

SOYBEAN

SOYBEAN INSECT CONTROL

Phillip Roberts, Extension Entomologist and Robert M. McPherson, Research Entomologist

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS AND PRECAUTIONS
Bean Leaf Beetle	bifenthrin (Brigade) 2EC (Discipline) 2EC	2.1-6.4 ozs. 2.1-6.4 ozs.	0.033-0.1 0.033-0.1	<p>WHEN TO TREAT FOR SOYBEAN INSECTS</p> <p>SOIL INSECTS (Wireworms, white grubs, whitefringed beetle larvae): Treat fields with a history of QR if these insects are found during land preparation at an average of 1 per square yard.</p> <p>SEEDLING PESTS: Treat preventively if damage is expected due to planting situation <u>or</u> treat if stand is being threatened. From seedling emergence until plants are 12 inches tall, treat for:</p> <ol style="list-style-type: none"> 1. <u>lesser cornstalk borer</u> when 10% of seedlings are infested with larvae; 2. <u>cutworms</u> when 10% of stand is lost and larvae are still present; 3. <u>sugarcane beetle</u> (regardless of plant size) when 10% of plants are damaged or dead and beetles are still present; 4. <u>three-cornered alfalfa hopper</u> when 10% of plants are infested with nymphs and/or adults. <p>It is very unusual for the above pests (except sugarcane beetle) to damage soybeans larger than 12 inches.</p> <p>FOLIAGE FEEDERS (beet armyworms, grasshoppers, blister beetles, loopers, corn earworm, velvetbean caterpillar, green cloverworm, Mexican bean beetle, bean leaf beetle, Japanese beetle, whitefringed beetle adults): Prior to full bloom, foliage feeders should be controlled when the defoliation level reaches 30%. From full bloom up to mid - pod-fill, treat when the defoliation level reaches 15%. After full-pod-fill, treat when the defoliation level reaches 25%. It usually requires an average of 8 or more green cloverworms, loopers or velvetbean caterpillars (1/2 inch long or longer) per foot of row to cause this much defoliation. It usually requires 4 corn earworms (1/2 in. long or longer) per foot of row to cause this much defoliation.</p> <p>NOTE: The green cloverworm seldom requires control measures in Georgia. It is very common on soybeans throughout the season but does not occur in sufficient numbers to cause economic defoliation losses. It usually requires 15 green cloverworm larvae per foot of row to cause threshold level defoliation. This species infests soybeans early at low levels and serves as a good host for numerous insect parasites and predators, spiders and diseases. These beneficials, in turn, are of great value in suppressing infestations of economically important insect pests later in the season.</p> <p>NOTE: Beet armyworm infestations sometimes occur on seedling beans. When this occurs, controls should not be applied until the defoliation level exceeds 50% because soybeans can compensate for this early-season damage.</p> <p>POD FEEDERS: <u>Pod feeding caterpillars</u>, such as the corn earworm and fall armyworm should be controlled at any time after bloom when an average of <u>2 per foot of row</u> (1/2 inch long or longer) are found. After full bloom and up to the mid-pod-fill stage, stink bugs should be controlled when an average of <u>1 per 3 feet of row</u> is found. After mid-pod-fill, through maturity, they should be controlled when an average of <u>1 per foot of row</u> is found. If beans are being grown for seed, <u>1 stink bug per 6 feet of row</u> will justify control measures.</p>
	carbaryl (Sevin) 80S (Sevin) 4F	0.625-1.25 lbs. 1-2 pts.	0.5-1.0 0.5-1.0	
	beta-cyfluthrin (Baythroid XL) 1	1.6-2.8 ozs.	0.0125-0.022	
	gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25	0.77-1.28 ozs. 0.77-1.28 ozs.	0.0075-0.0125 0.0075-0.0125	
	lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1	0.96-1.6 ozs. 1.92-3.2 ozs.	0.015-0.025 0.015-0.025	
	methyl parathion (PennCap-M) 2	2-3 pts.	0.5-0.75	
	zeta-cypermethrin (Mustang Max) .8EC	2.8-4 ozs.	0.0175-0.025	
Beet Armyworm	flubendiamide (Belt) 4SC	2.0-3.0 ozs	0.063-0.094	<p>NOTE: The green cloverworm seldom requires control measures in Georgia. It is very common on soybeans throughout the season but does not occur in sufficient numbers to cause economic defoliation losses. It usually requires 15 green cloverworm larvae per foot of row to cause threshold level defoliation. This species infests soybeans early at low levels and serves as a good host for numerous insect parasites and predators, spiders and diseases. These beneficials, in turn, are of great value in suppressing infestations of economically important insect pests later in the season.</p> <p>NOTE: Beet armyworm infestations sometimes occur on seedling beans. When this occurs, controls should not be applied until the defoliation level exceeds 50% because soybeans can compensate for this early-season damage.</p> <p>POD FEEDERS: <u>Pod feeding caterpillars</u>, such as the corn earworm and fall armyworm should be controlled at any time after bloom when an average of <u>2 per foot of row</u> (1/2 inch long or longer) are found. After full bloom and up to the mid-pod-fill stage, stink bugs should be controlled when an average of <u>1 per 3 feet of row</u> is found. After mid-pod-fill, through maturity, they should be controlled when an average of <u>1 per foot of row</u> is found. If beans are being grown for seed, <u>1 stink bug per 6 feet of row</u> will justify control measures.</p>
	indoxacarb (Steward) 1.25 EC	5.6-11.3 ozs.	0.055-0.1	
	methoxyfenozide (Intrepid) 2F	4-8 ozs.	0.06-0.12	
	spinosad (Tracer) 4SC	1.5-2 ozs.	0.047-0.062	
	thiodicarb (Larvin) 3.2L	10-30 ozs.	0.25-0.75	
Blister Beetles	carbaryl (Sevin) 80S (Sevin) 4F	0.625-1.25 lbs. 1-2 pts.	0.5-1.0 0.5-1.0	<p>NOTE: Beet armyworm infestations sometimes occur on seedling beans. When this occurs, controls should not be applied until the defoliation level exceeds 50% because soybeans can compensate for this early-season damage.</p> <p>POD FEEDERS: <u>Pod feeding caterpillars</u>, such as the corn earworm and fall armyworm should be controlled at any time after bloom when an average of <u>2 per foot of row</u> (1/2 inch long or longer) are found. After full bloom and up to the mid-pod-fill stage, stink bugs should be controlled when an average of <u>1 per 3 feet of row</u> is found. After mid-pod-fill, through maturity, they should be controlled when an average of <u>1 per foot of row</u> is found. If beans are being grown for seed, <u>1 stink bug per 6 feet of row</u> will justify control measures.</p>
	beta-cyfluthrin (Baythroid XL) 1	1.6-2.8 ozs.	0.0125-0.022	
	gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25	1.28-1.54 1.28-1.54	0.0125-0.015 0.0125-0.015	
	lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1	1.6-1.92 ozs. 3.2-3.84 ozs.	0.025-0.03 0.025-0.03	
	zeta-cypermethrin (Mustang Max) .8EC	2.8-4 ozs.	0.0175-0.025	

SOYBEAN INSECT CONTROL (continued)

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS AND PRECAUTIONS																																				
Corn Earworm	bifenthrin (Brigade) 2EC (Discipline) 2EC	2.1-6.4 ozs. 2.1-6.4 ozs.	0.033-0.1 0.033-0.1	<p>IMPORTANT: Reserve materials containing methyl parathion for late season use. This material is very toxic to beneficial insects and spiders which help keep down insect pest infestations. Late season conservation of beneficials is not as critical as it is in the early season since it is unlikely a new pest infestation will have time to develop if a late treatment has to be made for velvetbean caterpillar or stink bugs.</p> <p>MITES: Treat if infestations become general over the field and leaf discoloration is becoming evident.</p> <p>If using a 15-inch diameter sweep net, and taking several 25-sweep samples in each field, the following treatment threshold levels can be used:</p> <p align="center">SWEEP NET</p> <table border="0"> <thead> <tr> <th><u>Pests</u></th> <th><u>Average # Per 25 Sweeps</u></th> </tr> </thead> <tbody> <tr> <td>Corn Earworms</td> <td align="center">5</td> </tr> <tr> <td>Green Cloverworms</td> <td align="center">60</td> </tr> <tr> <td>Soybean Loopers</td> <td align="center">20 sm. or 15 lg.</td> </tr> <tr> <td>Stink Bugs</td> <td></td> </tr> <tr> <td> (bloom to mid-pod)</td> <td align="center">3</td> </tr> <tr> <td> (Mid-pod to maturity)</td> <td align="center">6</td> </tr> <tr> <td>Three-cornered Alfalfa Hopper</td> <td align="center">25</td> </tr> <tr> <td>Velvetbean Caterpillar</td> <td align="center">40</td> </tr> </tbody> </table> <p>If using a ground cloth, make 10 random 3-foot examinations for each 20 acres being surveyed.</p> <p align="center">GROUND CLOTH</p> <table border="0"> <thead> <tr> <th><u>Pests</u></th> <th><u>Average # Per 1 Foot of Row</u></th> </tr> </thead> <tbody> <tr> <td>Corn Earworms</td> <td align="center">2</td> </tr> <tr> <td>Green Cloverworms</td> <td align="center">10</td> </tr> <tr> <td>Soybean Loopers</td> <td align="center">8 sm. or 6 lg.</td> </tr> <tr> <td>Stink Bugs</td> <td></td> </tr> <tr> <td> (bloom to mid-pod)</td> <td align="center">0.33</td> </tr> <tr> <td> (Mid-pod to maturity)</td> <td align="center">1</td> </tr> <tr> <td>Three-cornered Alfalfa Hopper</td> <td align="center">3</td> </tr> <tr> <td>Velvetbean Caterpillar</td> <td align="center">8</td> </tr> </tbody> </table>	<u>Pests</u>	<u>Average # Per 25 Sweeps</u>	Corn Earworms	5	Green Cloverworms	60	Soybean Loopers	20 sm. or 15 lg.	Stink Bugs		(bloom to mid-pod)	3	(Mid-pod to maturity)	6	Three-cornered Alfalfa Hopper	25	Velvetbean Caterpillar	40	<u>Pests</u>	<u>Average # Per 1 Foot of Row</u>	Corn Earworms	2	Green Cloverworms	10	Soybean Loopers	8 sm. or 6 lg.	Stink Bugs		(bloom to mid-pod)	0.33	(Mid-pod to maturity)	1	Three-cornered Alfalfa Hopper	3	Velvetbean Caterpillar	8
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carbaryl (Sevin) 80S (Sevin) 4F	0.625-1.875 lbs. 1-3 pts.	0.5-1.5 0.5-1.5																																						
beta-cyfluthrin (Baythroid XL) 1	1.6-2.8 ozs.	0.0125-0.022																																						
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esfenvalerate (Asana XL) .66EC	5.8-9.6 ozs.	0.03-0.05																																						
indoxacarb (Steward) 1.25 EC	5.6-11.3 ozs.	0.055-0.1																																						
methomyl (Lannate) 2.4LV	0.75-1.5 pts.	0.225-0.45																																						
spinosad (Tracer) 4SC	1.5-2 ozs.	0.047-0.062																																						
thiodicarb (Larvin) 3.2L	10-30 ozs.	0.25-0.75																																						
zeta-cypermethrin (Mustang Max) .8EC	2.8-4 ozs.	0.0175-0.025																																						
Cutworms	bifenthrin (Brigade) 2EC (Discipline) 2EC	2.1-6.4 ozs. 2.1-6.4 ozs.	0.033-0.1 0.033-0.1	<p>Stink Bugs</p> <p> (bloom to mid-pod) 0.33</p> <p> (Mid-pod to maturity) 1</p> <p>Three-cornered Alfalfa Hopper 3</p> <p>Velvetbean Caterpillar 8</p>																																				
	chlorpyrifos (Lorsban) 4E	2 pts.	1.0																																					
	beta-cyfluthrin (Baythroid XL) 1	0.8-1.6 ozs.	0.0065-0.0125																																					
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	zeta-cypermethrin (Mustang Max) .8EC	1.28-4 ozs.	0.008-0.025																																					

