicolide</i> Presidio	4 oz	12 H/ NA	
	43	FORUM FUNGICIDE		0 H/ 4 D	Select rate based on table below. Apply with drops as necessary to get full crop coverage.
Weeks of Growth After Transplant			Rate of FORUM (ounces of Product)		Water Output (Gal/A)
Recently Transplanted to 3 weeks after transplanting			2		20
3-4 weeks after transplanting (Knee High)			3		40
4-5 weeks after transplanting (Waist High)			4		60
6-7 weeks after transplanting (Chest High)			6		80
7 weeks after transplanting and beyond (Shoulder height up to topping)			7		100
Begin applications when the Blue Mold Advisory states that conditions favor development of blue mold, and before the onset of disease infection. Continue applications on a 5-7 day spray schedule until weather conditions favoring infection and sporulation decrease. Discontinue sprays when and if the threat of blue mold subsides. Restrictions (Field Application): DO NOT exceed 8 oz/A/application. DO NOT exceed 30 oz/A of FORUM/season. Full plant coverage is required for blue mold control with FORUM.					
or	21	Actigard 50WG	0.5 oz	12 H/ 21 D	Begin treatment when plants reach 18” high. Make up to 2 applications on a 10 day schedule.
or Blue Mold and Target Spot	11	Quadris	6-12 oz (0.1-0.2 lb ai)	4 H/ 21 D	Alternate with FORUM. If blue mold is present begin with FORUM. DO NOT use more than 0.54 lb ai/A/year. Full plant coverage is required for disease control with either FORUM or QUADRIS. Quadris will give some control of blue mold and very good control of target spot if plant coverage is complete.
and	21	Actigard 50WG	1 oz/100,000 field ready seedlings	12 H/ 21 D	Spray seedlings in beds or plant houses 5-7 days before transplanting. Use transplant water. DO NOT let Actigard-treated plants in trays or boxes dry out.

# TOBACCO FIELD DISEASE CONTROL

DISEASE	MOA	CHEMICAL	RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Tomato Spotted Wilt	2I	Actigard 50WG	1 oz/100,000 field ready seedlings	12 H/ 21 D	Spray seedlings in beds or plant houses 5-7 days before transplanting. Use transplant water. DO NOT let Actigard-treated plants in trays or boxes dry out.
or	4A	Admire Pro 4.6 SC	0.8-1.2 oz/1000 tray cells (tray drench)  0.8-1.2 oz/1000 plants (transplant water)	12 H/ 30 D	<b>Plant house tray drench.</b> Spray Admire onto wetted foliage and immediately rinse with enough water to wash the Admire off foliage into the root media (10-12 gal/100,000 cells).  <b>Combine with transplant water.</b> Mix thoroughly.
or	4A	Generic Imidacloprid 2F Alias Couraze Imia-E Ag Macho Nuprid Torrent  Generic 2F	1.5-2 oz/1000 tray cells        1.8-2.8 oz/A Transplant water.	12 H/ 30 D	<b>Tray drench as above.</b>        <b>In transplant water as above.</b>
or	4A	Platinum 2SC/ T-Moxx 2SC	1.3 oz	12 H/ 14 D	Tray drench as above. Platinum/T-Moxx are not suited for transplant water application

# TOBACCO FIELD NEMATODE CONTROL

Paul Bertrand, Extension Plant Pathologist  
J. Michael Moore, Extension Agronomist

## FUMIGANT NEMATOCIDES

CHEMICAL	MOA	RATE PER ACRE	RATE PER 100 FT OF ROW	REI/PHI (Hours or Days)	REMARKS
ROW TREATMENT					
Telone II	8B	6 gal	<div><div>cc</div><div>fl oz</div><div>184</div><div>6.2</div></div>	5 H/ 0 D	Inject 8” deep on the flat or 14-16” below top of a high wide bed. Make application when soil temperature is 55°F or above. Seal by bedding or dragging. Wait 3 weeks between application and setting. Break bed open 1-2 days prior to setting.
Pic Plus (Chloropicrin 86%)	8B	6 gal		5 H/ 0 D	
<p>* Use a fumigant when potential for nematode damage is moderate to high, or when javanese (<i>Meloidogyne javanica</i>) or peanut (<i>M. arenaria</i>) root-knot nematode is known to occur, or when root-knot nematodes and black shank or Fusarium wilt are present.</p> <p>** Multipurpose fumigants such as Telone C-17 or C-35 are also effective. These products are more costly than Telone II and only provide cost effective disease control when Granville wilt is also known to occur. In Georgia, multipurpose fumigants have never shown a consistent benefit for black shank control beyond the reduction in black shank associated with root-knot nematode control.</p> <p>*** Pic Plus (<i>chloropicrin</i> 86%) applied at 4 gal/A will provide excellent control of root-knot nematode (rkn) but with quicker resurgence or rebound of rkn in the tobacco root systems in mid to late season than is seen with Telone II. No additional benefits from Pic Plus such as black shank control should be expected. Growers with fields with black shank history should follow recommended black shank programs involving Rotation, Resistance and Chemical Controls in addition to the use of Pic Plus for nematode control.</p>					

