

COTTON INSECTICIDE PERFORMANCE RATING, 2009

Rating Scale 0 = No control 10 = Excellent	Restricted Use (R)	Fall Armyworm	Beet Armyworm	Aphid**	Thrips	Western Flower Thrips	Cutworm	Grasshoppers	Bollworm	Tobacco Budworm	Cabbage Looper	Soybean Looper	Salt Marsh Caterpillar	Plant Bug (ES/LS)	Spider Mites**	Green and Southern Green Stink Bug	Brown Stink Bug	White Fly
Aeris	X				8	6	5											
Ammo	X	5	1	0	6	3	8	6	7	1	6	1	5	5/3	0	8	4	1
Asana XL	X	5	2	0	6	2	8	7	7	2	7	2	5	5/3	0	8	4	2
<i>Bacillus thuringiensis</i>		1	1	0	0	0	0	0	4	5	6	6	2	0	0	0	0	0
Baythroid XL	X	5	2		6	2	8	7	7	2	7	2	5	5/3	0	8	4	4
Bidrin	X	0	0	5	6	5	0	7	0	0	0	0	1	8	3	9	9	3
Bidrin XP	X	5	2	5	6	5	8	7	7	2	7	2	5	8	7	9	9	6
Brigadier	X	5	2	6	6	5	8	7	7	2	7	2	5	7	7	8	7	6
Brigade/Discipline/Fanfare	X	5	2		6	2	8	7	7	2	7	2	5	5/3	7	8	7	6
Carbine		0	0	8	5	1	0	2	0	0	0	0	0	7	0	2	2	0
Centric		0	0	8	4	4	0	2	0	0	0	0	0	8	0	7	6	8
Comite		0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0
Confirm		8	8	0	0	0	2	0	4	4	7	7	8	0	0	0	0	0
Cruiser		0	0	0	8	4	0	0	0	0	0	0	0	0	0	0	0	0
Curacron	X	6	4	3	2	2	7	2	7	7	3	3	5	4	3	1	1	2
Denim		8	9	0	1	1	7	2	8	9	9	9	3	0	5	0	0	0
Diamond		8			1	1	1		4	4				6*		4*	4*	
Dimethoate		0	0	5	6	2	0	6	0	0	0	0	1	5	3	5	4*	3
Di-Syston 15G, 8E	X				7	4		0										
Endigo	X	5	2	8	6	4	8	7	7	2	7	2	5	8	0	8	7	8
Gaucho					8	4	0	0										
Intrepid		8	9	0	0	0	5	0	6	6	9	9	9	0	0	0	0	0
Intruder		0	0	9	6		0	0	0	0	0	0	0	6	0	1	1	9
Karate Z/Silencer/LambdaCy	X	5	2	0	6	2	8	7	7	2	7	2	5	5/3	0	8	4	2
Dicofol		0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
Lannate	X	7	4	5	1	0	5	6	5	5	7	7	4	3	0	5	3	0
Larvin	X	7	5	0	0	0	5	5	6	6	8	8	4	0	0	2	2	0
Leverage	X	5	2	5	6	2	8	7	7	2	7	2	5	7	0	8	6	5
Malathion ULV/Fyfanan ULV		2	1	0	3	1	0	7	0	0	0	0	0	6	0	5	4	0
Methyl Parathion	X	2	2	3		1	3	8	1	1	1	1	3	3	0	9	9	0
Mustang Max/Respect	X	5	3	0	6	3	8	7	7	2	7	2	5	5/3	0	8	7	2
Oberon															9			
Orthene/Acephate/SpitFire		4	3	4	6	5	6	8	5	5	7	4	3	8	0	5	7	5
Prolex	X	5	2	0	6	2	8	7	7	2	7	2	5	5/3	0	8	4	2
Sevin		5	1	0	0	0	5	7	1	0	2	0	2	0	0	4	4	0
Steward		8	9	0	0	0	5	0	7	9	9	9	5	6	0	3	3	
Temik	X				9	6	0	0										
Tracer		7	9	0	1	1	7	2	7	9	9	9	3	0	0	0	0	0
Trimax/Alias/Imidacloprid		0	0	6	3	1	0	2	0	0	0	0	0	7	0	2	2	0
Vydate C-LV	X	0	0	1	3	1	0	6	0	0	0	0	0	7	0	8	7	0
Zeal															9			
Zephyr/Abba/Zorro	X	0	0	0	0	0	0	0	0	8	0	0	0	0	9	0	0	0

*Effective on nymphs only.

