

TOBACCO

TOBACCO PLANT BED INSECT CONTROL

J. Michael Moore, Extension Agronomist - Tobacco

INSECT	CHEMICAL AND FORMULATION	RATE PER 100 SQ. YDS.	REMARKS AND PRECAUTIONS
Aphids, flea beetles (preventive control)	disulfoton (Di-Syston) 15G	9 ozs.	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	acephate (Orthene) 75S (Acephate) 75SP (Orthene) 97PE	1 tbsp. in 1 gal. water (1 lb./acre) 0.75 tbsp. in 1 gal. water (12 ozs./acre)	Apply to foliage as needed.
Budworms	acephate (Orthene) 75S (Acephate) 75SP (Orthene) 97PE	1 tbsp. in 1 gal. water (1 lb./acre) 0.75 tbsp. in 1 gal. water (12 ozs./acre)	Apply to foliage as needed.
Cutworms	acephate (Orthene) 75S (Acephate) 75SP (Orthene) 97PE carbaryl (Sevin) 5% B	1 tbsp. in 1 gal. water (1 lb./acre) 0.75 tbsp. in 1 gal. water (12 ozs./acre) 0.5-1 lb.	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.
Green June beetle grubs	carbaryl (Sevin XLR Plus)	5.5 ozs. in 50 to 100 gals. water	Apply only to uprooted areas of bed.
Mole Crickets	Carbaryl 5%B as applied for cutworms gives helpful control.		See remarks under cutworms.
Slugs and snails	Metaldehyde 5% B	Metaldehyde 5% B	Scatter bait evenly at dusk around margins, walkways and open spaces in bed. Do not apply directly to plants

TOBACCO TRANSPLANTS GROWN IN GREENHOUSES

J. Michael Moore, Extension Agronomist - Tobacco

INSECT	CHEMICAL AND FORMULATION	RATE PER 100 SQ. YDS.	REMARKS AND PRECAUTIONS
Aphids, cutworms, or flea beetles	acephate (Orthene)75S (Acephate) 75SP (Orthene) 97PE	1 tbsp. in 3 gals. of water 0.75 tbsp. in 3 gals. water	Apply to foliage as a spray. Do not apply through an irrigation system. Over application can cause plant injury.
Aphids or flea beetles	imidacloprid (Admire Pro) 4.6 (Alias and others) 2F thiamethoxam (Platinum and T-Moxx) 2SC	0.45-0.6 ozs. per 1000 plants 1.0-1.4 ozs. per 1000 plants 0.8-1.3 ozs. per 1000 plants	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.
Slugs and snails	Metaldehyde (Deadline Bullets) 5% B	0.5-2 lbs.	Apply to margins, walkways and vacant areas at dusk. Do not apply to float water or directly to plants.
Mole crickets or wireworms	imidacloprid (Admire Pro) 4.6 (Alias and others) 2F	0.6-1.2 ozs. per 1000 plants 1.4-2.8 ozs. per 1000 plants	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.
Wireworms (only)	thiamethoxam (Platinum and T-Moxx) 2SC	1.3 ozs. per 1000 plants	To control wireworms in the field, apply as a drench to trays or flats prior to transplanting.

TOBACCO PLANT BED DISEASE CONTROL

J. Michael Moore, Extension Agronomist - Tobacco

DISEASE	CHEMICAL AND FORMULATION	RATE	REMARKS AND PRECAUTIONS
Blue mold and Pythium damping off	Dithane DF	1.4 - 2.4 pound/Acre (0.7 - 1.2 oz. per 150 sq. yds.)	Use as an over the top spray on a 7-day schedule as long as conditions warrant.
Rhizoctonia damping off and Target Spot	Dithane DF	See above	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	CHEMICAL AND FORMULATION	RATE	REMARKS AND PRECAUTIONS
Root-knot and lesion nematodes and weeds			APPLY METHYL BROMIDE WHEN SOIL TEMPERATURE IS ABOVE 50°F.
	Methyl bromide 98%	9 lbs./100 sq. yds.	Cans: Release gas under plastic covering. Plastic should be raised and sealed around the edges with soil. Leave covered 24 hours. Seed bed 72 hours after the cover is removed.
	Methyl bromide 68.6%	10-12 lbs./100 sq. yds	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
	or		
	Vapam	37.5 gal./acre	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.
or			
Vapam + Telone C-17	37.5 gal./acre + 10 gal./acre		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	CHEMICAL AND FORMULATION	RATE	REMARKS AND PRECAUTIONS
Rhizoctonia, Sclerotinia and Pythium	Methyl Bromide 98%	3 lbs / 1000 cubic feet	Stack polystyrene trays loosely with sticks separating trays after each ten 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	160°F - 175°F for 30 minutes	Excessive heat for an extended period of time can cause trays to be brittle and warp resulting in problems during mechanical seeding.

