

# Appendix I

## COTTON INSECT CONTROL

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PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS
Aphid (Cotton)	acetamiprid (Assail 70 WP)	0.6-1.1 ozs	0.026-0.048	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.
	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.
	emamectin benzoate (Denim 0.16)	8-12 ozs	0.01-0.015	
	indoxacarb (Steward 1.25SC)	11.3 ozs	0.11	Due to the threat of pyrethroid resistance, non-pyrethroid insecticides are recommended for control of tobacco budworm.
	methomyl (Lannate LV 2.4)	1.5-2 pts	0.45-0.6	Resistance management: Do not treat successive generations with insecticides that have the same mode of action.
	profenofos (Curacron 8E)	0.75-1 pt	0.75-1.0	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.
	spinosad (Tracer 4)	1.4-2.9 ozs	0.045-0.089	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).
	thiodicarb (Larvin 3.2)	24-36 ozs	0.6-0.9	Double Threat is a prepackaged divided container of bifenthrin and spinosad. Use rate ranges from one container per 25 acres to one container per 40 acres.
spinosad+bifenthrin (Double-Threat CP)	see remarks			

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	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		

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS
Fall Armyworm	diflubenzuron (Dimilin 2L)	4-8 ozs	0.0625-0.125	Apply when 10-20 small larvae (<¼ inch in length) are found per 100 plants. Control of large larvae (>½ 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	
	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.  Diamond is an insect growth regulator and will not control adults.
	(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	
	(Spitfire 90SP)	0.25-0.5	0.225-0.45	
	acetamiprid (Assail 70 WP)	1.1 ozs	0.048	
	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. Control of cabbage loopers is rarely necessary. However, the more damaging soybean looper should not be mistaken for the cabbage looper.
	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	

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS
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	
	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	<b>ORGANOPHOSPHATES</b>			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.  Organophosphates should be used for control of brown stink bugs.
	acephate			
	(Orthene 97)	0.5-0.75	0.49-0.72	
	(Orthene 90S)	0.54-0.8	0.49-0.72	
	(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	
	<b>PYRETHROIDS</b>			
	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	
	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		
<b>OTHER</b>				
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.	
cyfluthrin+imidacloprid (Leverage 2.7)	3.0 ozs	0.063		

**COTTON INSECT CONTROL (continued)**

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS
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	
	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 70 WP)	1.7-2.3 ozs	0.075-0.01	Silverleaf whitefly is difficult to control. Correct identification is important.
	bifenthrin (Brigade 2EC)	2.6-6.4 ozs	0.04-0.1	Contact your county agent.
	(Discipline 2EC)	2.6-6.4 ozs	0.04-0.1	
	(Fanfare 2EC)	2.6-6.4 ozs	0.04-0.1	
	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	Knack is an insect growth regulator and its activity is slow.