

# Appendix I

# COTTON INSECT CONTROL

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PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS
Aphid (Cotton)	acetamiprid (Assail 30SG)	1.5-2.5 ozs	0.028-0.047	Apply when aphids are abundant and seedling leaves are severely curled, or when "honeydew" is present in older cotton. Naturally occurring diseases often eliminate the need for sprays, but this epidemic occurs only after aphid populations reach high levels and tends to be less effective late in the season.
	dicrotophos (Bidrin 8)	4.0-8.0 ozs	0.25-0.50	
	flonicamid (Carbine 50WG)	1.4-2.8 ozs	0.044-0.088	
	imidacloprid (Trimax Pro 4.44)	0.9-1.8 ozs	0.031-0.062	
	thiamethoxam (Centric 40 WG)	1.25-2.0 ozs	0.031-0.05	
Beet Armyworm	emamectin benzoate (Denim 0.16)	6-8 ozs	0.0075-0.01	Prior to full fruit set, apply when 10 active "hits" are found per 300 row-feet.
	diflubenzuron (Dimilin 2L)	4-8 ozs	0.0625-0.125	
	indoxacarb (Steward 1.25SC)	9.2-11.3 ozs	0.09-0.11	
	methoxyfenozide (Intrepid 2F)	4 ozs	0.0625	
	novaluron (Diamond 0.83EC)	6-12 ozs	0.039-0.077	
	spinosad (Tracer 4)	2.14-2.9 ozs	0.067-0.089	
	tebufenozide (Confirm 2F)	8-16 ozs	0.125-0.25	
	thiodicarb (Larvin 3.2)	24-36 ozs	0.6-0.9	
Bollworm/Tobacco Budworm	<b>NON-PYRETHROIDS</b>			On non-Bt cotton apply when 8 small larvae are found per 100 terminals prior to first insecticide treatment, or when 5 larvae are found after first spray.  Due to the threat of pyrethroid resistance, non-pyrethroid insecticides are recommended for control of tobacco budworm.  Resistance management: Do not treat successive generations with insecticides that have the same mode of action.  Bt Cotton containing the Bollgard, Bollgard II, or Wide Strike (Bt) gene(s) is an effective tool for use in bollworm and tobacco budworm management programs. Apply insecticide on Bt cotton when 8 larvae (1/4 inch or greater in length) are found per 100 plants. Be sure to follow resistance management guidelines (i.e. refuges).
	emamectin benzoate (Denim 0.16)	8-12 ozs	0.01-0.015	
	indoxacarb (Steward 1.25SC)	11.3 ozs	0.11	
	methomyl (Lannate LV 2.4)	1.5-2 pts	0.45-0.6	
	profenofos (Curacron 8E)	0.75-1 pt	0.75-1.0	
	spinosad (Tracer 4)	1.4-2.9 ozs	0.045-0.089	
thiodicarb (Larvin 3.2)	24-36 ozs	0.6-0.9		

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS AI/A	REMARKS	
Bollworm/Tobacco Budworm (cont.)	<b>PYRETHROIDS</b>				
	beta-cyfluthrin (Baythroid XL 1)	1.6-2.6 ozs	0.0125-0.0205		
	bifenthrin (Brigade 2EC) (Discipline 2EC) (Fanfare 2EC)	2.6-6.4 ozs 2.6-6.4 ozs 2.6-6.4 ozs	0.04-0.1 0.04-0.1 0.04-0.1		
	cyfluthrin + imidacloprid (Leverage 2.7)	3.75 ozs.	0.079	Leverage is a premix of cyfluthrin and imidacloprid.	
	cypermethrin (Ammo 2.5EC) (Up-Cyde 2.5EC)	2-5 ozs 2-5 ozs	0.04-0.1 0.04-0.1		
	deltamethrin (Decis 1.5)	1.6-2.6 ozs	0.019-0.03		
	esfenvalerate (Asana XL 0.66)	5.8-9.6 ozs	0.03-0.0495		
	gamma-cyhalothrin (Prolex 1.25)	1.28-2.05 ozs	0.0125-0.02		
	lambda-cyhalothrin (Karate w/ Zeon 2.08) (Karate EC 1) (Silencer 1)	1.6-2.56 ozs 3.2-5.12 ozs 3.2-5.12 ozs	0.025-0.04 0.025-0.04 0.025-0.04		
	zeta-cypermethrin (Mustang Max 0.8)	2.64-3.6 ozs	0.0165-0.0225		
	Bollworm/Tobacco Budworm (ovicides)	methomyl (Lannate LV 2.4)	0.4-0.75 pt	0.12-0.225	Apply when large numbers of eggs are present and continue use while egg counts remain high.
profenofos (Curacron 8E)		0.125-0.25 pt	0.125-0.25		
thiodicarb (Larvin 3.2)		5-10 ozs	0.125-0.25		
Cutworm (seedling cotton)	acephate (Orthene 97) (Orthene 90S) (Acephate 97) (Acephate 90) (Spitfire 90SP)	0.75 lb 0.8 lb 0.75 lb 0.8 lb 0.8 lb	0.72 0.72 0.72 0.72 0.72	Apply when stand is threatened. Spot treatment is often adequate.  Pyrethroids provide good control of cutworms at low rates. See insecticide label for use rate.	
	chlorpyrifos (Lorsban 4E) (Chlorpyrifos 4E)	1.5-2 pts 1.5-2 pts	0.75-1.0 0.75-1.0		
	thiodicarb (Larvin 3.2)	24 ozs	0.6		
	Pyrethroids	see remarks			
	Fall Armyworm	diflubenzuron (Dimilin 2L)	4-8 ozs	0.0625-0.125	Apply when 10-20 small larvae ( $\frac{1}{4}$ inch in length) are found per 100 plants. Control of large larvae ( $\frac{1}{2}$ inch in length) is difficult; higher rates should be used.
		emamectin benzoate (Denim 0.16)	8-12 ozs	0.01-0.015	
indoxacarb (Steward 1.25SC)		9.2-11.3 ozs	0.09-0.11		
methomyl (Lannate LV 2.4)		1.5-2 pts	0.45-0.6		