TOBACCO GREENHOUSE DISEASE CONTROL

J. Michael Moore, Extension Agronomist - Tobacco

DISEASE	CHEMICAL AND FORMULATION	RATE PER 1000 SQ. FT.	REMARKS AND PRECAUTIONS
Blue Mold, Rhizoctonia (Damping Off & Target Spot)	mancozeb (Dithane DF)	0.5 lb. (one level teaspoon per gallon)	Use 0.5 lb per 100 gallons of water. Spray to run-off (3 gallons per 1000 sq. ft.) every 5-7 days when plants reach dime size (0.5 - 1 inch tall). Gradually increase the spray volume to 6 to 12 gallons per 1000 sq. ft. as plants enlarge until transplanting to the field.
	Azoxystrobin (Quadris F)	1.4 oz	This application allowed by GA 24c Labeling. Apply in enough water for thorough coverage (5 gal/1000 sq ft). Make only one application prior to transplanting. Additional field applications may be made according to the Quadris federal label.
Pythium Root Rot	Etridiazole (Terramaster 35 WP)	2 oz.	Mix Terramaster per 100 gallons 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 three weeks after the initial application as needed.
	(Terramaster 4 EC)	1 fl. oz.	
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

DISEASE	CHEMICAL AND FORMULATION ¹	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REMARKS AND PRECAUTIONS		
Aphids	acephate (Orthene) 75S	2/3 - 1 lb.	0.5-0.75	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 bifenthrin later than layby and do not apply more than 0.2 lbs. a.i./A per season. See Tobacco Field Disease Control Section for recommendations to suppress tomato spotted wilt virus with imidacloprid as a tray drench in the greenhouse.		
	(Orthene) 97PE	8-12 ozs.	0.5-0.73			
	(Acephate) 75SP	2/3-1 lb.	0.5-0.75			
	acetamiprid					
	(Assail) 80WP	0.6-1.7 ozs.	0.025-0.075			
	bifenthrin (Brigade) 2EC	2.56-6.4 ozs.	0.04-0.10			
	imidacloprid (Provado) 1.6F	2-4 ozs.	0.025-0.05			
	methomyl (Lannate)					
	90SP	0.5 lb.	0.45			
	2.4LV	24 ozs.	0.45			
Aphids (transplant water treatment)	imidacloprid (Admire Pro) 4.6	0.45-0.6 ozs. per 1000 plants	0.016-0.02 per 1000 plants	Apply in transplant water. Mix thoroughly. Use 100+ gallons of water per acre for optimum control. See Tobacco Field Disease Control Section for recommendations to suppress tomato spotted wilt virus with imidacloprid as a transplant water application.		
	(Alias and others) 2F	1.0-1.4 ozs. per 1000 plants	0.01-0.02 per 1000 plants			
	thiamethoxam					
	(Platinum and T-Moxx) 2SC	0.8-1.4 ozs. per 1000 plants	0.013-0.022 per 1000 plants			
	Acephate					
	(Orthene) 75S	1 lb.	0.75			
	(Orthene) 97PE	0.75 lb.	0.73			
	(Acephate) 75SP	1 lb.	0.75			
	Budworms	acephate (Orthene) 75S	1 lb.		0.75	Use 8-10 gallons of spray per acre, using one hollow cone nozzle per row when tobacco is less than 12-14 inches high. For the remainder of the season, apply 20-40 gallons of spray using 3 hollow cone nozzles per row. Operate equipment at 60 pounds 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 ¼ inch 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 gallons of transplant water per acre. 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.
		(Orthene) 97PE	12 ozs.		0.73	
(Acephate) 75SP		1 lb.	0.75			
bifenthrin (Brigade) 2EC		2.56-6.4 ozs.	0.04-0.10			
Chlorantraniliprole						
(Coragen 1.67)		5.0-7.5 oz	0.065-0.098			
emamectin benzoate						
(Denim) .16EC		8-12 ozs.	0.01-0.015			
Flubendiamide (Belt) SC		2-3 ozs.	0.06-0.09			
methomyl (Lannate)						
90SP		0.5 lb.	0.45			
2.4LV		24 ozs.	0.45			
spinosad (Tracer) 4SC		1.4-2.9 ozs.	0.044-0.09			
<i>Bacillus thuringiensis</i>						
(Dipel) ES		2 pts.				
(Dipel) DF		½ - 1 lb.				
(Agree) S		1 - 2 lbs.				
(Biobit) XL	3 pts.					
(Biobit) HP	1 lb.					
(Condor) OF	1 2/3 qts.					
(Crymax) WDG	1-1½ lbs.					
(Javelin) WG	1-1¼ lbs.					
(Lepinox) WDG	1-2 lbs.					

TOBACCO FIELD INSECT CONTROL (continued)