## NON-FUMIGANT NEMATOCIDES

CHEMICAL	MOA	RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS
<i>fluensulfone</i> NIMITZ		3.5-7 pt	0 H/ 0 D	For most economical use, apply 3.5-5 pts of NIMITZ in a minimum of 15 gal of water per acre in a 15-20" band on top of a preformed bed and mechanically incorporate uniformly to a depth of 6-8". Apply at least 7 days before transplanting. Do not apply more than 1 application/crop and no more than 3.5 lbs <i>fluensulfone</i> /A/calendar year.
<p>Temik is no longer labeled for use on tobacco.</p> <p>Nemacur 3 and Mocap 6EC are no longer being manufactured, but existing supplies may be used.</p> <p><b>Results after use of non-fumigant nematocides depend on thorough incorporation in the soil prior to forming beds and transplanting.</b></p>				

# TOBACCO WEED CONTROL (Flue-Cured)

J. Michael Moore, Extension Agronomist – Tobacco

TIMING	MOA	BROADCAST RATE/ACRE			REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
		HERBICIDE	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT/A		
Plant Bed  (for control of soil fungi, bacteria, nematodes, insects and weeds)	8A	<i>Methyl Bromide</i> 98%	9 lb/100 sq yd	8.82/sq yd	12 H/ 2 D	<b>Apply methyl bromide when soil temperature is above 50°F.</b>  <b>Cans:</b> Release gas under plastic covering. Plastic should be sealed around the edges with soil. Leave covered for 24 hours. Seed bed after 72 hours of aeration.  <b>Cylinders:</b> Inject into well prepared soil with chisel applicators. Cover immediately with plastic and seal all edges. Leave covered for 48 hours. Remove cover to provide sufficient aeration 72 hours prior to seeding.
	27	<i>metham-sodium</i> Vapam	1-1.5 gal/100 sq yd		5 D/ –	<b>A.</b> Spray Vapam on moist soil surface, incorporate 6” deep with <i>methyl bromide</i> . <b>B.</b> After treatment, wait 7 days before punching holes in plastic. <b>C.</b> After punching, wait 14-21 days before seeding.
	27	<i>metham-sodium</i> Vapam + <i>1-3D + chloropicrin</i> Telone C-17	37.5 gal/A + 10 gal/A		5 D/ –	<b>A.</b> Spray Vapam on moist soil surface, chisel in Telone C-17, incorporate/seal by tiller (6” deep) behind chisels, and cover with plastic all in a single operation as with <i>methyl bromide</i> . <b>B.</b> After treatment, wait 7 days before punching holes in plastic. <b>C.</b> After punching, wait 14-21 days before seeding.
	1	<i>sethoxydim</i> Poast 1.5 lb/gal	1 pt (0.33 fl oz/100 sq yd)	0.19	12 H/ 42 D	Addition of a non-phytotoxic oil concentrate at 1 qt /A (0.67 fl oz/100 sq yd) is required. Allow plants to completely dry before covering, especially with plastic.
Pre-plant	13	<i>clomazone</i> Command 3ME 3 lb/gal	2-2.66 pt/A	0.75-1	12 H/ 65 D	Apply Command as a broadcast spray at low pressure and large droplet size. Incorporate to a depth not to exceed 1” prior to transplanting. Transplant roots should be placed below the treated area.  Off-site movement of spray drift or vapors of Command can cause foliar whitening or yellowing of some plants (fruit and nut trees, berries, roses, other landscape plants, and greenhouse plants). Temporary whitening and /or yellowing of the treated crop and rotational crops may occur. The crop should grow through this with no adverse impact.  <b>Do not</b> plant small grain for grain less than 12 months after application of Command. <b>Do not</b> graze treated areas for 9 months.
	3	<i>isopropalin</i> Paarlan 6E 6 lb/gal	1 qt	1.5	24 H/ –	Apply and soil incorporate within 14 days prior to transplanting. Prior to bedding, apply and soil incorporate either Paarlan, Prowl, or Devrinol with a power-driven rotary tiller set to cut 4” deep or incorporate by disking and cross disking with a disk harrow set to cut 4-6” deep. If applied to preformed beds, “board off” to planting level and incorporate with a power-driven rotary tiller set to cut 4” deep.
	3	<i>pendimethalin</i> Prowl 3.3E Pendimax Repose Acumen 3.3 lb/gal Prowl H2O 3.8 EC	1.8-2.4 pt 1.8-2.4 pt 1.8-2.4 pt 1.8-2.4 pt 3.8 lb/gal	0.75-1	24 H/ –	