SOYBEAN INSECT CONTROL (continued)

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS AND PRECAUTIONS
Fall Armyworm	flubendiamide (Belt) 4SC	2.0-3.0 ozs	0.063-0.094	<p align="center">OBSERVE THE FOLLOWING PESTICIDE USE PRECAUTIONS:</p> <p>Apply any of the materials listed in this table with aerial or ground equipment (unless otherwise noted for each material) as label directs. Where a range of rates is given in the table, and if label does not direct otherwise, use the low rate on small plants or small larvae and the high rate on larger plants (especially, if lapped in the middle) or large larvae.</p> <p><u>acephate (Orthene)</u>: Do not apply within 14 days of harvest. Do not graze or cut vines for hay or forage. Do not apply more than 1.5 lbs. active ingredient per acre per season.</p>
	indoxacarb (Steward) 1.25 EC	5.6-11.3 ozs.	0.055-0.1	
	methomyl (Lannate) 2.	1.5 pts.	0.45	
	spinosad (Tracer) 4SC	1.5-2 ozs.	0.047-0.062	
	thiodicarb (Larvin) 3.2L	10-30 ozs.	0.25-0.75	
Grasshoppers	bifenthrin (Brigade) 2EC (Discipline) 2EC	2.1-6.4 ozs. 2.1-6.4 ozs.	0.033-0.1 0.033-0.1	<p><u>bifenthrin (Brigade)</u>: Do not apply more than 0.3 lbs. per acre per season, minimum application interval is 30 days. Do not apply within 18 days of harvest.</p> <p><u>beta-cyfluthrin (Baythroid XL)</u>: Pre-harvest interval or feeding of dry vines is 45 days. Do not make more than 4 applications per season.</p> <p><u>carbaryl (Sevin)</u>: Highly toxic to bees.</p> <p><u>chlorpyrifos (Lorsban 4E)</u>: Do not apply more than 6 pints of Lorsban 4E per acre per season. Do not apply last treatment within 28 days of harvest nor apply last two treatments closer than 14 days apart. Do not allow livestock to graze in treated areas nor otherwise feed treated soybean forage to meat or dairy animals within 14 days after application. Do not <u>feed</u> straw from treated soybeans to meat or dairy animals within 28 days after application.</p> <p><u>chlorpyrifos (Lorsban 15G)</u>: Do not make more than one application per season.</p> <p><u>clothianidin (Belay 2.13)</u>: Do not apply foliar treatments less than 7 days apart. Do not apply within 21 days of harvest. Do not make foliar applications of Belay insecticide in fields treated with a neonicotinoid insecticide seed treatment(s) within 45 days of planting. Regardless of formulation or type of application (foliar or seed treatment), do not apply more than 0.2 lb ai of clothianidin per acre per season. Do not graze or feed soybean forage and hay to livestock.</p>
	acephate (Orthene 90S) (Orthene 97)	0.56 lb. 0.5 lb.	0.5 0.48	
	beta-cyfluthrin (Baythroid XL) 1	2.0-2.8 ozs.	0.0155-0.022	
	gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25	1.28-1.54 ozs. 1.28-1.54 ozs.	0.0125-0.015 0.0125-0.015	
	lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1	1.6-1.92 ozs. 3.2-3.84 ozs.	0.025-0.03 0.025-0.03	
	methyl parathion (PennCap-M) 2	2-3 pts.	0.5-0.75	
	zeta-cypermethrin (Mustang Max) .8EC	3.2-4 ozs.	.02-.025	
	Green Cloverworm	carbaryl (Sevin) 80S (Sevin) 4P	0.625-1.25 lbs. 1-2 pts.	
beta-cyfluthrin (Baythroid XL) 1		0.8-1.6 ozs.	0.0065-0.0125	
flubendiamide (Belt) 4SC		2.0-3.0 ozs	0.063-0.094	
gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25		0.77-1.28 ozs. 0.77-1.28 ozs.	0.0075-0.0125 0.0075-0.0125	
lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1		0.96-1.6 ozs. 1.92-3.2 ozs.	0.015-0.025 0.015-0.025	
diflubenzuron (Dimilin) 2L		2-4 ozs.	.03-.063	
esfenvalerate (Asana XL) .66EC		2.9-5.8 ozs.	0.015-0.03	
indoxacarb (Steward) 1.25 EC		5.6-11.3 ozs.	0.055-0.1	

SOYBEAN INSECT CONTROL (continued)

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS AND PRECAUTIONS
Green Cloverworm (cont.)	methomyl (Lannate) 2.4LV	0.4-0.75 pt.	0.12-0.225	<p><u>flubendiamide (Belt)</u>: Pre-harvest interval; Dry seed 14 days; Forage and hay–3 days. Do not apply more than 3 fl oz per acre per 5-day interval. Do not apply more than 6 fl ozs per acre per crop season.</p> <p><u>indoxacarb (Steward)</u>: Will not provide acceptable control of velvetbean caterpillar. Do not feed or graze livestock on treated fields.</p> <p><u>methomyl (Lannate)</u>: Apply Lannate as needed. Do not apply within 10 days of grazing, 12 days of harvest for hay, or 14 days of harvest for beans.</p> <p><u>methoxyfenozide (Intrepid 2F)</u>: Do not apply more than 64 fl. ozs. or make more than 4 applications per season. Do not apply within 7 days of harvest of hay and forage or within 14 days of harvest of seed.</p> <p><u>methyl parathion</u>: Do not apply within 20 days of grazing or hay or bean harvest.</p>
	methoxyfenozide (Intrepid) 2F	4-8 ozs.	0.06-0.12	
	methyl parathion (4EC) (PennCap-M) 2	1-2 pts. 2-3 pts.	0.5-1.0 0.5-0.75 0.031-0.062	
	spinosad (Tracer) 4SC	1-2 ozs.	0.25-0.75	
	thiodicarb (Larvin) 3.2L	10-30 ozs.	0.0175-0.025	
	zeta-cypermethrin (Mustang Max) .8EC	2.8-4 ozs.		
Japanese Beetle	carbaryl (Sevin) 80S (Sevin) 4F	0.625-1.25 lbs. 1-2 pts.	0.5-1.0 0.5-1.0	<p><u>methyl parathion (PennCap_M)</u>: Do not apply more than twice per season. Do not apply within 20 days of grazing or hay or bean harvest.</p> <p><u>spinosad (Tracer)</u>: Do not apply within 28 days of harvest. Do not feed or graze livestock on treated foliage. Do not apply more than 6 ounces per acre per year.</p> <p><u>thiodicarb (Larvin)</u>: Do not feed forage, hay, or straw to livestock. Do not apply less than 28 days before harvest.</p> <p><u>zeta-cypermethrin (Mustang Max)</u>: Do not graze or harvest treated soybean forage, straw or hay for livestock feed. Do not exceed 0.15 lb a.i. per acre per season.</p>
	beta-cyfluthrin (Baythroid XL) 1	1.6-2.8 ozs.	0.0125-0.022	
	gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25	1.28-1.54 ozs. 1.28-1.54 ozs.	0.0125-0.015 0.0125-0.015	
	lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1	1.6-1.92 ozs. 3.2-3.84 ozs.	0.025-0.03 0.025-0.03	
	zeta-cypermethrin (Mustang Max) .8EC	2.8-4 ozs.	0.0175-0.025	
Lesser Cornstalk Borer	(Lorsban) 15G	8 ozs. per 1000 feet of row	1.0	
	(Lorsban) 4E	2 pts.	1.0	
Loopers, Soybean	flubendiamide (Belt) 4SC	2.0-3.0 ozs	0.063-0.094	
	indoxacarb (Steward) 1.25 EC	5.6-11.3 ozs	0.055-0.1	
	methoxyfenozide (Intrepid) 2F	4-8 ozs.	0.06-0.12	
	spinosad (Tracer) 4SC	1-2 ozs.	0.031-0.062	
	thiodicarb (Larvin) 3.2L	18-30 ozs.	0.45-0.75	
	Note: Soybean loopers are highly resistant to pyrethroid insecticides and should not be used for control.			
Mites	bifenthrin (Brigade) 2EC (Discipline) 2EC	5.12-6.4 ozs. 5.12-6.4 ozs.	0.08-0.1 0.08-0.1	
	dimethoate (4EC)	1 pt.	0.5	

SOYBEAN INSECT CONTROL (continued)

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS AND PRECAUTIONS
Stink Bugs	acephate (Orthene 90S) (Orthene 97)	0.56-1.1 lb. 0.5-1 lb.	0.5-1.0 0.5-0.97	
	beta-cyfluthrin (Baythroid XL) 1	1.6-2.8 ozs.	0.0125-0.022	
	bifenthrin (Brigade) 2EC (Discipline) 2EC	2.1-6.4 ozs. 2.1-6.4 ozs.	0.033-0.1 0.033-0.1	
	clothianidin (Belay) 2.13	3-6 ozs.	0.05-0.1	
	gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25	1.28-1.54 ozs. 1.28-1.54 ozs.	0.0125-0.015 0.0125-0.015	
	lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1	1.6-1.92 ozs. 3.2-3.84 ozs.	0.025-0.03 0.025-0.03	
	methyl parathion (4EC) (PennCap M) 2	1 pt. 1-3 pts.	0.5 0.25-0.75	
	zeta-cypermethrin (Mustang Max) .8EC	3.2-4 ozs.	0.02-0.025	
Sugarcane Beetles	The treatments for lesser cornstalk borer give helpful control.			
Three-cornered Alfalfa Hopper	acephate (Orthene 90S) (Orthene 97)	0.83-1.1 lb. 0.75-1 lb.	0.75-1.0 0.73-0.97	
	carbaryl (Sevin) 80S (Sevin) 4F	1.25 lbs. 2 pts.	1.0 1.0	
	beta-cyfluthrin (Baythroid XL) 1	1.6-2.8 ozs.	0.0125-0.022	
	gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25	0.77-1.28 ozs. 0.77-1.28 ozs.	0.0075-0.0125 0.0075-0.0125	
	lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1	0.96-1.6 ozs. 1.92-3.2 ozs.	0.015-0.025 0.015-0.025	
	methyl parathion (PennCap-M) 2FM	2-3 pts.	0.5-0.75	
	zeta-cypermethrin (Mustang Max) .8E	2.8-4 ozs.	0.0175-0.025	