**Cotton aphids and spider mites can be flared by use of broad spectrum insecticides such as synthetic pyrethroids.

ES - early season; LS - late season

The performance ratings in the chart are for comparison purposes only and are not necessarily a measure of percent control.

QUICK-VIEW THRESHOLD GUIDE

Insect	Number Per Unit	Basic Sampling (Four Random Areas Per 40 Acres)
Tarnished plant bug (TPB)	3 TPB per 5 row feet or 1 TPB per 3 row feet (problem fields)	At least 2 drop cloth samples per area
Bollworm (BW) and Tobacco budworm (TBW)	Non-Bt cotton: 1 BW or 1 TBW (< 0.25 inch) per 2 row feet	At least 3.5 row feet whole-plant samples per area
	Bt cotton: 1 BW (≥ 0.25 inch) per 4 row feet	Same as above
Thrips	2-5 thrips per plant and damage present	At least 5 plants per area sampled with a cup or box
Aphids	50% of plants infested with actively growing colonies present, if no predators are present.	General visual observation, noting predator populations. See comments in aphid section.
Fall armyworm (FAW)	10-20 FAW per 100 plants	Examine as with BW and TBW, supplementing with drop cloth observations and counts in blooms
Spider mites	50% of plants infested with actively growing colonies present	General visual observation, noting symptoms of feeding injury to leaves
Stink bugs	1 stink bug per 6 row feet or 20% boll damage	At least 2 drop cloth samples per area or sample at least 25 quarter-sized bolls per area

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Fall Armyworm	emamectin benzoate Denim 0.16 EC	8-12 oz	0.01-0.015	10.7-16	The best control is achieved when applications are timed to coincide with egg hatch or small larvae. Check blooms for the presence of fall armyworms. Treat for 10-20 fall armyworms per 100 plants. Do not treat for presence of eggs alone in dual-protein Bt cotton (e.g., Bollgard II, WideStrike). Terminate sprays for fall armyworm control after NAWF = 5 + 500 heat units past the last effective boll date for your area.	21
	flubendiamide Belt 4 SC	2 oz	0.0625	64	Do not apply Belt more than 3 times per season.	28
	indoxacarb Steward 1.25 SC	9.2-11.3 fl oz	0.09-0.11	11.5-14		14
	methomyl (R) Lannate 2.4 LV Lannate 1.8 L	1 1/2-2 1/4 pt 2-3 pt	0.45-0.675	3.6-5.3 2.7-4	Lannate may redden cotton. If excessive, stop use or alternate with other insecticides. Use Lannate as an occasional spray in regular schedule but not more than every 10 days. After desired boll load is set on plants, up to 3 applications of Lannate at 3- to 5-day intervals may be used.	15
	methoxyfenozide Intrepid 2 F	4-10 oz	0.06-0.16	12.8-32		14
	novaluron Diamond 0.83 EC	6-12 oz	0.039-0.078	10.7-21.3		30
	profenofos (R) Curacron 8 E	3/4-1 pt	0.75-1.0	8-10.67	Continuous agitation during mixing, filling and during application is required.	14
	spinosad Tracer 4 SC	2.144-2.88 oz	0.067-0.09	45-60	Pyrethroids at maximum labeled rates will provide control if timed to egg lay and small larvae.	28
thiodicarb (R) Larvin 3.2 F	1 1/2-2 1/4 pt	0.6-0.9	3.5-5.3		28	