**TOBACCO WEED CONTROL (Flue Cured)**

TIMING	MOA	BROADCAST RATE/ACRE			REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
		HERBICIDE	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT/A		
Pre-plant (continued)	17	<i>napropamide</i> Devrinol 50W Devrinol 2E	2-4 qt 2-4 qt	1-2	24 H/ –	Devrinol is for field use only. Not labeled for tobacco seedbeds due to plant injury.
	8	<i>pebulate</i> Tillam 6E	5 pt 5 fl oz	4	12 H/ –	Tillam should be used if nutsedge is a problem in the field. Apply and incorporate immediately either before or after bedding as discussed above. If possible, apply Tillam at least 2 days before transplanting.
	8	<i>pebulate</i> 4.0 Tillam 6E 6 lb/gal + <i>napropamide</i> Devrinol 50W Devrinol 2E	5 pt 5 fl oz  +  2 lb 2 qt	4  +  1	12 H/ –	Tillam and Devrinol may be tank-mixed to provide control of nutsedge and many annual grasses and some broadleaf weeds. Apply and incorporate immediately either before or after bedding as discussed above. If possible, apply this combination at least 2 days before transplanting.
Pre-transplant (surface application only)	14	<i>sulfentrazone</i> Spartan 4F Blanket 4F 4 lb ai/gal	8 oz	0.25	12 H/ –	<b>DO NOT INCORPORATE!</b> <b>CALIBRATION IS IMPORTANT!</b> Application rate for Spartan Charge and Spartan DF should be limited to 0.25 lb ai/A (10.2 oz Spartan Charge; 8 oz Spartan 4F). Excessive application rates or poor calibration may result in injury to the tobacco. Spartan Charge and Spartan 4F should not be applied to soils classified as sand with less than 1% organic matter and shallow groundwater. Most Georgia tobacco soils would make the loamy sand or sandy loam categories of coarse textured soils. Application methods should be directed toward applying and maintaining the chemical at the soil surface. Spartan may be surface applied up to 14 days prior to transplanting after all other soil incorporation practices have been performed where transplanting occurs without bedding. If beds are formed prior to transplanting, the top of the beds should be dragged or knocked off prior to application of Spartan. Transplant into the treated bed without pushing additional soil from the bed. Spartan should not be incorporated into the bed greater than 2". <b>DO NOT APPLY SPARTAN or SPARTAN CHARGE POST-TRANSPLANT OVER THE TOP OF TOBACCO AS CROP INJURY MAY OCCUR.</b> Rotational Guidelines limit recropping treated soil to: wheat–4 months, field corn–10 months, cotton–18 months, canola–24 months. Although recropping to vegetables is not mentioned on the label, the limited information available would discourage recropping treated soil to most vegetables in less than 12 months after treatment.
	4 + 14	<i>carfentrazone-ethyl</i> + <i>sulfentrazone</i> Spartan Charge 0.35 + 3.15 lb ai/gal	5.7-10.2 oz	0.016-0.028 + 0.157-0.25	12 H/ –	