SOYBEAN INSECT CONTROL (continued)

PEST	INSECTICIDE	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REMARKS AND PRECAUTIONS
Velvetbean Caterpillar	carbaryl (Sevin) 80S (Sevin) 4F	0.625-1.25 lbs. 1-2 pts.	0.5-1.0 0.5-1.0	
	beta-cyfluthrin (Baythroid XL) 1	1.6-2.8 ozs.	0.0125-0.022	
	flubendiamide (Belt) 4SC	2.0-3.0 ozs	0.063-0.094	
	gamma-cyhalothrin (Prolex) 1.25 (Declare) 1.25	0.77-1.28 ozs. 0.77-1.28 ozs	0.0075-0.0125 0.0075-0.0125	
	lambda-cyhalothrin (Karate Zeon) 2.08 (Silencer) 1	0.96-1.6 ozs. 1.92-3.2 ozs.	0.015-0.025 0.015-0.025	
	diflubenzuron (Dimilin) 2L	2-4 ozs.	.03-.063	
	esfenvalerate (Asana XL) .66EC	2.9-5.8 ozs.	0.015-0.03	
	methomyl (Lannate) 2.4LV	0.4-0.75 pt.	0.12-0.225	
	methoxyfenozide (Intrepid) 2F	4-8 ozs.	0.06-0.12	
	methyl parathion (4EC) (PennCap M) 2	1-2 pts. 2-3 pts	0.5-1.0 0.5-0.75	
	spinosad (Tracer) 4SC	1-2 oz.	0.031-0.062	
	thiodicarb (Larvin) 3.2L	10-30 ozs.	0.25-0.75	
	zeta-cypermethrin (Mustang Max) .8EC	2.8-4 ozs.	0.0175-0.025	

Premixed or Co-Packaged Insecticide Products:

Products listed below are available as premixes or co-packages of two insecticidal active ingredients. When using premixed or co-packaged products, be sure the use of all active ingredients is necessary. Unnecessary applications or use of reduced rates of an active ingredient may lead to or intensify insecticide resistance.

imidacloprid, cyfluthrin (Leverage)

lambda-cyhalothrin, thiomethoxam (Endigo)

Spinosad, gamma-cyhalothrin (Consero)

zeta-cypermethrin, bifenthrin (Hero)

chlorpyrifos, lambda-cyhalothrin (Cobalt Advanced)

SOYBEAN DISEASE CONTROL

Bob Kemeraït, Extension Plant Pathologist

DISEASE	CHEMICAL AND FORMULATION	RATE PER ACRE	REMARKS AND PRECAUTIONS	
Foliar diseases	Quadris 2.08F	6.2-15.4 fl oz/A (to include frog eye leaf spot and soybean rust)	<p>Note 1: Prior to the discovery of Asian soybean rust in Georgia, foliar fungicides were not generally recommended on soybeans in the state. In the past, results of Georgia research on foliar fungicides have been extremely erratic. However, fungicides are now considered an important tool not only for the management of Asian soybean rust, but also in some instances for diseases such as anthracnose and perhaps Phomopsis pod and stem blight. Before deciding to apply a fungicide, a grower should consider the current yield potential in the field and the potential for further disease spread.</p>	
	Quadris Xtra	4.0-6.8 fl oz for management of soybean rust; 5.0-6.8 fl oz for management of other foliar diseases.		
	Quilt	14-20 fl oz (for management of foliar diseases to include Asian soybean rust.)		
	Alto	2.75-5.5 fl oz. For control of soybean rust use 2.75-4.0 fl oz/A. For other foliar diseases use 4.0-5.5 fl oz/A.		
	Evito	2.0-5.7 fl oz/A for management of soybean rust and other foliar diseases.		
	Evito T	4.0-6.0 fl oz/A for management of soybean rust and other foliar diseases.		
	Domark 230 ME	4.0-5.0 fl oz (for management of foliar disease to include soybean rust.)		<p>Note 2: The presence of the Asian soybean rust in Georgia has greatly affected disease control recommendations.</p>
	tebuconazole	3.0-4.0 fl oz (for management of foliar disease to include soybean rust.)		
	Headline	6.0-12.0 fl oz (for management of foliar disease to include Asian soybean rust.)		<p>Note 3: Asian soybean rust can develop very rapidly in a field when enough spores are present and environmental conditions are favorable. Once a soybean crop reaches reproductive growth stages, growers should be prepared to treat with fungicides very quickly as soon as the disease is likely to be present in the area.</p>
	propiconazole (Tilt and Bumper)	4.0-6.0 fl oz (for management of soybean rust and other foliar diseases.)		
	Stratego	10.0 fl oz/A (for management of soybean rust and other foliar diseases.)	<p>Note 4: The key to successful management of Asian soybean rust is use of an effective fungicide in a timely manner before the disease becomes established in a field</p>	
	Stratego YLD	4.0-4.65 fl oz (for management of soybean rust and other foliar diseases.)		
	Topguard	7.0-14.0 (for management of soybean rust and other foliar diseases.)	<p>Note 5: Higher rates of a product provide greater residual activity and may reduce the need for later sprays to manage rust.</p>	
	Topsin-M 70WP	Rate: ½-1 lb/A (controls frog eye leaf spot and other foliar diseases but NOT soybean rust)		
	Topsin-M 4.5 FL	10-20 fl oz/A (controls frog eye leaf spot and other foliar diseases but NOT soybean rust)	<p>Note 6: Although "Headline SBR" is no longer available commercially, growers can tank-mix 3.1 fl oz tebuconazole with 4.7 fl oz Headline to create a similar product.</p>	
	Bravo Weather Stik	1-2 ¼ pts/A (for management of foliar disease including suppression of rust)		
	Echo 720	Rate: 1-2 ¼ pts/A (for management of foliar disease including rust)		
	Equus 720	1-2 ¼ pts/A (for management of foliar diseases including rust.)		
	Bravo Ultrex	0.9-2.2 lb/A (for management of foliar diseases including rust)		
	Equus DF	0.9-2.2 lb/A (for management of foliar diseases including rust)		
Echo 90DF	0.875-2.0 lb/A (for management of foliar disease including rust)			

SOYBEAN SEED TREATMENT

CHEMICAL AND FORMULATION	RATE	REMARKS AND PRECAUTIONS
Capt'n Moly (Captan + Molybdenum)	3.8 oz./bu.	Apply fungicide first; then apply inoculant immediately before planting. Best results are obtained by using commercially treated seed or treating seed using a mechanical seed treater. Otherwise, mix seed and chemical seed treatment thoroughly in a wash tub for good coverage. Hopper box treatment is not desirable. Seed treatments listed here with inoculants have not been evaluated under our growing conditions.
Dynasty	0.153 to 0.459 fl oz/CWT	
Moly-T (Thiram + Molybdenum)	3.8 oz./bu.	
Prevail (Apron-Terrachlor-Vitavax)	4 oz./bu.	
Protreat L (Thiram + Molybdenum)	5 fl. oz./bu.	
Protreat TM (Thiram + Molybdenum)	2 oz./bu.	
TCI Captan-Vitavax (Captan + Carboxin)	3 oz./bu.	
42-S Thiram (Thiram)	2 fl. oz./bu	
Trilex 2000	1.0 fl oz/CWT	
Vitavax 200 (Carboxin + Thiram)	2 fl. oz./bu. or 4 fl. oz./100 lb.	
Vitavax-Captan HBM or Enhance (Carboxin + Captan)	3 oz./bu.	
Vitavax-M (Carboxin + Thiram + Molybdenum)	6 fl. oz./bu. or 12 fl. oz./100 lb.	
Vitavax/Moly (Captan + Carboxin + Molybdenum)	3 oz./bu.	

SOYBEAN NEMATODE TREATMENT

RATE /ACRE (36" ROW BASIS)				
CHEMICAL AND FORMULATION	AMOUNT OF FORMULATION	ACTIVE INGREDIENT	Ozs. /1000 FT. OF ROW ANY ROW SPACING	REMARKS AND PRECAUTIONS
Preplant Injected Telone II	3 gal.			Inject 12 inches below the soil surface. Wait two weeks between application and planting when using Telone II.
AVICTA Complete Beans				AVICTA Complete Beans™ is a new seed-treatment product that includes Avicta 500FS for management of nematodes. See label for further details.
Vydate C-LV	17 to 34 fl. ozs.	7.1-14.3 fl. ozs.	1.17-2.34 fl. ozs.	Apply in furrow in 7-10 inch band (incorporated 2-4 inches) in 10-20 gal. water per acre.

Nematode-resistant varieties are available and can usually be grown without a nematicide. Some data suggests that nematicides may increase the yield of resistant varieties when nematode pressure is high.