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS AI/A	REMARKS
Fall Armyworm (cont.)	methoxyfenozide (Intrepid 2F)	4-10 ozs	0.0625-0.156	
	novaluron (Diamond 0.83EC)	6-12 ozs	0.39-0.77	
	profenofos (Curacron 8E)	0.75-1.0 pt	0.75-1.0	
	spinosad (Tracer 4)	2.14-2.9 ozs	0.067-0.089	
	thiodicarb (Larvin 3.2)	24-36 ozs	0.6-0.9	
	Pyrethroids	See remarks		Pyrethroids at high rates provide good suppression of larvae less than 1/8 inch in length.
Plant Bugs and Fleahoppers	acephate (Orthene 97)	0.25-0.50	0.24-0.49	Apply when plants are retaining less than 80% of pinhead squares and numerous plant bugs are observed.
	(Orthene 90S)	0.25-0.5	0.225-0.45	
	(Acephate 97)	0.25-0.50	0.24-0.49	
	(Acephate 90)	0.25-0.5	0.225-0.45	Diamond is an insect growth regulator and will not control adults.
	(Spitfire 90SP)	0.25-0.5	0.225-0.45	
	dicrotophos (Bidrin 8)	4-8 ozs	0.25-0.5	
	imidacloprid (Trimax Pro 4.44)	0.9-1.8 ozs	0.031-0.062	
	novaluron (Diamond 0.83EC)	9-12 ozs	0.058-0.077	
	oxamyl (Vydate C-LV 3.77)	8.5-17 ozs	0.25-0.50	
thiamethoxam (Centric 40 WG)	2 ozs	0.05		
Soybean Looper	emamectin benzoate (Denim 0.16)	8-12 ozs	0.01-0.15	Treatment is necessary when soybean loopers threaten to defoliate cotton with immature bolls.
	indoxacarb (Steward 1.25SC)	6.7-9.2 ozs	0.065-0.09	
	methoxyfenozide (Intrepid 2F)	4-10 ozs	0.039-0.077	
	novaluron (Diamond 0.83EC)	6-12 ozs	0.067-0.089	
	spinosad (Tracer 4)	2.14-2.9 ozs	0.067-0.089	
	thiodicarb (Larvin 3.2)	24-36 ozs	0.6-0.9	
Spider Mites	bifenthrin (Brigade 2EC)	3.8-6.4 ozs	0.06-0.1	Apply when mites are spreading. Spot treatment may be adequate. Thorough coverage is essential; a second application may be necessary.
	(Discipline 2EC)	3.8-6.4 ozs	0.06-0.1	
	(Fanfare 2EC)	3.8-6.4 ozs	0.06-0.1	
	propargite (Comite II 6)	1.25-2.25 pts	0.937-1.687	