# TOBACCO WEED CONTROL (Flue Cured)

TIMING	MOA	BROADCAST RATE/ACRE			REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
		HERBICIDE	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT/A		
Post-transplanting (continued)  – with hooded or shielded sprayer	17	<i>napropamide</i> Devrinol 50W	2-4 lb	1-2	24 H/ –	Apply directly over the top of tobacco immediately after transplanting to control weeds before they emerge. Irrigate with 0.5" of water if no rainfall occurs within 3-4 days. Refer to Remarks for Command under the Preplant section for comments on application, off-site movement, and rotation. Tender plant bed plants and particularly greenhouse plants have been shown to be very sensitive to Command and some leaves may turn white for a short period of time. This does not usually cause a reduction in yield and has not been widely observed in Georgia.
	13	<i>clomazone</i> Command 3ME 3 lb/gal	2-2.66 pt/A	0.75-1	12 H/ 65 D	
	14	<i>sulfentrazone</i> Spartan 4F Blanket 4F 4 lb ai/lb	8 oz	0.25	12 H/ –	Based on the results of accumulated work in Georgia Spartan 4F or Spartan Charge has received 2(ee) labeling providing for the application of Spartan 4F or Spartan Charge with a shielded sprayer within 7 days after transplanting but prior to weed emergence and cultivation.
	4 + 14	<i>carfentrazone-ethyl</i> + <i>sulfentrazone</i> Spartan Charge 0.35 + 3.15 lb ai/gal	5.7-10.2 oz	0.016-0.028 + 0.157-0.25	12 H/ 6 D	Tobacco transplants should be protected from Spartan 4F or Spartan Charge spray using an appropriately shielded sprayer. Apply Spartan 4F or Spartan Charge solution to provide coverage of all row-bed surfaces excluding 4" on both sides of the tobacco transplants (8" band). Cultivate tobacco as soon as possible and within 7 days of Spartan 4F or Spartan Charge application to provide slight incorporation and move treated soil around plants and to cover untreated press wheel track (8" band).
	14	<i>carfentrazone</i> Aim EC 2 lb ai/gal	0.8-1.5 fl oz	0.013-0.023 lb ai	12 H/ 6 D	Use Aim EC for post-emergence control of many broadleaf weeds (including most morningglory species other than small flowers) up to 4" high growing in between the rows of tobacco. Use higher rates when treating more mature weeds or dense vegetative growth. <b>COVERAGE IS ESSENTIAL FOR GOOD CONTROL.</b> Use adequate spray volume to achieve thorough coverage, but a minimum of 10 gal of finished spay per acre is required. Use a quality crop oil concentrate (COC) at 1% v/v (1 gal of COC/100 gal of spray solution). Do Not Allow spray solution to contact tobacco foliage or green stem tissue.  Do Not Apply within 6 days of harvest.  Do Not Apply more than 3.06 fl oz (0.48 lb ai)/A/season.
<b>LAYBY</b> (for post-emergence control of grasses)	17	<i>napropamide</i> Devrinol 50W	2 lb	1-2	24 H/ –	These herbicides are applied following the last cultivation (usually 4-6 weeks after transplanting). Spray equipment should be set up with drop nozzles to direct the herbicide spray to the shoulders of the tobacco beds and middles. These herbicides will not control established weeds.
	3	<i>pendimethalin</i> Prowl 3.3E Pendimax Repose Acumen 3.3 lb/gal Prowl H2O 3.8 EC	1.8-2.4 pt 1.8-2.4 pt 1.8-2.4 pt 1.8-2.4 pt 3.8 lb/gal	0.75-1	24 H/ –	