NEMATICIDE	RELATIVE EFFECTIVENESS RATING
Telone II	excellent
Vydate	poor-fair

SOYBEAN WEED CONTROL

Eric P. Prostko, Extension Agronomist – Weed Science

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
MINIMUM TILL, STRIP-TILL, OR NO-TILL BURNDOWN OPTIONS	glyphosate (various trade names)	16 - 128 oz	0.38 - 3.0 ae	Controls most emerged annual grass and broadleaf weeds. Glyphosate rates vary according to weed species, weed size and spray volume. Refer to the individual product labels for additional information. Use of tank-mixes with glyphosate for bermudagrass or johnsongrass control in minimum tillage systems is not recommended. The higher rates are suggested for johnsongrass and bermudagrass control. The use of ammonium sulfate (AMS) is only recommended where hard water (Ca, Na, Mg, K) is a concern. Additional spray adjuvants are not required in loaded formulations. MOA = 9.
	3.00 lb ae/gal	13 - 103 oz		
	3.73 lb ae/gal	12 - 96 oz		
	4.00 lb ae/gal	11.7 - 92 oz		
	4.17 lb ae/gal	11 - 85 oz		
	4.50 lb ae/gal	10 - 77 oz		
	5.00 lb ae/gal			
	paraquat (Gramoxone Inteon / Gramoxone SL) 2.0 lb/gal	30 – 60 oz	0.47 - 0.94	Apply during or after planting, but before crop emerges to kill emerged annual grasses and weeds. Add a nonionic surfactant at 0.25% (1 qt. per 100 gal. spray) on a volume basis. Apply 20-60 gallons spray volume per acre. Refer to label for specific cautions and restrictions. Numerous tank-mixes are allowed. Rain-free period = 30 minutes. MOA = 22.
	(Firestorm/ Parazone) 3.0 lb/gal	20 – 40 oz		
	glufosinate (Ignite 280 SL) 2.34 lb/gal	29 – 36 oz	0.53 – 0.66	Apply during or after planting, but before crop emerges to kill emerged annual grasses and weeds. Ignite will not provide adequate burndown control of small grains. Very effective for burndown control of volunteer peanuts. Can be tank-mixed with glyphosate or 2,4-D. Rain-free period = 4 hours. MOA = 10.
	carfentrazone (Aim) 2.0 lb/gal	0.5 - 1.0 oz	0.008 - 0.016	Tank-mix with glyphosate or glufosinate for the improved control of large morningglories. Can be applied up to 24 hours after soybean planting. Rain-free period = 6-8 hours. MOA = 14.
	pyraflufen (ET) 0.208 lb/gal	0.5 - 2.0 oz	0.0008 - 0.003	Tank-mix with glyphosate or glufosinate for the improved control of large morningglories. Soybeans can be planted immediately. Rain-free period = 1 hour. MOA = 14.
	thifensulfuron + tribenuron (FirstShot SG) 50SG	0.5 – 0.8 oz	0.008 – 0.013+ 0.008 – 0.013	Can be tank-mixed with glyphosate, paraquat, Ignite, and 2,4-D ester. Soybean can be planted in 7-14 days after treatment depending upon soil type. Use a NIS (0.25% v/v) or COC (1% v/v). MOA = 2 + 2.
	2,4-D (various trade names) 3.8 lb/gal	16 oz	0.475	Very effective for cutleaf eveningprimrose control. Can be tank-mixed with glyphosate or paraquat to provide broad-spectrum burndown control. Soybeans can be planted in 7 (ester) or 15 days (amine) after application depending upon the formulation used. MOA = 4.
	dicamba (Clarity) 4 lb/gal	4 – 16 oz	0.125 – 0.50	Can be tank-mixed with glyphosate, paraquat, or Ignite to improve the control of broadleaf weeds such as horseweed. Soybeans can be planted in 14 days (≤ 8 oz/A) or 28 days (> 8 oz/A) if 1" of rainfall or irrigation has occurred since application. Rain-free period = 4 hours. MOA = 4.

SOYBEAN WEED CONTROL (continued)

BROADCAST RATE/ACRE				
STAGE OF APPLICATION	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	REMARKS AND PRECAUTIONS
PREPLANT INCORPORATED	pendimethalin (Prowl/Pendimax) 3.3 lb/gal	1.2 – 2.4 pt	0.5 – 1.0	For annual grasses and small seeded broadleaf weed control Soil incorporate 2” deep within 7 days of application. Mechanical incorporation is not required if rain of 0.5” or more occurs within 7 days of application. MOA = 3
	Prowl H ₂ O 3.8ASC	1.5 – 2.1 pt	0.71 – 1.0	
	trifluralin (Treflan, others) 4 lb/gal 60DF	1-2 pt 0.88 – 1.67 lb	0.5 – 1.0	For annual grasses and small-seeded broadleaf weed control. Soil incorporate 2-3 inches deep within 24 hours of application. Treflan should be applied within 4 weeks of planting. Rates should be adjusted for soil type. Refer to specific herbicide label for use information. MOA = 3.
	metribuzin (Metri, Metribuzin, Tricor) 75DF	5.3 – 8.0 oz	0.25 – 0.38	Incorporation should be shallow (1-2”) to prevent placement of herbicide in soybean seed zone. Do not use on sands! Do not use on loamy sands or sandy loams if OM is <1%. Use the low rate on coarse soils. Do not apply to sensitive soybean varieties such as H7550RR. Refer to soybean seed label for information on sensitivity to metribuzin. Do not apply with soil applied organic phosphate pesticides such as Dasanit, Di-Syston, Thimet, Mocap, Lorsban, or Namacur, as soybean injury may occur regardless of soybean variety. Can be tank-mixed with Treflan or Prowl for broader spectrum weed control. A split treatment of 1/2-2/3 the normal rate of Sencor incorporated followed by the remaining 1/2-1/3 rate after planting may be used. This split treatment may lessen the injury potential compared to a full rate incorporated and may increase consistency of control over that of a preemergence treatment. Do not use increased rates when splitting the application. Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to metribuzin in UGA tests. MOA = 5.
metribuzin + chlorimuron (Canopy, Cloak) 75DG	6 – 10 oz	0.24 - 0.40 + 0.04 - 0.07	Canopy may be soil incorporated or applied preemergence for control of several broadleaf weeds. The rate of application varies with soil type. Not recommended for use on sands and any other coarse soil types with <1% OM.. Incorporation should be 1 to 2 inches deep. Canopy may be tank-mixed with a dinitroaniline herbicide for broader spectrum weed control. Follow label directions for the use rates. Refer to Remarks and Precautions discussion of metribuzin for sensitive soybean varieties and potential herbicide-insecticide interactions. Soybean injury expressed as stunting has been observed. Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to metribuzin in UGA tests. Canopy use rates for soils with 0.5-3% organic matter are as follows: loamy sand, sandy loam = 6 oz/A; loam, silt loam, silt, sandy clay loam = 8 oz/A; silty clay loam, clay loam, clay = 10 oz/A. Rotation restrictions: soybeans = 0 months; barley, wheat, rye = 4 months; field corn 9-10 months; cotton, tobacco, sorghum = 10 months; peanuts = 8 months; canola, onions = 18 months. MOA = 5 + 2.	

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS	
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
PREPLANT INCORPORATED (cont.)	metribuzin + S-metolachlor (Boundary) 6.5 lb/gal	1.2 - 2.1 pt	0.19 - 0.33 +	Incorporate uniformly within top 2" of soil . Not recommended for use on sands or any other coarse soil types with < 1.0% OM. Follow rate restrictions for soil type, pH, varieties, etc. listed under remarks and precautions for metribuzin. Can be tank-mixed with Python, Scepter, Canopy, Canopy XL, Command, and Prowl. Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to metribuzin in UGA tests. Rotation restrictions: soybeans = 0 months; barley, wheat = 4 months; corn, cotton = 8 months; canola, peanut, sorghum, tobacco, tomato = 12 months; onions = 18 months. MOA = 5 + 15.	
			0.94 - 1.64		
	imazaquin + pendimethalin (Squadron) 2.33 lb/gal	3.0 pt	0.125 +		
			0.75		
	imazethapyr (Pursuit) 2 lb/gal 70DG	0.25 pt 1.44 oz	0.063		Controls several annual broadleaf weeds and suppresses nutsedge. May be tank-mixed with Prowl or trifluralin for improved annual grass control. Incorporate to a depth of 1 to 2 inches. Pursuit should only be applied one time per year to soybeans. Do not apply Classic, Canopy, Scepter, Scepter O.T., or use Pursuit either preemergence or postemergence on fields previously treated with Pursuit. Refer to the label for rotation restrictions. MOA = 2.
	imazaquin (Scepter) 70DG	2.1 - 2.8 oz	0.09 - 0.122		Apply and incorporate 1 to 2 inches deep. Scepter may be tank-mixed with Prowl or trifluralin. On sands and loamy sands, 2.1 oz/A can be used for control of cocklebur and non-ALS-resistant pigweeds only. This treatment may be followed with Scepter applied postemergence at 2.8 oz/A for increased control of sicklepod. <u>Do not plant cotton within 18 months of the application of Scepter.</u> This treatment associated with adverse weather conditions may sometimes cause soybean injury. Do not graze or feed treated soybean forage, hay or straw to livestock. MOA = 2.
imazethapyr + pendimethalin (Pursuit Plus) 2.9 lb/gal	2.5 pt	0.063 +	Incorporate 1 to 2 inches deep within 7 days of application. Do not plant cotton within 18 months of application. Refer to label for other rotation restrictions. Do not apply Classic, Canopy, Scepter, Scepter O. T., or Pursuit to fields previously treated with Pursuit Plus. Do not graze or feed treated soybean forage or hay to livestock. MOA = 2 + 3.		
flumetsulam (Python) 80WDG	0.9 - 1.0 oz	0.045 - 0.05	Controls a wide range of broadleaf weeds. Incorporate 2 to 3 inches deep. Tank-mix with herbicides such as Treflan or Prowl for the control of annual grasses. Crop rotational restrictions are: corn - 0 months; small grains - 4 months; tobacco - 9 months; cotton - 18 months; onions, canola - 26 months. MOA = 2.		

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
PREPLANT INCORPORATED (cont.)	S-metolachlor + fomesafen (Prefix) 5.29EC	2 pt	1.09 + 0.24	Useful for the control of both glyphosate and ALS-resistant Palmer amaranth. Can also be applied PRE. Incorporate uniformly into top 2" of soil within 7 days of application. Can also be tank-mixed with burndown herbicides such as 2,4-D, paraquat, or glyphosate for use in reduced tillage systems. Crop rotation restrictions are as follows: soybean, dry bean, snap bean = 0 months; cotton = 1 month; barley, wheat, oat, rye = 4.5 months; field corn, peanut, pea, rice, sorghum = 10 months; alfalfa, sunflower, other crops = 18 months. MOA = 15 + 14.
	sulfentrazone + metribuzin (Authority MTZ 45DG)	12-14 oz	0.135 - 0.156 + 0.20 - 0.24	General broadleaf weed control with minimal control of annual grasses. Follow same precautions as for other metribuzin herbicides discussed above. Do not use on sands or any other coarse soils with less than 1% OM. Do not use on soils with a soil pH > 7.5. Do not incorporate deeper than 2". Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to metribuzin in UGA tests. Rotational crop restrictions: barley, wheat = 4 months; cotton = 12 months *Some UGA research suggests that the cotton rotation restriction should be 18 months. peanut = 12 months; field corn = 4 months; sorghum, tobacco = 12 months. MOA = 14 + 5. Sulfentrazone is also available in other premixes: Authority Assist (sulfentrazone + imazethapyr); Authority XL (sulfentrazone + chlorimuron); Spartan Advance (sulfentrazone + glyphosate); and Spartan Charge (sulfentrazone + carfentrazone).
	sulfentrazone + chlorimuron (Authority XL) 70DG	3-6 oz	0.117-0.233 + 0.015-0.029	Do not use on soils classified as sands. Provides residual control of several broadleaf weed species including pigweed, morningglory, and prickly sida. Do not incorporate deeper than 2" . Can be tank-mixed with Prowl or Treflan to improve the control of annual grasses. Crop rotation restrictions (soil pH <6.8): canola = 36 months; cotton = 12 months*; soybeans = anytime; small grains = 4 months; sorghum = 10 months; tobacco = 10 months; field corn = 10 months; peanuts = anytime. *Some UGA research suggests that the cotton rotation restriction should be 18 months. MOA = 14 + 2.
PREEMERGENCE	linuron (Lorox) 50DF (Linex) 4L	1.0 - 2.0 lb 1.0 - 2.0 pt	0.50 - 1.0	Provides good control of Florida beggarweed, common ragweed, and pigweed. Do not use on sands or loamy sands and/or soils with less than 1% OM. <u>Sicklepod will not be controlled effectively with Lorox or Linex.</u> Linuron may be tank-mixed with Lasso, Dual, or Prowl. Plant soybeans at least 1.5 inches deep to reduce injury. MOA = 7.
	alachlor (Intro/Micro-Tech) 4 lb/gal	2.0 - 2.75 qt	2.0 - 2.75	Apply these herbicides to the soil surface prior to soybean emergence. Prowl application just prior to soybean emergence may result in slight soybean growth suppression, stand reduction, or breaking of the plants. Do not apply Prowl after the soybeans crack the soil surface since severe injury may occur. Tank-mixes of Dual, Intro/Micro-Tech, or Prowl with metribuzin or linuron may improve control of certain annual weeds. Refer to manufacturer's label for specific rates.
	pendimethalin (Prowl/Pendimax) 3.3 lb/gal	1.2 - 2.4 pt	0.50 - 1.0	
	Prowl H ₂ O 3.8ACS	1.5 - 2.0 pt	0.71 - .95	
	metolachlor (Stalwart, Parallel PCS, Me-Too-Lachlor)	1.0 - 1.33 pt	1.0 - 1.33 0.95 - 1.27	*The generic formulations of metolachlor (Parallel PCS, Stalwart, Me-Too-Lachlor) have not provided the same length of residual control of certain weeds as similar rates of Dual Magnum formulations in some UGA field trials.
	S-metolachlor (Dual Magnum 7.62E)	1.0-1.33 pt		