DISEASE	CHEMICAL AND FORMULATION¹	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REMARKS AND PRECAUTIONS
Cabbage looper	acephate (Orthene) 75S (Orthene) 97PE (Acephate) 75SP emamectin benzoate (Denim) .16EC methomyl (Lannate) 90SP 2.4LV Bacillus thuringiensis (See rates for budworms) spinosad (Tracer) 4SC	1 lb. 12 ozs. 1 lb. 8-12 ozs. 0.5 lb. 24 ozs. 2-2.9 ozs.	0.75 0.73 0.75 0.01-0.015 0.45 0.45 0.063-0.09	Apply thoroughly. Good lower leaf coverage is essential for control. See remarks under Budworms. For best results apply when worms are small (½ inch long or less). Bt must be eaten by the insect to be effective. Worms will die several days after feeding.
Cutworms	acephate (Orthene) 75S (Orthene) 97PE (Acephate) 75SP bifenthrin (Brigade) 2EC	1 lb. ¾ lb. 1 lb. 4-6.4 ozs.	0.75 0.73 0.75 0.0625-0.10	Apply 25-50 gallons of spray ovetop of plants. Make application during late afternoon. Apply bifenthrin as a pre-transplant broadcast application incorporated into the top 4" of the soil and no more than 0.2 lbs. a.i./A per season.
Cutworms (transplant water treatment)	acephate (Orthene) 75S (Orthene) 97PE (Acephate) 75SP bifenthrin (Brigade) 2EC	1 lb. ¾ lb. 1 lb. 4-6.4 ozs.	0.75 0.73 0.75 0.0625-0.10	Apply in transplant water. Mix thoroughly. No more than 0.2 lbs. a.i./A of bifenthrin can be applied per season.
Flea beetles (transplant water treatment)	acephate (Orthene) 75S (Orthene) 97PE (Acephate) 75SP imidacloprid (Admire Pro) 4.6 (Alias and Others) 2F thiamethoxam (Platinum and T-Moxx) 2SC	1 lb. ¾ lb. 1 lb. 0.45-0.6 ozs. per 1000 plants 1.0-1.4 ozs. per 1000 plants 0.8-1.3 ozs. per 1000 plants	0.75 0.73 0.75 0.016-0.02 per 1000 plants 0.016-0.02 per 1000 plants 0.01-0.02 per 1000 plants	Apply in transplant water. Mix thoroughly.
Flea beetles	acephate (Orthene) 75S (Orthene) 97PE (Acephate) 75SP bifenthrin (Brigade) 2EC carbaryl (Sevin) 80S (Sevin XLR Plus) imidacloprid (Provado) 1.6F thiamethoxam (Actara) 25WG methomyl (Lannate) 90SP 2.4LV	2/3 lb. ½ lb. 2/3 lb. 2.56-6.4 ozs. 1¼-2½ lbs. 1-2 qts. 2-4 ozs. 2-3 ozs. ¼-½ lb. 12-24 ozs.	0.5 0.5 0.5 0.04-0.10 1-2 1-2 0.025-0.05 0.03-0.05 0.23-0.45 0.23-0.45	Use lower rates for small plants. Use higher rates for large plants and thoroughly cover the lower leaves. Do not apply bifenthrin later than layby and do not apply more than 0.2 lbs. a.i./A per season.
Grasshoppers	acephate (Orthene) 75S (Orthene) 97PE (Acephate) 75SP bifenthrin (Brigade) 2EC carbaryl (Sevin) 80S 4F (Sevin XLR Plus)	1/3 - 2/3 lb. ¼-½ lb. 1/3 - 2/3 lb. 2.56 - 6.4 ozs. 5/8 - 1 7/8 lbs. ½-1½ qts. ½-1½ qts.	0.25-0.5 0.2-0.5 0.25-0.5 0.04-0.10 0.5-1.5 0.5-1.5 0.5-1.5	Apply thoroughly. Spraying around field borders may aid in preventing infestations. Do not apply bifenthrin later than layby and do not apply more than 0.2 lbs. a.i./A per season.

TOBACCO FIELD INSECT CONTROL (continued)

DISEASE	CHEMICAL AND FORMULATION¹	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REMARKS AND PRECAUTIONS
Hornworms	acephate (Orthene) 75S	2/3 lb.	0.5	Apply thoroughly. Good coverage is essential for control. See remarks under Budworms.
	(Orthene) 97PE	½ lb.	0.5	
	(Acephate) 75SP	2/3 lb.	0.5	
	bifenthrin (Brigade) 2EC	2.56-6.4 ozs.	0.04-0.10	Do not apply bifenthrin later than layby and do not apply more than 0.2 lbs. a.i./A per season.
	carbaryl (Sevin) 80S (Sevin XLR Plus)	1¼-2½ lbs. 1-2 qts.	1-2 1-2	
	Chlorantraniliprole (Coragen 1.67)	5.0-7.5 oz	0.065-0.098	Do not apply lambda-cyhalothrin less than 40 days to harvest. Although labeled for budworm control this product is not recommended due to the presence of resistance in the budworm population in Georgia.
	emamectin benzoate (Denim) .16EC	8-12 ozs.	0.01-0.015	
	Flubendiamide (Belt) SC	2-3 ozs.	0.06-0.09	
	Lambda-cyhalothrin (Warrior) 1CS	1.9-3.8 ozs.	0.015-0.03	
	methomyl (Lannate) 90SP	¼-½ lb.	0.23-0.45	
	2.4LV	12-24 ozs.	0.23-0.45	
	spinosad (Tracer) 4SC	1.4-2.9 ozs.	0.044-0.09	
	<i>Bacillus thuringiensis</i> (Dipel) ES	½ - 1 pt.		
	(Dipel) DF	¼ - ½ lb.		
	(Agree) S	1 - 2 lbs.		
	(Biobit) XL	½ - 1 pt.		
	(Biobit) HP	¼ - ½ lb.		
(Condor) OF	2/3 - 1 qt.			
(Crymax) WDG	½-1½ lbs.			
(Javelin) WG	1- 1¼ lb.			
(Lepinox) WDG	1-2 lbs.			
Mole crickets	bifenthrin (Brigade) 2EC	4-6.4 ozs.	0.0625-0.10	Apply broadcast to the soil surface one week before transplanting and mix into the top 3-6 inches of soil immediately. Do not apply more than 0.2 lbs. a.i./A of bifenthrin per season. Lorsban Advanced use rates are in excess of the product label and are supported by a GA 24c.
	chlorpyrifos (Chlorfos) 4E	2-3 qts.	2-3	
	chlorpyrifos (Lorsban Advanced)	2 qts.	2	
	ethoprop (Mocap) 6EC	1-2 gals.	6-12	
Stink bugs	acephate (Orthene) 75S	2/3 - 1 lb.	0.5 - 0.75	Apply in sufficient water to give thorough coverage.
	(Orthene) 97PE	½-¾ lb.	0.5 - 0.73	
	(Acephate) 75SP	2/3-1 lb.	0.5 - 0.75	
	bifenthrin (Brigade) 2EC	2.56-6.4 ozs.	0.04 - 0.10	
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 imidacloprid. Thrips are the vector for this disease.
Tobacco splitworm or potato tuberworm (transplant water treatment)	Timely foliar sprays of bifenthrin, l-cyhalothrin or chlorantraniliprole (also can be applied in transplant water) provide some control. See hornworm control for rates when applying foliar applications.			
	Chlorantraniliprole (Coragen 1.67)	5.0-7.5 oz	0.065-0.098	Apply transplant water uniformly in the root zone or poor performance will occur.