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Beet Armyworm	emamectin benzoate Denim 0.16 EC	6-8 oz	0.0075-0.01	16-21	Apply treatment when field scouting reveals 3-5 or more "hits" or egg clusters per 100 ft of row and eggs are hatching or larval feeding is observed. The best control is achieved when applications are timed to coincide with egg hatch or small larvae. Mixtures may increase activity against beet armyworms. Adding 1 qt of crop oil may aid in control. Beet armyworm infestations are difficult to control, and the listed insecticides may only give suppression.	21
	indoxacarb Steward 1.25 SC	9.2-11.3 fl oz	0.09-0.11	11.5-14		14
	methoxyfenozide Intrepid 2 F	4-10 oz	0.06-0.16	12.8-32		14
	spinosad Tracer 4 SC	2.144-2.88 oz	0.067-0.09	45-60		28
Aphids	<div style="border: 1px solid black; padding: 5px;"> <p>Aphid Management and Control Treatment for aphids alone seldom results in a yield increase. 1. Threshold: When populations are building and aphid colonies are present on approximately 50% of the plants: a. If there are less than 0.3 lady beetle adults AND less than 0.2 lady beetle larvae (per row-ft), <u>treat</u>. b. If there are at least 0.3 lady beetle adults OR 0.2 lady beetle larvae (per row-ft), <u>do not treat, but resample within 7 days</u>. i. If aphid population is still increasing after 7 days, <u>treat</u>, otherwise continue normal sampling interval. 2. The aphid fungus is very effective in reducing aphid populations in early to mid-July. Fields should be checked for fungus before treatments are applied. If confident the fungus is present in 15% of the aphid population, do not treat. 3. Contact your county agent for the most recent recommendations. 4. Resistance to neonicotinoid insecticides (Trimax, Intruder, Centric) is developing. Avoid unnecessary/automatic applications of these insecticides when aphids are present.</p> </div>					
	acetamiprid Intruder 70 WP	0.8-1.1 oz	0.035-0.05			28
	dicrotophos (R) Bidrin 8 EC	6-8 oz	0.33-0.5	16-24	Do not apply more than 16 oz of Bidrin per season during bloom. Do not make applications of Bidrin closer than 14 days apart.	30
	flonicamid Carbine 50 WG	1.41-2.02 oz	0.044-0.063		Do not apply more than 8.4 oz or 3 applications of Carbine per season, allowing at least 7 days between applications.	30
	imidacloprid Trimax Pro 4.44 SC Imidacloprid 4 F	0.9-1.8 oz 1.0-1.5 oz	0.031-0.062	71-142 85.3-128	Do not graze treated fields.	14
	thiamethoxam Centric 40 WG	1.25-2 oz	0.031-0.05		Do not exceed a total of 5 oz of Centric per acre during each growing season. Allow at least 5 days between applications. Do not apply Centric within 45 days of neonicotinoid seed treatment (Cruiser, Gaucho, Aeria, Avicta).	21
Thrips	In Furrow acephate		0.75-1.0		Orthene-treated seed may require one or more foliar treatments for thrips control.	21
	Acephate 90S IFS*	0.83-1.1 lb				
	Orthene 97 IFS	0.77-1.03 lb				
	Orthene 90S IFS	0.83-1.1 lb				
	Orthene-treated seed	Commercially available				
	aldicarb (R) Temik 15 G	3.33 lb	0.5		Do not use pyrethroids for thrips control. Apply Temik and Di-Syston in furrow with a recommended in-furrow fungicide.	90
	disulfoton (R) Di-Syston 15 G Di-Syston 8E IFS	4-6.7 lb 10.3-16.5 fl oz	0.6-1.0 0.65-1.0	7.8-12.4	Apply in-furrow at planting.	