# TOBACCO WEED CONTROL (Flue Cured)

TIMING	MOA	BROADCAST RATE/ACRE			REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
		HERBICIDE	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT/A		
LAYBY (for post-emergence control of grasses) <i>(continued)</i>	1	<i>sethoxydim</i> Poast 1.5 lb/gal	1-1.5 pt	0.19	12 H/ 42 D	Provides selective broad Spectrum post-emergence control of annual and perennial grass weeds. Poast does not control sedges or broadleaf weeds. Addition of a non-phytotoxic oil concentrate at 1 qt/A is required. Do not apply within 42 days of harvest. Do Not apply to grasses under stress, such as stress due to lack of moisture or herbicide injury, as unsatisfactory control may result. Do not cultivate within 7 days before or 7 days after applying Poast.
After First Harvest  Post-Directed or Banded	14	<i>carfentrazone</i> Aim EC 2 lb ai/gal	0.8-1.5 fl oz	0.013-0.023 lb ai	12 H/ 6 D	<p>Aim EC may be applied with drop nozzles or other spray equipment capable of directing the spray to the target weeds and away from sensitive plant parts. Aim EC may be applied up to the maximum rate for the target crop for the control of larger weed sizes or weeds not controlled with lower use rates.</p> <p><b>Directed spray after first priming (Flue-Cured Tobacco Only).</b> Aim EC may be applied as a directed spray application after the first priming in only flue cured tobacco only for the control of emerged and actively growing broadleaf weeds. Directed spray equipment should position nozzles a minimum of 3-4" above the soil, with nozzles directed underneath the crop canopy. Spray solution should be directed at the base of tobacco plants for minimal contact with foliage while maintaining maximum contact with broadleaf weeds that are at appropriate treatment size. Do not apply when conditions favor drift or wind is above 10 mph.</p> <p>Use Aim EC for post-emergence control of many broadleaf weeds (including most morningglory species other than small flowers) up to 4" high growing in between the rows of tobacco. Use higher rates when treating more mature weeds or dense vegetative growth. <b>COVERAGE IS ESSENTIAL FOR GOOD CONTROL.</b> Use adequate spray volume to achieve thorough coverage, but a minimum of 10 gal of finished spray/A is required. Use a quality crop oil concentrate (COC) at 1% v/v (1 gal of COC/100 gal of spray solution). Do not allow spray solution to contact tobacco foliage or green stem tissue.</p> <p>Do Not Apply within 6 days of harvest.</p> <p>Do not apply more than 3.06 fl oz (0.48 lb ai)/A/season.</p>

# TOBACCO WEED RESPONSE TO HERBICIDES (Flue-Cured)

J. Michael Moore, Extension Agronomist – Tobacco

	PLANT BED & FIELD	FIELD APPLICATION										
		PRE-TRANSPLANT						POST-TRANSPLANT		LAYBY		POST- DIRECTED OR BANDED
		SURFACE APPLIED	INCORPORATED									
	Poast	Spartan Charge	Command	Prowl	Devrinol	Tillam	Devrinol + Tillam	Devrinol	Command	Devrinol	Prowl	Aim EC
PERENNIAL WEEDS												
purple nutsedge	P	E	P	P	P	P	P	P	P	P	P	N
yellow nutsedge	P	E	P	P	P	F	F	P	P	P	P	N
ANNUAL GRASSES												
crabgrass	E	F-G	E	E	E	E	G	E	E	E	E	N
crowfootgrass	E	F	G	E	E	E	G	E	G	E	E	N
goosegrass	E	F-G	G	E	E	G	G	E	G	E	E	N
fall panicum	E	F-G	G	G	G	G	G	G	G	G	G	N
johnsongrass (seedling)	E	F	F	G	F	G	G	F	F	F	G	N
sandbur	G	P-F	F	G	–	G	G	–	F	–	G	N
Texas panicum	G	F	G	G	–	P	P	–	G	–	G	N
BROADLEAFS												
bristly starbur	P	F-G	P	P	P	G	G	P	P	P	P	N
Florida beggarweed	P	G-E	F-G	P	P	P	P	P	F-G	P	P	F
cocklebur	N	F-G		P	P	P	P	P		P	P	G
Florida pusley	P	F-G	F-G	E	G	E	E	G	F-G	G	E	
lambsquarters	N	E	F–G	G	G	G	G	G	F-G	G	G	E
pigweed	N	E	P	G-E	G	G	G	G	P	G	G-E	E
prickly sida	N	P	G	P	P	F	F	P	G	P	P	
purslane	N	G-E	F-G	E	E	G	E	E	F-G	E	E	E
ragweed	N	P	F	P	F	G	G	F	F	F	P	F
smartweed	N	E	G	PF	P	P	P	P	G	P	P-F	E
morningglory sp.	N	E	P	P	P	P	P	P	P	P	P	G-E

E – Excellent control, weed kill 90% or above.

G – Good control, weed kill 80% or above.

F – Fair control, weed kill 70% or above.

P – Poor control, less than 70% control.

N – No Control.

If no symbol is given, weed response is unknown.

Ratings are based on average to good soil and weather conditions for herbicide performance.

Bermudagrass and rhizome johnsongrass cannot be controlled with presently labeled tobacco herbicides in the same growing season. However, control can be achieved with Round-Up in the season prior to transplanting tobacco (check label for rates and application).

Transplant into the Spartan Charge treated bed surface without pushing additional soil from the bed. Spartan Charge should not be incorporated into the bed greater than 2". Do not apply Spartan Charge post-transplant over the top of tobacco as crop injury may occur.