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS AI/A.	REMARKS
Spider Mites (cont.)	profenofos (Curacron 8E)	0.5-0.75 pt	0.5-0.75	
	dicofol (Kelthane MF 4)	2-3 pts	1.0-1.5	
	spiromesifen (Oberon 2SC)	8-16 ozs	0.125-0.25	
Stink Bugs	ORGANOPHOSPHATE			Apply when 20% of medium sized bolls (the diameter of a quarter) display internal signs of feeding and stink bugs are observed or when stink bugs exceed 1 per 6 row-feet.
	acephate (Orthene 97)	0.5-0.75	0.49-0.72	
	(Orthene 90S)	0.54-0.8	0.49-0.72	Organophosphates should be used for control of brown stink bugs.
	(Acephate 97)	0.75	0.72	
	(Acephate 90)	0.8	0.72	
	(Spitfire 90SP)	0.8	0.72	
	dicrotophos (Bidrin 8)	4-8 ozs	0.25-0.5	
	methyl parathion	(several formulations)	0.5	
	PYRETHROIDS			
	beta-cyfluthrin (Baythroid XL 1)	1.6-2.6 ozs	0.0125-0.0205	
	bifenthrin (Brigade 2EC)	2.6-6.4 ozs	0.04-0.1	
	(Discipline 2EC)	2.6-6.4 ozs	0.04-0.1	
	(Fanfare 2EC)	2.6-6.4 ozs	0.04-0.1	
	cyfluthrin+imidacloprid (Leverage 2.7)	3.0 ozs	0.063	
	deltamethrin (Decis 1.5)	1.6-2.6 ozs	0.019-0.03	
	esfenvalerate (Asana XL 0.66)	5.8-9.6 ozs	0.03-0.0495	
	gamma-cyhalothrin (Prolex 1.25)	1.28-2.05 ozs	0.0125-0.02	
	lambda-cyhalothrin (Karate w/ Zeon 2.08)	1.6-2.56 ozs	0.025-0.04	
	(Karate EC 1)	3.2-5.12 ozs	0.025-0.04	
	(Silencer 1)	3.2-5.12 ozs	0.025-0.04	
zeta-cypermethrin (Mustang Max 0.8)	2.64-3.6 ozs	0.0165-0.0225		
OTHER				
oxamyl (Vydate C-LV 3.77)	11.0-17.0 ozs	0.33-0.5		
novaluron (Diamond 0.83EC)	9-12 ozs	0.058-0.077	Diamond is an insect growth regulator and will not control adults.	
Thrips (seedling cotton), At-Plant Treatments	acephate (Orthene 97ST)	Commercial seed	treatment	Apply acephate as a spray into the seed furrow at planting.
	(Orthene 97)	0.5-1.0	0.49-0.97	
	(Orthene 90S)	0.56-1.1	0.5-1.0	
	(Acephate 97)	0.5-1.0	0.49-0.97	
	(Acephate 90)	0.56-1.1	0.5-1.0	
	(Spitfire 90SP)	0.56-1.1	0.5-1.0	

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS AI/A.	REMARKS
Thrips (seedling cotton), At-Plant Treatments (cont.)	aldicarb (Temik 15G)	3.5 lbs	0.525	Apply Temik granules into the seed furrow at planting.
	thiamethoxam (Cruiser)	Commercial seed	treatment	
	imidacloprid (Gaucho Grande)	Commercial seed	treatment	
Thrips (seedling cotton), Foliar Spray	acephate (Orthene 97)	3.0 ozs	0.18	Apply when 2-3 thrips per plant are counted. Treatment is rarely necessary after plants have 5 true leaves and are growing vigorously.
	(Orthene 90S)	3.2 ozs	0.18	
	(Acephate 97)	3.0 ozs	0.18	
	(Acephate 90)	3.2 ozs	0.18	
	(Spitfire 90SP)	3.2 ozs	0.18	
	dicrotophos (Bidrin 8)	1.6-3.2 ozs	0.1-0.2	
dimethoate (Dimethoate 4)	0.25-0.5 pt	0.125-0.25		
Whitefly (banded winged)	acephate (Orthene 97)	0.5-1.0 lb	0.49-0.97	Apply when 50% of terminals in rapidly growing cotton are infested, or when honeydew is found on foliage or lint of older cotton with open bolls.
	(Orthene 90S)	0.5-1.0 lb	0.45-0.9	
	(Acephate 97)	0.5-1.0 lb	0.49-0.97	
	(Acephate 90)	0.5-1.0 lb	0.45-0.9	
	(Spitfire 90SP)	0.5-1.0 lb	0.45-0.9	
	methamidophos (Monitor 4)	0.5-1.0 pt	0.25-0.5	
	thiamethoxam (Centric 40 WG)	2 ozs	0.05	
Whitefly (silverleaf)	acetamiprid (Assail 30 SG)	4.0-5.3 ozs	0.075-0.1	Silverleaf whitefly is difficult to control with insecticides. Early detection and conservation of natural controls are important. Hairy leaf cottons are preferred by silverleaf whiteflies compared with smooth leaf varieties.
	bifenthrin (Brigade 2EC)	5.1-6.4 ozs	0.08-0.1	
	(Discipline 2EC)	5.1-6.4 ozs	0.08-0.1	Tank mixing Orthene with bifenthrin will improve control.
	(Fanfare 2EC)	5.1-6.4 ozs	0.08-0.1	
	fenpropathrin + acephate (Danitol 2.4 + Orthene 97)	8-16 ozs + 8-16 ozs	0.15-0.3 + 0.5-1.0	
	pyriproxyfen (Knack 0.86)	8 ozs	0.05375	
	spiromesifin (Oberon 2)	8-16 ozs.	0.125-0.25	
	buprofezin (Courier 40SC)	9-12.5 ozs.	0.25-0.35	