*IFS = In-furrow spray

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Thrips	In Furrow					
	imidacloprid	per 100 lb seed			Seed treatment.	
	Gaucho 480	8 oz				
	Gaucho 600	6 oz				
	Gaucho Grande	9.3 oz				
	imidacloprid + thiodicarb (R)				Commercially available seed treatment.	
	Aeris	0.75 mg ai/seed				
	thiamethoxam Cruiser	7.65 oz/100 lb seed			Seed treatment.	
	Avicta Complete Pack					
	Foliar Sprays					
acephate 90 S		0.2		Treat with foliar sprays when first or second true leaf emerges with noticeable damage from thrips. On larger seedlings, treat for an average of 5 thrips per plant and damage that may cause delayed growth or stunting of plants.	21	
Acephate/Orthene/SpitFire	0.22 lb					
Orthene 97	0.21 lb					
dicrotophos (R)		0.2		Bidrin is limited to one application of 3.2 oz pre-square.	30	
Bidrin 8 EC	3.2 oz		40			
dimethoate		0.2			14	
Dimethoate 4 EC	6.4 oz		20			
Western Flower Thrips	acephate 90 S		0.5		Treatment should be made when at least 100 thrips are found per bloom plus some leaf damage. Treatment is seldom warranted. Populations may resurge to treatment levels 10 days after treatment.	21
	Orthene/SpitFire/Acephate	0.56 lb				
	Orthene 97	0.52 lb			Treat with foliar sprays when first or second true leaf emerges with noticeable damage from thrips. On larger seedlings, treat for an average of 5 thrips per plant and damage that may cause delayed growth or stunting of plants.	
aldicarb (R)		0.5		Temik is effective for early season control on seedling cotton.		
Temik 15 G	3.33 lb					
Cutworms	acephate 90 S		0.9		Maintain 2-3 plants per row ft. Cutworm control is most effective when ground applications are made and sprays are directed (banded) to the base and lower portion of the plant.	21
	Acephate/Orthene/SpitFire	1.0 lb				
	Orthene 97	0.93 lb				
	beta-cyfluthrin (R)		0.007-0.013		Stale seedbed/no-till fields, fields with cover crops and/or heavy spring weed pressure or fields with a history of cutworm problems should be considered high-risk fields. Consider preventative pyrethroid applications for cutworm in these situations utilizing a one-third band applicator behind the planter.	0
Baythroid XL	0.8-1.6 oz		80-160			
bifenthrin 2 EC (R)		0.04-0.1			14	
Brigade/Fanfare/Discipline/Sniper	2.6-6.4 oz		20-49.2			

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Cutworms (cont.)	cypermethrin (R) Ammo 2.5 EC	1.3-5.0 oz	0.025-0.1	25-100		14
	esfenvalerate 0.66 EC (R) Asana XL/Adjourn	3.2-9.6 oz	0.016-0.05	13.2-40		21
	gamma-cyhalothrin (R) Prolex 1.25 CS	1.02-1.54 oz	0.01-0.015	83-125		21
	lambda-cyhalothrin (R) Karate Z 2.08 CS	1.28-1.92 oz	0.02-0.03	66.6-100		21
	Silencer/Lambda-Cy 1 EC	1.92-2.56 oz		50-100		
	thiodicarb (R) Larvin 3.2 F	24 oz	0.6	5.3		28
	zeta-cypermethrin 0.8 EC (R) Mustang Max/Respect	1.28-1.92 oz	0.008-0.012	67-100		14
Bollworm	Pyrethroids				Treat for 7,000 (1 per 2 row feet) small larvae (< 0.25 inch) per acre (non- <i>Bt</i> cotton). If larger larvae (\geq 0.25 inch) begin to develop in fields, treat for 3,500 (1 per 4 row feet) larvae (non- <i>Bt</i> cotton and <i>Bt</i> cotton). When damage to squares occurs, treat for 14,000 damaged squares (1 per row foot) plus eggs and small larvae, timing insecticide applications to egg hatch (non- <i>Bt</i> cotton). Do not apply Belt more than 3 times per season. Terminate sprays for bollworm control after NAWF = 5 + 350 heat units or 350 heat units past the last effective boll date for your area.	
	bifenthrin 2 EC (R) Brigade/Fanfare/ Sniper/Discipline	2.56-6.4 oz	0.04-0.1	20-50		14
	beta-cyfluthrin (R) Baythroid XL 1EC	1.6-2.6 oz	0.012-0.013	49-80		0
	cypermethrin (R) Ammo 2.5 EC	2-5 fl oz	0.04-0.1	25-62.5		14
	flubendiamide Belt 4 SC	2-3 oz	0.062-0.094	42.7-64		28
	gamma-cyhalothrin (R) Prolex 1.25 CS	1.28-2.05 oz	0.0125-0.02	62.5-100		21
	lambda-cyhalothrin (R) Karate Z 2.08 CS	1.6-2.56 oz	0.025-0.04	50-80		21
	Silencer/Lambda-Cy 1 EC	3.2-5.12 oz		25-40		
	esfenvalerate 0.66 EC (R) Asana XL/Adjourn	5.8-9.6 oz	0.03-0.05	13-22		21
	zeta-cypermethrin 0.8 EC (R) Mustang Max/Respect	2.64-4.0 oz	0.0165-0.025	32-48		14
Organophosphates						
profenofos (R) Curacron 8 E	3/4-1 pt	0.75-1.0	8-10.6	14		