# TOBACCO SUCKER CONTROL (Flue-Cured)

J. Michael Moore, Extension Agronomist – Tobacco

CHEMICAL TYPE	CHEMICAL	FORMULATION RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Contact	Fatty Alcohol C <sub>6</sub> , C <sub>8</sub> , C <sub>10</sub> , and C <sub>12</sub> alcohol mixture			Solution concentration and timing of fatty alcohol solutions are very important. Apply the first contact treatment at a 3% concentration (1.5 gal of chemical in 48.5 gal of water) when 30-40% of plants are in the early button stage. Make a second contact application at a 4% concentration (2 gal of chemical in 48 gal of water) 5-7 days later. Third applications may be made 5-7 days later if the crop is not uniform, weather conditions are not suitable for application of maleic hydrazide or if harvest must occur within 7 days. Use approximately 50 gal of solution/A or enough to provide for spray solution to reach the bottom of the stalk. Use 2 TG-3 nozzle tips and 1 TG5 or equivalents per row with 20-25 psi pressure operated from 12-16" above the top of the button or stalk at 2.5-3 mph. <b>Excess nitrogen or high soil and plant moisture conditions may increase the chance of leaf drop where contact solutions are applied and promotes excess sucker growth.</b> If the application of contacts starts after the 30-40% early button stage, start with 4% and follow 5-7 days later with a 5% application.
	85% Active Ingredient			
	Various Brands Fair 85 Off-Shoot T Royaltac-M Sucker Plucker	1.5-2.5 gal 1.5-2.5 gal 1.5-2.5 gal 1.5-2.5 gal	24 H/ 7 D	
	n-Decanol (C <sub>10</sub> ) 79% Active Ingredient Antak Fair-Tac Royaltac	1.5-2.25 gal 1.5-2.25 gal 1.5-2.25 gal	24 H/ 7 D	
Systemic	Maleic Hydrazide (potassium salt) (MH) Various Brands		12 H/ 7 D	Apply 57 days after last contact treatment. Use 30-40 gal of water/A and a pump pressure of 22-25 psi. Apply to upper sides of leaves on upper one-third of stalks.
	(1.5 lb MH/gal) Fair Plus Royal MH Super Sucker Stuff	1.5 gal 1.5 gal 1.5 gal	12 H/ 7 D	<b>Do Not Apply Sucker Control Chemicals When Tobacco Is Wilted or Wet or under Windy Conditions.</b> <b>Do Not Use drop nozzles for application of MH.</b> <b>Allow 7 Days or until after rainfall between MH application and harvest.</b>
	(2.25 lb MH/gal) Fair 30 Royal MH Xtra Sucker Stuff	1 gal 1 gal 1 gal	12 H/ 7 D	
	Water-Soluble MH 60% by wt of MH Fair 80 SP Royal MH-30 SG Sucker Stuff 60 WS	3.75 lb 4-5 lb 3.75 lb	12 H/ 7 D	Fair 80 SP is a water-soluble powder packaged in dissolvable 3.75 lb containers. Royal MH-30 SG is a water-soluble granular material packaged in dissolvable 7.5 lb containers. Sucker Stuff 60 WS is packaged in water dissolvable packets. Two packets are packaged in one paper over-pack bag weighing 3.75 lbs to provide 2.25 lbs MH.
Contact-Systemic Mix	38.3% ai Fatty alcohol (n-Decanol) and 11.1% ai MH (potassium salt) FST-7 Leven-38	3 gal 3 gal	12 H/ 7 D	Provides 2 lb ai MH/A and a 4% contact solution. Mix with 47 gal of water and apply approximately 50 gal/A to plants in early flower stage (one week after button) all day except when plants are wet or temperature exceeds 90°F with bright sunlight. Use 3 nozzles/row to deliver a coarse spray at 20-25 psi pressure targeted to the upper one-third of the plant. Do not apply within 7 days prior to harvest unless irrigation or rainfall will occur to minimize MH residues.
Contact - Contact- Localized - Systemic Mix	Fatty Alcohol C <sub>6</sub> , C <sub>8</sub> , C <sub>10</sub> , and C <sub>12</sub> alcohol mixture – <i>FLUMETRALIN</i> 1.2 lb/gal premix Plucker Plus	3 gal	12 H/ 7 D	Provides a 4% contact solution and 2 qt of a 1.2 lb/gal <i>flumetralin</i> when tank mixed with 47 gal of water. Apply approximately 50 gal/A to plants in early flower stage (one week after button) all day except when plants are wet or temperature exceeds 90°F with bright sunlight. Use three nozzles per row to deliver a coarse spray at 20-25 psi pressure targeted to the flower of the plant. This application should follow one or more applications of contact and may be followed by multiple contacts and possibly an application of MH for a total sucker control program.