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
PREEMERGENCE (cont.)	flufenacet + metribuzin (Axiom) 68DF	7-13 ozs	0.238-0.442 + 0.06-0.11	Axiom is a mixture of flufenacet plus metribuzin (Sencor) (4:1 ratio). Controls annual grass weeds similar to other products such as Dual, Intro, or Outlook. Also provides some control of broadleaf weeds such as carpetweed, purslane, and spotted spurge. Should be tank-mixed with other herbicides such as Canopy, Pursuit, and Scepter to broaden the spectrum of weed control. Do not make more than one Axiom application per season. Do not graze or feed forage to livestock. Domain 60DF is similar to Axiom but contains a 1:1.5 ratio of flufenacet to metribuzin. MOA = 15 + 5.
	clomazone (Command) 3ME 3.0 lb/gal	2.67 - 3.33 pt	1.0 - 1.25	Controls annual grasses and certain annual broadleaf weeds. Particularly effective for velvetleaf control. The spectrum of weed control is increased when Sencor is tank-mixed. Care should be taken to minimize spray drift when applying Command. See label for specific directions. Do not rotate to small grains or alfalfa within 12 months of application. Do not apply by air or within 1,200 feet of towns and housing developments, commercial fruit, nut or vegetable production areas, or commercial greenhouse or nurseries. Especially weak on carpetweed and pigweed. MOA = 13.
	imazethapyr (Pursuit) 2.0 lb/gal 70DG	0.25 pt 1.44 oz	0.063	Controls several annual broadleaf weeds and suppresses nutsedge. May be tank-mixed with Prowl, Lasso or Dual. Pursuit should be applied only one time per year to soybeans. Do not apply Classic, Canopy, Scepter, Scepter O. T., or use Pursuit either preplant incorporated or postemergence, on fields previously treated with Pursuit. Refer to label for rotation restrictions. MOA = 2.
	flumioxazin (Valor) 51WG	2 - 3 oz	0.064 - 0.096	Provides good to excellent control of many annual broadleaf weeds. Valor will not control grass weeds, nutsedges, cocklebur, and sicklepod. Apply as a preemergence treatment only. Do not apply to emerging soybeans. Should be tank-mixed with Command or Prowl/Pendimax. Do not use Valor in the same field with Axiom, Domain, Intro/Micro-Tech, Dual, or Frontier/Outlook or severe injury can occur. Valor can also be tank-mixed with glyphosate in reduced tillage production systems. Refer to label for specific rotation restrictions. MOA = 14.
	flumioxazin + chlorimuron (Valor XLT) 40.3WDG	3 - 4 oz	0.056 - 0.075 + 0.019 - 0.026	Will provided better cocklebur, yellow nutsedge, and sicklepod control than Valor. Plant soybeans at least 1.5" deep and make sure soybean seed is completely covered by soil. Do not apply later than 3 days after planting. Do not tank-mix with Axiom, Dual, Outlook, or Intro. Can be tank-mixed with Command, Sencor, Lorox, or Prowl. Crop rotations: wheat, barley, ryegrass = 4 months; field corn = 10 months; cotton = 10 months; peanuts = 18 months; soybeans = 0 months, tobacco (transplant) = 10 months; sorghum = 10 months. MOA = 14 + 2.

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
PREEMERGENCE (cont.)	imazaquin + pendimethalin (Squadron) 2.33 lb/gal	3 pt	0.125 + 0.75	Squadron may be applied preemergence for control of grasses and broadleaves. Apply during or up to 2 days after planting. Do not apply to emerged soybeans. If rainfall or irrigation is not received within 7 days, shallow incorporation may increase effectiveness. Refer to Remarks and Precautions for Scepter. MOA = 2 + 3.
	dimethenamid (Outlook/Propel) 6.0 lb/gal	10 - 18 oz	0.46 - 0.84	Use rates vary according the cation exchange capacity (CEC) of the soil. If CEC is not known, select the use rate based on soil texture and organic matter. Controls many annual grasses, pigweeds, and spotted spurge. Outlook may be tank-mixed with Canopy, Sencor, Lorox, Pursuit or Scepter. Fall-seeded small grains may be planted 4 months after an application of Frontier/Outlook. Can also be applied PPI. MOA = 15.
	imazaquin (Scepter) 70DG	2.1 - 2.8 oz	0.09 - 0.122	Scepter may be applied preemergence for control of several broadleaf weeds. Scepter should not be applied preemergence if previously applied preplant incorporated. On sands and loamy sands, 2.1 oz./A can be used to control cocklebur and pigweeds only. If rainfall is not received within 7 days after application, a thorough shallow tillage or cultivation is recommended (preferably with a rotary hoe). Scepter may be applied preemergence as a tank-mix with either Prowl, Intro or Dual. Scepter may also be applied as a sequential preemergence treatment following application of a grass herbicide. There are rotational crop restrictions that are found on the Scepter label. <u>Do not plant cotton within 18 months of a Scepter treatment.</u> Scepter should not be used preemergence if Canopy has been applied preplant incorporated or preemergence. Soybean injury expressed as stunting has been observed. Do not graze or feed treated soybean forage, hay or straw to livestock. MOA = 2.
	imazethapyr + pendimethalin (Pursuit Plus) 2.9 lb/gal	2.5 pt	0.063 + 0.8	Apply to soil surface prior to soybean emergence. Refer to label for rotation restrictions. Do not apply Classic, Canopy, Scepter, Scepter O. T. or Pursuit to fields previously treated with Pursuit Plus. Do not graze or feed treated soybean forage to livestock. MOA = 2 + 3.
	flumetsulam (Python) 80WDG	0.9 - 1.0 oz	0.045 - 0.05	Controls a wide range of broadleaf weeds. Tank-mix with preemergence herbicides such as Lasso, Dual, Prowl, etc. for the control of annual grasses. DO NOT apply to emerged soybeans (cracking stage or later). Crop rotational restrictions are: small grains - 4 months; tobacco - 9 months; cotton - 18 months; canola - 26 months. MOA = 2.

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
PREEMERGENCE (cont.)	metribuzin		0.25 - 0.38	<p>If rainfall or irrigation occurs within 3 to 5 days after application, control will be as good as obtained with PPI treatments. Do not use on sands or any other soil coarse types with <1% OM. Use the low rate on coarse soils. Do not apply to sensitive soybean varieties such as H7550RR. Refer to soybean seed label for information on variety sensitivity to metribuzin. Do not apply metribuzin with soil-applied organic phosphate pesticides such as Dasanit, Di-Syston, Mocap, Namacur, or Thimet as soybean injury may occur irrespective of soybean variety. A split treatment of 1/2 - 2/3 the normal use rate of Sencor incorporated followed by the remaining 1/2 - 1/3 rate after planting may be used. This split treatment may lessen the injury potential compared to a full rate incorporated and may increase consistency of control over that of a preemergence treatment. Do not use increased rates when splitting the application. Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to metribuzin in UGA tests. MOA = 5.</p>
	(Metri, Metribuzin, Tricor) 75DF	5.3 - 8.0 oz		
	metribuzin + chlorimuron (Canopy, Cloak) 75DG	6 - 10 oz	0.24 - 0.40 + 0.04 - 0.07	
metribuzin + S-metolachlor (Boundary) 6.5 lb/gal	1.2 - 2.1 pts	0.19 - 0.33 + 0.94 - 1.64	<p>Not recommended for use on sands and any other coarse soil types with < 1.0% OM. Follow rate restrictions for soil type, pH, varieties, etc. listed under remarks and precautions for metribuzin. Can be tank-mixed with Python, Scepter, Canopy, Canopy XL, Command, and Prowl. Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to metribuzin in UGA tests. MOA = 5 + 15.</p>	

SOYBEAN WEED CONTROL (continued)