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Bollworm	<u>Carbamates</u>					
	methomyl (R)		0.45-0.675			15
	Lannate 1.8 L	2-3 pt		2.67-4	Lannate may redden cotton. If excessive, stop use or alternate with other insecticides. Use Lannate as an occasional spray in regular schedule but not more than every 10 days. After desired boll load is set on plants, up to 3 applications at 3- to 5-day intervals may be used.	
	Lannate 2.4 LV	1 1/2-2 1/4 pt		3.6-5.3		
	thiodicarb (R)		0.7-0.9			28
	Larvin 3.2 F	1 3/4-2 1/4 pt		3.5-4.6		
	<u>Other Classes of Insecticides</u>					
	emamectin benzoate		0.01-0.015			21
	Denim 0.16 EC	8-12 oz		10.7-16		
	indoxacarb		0.09-0.11			14
Steward 1.25 SC	9.2-11.3 fl oz		11.5-14			
spinosad		0.067-0.09			28	
Tracer 4 SC	2.144-2.88 fl oz		44-60			
Tobacco Budworm	<u>Bt Cotton Organophosphates</u>					
	profenofos (R)		1.0		Time insecticide application to egg hatch. Under heavy pressure, do not reduce rates. Treat for 7,000 (1 per 2 row feet) small larvae (less than 1/4 inch) per acre. If larger larvae begin to develop in fields, treat for 3,500 (1 per 4 row feet) larvae.	14
	Curacron 8 E	1 pt		8		
	<u>Carbamates</u>					
	methomyl (R)		0.45-0.675			15
	Lannate 1.8 L	2-3 pt		2.67-4	When damage to squares occurs, treat for 14,000 damaged squares (1 per row foot) plus eggs and small larvae.	
	Lannate 2.4 LV	1 1/2-2 1/4 pt		3.6-5.3		
	thiodicarb (R)		0.7-0.9			28
	Larvin 3.2 F	1 3/4-2 1/4 pt		3.5-4.6		
	<u>Other Classes of Insecticides</u>					
emamectin benzoate		0.01-0.015		Lannate may redden cotton. If excessive, stop use or alternate with other insecticides. Use Lannate as an occasional spray in regular schedule but not more than every 10 days. After desired boll load is set on plants, up to 3 applications at 3- to 5-day intervals may be used.	21	
Denim 0.16 EC	8-12 oz		10.7-16			
flubendiamide		0.062-0.094		Do not apply Belt more than 3 times per season.	28	
Belt 4 SC	2-3 oz		42.7-64			
indoxacarb		0.11		Terminate sprays for tobacco budworm control after NAWF = 5 + 350 heat units or 350 heat units past the last effective boll date for your area.	14	
Steward 1.25 SC	11.3 fl oz		11.5			
spinosad		0.067-0.09			28	
Tracer 4 SC	2.144-2.88 oz		44-60			
Cabbage Looper Soybean Looper	<i>Bacillus thuringiensis</i>	Check label.			Economic damage seldom occurs; treat when 25% defoliation occurs and bolls are still being developed.	
	emamectin benzoate		0.01-0.015			21
	Denim 0.16 EC	8-12 oz		10.7-16		
	indoxacarb		0.065-0.09			14
	Steward 1.25 SC	6.7-9.2 fl oz		14-19		
	methoxyfenozide		0.0625-0.125			14
	Intrepid 2 F	4-8 oz		16-32		
	spinosad		0.067-0.085			28
	Tracer 4 SC	2.14-2.9 oz		45-60		
thiodicarb (R)		0.6-0.9			28	
Larvin 3.2 F	1 1/2-2 1/4 pt		3.6-5.3			