TOBACCO FIELD INSECT CONTROL (continued)

DISEASE	CHEMICAL AND FORMULATION¹	RATE PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REMARKS AND PRECAUTIONS
Wireworms	bifenthrin (Brigade) 2EC carbofuran (Furadan) 4F chlorpyrifos (Lorsban Advanced, Chlorfos) 15G 4E Lorsban Advanced ethoprop (Mocap) 6EC	4-6.4 ozs. 1½ gals. 13½-20 lbs. 2-3 qts. 2 qts. 1 1/3 qts.	0.0625-0.10 6 2-3 2-3 2 2	Apply all insecticides to the soil surface 1-2 weeks before transplanting and mix into the top 3-6 inches of soil immediately. Bifenthrin 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. Broadcast treatment for wireworm control only. Use 1-2 gallons of Mocap 6EC for both nematode and wireworm control.
(transplant water treatment) Mole crickets or wireworms	bifenthrin (Brigade) 2EC imidacloprid (Admire Pro) 4.6 (Alias and Others) 2F	4-6.4 ozs. 0.6-1.2 ozs. per 1000 plants 1.4-2.8 ozs. per 1000 plants	0.0625-0.10 0.02-0.04 per 1000 plants 0.02-0.04 per 1000 plants	Apply in transplant water. Mix thoroughly. Do not apply more than 0.2 lbs. a.i./A of bifenthrin per season.
Wireworms (only)	thiamethoxam (Platinum and T-Moxx) 2SC	1.3 ozs. per 1000 plants	0.02 per 1000 plants	Timely foliar sprays prior to layby of Brigade and Warrior can provide some control. See hornworm control for rates.

Precautions

Workers should wear protective clothing when they handle treated tobacco. Schedules for insecticides with restrictions on field reentry and tobacco harvest are:

INSECTICIDE	RESTRICTED ENTRY INTERVAL (HOURS BEFORE FIELD REENTRY)	DAYS FROM LAST APPLICATION TO HARVEST
acephate (Orthene/Acephate)	24	3
acetamiprid (Assail)	12	7
<i>Bacillus thuringiensis</i> (Dipel, Agree, Biobit, Condor, Crymax, Javelin, Lepinox)	4	0
bifenthrin (Brigade)	12	Last application by layby
carbaryl (Sevin)	12	0
Chlorantraniliprole (Coragen)	4	1
cyfluthrin (Baythroid)	12	Apply within 7 days of planting
emamectin benzoate (Demin)	48	14
Flubendiamide (Belt)	12	14
imidacloprid (Admire Pro, Provado, Alias and Others)	12	14
Lambda-cyhalothrin	24	40
methomyl (Lannate)	48	5
pymetrozin (Fulfill)	12	14
spinosad (Tracer)	4	3
thiamethoxam (Platinum, Actara, T-Moxx)	12	14
thiamethoxam (Platinum, Actara, T-Moxx)	12	14