		BROADCAST RATE/ACRE		
STAGE OF APPLICATION	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	REMARKS AND PRECAUTIONS
PREEMERGENCE (cont.)	fomesafen (Reflex) 2L	1 pt	0.25	For the residual control of yellow nutsedge, bristly starbur, and various pigweed species. Can also be used in minimum-till situations and tank-mixed with a burndown herbicide. When tank-mixing with paraquat, use the following mixing order: 1) Reflex; 2) NIS or COC; and 3) paraquat. MOA = 14.
	S-metolachlor + fomesafen (Prefix) 5.29EC	2 pt	1.09 + 0.24 1.32	Refer to comments in PPI section. MOA = 15 + 14.
	flumioxazin + chlorimuron + thifensulfuron (Envive 41.3DG)	3 - 4 ozs	0.055-0.073 + 0.017 -0.023+ 0.005-0.007	A three-way mixture of Valor + Classic + Harmony GT. Do not use in combination with Axiom, Micro-Tech, Intro, Dual, Outlook. Can be tank-mixed with Prowl or Command to improve grass control. Do not use on soil types with less than 0.5% organic matter. Do not irrigate when soybeans are cracking. Crop injury may occur on poorly drained soils under cool, wet conditions. Excessive rainfall following soybean emergence may also result in temporary crop injury. Cool, cloudy, wet weather may also cause soybean stunting. Rotation restrictions: soybeans = anytime; small grains = 4 months; peanut = 6 months; field corn = 10 months; cotton = 10 months; sorghum = 10 months. MOA = 14 + 2 + 2.
	sulfentrazone + metribuzin (Authority MTZ 45DG)	12 - 14 oz	0.135 - 0.156 + 0.20 - 0.24	Refer to comments in PPI section. MOA = 14 + 5. Sulfentrazone is also available in other formulations such as Authority Assist (sulfentrazone + imazethapyr), Authority XL (sulfentrazone + chlorimuron), Spartan Advance (sulfentrazone + glyphosate) or Spartan Charge (sulfentrazone + carfentrazone).
	sulfentrazone + chlorimuron (Authority XL) 70DG	3-6 oz	0.117-0.233 + 0.015-0.029	Do not use on soils classified as sands. Can be applied at planting or within 3 days after planting but before soybean emergence. Do not apply if soil is cracking or soybeans have emerged. Provides residual control of several broadleaf weed species including pigweed, morningglory, and prickly sida. Can be tank-mixed with Prowl to improve the control of annual grasses. Can be tank-mixed with glyphosate, paraquat, or Ignite for use in reduced tillage systems. Crop rotation restrictions (soil pH <6.8): canola = 36 months; cotton = 12 months*; soybeans = anytime; small grains = 4 months; sorghum = 10 months; tobacco = 10 months; field corn = 10 months; peanuts = anytime. <i>*Some UGA research suggests that the cotton rotation restriction should be 18 months.</i> MOA = 14 + 2.
POSTEMERGENCE	Application of postemergence herbicide treatments to moisture stressed weeds will usually result in poor control.			
	bentazon (Basagran, Depend, Leader) 4 lb/gal	1.5 - 2 pt	0.75 - 1.0	Apply to soybeans at the second or third trifoliolate (V2 or V3) leaf stage, but before weeds exceed 2-4 inches in height (14 to 21 days after planting). A non-phytotoxic oil concentrate (1 qt/A) should be added depending on the weed species as specified on the label. Basagran can be tank-mixed with Blazer. Rain-free period is 4 hours. Soybeans are tolerant of Basagran at all stages of growth. MOA = 6.
	acifluorfen (Ultra Blazer) 2 lb/gal	1.5 pt	0.38	Blazer requires a nonionic surfactant (1 qt/100 gals.) to be added to the spray tank when used alone and when tank-mixed with Basagran. Apply to soybeans at the second or third trifoliolate (V2 or V3) leaf-stage, but before weeds have more than 4 to 6 true leaves (14-21 days after planting). Control of larger weeds may be poor. Ultra Blazer can be tank-mixed with Classic, Scepter, or Basagran. Rain-free period is 4 hours. Apply at least 50 days before harvest. MOA = 14.
	lactofen (Cobra) 2 lb/gal	12.5 fl. oz	0.20	Apply to soybeans in the first or second trifoliolate leaf stage if weeds are in the 2 to 6 leaf stage. Add a crop oil concentrate @ 0.25% to 1.0% v/v depending upon humidity (refer to label). With aerial applications, the use of 1.0 qt/A of crop oil concentrate is required. Do not apply Cobra when crop or weeds are under stress of drought. Crop injury expressed as leaf burn and/or suppression may occur. This injury is usually temporary but may cause lasting effects to late planted (after July 1) soybeans especially if the application is followed by a period of drought stress. Cobra can be tank-mixed with Basagran and Classic. Rain-free period is 30 minutes. Do not apply Cobra later than 45 days before harvest or after growth stage R6 (full seed). MOA = 14.

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
POSTEMERGENCE (cont.)	fomesafen (Reflex/Dawn) 2 lb/gal	1.5 pt	0.38	Apply Reflex when weeds are small and not stressed from dry weather. Application should be made when weeds have 1 to 4 true leaves (14 to 21 days after planting). Add a nonionic surfactant (0.25 % v/v) or crop oil concentrate (1.0% v/v) to the spray mixture. Can be tank-mixed with glyphosate. Rain-free period is 1 hour. Do not apply within 45 days of harvest. Rotational crop restrictions: cotton, soybean = 0 months; small grains = 4 months; field corn, peanuts = 10 months; tobacco, sorghum = 18 months. MOA = 14.
	imazethapyr (Pursuit) 2 lb/gal 70 DG	4 oz 1.44 oz	0.063	Pursuit may be applied anytime after soybean emergence but before weeds exceed 3 inches. Add 0.25% of a nonionic surfactant (2 pts/100 gals. of spray mixture). After application wait at least 10 days before cultivation. Do not apply Pursuit if Canopy, Scepter or Pursuit was used as a preplant incorporated or preemergence treatment. Refer to the label for rotational restrictions. Rain-free period is 1hour. MOA = 2.
	bentazon + acifluorfen (Storm) 4 lb/gal	1.5 pt	0.5 + 0.25	Apply to soybeans at the first or second trifoliolate leaf but before weeds exceed the 4 true-leaf stage. A crop oil concentrate or surfactant should be used at the rate of 1-2 pts/A. Any crop injury should be temporary. Rain-free period is 4 hours. Do not apply Storm within 50 days of harvest. MOA = 6 + 14.
	imazaquin (Scepter) 70DG	1.4 - 2.8 oz	0.06 - 0.122	Scepter may be applied as a postemergence treatment after crop emergence when weeds are small. The addition of 2 pts of nonionic surfactant per 100 gals. of spray mixture is required. Control of cocklebur and pigweeds can be expected with a single application. Sicklepod will be suppressed only when Scepter is used at the 1-2 true-leaf stage following a preplant incorporated or preemergence application of Scepter. There are rotational crop restrictions that are found on the herbicide label. <u>Do not plant cotton within 18 months of a Scepter treatment.</u> Do not apply Scepter if Canopy or Pursuit has been used preplant incorporated or preemergence. Do not apply Scepter postemergence when soybeans and weeds are under temperature and moisture stress. Do not graze or feed treated soybean forage, hay or straw to livestock. Do not apply Scepter within 90 days of harvest. MOA = 2.
	cloransulam (FirstRate, Amplify) 84WDG	0.3 oz	0.016	Controls a wide range of annual broadleaf weeds (except prickly and arrowleaf sida, common lambsquarters, black nightshade, and pigweeds). May be applied from soybean emergence up to 50% flowering. Add either 0.25% v/v nonionic surfactant or 1.2% v/v crop oil concentrate to the spray mix. May be tank-mixed with Blazer, Basagran, Cobra, Reflex, Pursuit, glyphosate, or postemergence grass herbicides. Two applications of 0.3 oz/A can be made. Rotational crop restrictions: soybean = 0 months; wheat = 3 months; field corn, cotton, peanut, sorghum, oats = 9 months. Rain-free period is 2 hours. MOA = 2.

SOYBEAN WEED CONTROL (continued)

		BROADCAST RATE/ACRE		
STAGE OF APPLICATION	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	REMARKS AND PRECAUTIONS
POSTEMERGENCE (cont.)	cloransulam (84%)	0.3 oz	0.016	FrontRow is a co-packed product of FirstRate and Python. Controls a wide range of broadleaf weeds, but not annual grasses. Add either a nonionic surfactant at 0.25% v/v or crop oil concentrate at 1.2% v/v to the spray mix. Front Row may be tank-mixed with Basagran, Blazer, Cobra, Reflex, Pursuit, Roundup Ultra/UltraMax or various postemergence grass herbicides. Rotational crop restrictions are: small grains - 3 months; cotton, peanuts, corn - 9 months; tobacco and canola - 30 months. Rain-free period is 2 hours. FrontRow can be applied from 1 st trifoliolate stage up until 50% flowering. MOA = 2 + 2.
	+ flumetsulam (80%) (FrontRow)	+ 0.12 oz	+ 0.006	
	chlorimuron (Classic) 25DF	0.5 - 0.66 oz	0.008 - 0.01	Apply over-the-top after soybeans have their first trifoliolate leaf. The addition of a nonionic surfactant at 0.25% by volume is required. Crop oil concentrate may be substituted for nonionic surfactant, but may increase soybean injury. Control of sicklepod is consistently better if chlorimuron is used following a preplant incorporated or preemergence treatment of Sencor. Do not apply when soybeans or weeds are under temperature or drought stress. Refer to rotational crop restrictions shown on the label. Refer to label for information on sprayer cleanout procedures following use. Classic can be tank-mixed with glyphosate for improved control of morningglories and other broadleaf weeds in Roundup Ready soybeans only. When tank-mixed with glyphosate, apply Classic at 0.25-0.33 oz/A. Rain-free period is 1 hour. Do not apply Classic within 60 days of harvest. MOA = 2.
	thifensulfuron (Harmony GT XP) 75DF (Harmony SG) 50SG	1/12 oz 1/8 oz	0.004	Salvage treatment for the control of Palmer amaranth (pigweed) that is NOT ALS-resistant. Can be applied any time after the first trifoliolate leaf has expanded but no later than 60 days before harvest. Use in combination with NIS (0.25% v/v) or COC (1% v/v) and nitrogen (32-0-0/28-0-0 @ 1 qt/A or AMS @ 3 lb/A) Can be tank-mixed with glyphosate for use in RR soybeans. Rotational crop restrictions: wheat, barley, oats, triticale, soybeans, field corn = anytime; all other crops = 45 days. Rain-free period =3 hours. . Do not tank-mix with Classic. Harmony GT will cause soybean injury in the form of leaf and terminal burn. DO NOT USE HARMONY EXTRA ON SOYBEANS! MOA = 2 *Higher rates of Harmony GT XP (0.33 oz/A) or Harmony SG (0.50 oz/A) can be used on STS® soybean varieties. A list of STS soybean varieties is provided at the end of this section.
	flumiclorac (Resource) 0.86 EC	4 oz	0.027	Tank-mix with glyphosate for improved control of tall, ivyleaf, and entireleaf morningglory in Roundup Ready soybeans only. Must be applied with a NIS (0.25% v/v) or COC (1 pt/A) and spray grade ammonium sulfate (2.5 lbs/A). Rain-free period is 2 hours. Do not apply Resource within 60 days of harvest. MOA = 14.