COTTON INSECT CONTROL

2009 BOLLGARD (BOLLGARD II AND WIDESTRIKE HAVE NO REFUGE REQUIREMENTS)

1. **20% Sprayed Option** – This option amends the existing 20% (or 25 acres of non-Bt cotton for every 100 acres of Bt cotton) option with the additional requirement that all Bt cotton fields must be within one mile (preferably one-half mile) of the refuge (field border to field border).
2. **5% Unsprayed Option** – the requirement for the unsprayed option has been increased from approximately 4% (or 4 acres of non-Bt cotton for every 100 acres of Bt cotton) to a true 5%, or 5 acres of unsprayed non-Bt cotton refuge for every 95 acres of Bt cotton. Additionally, the unsprayed refuge must be at least 150 feet wide (approximately 48 rows in conventional row width cotton) and all associated Bt cotton fields must be within one-half mile (field border to field border) of the unsprayed refuge. These requirements apply to all 5% unsprayed option users regardless of the percent of cotton acres in that county planted to Bt cotton.
3. **5% Embedded Option** – a third option has been added for 2009 which is the “embedded” option. Unlike the 5% Unsprayed Option, this option allows the refuge to be treated with any insecticide at the same time as the Bt cotton is treated, as long as the refuge is “embedded” in the field or the “field unit.”

For large fields, 5% of the field would be planted to a non-Bt cotton variety, the rest with Bt cotton. For very large fields, more than one refuge block can be utilized. If the Bt cotton field needed treatment for bollworms (or any other pest), the entire field, including the refuge, could be sprayed with the same insecticide at the same time. The refuge could not be treated for cotton bollworms, budworms or pink bollworms independently of the associated Bt cotton field(s).

For smaller field situations, fields could be grouped into “field units” so that one of the smaller fields, or a portion of one of the fields, would serve as the “embedded” non-Bt cotton refuge. Likewise, this embedded refuge could be treated with the same insecticide at the same time that all of the associated Bt cotton fields were sprayed, but could not be treated for bollworms or budworms independently of the associated Bt cotton fields. Any fields contained within a one-mile square area can be considered a “field unit.”

As required for the 5% untreated option, the embedded refuge within a field or “field unit” must be at least 150 feet wide in all areas where cotton bollworms or tobacco budworms are a potential pest.

Interspersing rows of non-Bt cotton varieties and Bt cotton varieties within a field is NOT allowed where cotton bollworms or tobacco budworm can be significant pests.