TOBACCO FIELD DISEASE CONTROL

J. Michael Moore, Extension Agronomist - Tobacco

DISEASE	CHEMICAL AND FORMULATION	RATE PER ACRE	REMARKS
Black shank	mefenoxam		Broadcast-Incorporate at or just prior to setting.
	TRANSPLANT WATER: Ridomil Gold SL	4 - 8 oz	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 gallons of transplant water per acre. 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.
	FIELD: Ridomil Gold SL	1 pt. PPI + .5 - 1 pt. layby	
	Ultra Flourish	1 qt. PPI + 1 - 2 pt. layby	DO NOT APPLY ULTRA FLOURISH IN THE TRANSPLANT WATER. FIELD: Broadcast-Incorporate at or just prior to setting. Mefenoxam may be applied to the beds at first plowing if heavy rainfall (>1") occurred between the PPI treatment and transplanting. Apply mefenoxam at layby using two drop nozzles per row. Direct spray to bed. Follow with layby plowing. Applying mefenoxam over the top to plant foliage will provide NO black shank control.
Blue Mold	FORUM FUNGICIDE		Select rate based on table below. Apply with drops as necessary to get full crop coverage.
	<u>Weeks of Growth After Transplant</u>	<u>Rate of FORUM (ounces of Product)</u>	<u>Water Output (Gallons/Acre)</u>
	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
<p>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/acre per application. DO NOT exceed 30 oz/acre of FORUM per season. Full plant coverage is required for blue mold control with FORUM.</p>			
or	Actigard 50WG	½ oz.	Begin treatment when plants reach 18" high. Make up to 2 applications on a 10 day schedule
or Blue Mold Target Spot	Quadris	6-12 oz. (0.1-0.2 lb a.i.)	Alternate with FORUM If blue mold is present begin with forum DO NOT use more than 0.54 lb a.i./acre/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	Actigard 50WG	1.0 oz./100,000 field ready seedlings	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 (continued)

DISEASE	CHEMICAL AND FORMULATION	RATE PER ACRE	REMARKS
Tomato Spotted Wilt	Admire Pro 4.6 SC	0.8-1.2 oz/1000 tray cells (tray drench)	Plant house tray drench . Spray Admire onto wetted foliage and immediately rinse with enough water to wash the Admire off foliage into the root media.
or	GENERIC IMIDACLOPRID 2F FORMULATIONS: (Alias, Couraze, Imia-E AG, Macho, Nuprid, Torrent)	0.8-1.2 oz/1000 plants (transplant water)	Combine with transplant water . Mix thoroughly.
or	GENERIC 2F	1.5-2.0 oz. 1.8-2.8 Tray drench 1.8-2.8 Transplant water.	Tray drench as above. In transplant water as above.
or	Platinum 2SC/ T-Moxx 2SC	1.3 oz.	Tray drench as above. Platinum / T-Moxx are not suited for transplant water application
and	Actigard 50WG	1.0 oz./100,000 field ready seedlings	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 NEMATODE CONTROL

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

FUMIGANT NEMATOCIDES

CHEMICAL AND FORMULATION	RATE PER ACRE	RATE PER 100 FT. OF ROW	REMARKS
<u>Row Treatment</u>			
Telone II	6 gals.	cc fl.ozs 184 6.2	Inject 8 inches deep on the flat or 14-16 inches 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.
<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>			

NON-FUMIGANT NEMATOCIDES

CHEMICAL AND FORMULATION	RATE PER ACRE BROADCAST	POUNDS ACTIVE INGREDIENT PER ACRE	REMARKS
Broadcast and thoroughly incorporate non-fumigant nematocides prior to forming beds.			
Nemacur 3	2 gals.	6	Use 2 gallons of Nemacur or 1 gallon of Nemacur + 1 gallon of Mocap where potential for damage from Southern root-knot is low to moderate.
Nemacur 3 +	1 gal. +	3	
Mocap 6EC	1 gal.	6	
Temik is no longer labeled for use on tobacco.			
Nemacur 3 and Mocap 6EC are no longer being manufactured, but any available material may be used.			
Results after use of non-fumigant nematocides depend on thorough incorporation in the soil prior to forming beds and transplanting.			

TOBACCO WEED CONTROL

(Flue-Cured)

J. Michael Moore, Extension Agronomist – Tobacco

TIMING	BROADCAST RATE/ACRE			REMARKS AND PRECAUTIONS
	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT/A	
PLANT BED (for control of soil fungi, bacteria, nematodes, insects and weeds)	Methyl Bromide 98%	9 lb/ 100 sq yd	8.82/sq yd	Apply methyl bromide when soil temperature is above 50°F. Cans: 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. Cylinders: 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. A. Spray Vapam on moist soil surface, incorporate 6" deep with Methyl Bromide. B. After treatment, wait 7 d before punching holes in plastic. C. After punching, wait 1 4-21 days before seeding.
	Methyl Bromide 68.6%	10-12 lb /100 sq yd	6.8 - 8.2 /sq yd	
	metham-sodium (Vapam)	1 to 1.5 gal/100 sq yd		
	metham-sodium (Vapam) + 1-3D+chloropicrin (Telone C-17)	37.5 gal/A + 10 gal/A		
(for post emergence control of grasses)	sethoxydim (Poast) 1.5 lb/gal	1.0 pt (0.33 fl oz per 100 sq yd)	0.19	Addition of a non-phytotoxic oil concentrate at 1 qt/A (0.67 fl oz per 100 sq yd) is required. Allow plants to completely dry before covering, especially with plastic.
PREPLANT	clomazone (Command) 3ME 3 lb/gal	2.0 to 2.66 pt/A	0.75-1.0	Apply Command as a broadcast spray at low pressure and large droplet size. Incorporate to a depth not to exceed one inch 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. Do not plant small grain for grain less than 12 months after application of Command. Do not graze treated areas for 9 months.
	isopropalin (Paarlan) 6E 6 lb/gal	1 qt	1.5	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 inches deep or incorporate by disking and cross disking with a disk harrow set to cut 4 to 6 inches deep. If applied to preformed beds, "board off" to planting level and incorporate with a power-driven rotary tiller set to cut 4.inches deep.
	pendimethalin (Prowl) 3.3E (Pendimax) (Repose) 3.3 lb/gal (Prowl H2O 3.8 EC)	1.8 - 2.4 pt 1.8 - 2.4 pt 1.8 - 2.4 pt 3.8 lb/gal	0.75 - 1.0	
	napropamide (Devrinol) 50W (Devrinol) 2E	2 - 4 qt 2 - 4 qt	1.0 - 2.0	
	pebulate (Tillam) 6E	5 pt 5 fl oz	4	
			Devrinol is for field use only. Not labeled for tobacco seedbeds due to plant injury.	