# TOBACCO SUCKER CONTROL (Flue-Cured)

CHEMICAL TYPE	CHEMICAL	FORMULATION RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Contact-Localized-Systemic + or / Systemic Combination  Tank mixed	[ <i>flumetralin</i> + MH] [Tankmixed] <i>flumetralin</i> 1.2 lb/gal + MH 1.5 lb/gal or MH 2.25lb/gal	2 qt + 1.5 gal or 1 gal	24 H/ 7 D	<b>FLUMETRALIN (Drexalin Plus, Flupro, or Prime+) TANK MIXED WITH MH</b> <i>Flumetralin</i> may be tank mixed with the labeled rate of any MH product which does not specifically prohibit the tank mix in approximately 50 gal of water and applied as a contact to run down the stalk (approximately 50 gal solution per acre). Apply 5-7 days after the last application of Contact and after a majority of the plants have been topped. Direct spray at 20-25 psi into the top leaf axils of plants.
Sequential	<i>flumetralin</i> 1.2 lb/gal + MH 1.5 lb/gal or MH 2.25lb/gal	2 qt + 1.5 gal or 1 gal	24 H/ 7 D	<b>SEQUENTIAL APPLICATION OF FLUMETRALIN (Drexalin Plus, Flupro, or Prime+) WITH MH</b> Mix 2 qt of <i>flumetralin</i> in 50 gal of water and apply either by handheld dropline nozzles or with powered spray equipment as a contact to run down the stalk. Timing of <i>flumetralin</i> should be during the elongated button to early flower stage of tobacco. Approximately 3-5 days after the <i>flumetralin</i> application, apply maleic hydrazide according to the label directions, precautions, and restrictions on that label.
Contact	Fatty alcohol 3%	1.5 gal	24 H/ 7 D	<b>NO MH SUCKER CONTROL PROGRAM, REPEATED CONTACTS WITH FLUMETRALIN</b> Apply multiple applications of contacts of increasing concentrations (3%, 4%, 5%) beginning when not more than 30-40% of the plants are in the early button stage and continuing on a 5-7 day schedule to control early suckers as they emerge and allow the upper plant leaves to more fully develop. Top plants that have flowered after each application.
Contact	Fatty alcohol 4%	2 gal	24 H/ 7 D	
Contact	Fatty alcohol 5%	2.5 gal	24 H/ 7 D	
Contact-Localized-Systemic	[Fatty alcohol 5% + <i>flumetralin</i> ]	2.5 gal/2 qt	24 H/ 7 D	Apply 30-50 gal of a solution prepared by mixing 2 quarts of <i>flumetralin</i> OR 3 qts of <i>flumetralin</i> in 50 gal of water/A with droplines, jugs, or a power sprayer 3-5 days following the last contact application. Accuracy of control is improved with hand application using droplines or jugs, but increases the labor requirements. Apply as a contact to run down the stalk. Stalks must be standing straight for the most efficient control.
Contact	Fatty alcohol 5%	2.5 gal	24 H/ 7 D	An additional application of no more than 1 quart of <i>flumetralin</i> applied with a mechanical sprayer may improve long term control by treating leaf axils when applied 5-7 days after the initial flumetralin application. Additional applications of 5% contact solutions may be required on a 5-7 day schedule to provide additional control of missed suckers. Additional hand sucker removal may be required to prevent suckers from becoming unwanted foreign material in the harvested leaf.
Contact	Fatty alcohol 5%	2.5 gal	24 H/ 7 D	
(3-Way Tankmix)	[ <i>flumetralin</i> + MH + contact] [3-way tankmix] [ <i>flumetralin</i> (1.2 lb/gal) + MH (1.5 lb/gal) or MH (2.25 lb/gal) + contact]	2 qt + 1.5 gal or 1 gal + 2.5 gal	24 H/ 7 D	<b>3-WAY TANKMIX PROGRAM – FLUMETRALIN (Drexalin Plus, Flupro, or Prime+) TANK MIXED WITH MH and CONTACT</b> <i>Flumetralin</i> may be tank mixed with the labeled rate of any MH product that does not specifically prohibit the tank mix. To provide additional control a 5% solution of any contact fatty alcohol product may be included by adding 2.5 gal of product for each 47.5 gal of total solution. Apply in approximately 50 gal of water/A as a contact to run down the stalk (approximately 50 gal solution/A). Apply the 3-way tank mix 5-7 days after the last application of contact and after a majority of the plants have been topped. Direct spray at 20-25 psi into the top leaf axils of plants.  FST-7 or Leven-38 may be used in combination with <i>flumetralin</i> to provide MH and Contact material for the 3-Way Tankmix. Following label instructions will result in lower application rates of MH and contact than suggested above.