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Tarnished Plant Bugs/Fleahoppers	acephate 90 S		0.5-0.75		First two weeks of squaring, treat for plant bugs if square set is 75% or less and plant bugs are present. Resistance Management 1. Avoid using OP's prior to bloom. 2. Rotate classes of insecticide when possible. 3. Tank mix classes of insecticides for better control. Treat for 3 plant bugs per 5 row feet on normal fruiting fields. If small square set is less than 75%, treat for 1 plant bug per 3 row feet. After last week of June in north Arkansas and first week of July in south Arkansas, if small square set is less than 85%, treat for 1 bug on 3 row feet. Do not apply more than 8.4 oz or 3 applications of Carbine per season, allowing at least 7 days between applications. Terminate sprays for plant bugs after NAWF = 5 + 250 heat units. Do not apply more than 0.5 lb ai Vydate per application and 4 lb ai per season. Do not graze treated fields. Do not exceed a total of 5 oz of Centric per acre during each growing season. Allow at least 5 days between applications. Do not apply Centric within 45 days of neonicotinoid seed treatment (Cruiser, Gaucho, Aeris, Avicta). Use higher rates of Centric on high populations on larger cotton.	21
	Acephate/Orthene/SpitFire	0.33-0.56 lb				
	Orthene 97	0.31-0.52 lb				
	dicrotophos (R)		0.3-0.5			
	Bidrin 8 EC	4.8-8 oz		16-26.7		
	dimethoate		0.3-0.5			
	Dimethoate 4 E	9.6-16 oz		8-13.3		
	flonicamid		0.053-0.089			
	Carbine 50 WG	1.7-2.85 oz				
	imidacloprid		0.062			
Trimax Pro 4.44 SC	1.8 oz		71			
Imidacloprid 4 F	1.5 oz		85.3			
oxamyl (R)		0.31-0.5		Do not apply more than 0.5 lb ai Vydate per application and 4 lb ai per season. Do not graze treated fields.	14	
Vydate 3.77 CLV	10.5-17 oz		7.5-12.2			
thiamethoxam		0.05		Do not exceed a total of 5 oz of Centric per acre during each growing season. Allow at least 5 days between applications. Do not apply Centric within 45 days of neonicotinoid seed treatment (Cruiser, Gaucho, Aeris, Avicta). Use higher rates of Centric on high populations on larger cotton.	21	
Centric 40 WG	1.5-2.5 oz					

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Tarnished Plant Bugs/Fleahoppers	<u>Tank Mix Insecticide</u>					
	novaluron Diamond 0.83 EC	6-9 oz	0.039-0.058	14.2-21.3	Effective on nymphs only. Tank mix with a recommended insecticide for control of adults. Do not apply more than 4 applications or 42 oz of Diamond per season.	30
Spider Mites	<u>Early Season</u>					
	abamectin 0.15 EC (R) Zephyr/Abba/Zorro	4-6 fl oz	0.00465-0.006975	21.3-32	Early season for Zephyr is before cotton is 10 inches tall.	21
	dicofol Dicofol 4 E	1 1/2-3 pt	0.75-1.5	2.66-5.3	Dicofol should not be applied more than two times per season. Treat infested areas when 50% of plants are infested. Spot treatments may be beneficial in preventing spread of mites across the field.	30
	<u>Late Season</u>					
	abamectin 0.15 EC (R) Zephyr/Abba/Zorro	8-16 fl oz	0.0188-0.0093	8-16	Treat infestations when 50% of plants are infested. Early-season spot treatments may be beneficial in preventing spread of mites across the field. Do not apply more than 32 fl oz or more than 2 applications per acre of Zephyr in any growing season. Do not graze or feed cotton foliage.	21
	bifenthrin 2 EC (R) Brigade/Sniper/ Fanfare/Discipline	3.8-6.4 oz	0.06-0.1	20-33	Avoid unnecessary use of pyrethroid insecticides as they can flare spider mite populations.	14
	<u>Season Long</u>					
	etoxazole Zeal	0.66-1.0 oz	0.03-0.045			28
	fenpyroximate Portal 5EC	1-2 pt	0.05-0.1	4-8	No applications by air. Do not apply more than 2 pints per season.	14
	propargite Comite 6.55	1 1/2-2 pt	1.23-1.64	4-5.3	Do not apply Comite until cotton is 12 inches tall. When spider mite populations are high, 2 applications at a 5- to 7-day interval are required using 25-40 gals water by ground and 5-15 gals by air.	50
spiromesifen Oberon 2 SC	8-16 oz	0.125-0.25	8-16		30	
Whiteflies	acephate Orthene 90 S Orthene 97	0.56-1.1 lb 0.52-1.1 lb	0.5-1.0			21
	acetamiprid Intruder 70 WP	1.7- 2.3 oz	0.05			28
	bifenthrin 2 EC (R) Brigade/Sniper/ Fanfare/Discipline	3.8-6.4 oz	0.06-0.1	20-33	Treat infested areas when 50% of the plants are infested.	14
	thiamethoxam Centric 40 WG	2 oz	0.05		Do not exceed a total of 5 oz of Centric per acre during each growing season. Allow at least 5 days between applications. Do not apply Centric within 45 days of neonicotinoid seed treatment (Cruiser, Gaucho, Aeris, Avicta).	21