TOBACCO WEED CONTROL (Flue Cured) (continued)

TIMING	BROADCAST RATE/ACRE			REMARKS AND PRECAUTIONS
	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT/A	
PREPLANT (cont.)	pebulate 4.0 (Tillam) 6E 6 lb/gal + napropamide (Devrinol) 50W (Devrinol) 2E	5 pt 5 fl oz + 2 lb 2 qt	4.0 + 1.0	Tillam and Devrinol may be tank-mixed to provide control of nut-sedge and many annual grasses and some broadleafweeds. Apply and incorporate immediately either before or after bedding as discussed above. If possible, apply this combination at least 2 days before transplanting.
PRETRANS-PLANT (surface application only)	sulfentrazone (Spartan 4F) 4 lb ai/gal carfentrazone-ethyl + sulfentrazone (Spartan Charge) 0.35 + 3.15 lb ai/gal	8.0 oz 5.7 - 10.2 oz	0.25 0.016 - 0.028 + 0.157 - 0.25	<p>DO NOT INCORPORATE !!</p> <p>CALIBRATION IS IMPORTANT !!</p> <p>Application rate for Spartan Charge & Spartan DF should be limited to 0.25 lb ai per acre (10.2 oz Spartan Charge; 8.0 oz Spartan 4F). Excessive application rates or poor calibration may result in injury to the tobacco.</p> <p>Spartan Charge & 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.</p> <p>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 inches.</p> <p>DO NOT APPLY SPARTAN or SPARTAN CHARGE POST-TRANSPLANT OVER THE TOP OF TOBACCO AS CROP INJURY MAY OCCUR.</p> <p>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.</p>
POST TRANS-PLANTING	napropamide (Devrinol) 50W clomazone (Command) 3ME 3 lb/gal	2 - 4 lb 2.0 to 2.66 pt/A	1.0 - 2.0 0.75-1.0	Apply directly over the top of tobacco immediately after transplanting to control weeds before they emerge. Irrigate with 1/2 inch of water if no rainfall occurs within 3 to 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.
- with hooded or shielded sprayer	sulfentrazone (Spartan 4F) 4 lb ai/lb carfentrazone-ethyl + sulfentrazone (Spartan Charge) 0.35 + 3.15 lb ai/gal	8 oz 5.7 - 10.2 oz	0.25 0.016 - 0.028 + 0.157 - 0.25	<p>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.</p> <p>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 surface excluding 4 inches 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).</p>

TOBACCO WEED CONTROL (Flue Cured) (continued)

TIMING	BROADCAST RATE/ACRE			REMARKS AND PRECAUTIONS
	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT/A	
POST TRANS-PLANTING (cont.) – with hooded or shielded sprayer	carfentrazone (Aim EC) 2 lb ai/gal	0.8 - 1.5 fl oz	0.013 - 0.023 lb ai	Use Aim EC for postemergence control of many broadleaf weeds (including most morningglory species other than small flower) up to 4 inches high growing in between the rows of tobacco. Use higher rates when treating more mature weeds or dense vegetative growth. COVERAGE IS ESSENTIAL FOR GOOD CONTROL. Use adequate spray volume to achieve thorough coverage, but a minimum of 10 gallons of finished spray per acre is required. Use a quality crop oil concentrate (COC) at 1% v/v (1 gallon of COC per 100 gallons 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) per acre per season.
LAYBY	napropamide (Devrinol) 50W	2 lb	1.0 - 2.0	These herbicides are applied following the last cultivation (usually 4 to 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; therefore,
	pendimethalin (Prowl) 3.3E (Pendimax) (Repose) 3.3 lb/gal (Prowl H2O 3.8 EC)	1.8 - 2.4 pt 1.8 - 2.4 pt 1.8 - 2.4 pt 3.8 lb/gal	0.75 - 1.0	
(for post emergence control of grasses)	sethoxydim (Poast) 1.5 lb/gal	1 - 1.5 pt	0.19	Provides selective broad Spectrum postemergence 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–	carfentrazone (Aim EC) 2 lb ai/gal	0.8 - 1.5 fl oz	0.013 - 0.023 lb ai	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. Directed spray after first priming (Flue-Cured Tobacco Only) 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 to 4 inches 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. Use Aim EC for postemergence control of many broadleaf weeds (including most morningglory species other than small flower) up to 4 inches high growing in between the rows of tobacco. Use higher rates when treating more mature weeds or dense vegetative growth. COVERAGE IS ESSENTIAL FOR GOOD CONTROL. Use adequate spray volume to achieve thorough coverage, but a minimum of 10 gallons of finished spray per acre is required. Use a quality crop oil concentrate (COC) at 1% v/v (1 gallon of COC per 100 gallons 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) per acre per season.