### TOBACCO SUCKER CONTROL (Flue-Cured)

CHEMICAL TYPE	CHEMICAL	FORMULATION RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Contact: Late Season Clean-Up	Fatty Alcohol (C <sub>6</sub> , C <sub>8</sub> , C <sub>10</sub> , and C <sub>12</sub> alcohol mixture) 85% Active Ingredient		24 H/ 7 D	Late season application (up to 3 weeks after MH or Contact-localized-systemic) of a 5% contact solution (2.5 gal in 47.5 gal water) may be useful in controlling late season sucker growth or suckers uncontrolled by previously applied materials. Use the three nozzle arrangement described above. Care should be taken not to apply this solution in bright sunlight when the temperature is high or when tobacco is moisture stressed.
	(Various Brands) Fair 85 Off-Shoot T Sucker Plucker Royaltac-M	2.5 gal 2.5 gal 2.5 gal 2.5 gal		
	n-Decanol (C <sub>10</sub> ) 79% Active Ingredient Antak Fair-Tac Royaltac	 2.25 gal 2.25 gal 2.25 gal		C <sub>10</sub> alcohols are long chain alcohols and are said to be “hotter” than the mixture of alcohols found in the other products. The rate is normally reduced 0.5% less than for the products that are mixtures of C <sub>6</sub> , C <sub>8</sub> , C <sub>10</sub> , and C <sub>12</sub> alcohols. Late season applications may be made to older growth which is less likely to be controlled by normal lower application concentrations.
Program Codes Chemical Types Separated By A Slash “/” Symbol Means Chemical Types Are Applied Sequentially Over Time. Generally A “/” Means 3-5 or 5-7 Days Between Application Of Listed Chemical Types.				

## YELLOWING AGENT FOR FLUE-CURED TOBACCO

J. Michael Moore, Extension Agronomist – Tobacco

CHEMICAL TYPE	CHEMICAL	MOA	RATE PER ACRE	REI/PHI (Hour or Days)	REMARKS AND PRECAUTIONS
Yellowing Agent	<i>ethephon</i> Ethephon 2 2 lb/gal	5	4-8 qt	48 H/ 2 D	Use after second or third priming when remaining leaves are physiologically mature.
	<i>ethephon</i> Mature XL 6 lb/gal	5	1.33-2.66 pt	48 H/ 2 D	<b>Directed Spray:</b> Mix the lower amount in 50-60 gal of water and apply on a warm, sunny day as a fine spray mist with drop nozzles that direct the spray so that all mature leaves are covered. This treatment may make determining which leaves to harvest a little difficult as the tips of some upper leaves may yellow more rapidly than the butts. Harvest all leaves with 20% or more yellowing.
	<i>ethephon</i> Oskie 3 lb/gal	5	2-3 pt	48 H/ 2 D	<b>Over the Top:</b> Use the higher rate in 40-60 gal of water for an acre of coverage. Apply to all remaining leaves on the stalk.
	<i>ethephon</i> Prep 6 lb/gal	5	1.33-2.66 pt	48 H/ 2 D	Determining time of application requires some experience and some trial and error; therefore, use a test kit to treat a few plants and observe the results before treating the whole field. Harvest yellowed leaves when they reach desired degree of yellowness, usually within 24-72 hours. Harvest may be completed the day after treatment.
	<i>ethephon</i> Super Boll 6 lb/gal	5	1.33-2.66 pt	48 H/ 2 D	Excessive delay in harvest may result in loss of yield and quality or leaf drop.
	<i>ethephon</i> Ethephon 6 6 lb/gal	5	1.33-2.66 pt	48 H/ 2 D	Tobacco that is sufficiently mature when treated and that yellows prior to harvest may require an advanced curing schedule with reduced yellowing time. Close attention should be paid to the curing schedule.