SOYBEAN WEED CONTROL (continued)

		BROADCAST RATE/ACRE		
STAGE OF APPLICATION	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	REMARKS AND PRECAUTIONS
POSTEMERGENCE (cont.)	glyphosate (various trade names)		0.56 - 1.50 ae	Apply glyphosate over-the-top of improved soybean varieties that are designated as soybeans with the Roundup Ready™ gene. Severe injury or death of soybeans will result if any soybean varieties not designated as having the Roundup Ready™ gene are sprayed with glyphosate. Controls a wide range of grass and broadleaf weeds. May be applied from the cracking stage through the full-flowering stage of soybeans. Use the low rate on weeds up to 3 inches tall. Higher rates are needed as weeds increase in size. For morningglories, applications should be made when morningglories are less than 3 inches tall. Sequential treatments may be applied provided that the maximum postemergence (from cracking through flowering) total use rate does not exceed 2.25 lb ae/A. (ex. 2.25 lb ae/A = 2 qt/A of Roundup PowerMax or 3 qt/A of Glyphos). There are no crop rotational restrictions for glyphosate. Not all formulations are labeled for use on RR soybeans. Refer to specific product label. The use of ammonium sulfate (AMS) is only recommended where hard water (Ca, Na, Mg, K) is a concern. Additional spray adjuvants are not required in loaded formulations. MOA = 9.
	3.00 lb ae/gal	24 - 64 oz		
	3.73 lb ae/gal	19 - 52 oz		
	4.00 lb ae/gal	18 - 48 oz		
	4.17 lb ae/gal	17 - 46 oz		
	4.50 lb ae/gal	16 - 43 oz		
	5.00 lb ae/gal	14 - 38 oz		
	imazethapyr + glyphosate (Extreme) 2.17 lb/gal	3 pt	0.063 + 0.75	Apply Extreme only to Roundup Ready soybeans. Add a nonionic surfactant at a rate of 1 pt/100 gallons and spray grade ammonium sulfate (2.5 lb/A) or liquid N (1-2 qts/A). Apply before weeds exceed 8". Applications should be made before bloom. Only 1 application/year is permitted. Cotton rotation is 18 months. Refer to label for additional rotation intervals. Also sold as Tackle 4.128SL (Tackle use rate = 2 pt/A = 0.032 lb ai/A imazethapyr + 1.0 lb ai/A of glyphosate). Very effective for the control of tropical spiderwort if applied early. Rain-free period = 1 hour. MOA = 2 + 9.
	S-metolachlor + glyphosate (Sequence) 5.25 lb/gal	3.0 - 3.5 pt	1.13 - 1.31 + 0.84 - 0.98	Apply Sequence only to Roundup Ready soybeans. Most effective when applied from cracking up through the 3 rd trifoliate leaf stage. Applications can be applied no later than 90 days before harvest. Very effective for the control of tropical spiderwort if applied early. MOA = 15 + 9.
	flumiclorac (Resource) 0.86 EC	4 oz	0.027	Tank-mix with glyphosate for improved control of tall, ivyleaf, and entireleaf morningglory in Roundup Ready soybeans only. Must be applied with a NIS (0.25% v/v) or COC (1 pt/A) and spray grade ammonium sulfate (2.5 lbs/A). Rain-free period is 2 hours. Do not apply Resource within 60 days of harvest. MOA = 14.
	quizalofop (Assure II, Targa) 0.88 lb/gal	7.0 - 8.0 oz	0.05 - 0.06	Apply to annual grasses at recommended stage of growth. A crop oil concentrate (1% v/v) or nonionic surfactant (0.25% v/v) should be used. Many tank-mixes will reduce the activity of Assure. Rain-free period is 1 hour. MOA = 1

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
POSTEMERGENCE (cont.)	quizalofop (Assure II, Targa) 0.88 lb/gal	5.0 ozs	0.03	Apply with crop oil concentrate or nonionic surfactant for control of rhizome johnsongrass when 10 to 24 inches tall. Apply an additional 5 ozs/A when johnsongrass re-growth is 6-10 inches tall. Do not apply in a tank-mix with a broadleaf herbicide when using this reduced rate program. Do not apply more than 18 ozs/A/year. MOA = 1.
	sethoxydim (Poast) 1.5 lb/gal	1.0 -1.5 pt	0.19 - 0.28	Apply with a crop oil concentrate (1 qt/A) over the top of annual grasses and crop. Refer to label for suggested stage of application. Many tank-mixes will reduce the activity of Poast. Apply with a crop oil concentrate for control of rhizome johnsongrass when 15-20 inches tall. If regrowth occurs or new plants emerge, a second application of 1.5 pts. may be used at the 6-10 inch stage. Do not apply more than 7.5 pts/A/year. Rain-free period is 1hour. MOA = 1.
	(Poast Plus) 1.0 lb/gal	1.5 - 2.25 pt		
	fluazifop - P (Fusilade DX) 2.0 lb/gal	12 oz	0.19	Apply with a crop oil concentrate (0.5-1.0% v/v) or nonionic surfactant (0.25-0.5% on a volume basis) over the top of annual grasses and crop prior to soybean bloom stage. Refer to label for suggested stage of application and specific rates. Many tank-mixes will reduce the activity of Fusilade. Apply to johnsongrass before the boot stage of growth at 8-18 inches in height. If regrowth occurs or new plants emerge, apply a second application of 8 fl. ozs. when the johnsongrass is 6-12 inches tall. Do not apply more than 32 ozs/A/year. Rain-free period is 1 hour. MOA = 1
	clethodim (Select, Arrow, others) 2EC	6 - 8 oz	0.09 -0.125	Apply to annual grasses at recommended stage of growth. A crop oil concentrate at 1.0% v/v should be added to the spray mix (Select/Arrow). A NIS (0.25% v/v) can be used with Select Max to reduce crop injury. Do not graze or feed treated soybean forage or hay to livestock. Higher rates and split applications may be needed for optimum perennial grass control (rhizome johnsongrass and bermudagrass). Do not exceed 32 oz/A/year for Select or 64 oz/acre/year for Select Max. / TapOut. Rain-free period is 1 hour. MOA = 1.
	(Select Max / TapOut) 0.97EC	12 -16 oz		
	S-metolachlor + fomesafen (Prefix) 5.29EC	2 - 2.33 pts	1.095 - 1.26 + 0.24 - 0.28	Can be applied from cracking through the third trifoliolate leaf stage of soybean. Can be tank-mixed with glyphosate for use on RR soybeans. Use a NIS @ 0.25% v/v (1 qt/100 gallons) when applying alone or in combination with glyphosate products that do not contain a built-in adjuvant. Do not exceed 3.0 pt/A of Prefix per acre per season. Do not use Prefix postemergence if a soil-applied application of S-metolachlor containing products was used. Rain-free period is 1 hour. MOA = 15 + 14.
	pyraflufen (ET) 0.208 lb/gal	0.4-1.0 oz	0.0007-0.0016	Can be applied over-the-top of soybeans up to V6 stage of growth. Can be tank-mixed with glyphosate for use in RR soybeans to improve the control of annual morningglories and certain other broadleaf weeds less than 4" tall . Additions of ET to glyphosate will increase soybean leaf burn but this symptom is usually temporary. Rain-free period = 1 hour. Do not use a COC adjuvant. MOA = 14.
fluthiacet-methyl (Cadet) 0.91L	0.4-0.6 oz	0.0028-0.0042	Tank-mix with glyphosate (RR soybeans) or glufosinate (LL soybeans) to improve the control of annual morningglory and pigweed. Additions of Cadet to glyphosate or glufosinate will increase soybean leaf injury. Soybean leaf injury will also be increased if applied to wet crop foliage (dew, rain, irrigation). Cadet can be applied from soybean emergence until full flowering. PHI = 60 days. Rain-Free period = 4 hours. MOA = 14.	

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS										
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT											
POSTEMERGENCE (cont.)	fomesafen+ glyphosate (Flexstar GT 3.5) 2.82SL	3.5 - 5.3	0.25 - 0.37 + 0.99 - 1.50	Only for use on RR soybean varieties. Do not apply within 45 days of soybean harvest. Use in combination with a NIS (0.25% v/v) or COC (1% v/v). Rotational crop restrictions: cotton, soybean = 0 months; small grains = 4 months; field corn, peanuts = 10 months; tobacco, sorghum = 18 months. MOA = 14 + 9.										
	Glufosinate (Ignite 280) 2.34SL	22 - 36 oz	0.19 - 0.28	Only for use on Liberty-Link® soybean varieties. The use of Ignite on other varieties will result in severe injury or crop death. Ignite can be applied from soybean emergence (VE) up to but not including the bloom stage of growth (R1). Up to 2 applications of Ignite can be applied per season. Do not apply more than 36 oz/A in a single application. Do not apply more than 65 oz/A/year on soybeans. If Ignite is used in a burndown prior to planting, only 1 in-crop application @ 29-36 oz/A can be used. Optimum time of application for Ignite is between 9:00 am - 6:00 pm. Avoid tank-mixes with grass herbicides such as Assure, Fusilade, Poast, and Select. If desired, a residual herbicide such as Dual Magnum or Reflex can be tank-mixed with Ignite. However, tank-mixes with residual herbicides will increase crop injury. Ignite should be applied in a minimum of 15 GPA using flat fan nozzle tips. Rain-free period is 4 hours. MOA = 10. <i>* Do not rely exclusively on Ignite. The use of a soil residual herbicide at planting is <u>mandatory</u> for optimum weed control in the Liberty-Link soybean system and to help delay the development of herbicide resistance.</i>										
	acetochlor (Warrant) 3ME	1.25-1.7 qt	0.94 - 1.28	Tank-mix with glyphosate for use in RR soybean systems. Apply over-the-top from emergence until the R2 stage of growth. Warrant will help provide residual control of tropical spiderwort, crabgrass, and Palmer amaranth. Warrant does not control emerged weeds. MOA = 15.										
POSTEMERGENCE DIRECTED	metribuzin (Metribuzin, Tricor) 75DF	5.3 - 10.7 oz.	0.25 - 0.50	Do not apply until soybeans have reached the following minimum heights:										
	paraquat (Gramoxone Inteon / Gramoxone SL) 2.0 lb/gal	8.0 fl. oz.	0.125	<table border="0"> <thead> <tr> <th>Herbicide</th> <th>Minimum Soybean Height Prior to Directed Spraying</th> </tr> </thead> <tbody> <tr> <td>metribuzin</td> <td>8-12"</td> </tr> <tr> <td>metribuzin + 2,4-DB</td> <td>8-12"</td> </tr> <tr> <td>paraquat</td> <td>8"</td> </tr> <tr> <td>2,4-DB</td> <td>8"</td> </tr> </tbody> </table>	Herbicide	Minimum Soybean Height Prior to Directed Spraying	metribuzin	8-12"	metribuzin + 2,4-DB	8-12"	paraquat	8"	2,4-DB	8"
	Herbicide	Minimum Soybean Height Prior to Directed Spraying												
	metribuzin	8-12"												
	metribuzin + 2,4-DB	8-12"												
paraquat	8"													
2,4-DB	8"													
(Firestorm/ Parazone) 3.0 lb/gal	5.3 fl. oz.		Rates should be adjusted to band width. At the early growth stages, do not spray unless the soybean stand is uniform in height as slow emerging soybeans will be killed. Crop oil concentrate or nonionic surfactant should also be added to spray. If weeds exceed 4 inches in height, the tank-mix of 2,4-DB with metribuzin will improve weed control. When using paraquat adjust equipment to spray no higher than 3" of the soybean plant.											
2,4-DB (Butyrac 200) 2L (Butyrac 175) 1.75L (Butoxone) 1.75L	0.7 - 0.9 pt 0.8 - 1.0 pt 1.0 pt	0.18 - 0.22 0.18 - 0.22 0.22												
carfentrazone (Aim 2EC)	0.5 - 1.5 oz	0.008 - 0.025	For the control of tropical spiderwort, annual morningglory, and pigweed. Apply as post-directed treatment with spray directed toward base of plant and avoid contact with soybean foliage. Use a NIS at 0.25% v/v (1 qt/100 gal). Do not feed treated soybean forage or hay to livestock.											