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest	
Brown Stink Bugs	acephate 90S Orthene/Acephate Orthene	0.83 lb 0.77 lb	0.75		Treat when stink bugs exceed 1 bug per 60 row feet or when 20% of medium bolls display internal signs of feeding and stink bugs are observed. Check at least 25-50 bolls per 40 acres. Terminate sprays for stink bugs after NAWF = 5 + 450 heat units.	21	
	bifenthrin 2 EC (R) Brigade/Sniper/ Fanfare/Discipline	3.8-6.4 oz	0.06-0.1	20-33		14	
	dicthophos (R) Bidrin 8 EC	8 oz	0.5	16		30	
	methyl parathion (R) Methyl 4 EC Pennacap-M 2	1 pt 2 pt	0.5	8 4		5	
Stink Bugs (Green and Southern Green)	acephate 90 Acephate/Orthene/SpitFire Orthene 97	0.83 lb 0.77 lb	0.75		Treat when stink bugs exceed 1 bug per 6 row feet or when 20% of medium bolls display internal signs of feeding and stink bugs are observed. Check at least 25-50 bolls per 40 acres. Many pyrethroids, at bollworm rates, will provide good control of "green" species, but "brown" species are less susceptible to insecticides, specifically pyrethroids. Terminate sprays for stink bugs after NAWF = 5 + 450 heat units.	21	
	beta-cyfluthrin (R) Baythroid XL 1 EC	1.6-2.6 oz	0.013-0.021	48-80		0	
	esfenvalerate 0.66 EC (R) Asana XL/Adjourn	5.8-9.6 oz	0.03-0.05	13-22		21	
	lambda-cyhalothrin (R) Karate Z 2.08 CS	1.6-2.56 oz	0.025-0.04	50-80		21	
	zeta-cypemethrin 0.8 EC (R) Mustang Max/Respect	2.64-3.6 oz	0.016-0.022	35.6-48.5		14	
	bifenthrin 2 EC (R) Brigade/Sniper/ Fanfare/Discipline	3.8-6.4 oz	0.06-0.1	20-33		14	
	dicthophos (R) Bidrin 8 EC	4.8-8.0 oz	0.3-0.5	16-26.7		Do not apply more than 16 oz Bidrin per season during bloom. Do not make applications of Bidrin closer than 14 days apart.	30
	methyl parathion (R) Methyl 4 EC Pennacap-M 2	1 pt 2 pt	0.5	8 4		5	
	oxamyl (R) Vydate 3.77 CLV	13.6 oz	0.4	9.4		14	

COTTON INSECT CONTROL

Insect	Insecticide	Formulation/Acre	Lb ai/Acre	Acres/Gallon	Application/Comments	Minimum Days from Last Application to Harvest
Multiple Pests	chloryrifos + gamma-cyhalothrin (R) Cobalt 2.54 EC	19-38 oz	0.38-0.76	3.4-6.7	For control of multiple pests exceeding thresholds, including but not limited to the following: bollworm, aphids, plant bugs and stink bugs.	21
	dicrotophos/bifenthrin (R) Bidrin XP	4.0-6.4 oz	0.31-0.5	20-32		30
	imidacloprid/bifenthrin (R) Brigadier 2 SC	3.8-7.7 oz	0.06-0.12	16.6-33.7		14
	imidacloprid/cyfluthrin (R) Leverage 2.7 SC	3.0-3.75 oz	0.063-0.079	34-42.7		14
	lambda-cyhalothrin + thiamethoxam (R) Endigo 2.06 ZC	5.5 oz	0.09	23.3		21