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 ¹	Command	Prowl	Dev- rinol	Tillam	Devrinol + Tillam	Dev- rinol	Com- mand	Dev- rinol
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	
lambquarters	N	E	F-G	G	G	G	G	G	F-G	G	G	E
pigweeds	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	PF	E
morningglory sp.	N	E	P	P	P	P	P	P	P	P	P	G-E
<p>Key to response symbols: 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.</p> <p>Ratings are based on average to good soil and weather conditions for herbicide performance.</p> <p>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).</p> <p>¹ 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 inches. Do Not apply Spartan Charge post-transplant over the top of tobacco as crop injury may occur.</p>												

TOBACCO SUCKER CONTROL

(Flue-Cured)

J. Michael Moore, Extension Agronomist – Tobacco

CHEMICAL TYPE	CHEMICAL AND FORMULATION	FORMULATION RATE PER ACRE	REMARKS AND PRECAUTIONS
CONTACT	<p>Fatty Alcohol (C₆, C₈, C₁₀ and C₁₂ alcohol mixture)</p> <p>85% Active Ingredient</p> <p>(Various Brands)</p> <p>Fair 85</p> <p>Off-Shoot T</p> <p>Royaltac-M</p> <p>Sucker Plucker</p> <p>n-Decanol (C₁₀)</p> <p>79% Active Ingredient</p> <p>Antak</p>	<p>1.5 - 2.5 gal.</p> <p>1.5 - 2.5 gal.</p> <p>1.5 - 2.5 gal.</p> <p>1.5 - 2.5 gal.</p> <p>1.5 - 2.25 gal.</p>	<p>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 to 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 to 7 days later. Third applications may be made 5 to 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 per acre or enough to provide for spray solution to reach the bottom of the stalk. Use two TG-3 nozzle tips and one TG5 or equivalents per row with 20 to 25 psi pressure operated from 12 to 16 inches above the top of the button or stalk at 2.5 to 3 mph. 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.</p> <p>If the application of contacts starts after the 30 to 40% early button stage, start with 4% and follow 5 to 7 days later with a 5% application. Antak contains only C₁₀ alcohol. Because this long chain alcohol is 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 which are mixtures of C₆, C₈, C₁₀ and C₁₂ alcohols.</p>
SYSTEMIC	<p>Maleic Hydrazide (potassium salt) (MH)Various Brands</p> <p>(1.5 lb MH/gal)</p> <p>Fair Plus</p> <p>Royal MH</p> <p>Super Sucker Stuff</p> <p>(2.25 lb MH/gal)</p> <p>Fair 30</p> <p>Royal MH Xtra</p> <p>Sucker Stuff</p> <p>Water-Soluble MH 60% by wt. of MH</p> <p>Fair 80 SP</p> <p>Royal MH-30 SG</p> <p>Sucker Stuff 60 WS</p>	<p>1.5 gal.</p> <p>1.5 gal.</p> <p>1.5 gal.</p> <p>1.0 gal.</p> <p>1.0 gal.</p> <p>1.0 gal.</p> <p>3.75 lbs.</p> <p>3.75 lbs.</p> <p>3.75 lbs.</p>	<p>– Apply 57 days after last contact treatment.</p> <p>– Use 30-40 gal of water per acre and a pump pressure of 25-35 psi.</p> <p>– Apply to upper sides of leaves on upper one third of stalks.</p> <p>– Do Not Apply Sucker Control Chemicals When Tobacco Is Wilted or Wet or under Windy Conditions.</p> <p>– Do Not Use Drop Nozzles for Application of MH.</p> <p>– Allow 7 Days or until after Rainfall Between MH Application and Harvest.</p> <p>Fair 80 SP is a water-soluble powder packaged in dissolvable 3.75 lb containers.</p> <p>Royal MH-30 SG is a water-soluble granular material packaged in dissolvable 7.5 lb containers.</p> <p>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.</p>
CONTACT-SYSTEMIC MIX	<p>38.3% ai Fatty alcohol (n-Decanol) and 11.1% ai MH (potassium salt)</p> <p>FST-7</p> <p>Leven-38</p>	<p>3.0 gal.</p> <p>3.0 gal.</p>	<p>Provides 2.0 lbs ai MH/A and a 4% contact solution. Mix with 47 gal of water and apply approximately 50 gal per acre to plants in early flower stage (one week after button) all day except when plants are wet or temperature exceeds 90F with bright sunlight. Use three nozzles per 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.</p>
CONTACT-LOCALIZED-SYSTEMIC/SYSTEMIC COMBINATION	<p>[FLUMETRALIN +MH] [tankmixed]</p> <p>FLUMETRALIN (1.2 lb/gal.)</p> <p>+</p> <p>MH (1.5 lb/gal)</p> <p>or</p> <p>MH (2.25lb/gal)</p>	<p>(2 qt.</p> <p>+</p> <p>1.5 gal)</p> <p>or</p> <p>1.0 gal)</p>	<p><u>FLUMETRALIN (Drexalin Plus, Flupro, or Prime+) TANK MIXED WITH MH</u></p> <p>Flumetralin 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 to 25 psi into the top leaf axils of plants.</p>

TOBACCO SUCKER CONTROL (Flue-Cured) (continued)

CHEMICAL TYPE	CHEMICAL AND FORMULATION	FORMULATION RATE PER ACRE	REMARKS AND PRECAUTIONS
CONTACT-LOCALIZED-SYSTEMIC/ SYSTEMIC COMBINATION	FLUMETRALIN (1.2 lb/gal.) + MH (1.5 lb/gal) or MH (2.25lb/gal)	2 qt + 1.5 gal. or 1.0 gal.	<u>SEQUENTIAL APPLICATION OF FLUMETRALIN (Drexalin Plus, Flupro, or Prime+) WITH MH</u> Mix 2 qt of flumetralin 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 flumetralin should be during the elongated button to early flower stage of tobacco. Approximately 3 to 5 days after the flumetralin application, apply maleic hydrazide according to the label directions, precautions, and restrictions on that label.
CONTACT/ CONTACT/ CONTACT/ CONTACT-LOCALIZED-SYSTEMIC/ CONTACT/ CONTACT/	Fatty alcohol 3% Fatty alcohol 4% Fatty alcohol 5% Fatty alcohol 5%/ FLUMETRALIN/ Fatty alcohol 5% Fatty alcohol 5%	1.5 gal 2.0 gal 2.5 gal 2.5 gal/2 qt 2.5 gal 2.5 gal	Apply multiple applications of contacts of increasing concentrations (3% / 4% / 5%) beginning when not more than 30 to 40% of the plants are in the early button stage and continuing on a 5 to 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. Apply 30 to 50 gallons of a solution prepared by mixing 2 quarts of flumetralin OR 3 qts of flumetralin in 50 gallons of water per acre with droplines, jugs, or a power sprayer 3 to 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. An additional application of no more than 1 quart of flumetralin applied with a mechanical sprayer may improve long term control by treating untreated leaf axils when applied 5 to 7 days after the initial flumetralin application. Additional applications of 5% contact solutions may be required on a 5 to 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.
(3 Way TANKMIX)	[FLUMETRALIN + MH + CONTACT] [3 way tankmix] [FLUMETRALIN (1.2 lb/gal) + MH (1.5 lb/gal) or MH (2.25 lb/gal) + CONTACT]	(2 qt + 1.5 gal or 1.0 gal + 2.5 gal)	<u>FLUMETRALIN (Drexalin Plus, Flupro, or Prime+) TANK MIXED WITH MH and CONTACT</u> Flumetralin may be tank mixed with the labeled rate of any MH product which 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 gallons of product for each 47.5 gallons of total solution. Apply in approximately 50 gal of water per acre as a contact to run down the stalk (approximately 50 gal solution per acre). Apply the three-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 to 25 psi into the top leaf axils of plants. FST-7 or Leven-38 may be used in combination with flumetralin 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.
CONTACT: Late Season Clean-up	Fatty Alcohol (C ₆ , C ₈ , C ₁₀ and C ₁₂ alcohol mixture) 85% Active Ingredient (Various Brands) Fair 85 Off-Shoot T Sucker Plucker Royaltac-M n-Decanol (C ₁₀) 79% Active Ingredient Antak	2.5 gal 2.5 gal 2.5 gal 2.5 gal 2.25 gal	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.
PROGRAM CODES CHEMICAL TYPES SEPARATED BY A SLASH “/” SYMBOL MEANS CHEMICAL TYPES ARE APPLIED SEQUENTIALLY OVER TIME. GENERALLY A “/” MEANS 3 TO 5 OR 5 TO 7 DAYS BETWEEN APPLICATION OF LISTED CHEMICAL TYPES.			

YELLOWING AGENT FOR FLUE-CURED TOBACCO

J. Michael Moore, Extension Agronomist – Tobacco

CHEMICAL TYPE	CHEMICAL AND FORMULATION	RATE PER ACRE	REMARKS AND PRECAUTIONS
YELLOWING AGENT	ethephon (Ethephon 2) 2 lb/gal	4 - 8 qt	Use after second or third priming when remaining leaves are physiologically mature. Directed Spray: Mix the lower amount in 50 to 60 gal. of water and apply on a warm, sunny day as a fine spray mist with drop nozzles which 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.
	ethephon (MatureXL) 6 lb/gal	1.33 - 2.66 pt	
	ethephon (Prep) 6 lb/gal	1.33 - 2.66 pt	Over the Top: Use the higher rate in 40 to 60 gal. of water for an acreage of coverage. Apply to all remaining leaves on the stalk.
	ethephon (Super Boll) 6 lb/gal	1.33 - 2.66 pt	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 to 72 hours. Harvest may be completed the day after treatment. Excessive delay in harvest may result in loss of yield and quality or leaf drop.
	ethephon (Ethephon 6) 6 lb/gal	1.33 - 2.66 pt	Tobacco which is sufficiently mature when treated and which yellows prior to harvest may require an advanced curing schedule with reduced yellowing time. Close attention should be paid to the curing schedule.