SOYBEAN WEED CONTROL (continued)

		BROADCAST RATE/ACRE		
STAGE OF APPLICATION	HERBICIDE FORMULATION	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	REMARKS AND PRECAUTIONS
ROPE WICK	glyphosate (various trade names)	1 gal/2 gal of water		Use in wiper applicators at a ratio of 1 gallon of glyphosate to 2 gallons of water (33% solution). For best results: 1. Mount equipment on front of tractor. 2. Maintain wick saturation. 3. Operate equipment at 2-3 mph, slower on dense weed clumps. 4. Avoid wiping weeds when wet or drought stressed. 5. Make a second application in the opposite direction. Not all formulations of glyphosate may be labeled for this use. Refer to specific product label. MOA = 9.
POSTEMERGENCE SHIELDED OR HOODED SPRAYERS	glyphosate (various trade names)		0.38 - 1.13 ae	Do not apply until soybeans have reached the Effective "chemical cultivation" treatment for emerged weeds in row middles. Hood or shield height must be adjusted so that glyphosate does not contact soybean green stems or foliage. Apply in a spray volume of 3 to 10 GPA. Not all formulations of glyphosate are labeled for this use. Refer to specific product label. MOA = 9.
	3.00 lb ae/gal	16 - 48 oz		
	3.73 lb ae/gal	13 - 39 oz		
	4.00 lb ae/gal	12 - 36 oz		
	4.17 lb ae/gal	11.7 - 35 oz		
	4.50 lb ae/gal	11 - 32 oz		
	5.00 lb ae/gal	10 - 29 oz		
HARVEST AID	glyphosate (various trade names)		0.75 - 1.5 ae	Apply after soybean pods have lost all green color. Application is usually timed 14 to 21 days before harvest. May be aerially applied. This treatment is not recommended for conventional soybeans grown for seed purposes. Not all formulations of glyphosate are labeled for this use. Refer to specific product label. MOA = 9.
	3.00 lb ae/gal	32 - 64 oz		
	3.73 lb ae/gal	26 - 52 oz		
	4.00 lb ae/gal	24 - 48 oz		
	4.17 lb ae/gal	23 - 46 oz		
	4.50 lb ae/gal	21 - 42 oz		
	5.00 lb ae/gal	19 - 38 oz		
	sodium chlorate		6.0	Apply 7 to 10 days prior to normal anticipated harvest of soybeans to desiccate soybeans and weeds. Apply in a minimum spray volume of 20 GPA for ground applications and 5 GPA for aerial applications. Do not feed treated foliage or graze treated fields. Apply on warm, sunny day with high temperatures and humidity. Do not apply if rainfall is expected within 24 hours. More effective on grass weeds than broadleaf weeds. Dessication of morningglory and other vines may be erratic. MOA = NC.
	3 lb/gal	2 gal		
	5 lb/gal	1.2 gal		
	6 lb/gal	1 gal		
	7.5lb/gal	0.8 gal		
	paraquat (Gramoxone Inteon / Gramoxone SL)	16.0 oz	0.25	Indeterminate Varieties: Apply when at least 65% of the seed pods have reached a mature brown color or when seed moisture is 30% or less. Determinant Varieties: Apply when soybeans are fully mature (full pod development, 50% leaf drop, and the remaining leaves are yellow). Mature cocklebur and drought stressed weeds are not adequately controlled by this treatment. Do not apply to immature soybeans. Add a nonionic surfactant at 0.25% v/v. May be ground or aerially applied. PHI = 15 days. MOA = 22.
	2.0 lb/gal			
	(Firestorm/ Parazone) 3.0 lb/gal	10.7 oz		
	carfentrazone (Aim 2EC)	1.5 oz	0.023	For the pre-harvest desiccation of pigweeds and annual morningglories (Ipomoea species). Apply at least 3 days before harvest. Can be applied by ground or air. Use with a crop oil concentrate @ 1% v/v . Can be tank-mixed with glyphosate to improve the spectrum of control. MOA = 14.

SOYBEAN WEED CONTROL (continued)

STAGE OF APPLICATION	HERBICIDE FORMULATION	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
CENTER PIVOT IRRIGATION APPLICATION	alachlor (Micro-Tech/ Intro) 4 lb/gal	3 qts.	3.0	Herbicides should be applied only through center pivot systems that water uniformly. Apply in 1/4-1/2 inch of irrigation water/A. Equipment must have appropriate check valves or other suitable devices in the system to insure that the herbicide solution cannot siphon back into water supply.
	metolachlor (Stalwart, Parallel PCS, Me-Too- Lachlor)	1.0 pts	1.0	
	S-metolachlor (Dual Magnum 7.62EC)	1.0 pts	0.97	

SOYBEAN WEED RESPONSE TO HERBICIDES

Eric P. Prostko, Extension Agronomist – Weed Science

	Prowl Pendimax	Scepter	Treflan	Squadron	Sonalan	Sencor	Pursuit	Canopy	Authority MTZ	Authority XL
PREPLANT INCORPORATED										
PERENNIAL WEEDS										
bermudagrass	P	P	P	P	P	P	P	P	P	P
johnsongrass (rhizome)	P	P	P	P	P	P	P	P	P	P
yellow nutsedge	P	F-G	P	F-G	P	P	F-G	F	F-G	G
purple nutsedge	P	P-F	P	P-F	P	P	G	P	F-G	G
ANNUAL GRASSES										
broadleaf signalgrass	G	P-F	G	G	G	P-F	P		P	P
crabgrass	E	F	E	E	E	G	P	G	P	F
crowfootgrass	E		E	G		G	P	G		
fall panicum	E	P	E	G	E	P	P		P	F
goosegrass	E	F	E	G	E	G	P	G	P	
johnsongrass (seedling)	E	F	E	E	E	P	P	P	P	F
sandbur	E		E	G		P	P			
Texas panicum	G-E	F	G-E	G-E	G-E	P	P			F
BROADLEAF WEEDS										
bristly starbur	P	F	P	F	P	G	F	G		G
burcucumber	P	F-G	P	F-G	P	P	P	F		
citronmelon	P	P	P	P	P	F	P-F			
cocklebur	P	G	P	G	P	F	F-G	G-E	P-F	G
coffee senna	P	F	P	F	P	G	F-G	G		E
common ragweed	P	G	P	G	P	G	P	G	F	P-F
copperleaf	P	P	P	P	P	G-E		G-E		
cowpea	P	P	P	P	P	F	P	F		
crotalaria	P		P		P	G		F		
Florida beggarweed	P	P-F	P	P	P	E	P	E		E
Florida pusley	E	E	E	E	E	E	E	E		E
hemp sesbania	P	P	P	P	P	G-E	P	G-E	P	F-G
Horseweed ALS-resistant Glyphosate-resistant						G G G		G F G	G G G	
jimsonweed	P	G	P	G	P	G	G	G	F	F-G
lambsquarters	G-E	G	G-E	G-E	E	G-E	F	G-E	G-E	G-E
morningglories										
cypressvine	P	F	P	F	P	F-G	G	F-G		E
entireleaf	P	F	P	G	P	P-F	G	G	G-E	E
ivyleaf	P	F	P	G	P	P-F	G	G	G-E	E
pitted	P	G	P	G	P	F-G	G	G	G-E	F-G
red	P	F	P	G	P	F	G			
smallflower	P	G	P	G	P	G	E	G		E
tall	P	F	P	G	P	P-F	G	F-G		E
Pennsylvania smartweed	P	G	P	G	P	G		G	G-E	E
pigweeds ALS-resistant Glyphosate-resistant	G G G	E P E	G G G	E G E	G-E G G	G-E G-E G-E	E P E	E G-E E	G-E G-E G-E	E E E
prickly sida	P	F	P	F-G	P	G-E	G-E	G-E	G	F-G
purslane	E		E	E	E	G-E		E		G-E
redweed	P	P-F	P	F	P					F
sicklepod	P	F-G	P	F	P	F-G	P	G		P
tropic croton	P		P	P	P	G	P	G		E
tropical spiderwort	P					G	F-G	G	F	G
velvetleaf	P	P-F	P	P-F	P	G-E	G	G	P	
wild poinsettia	P	G	P	G	P	G	E	G	F	P-F

Key to response symbols: E=Excellent; G=Good; F=Fair; P=Poor. If no symbol is given, weed response is unknown.

SOYBEAN WEED RESPONSE TO HERBICIDES (continued)

	Python	Prowl Pendimax	Squadron	Dual Magnum ¹	Command	Intrro	Pursuit	Linex Lorox	Metribuzin
	PPI/PRE	PREEMERGENCE							
PERENNIAL WEEDS									
bermudagrass	P	P	P	P	P	P	P	P	P
johnsongrass (rhizome)	P	P	P	P	P	P	P	P	P
yellow nutsedge	P	P	F-G	F-G	P	F	F-G	P	P
purple nutsedge	P	P	P-F	P	P	P	G	P	P
ANNUAL GRASSES									
broadleaf signalgrass		G	G	F-G	E	F-G	P		P
crabgrass	P	G-E	G-E	E	E	E	P	G	G
crowfootgrass	P	G-E	G-E	G	G	E	P	G	G
fall panicum	P	G	G	G	G	G	P	G	P
goosegrass	P	G	G	E	G	E	P	G	G
johnsongrass (seedling)	P	G	G		F		P		P
sandbur	P	G	G	G	F	G	P	G	
Texas panicum	P	G	G	P	F-G	P	P		P
BROADLEAF WEEDS									
bristly starbur	E	P	F	P		F	F	F	G
burcucumber	P	P	P-F	P	P	P	P	P	P
citronmelon		P	P	P	P	P			F
cocklebur	E	P	G	P	P	P	F-G	P	F
coffee senna	F	P	F	P	F	P-F	P		G
common ragweed	G	P	G	P	F-G	P	P	G	G
copperleaf	F	P	P	P		P	P	P	G-E
cowpea	P	P	P	P	P	P	P	P	F
crotalaria		P							F
Florida beggarweed	F-G	P	P	P-F	F-G	F	P	G	E
Florida pusley	G	G	E	G	F-G	G	E	G	G
hemp sesbania		P	P	P		P	P		G-E
horseweed	G								G
ALS-resistant	P								G
Glyphosate-resistant	G								G
jimsonweed	P	P	G	P	F-G	P	G		G
lambquarters	E	G	E	F	G-E	F	P-F	G-E	G
morningglories									
cypressvine	F-G	P	F				G		F-G
entireleaf	F-G	P	G	P	P	P	G	G	P-F
ivyleaf	F-G	P	G	P	P	P	G	G	P-F
pitted	F-G	P	E	P	P	P	G	G	F-G
purple	P	P	P-F	P	P	P	P		P
red	F-G	P	G	P	P		G		F
smallflower	G-E	P	G	P-F	G	P-F	E	G	G
tall	F-G	P	G	P	P	P	G	G	P-F
Pennsylvania smartweed		P	G	P	G	P			G
pigweeds	E	G	E	G-E	P-F	G-E	E	G	G-E
ALS-resistant	P	G	G	G-E	P-F	G-E	P	G	G-E
Glyphosate-resistant	E	G	E	G-E	P-F	G-E	E	G	G-E
prickly sida	E	P	G	F	G	G	G-E		G
purslane		E	E	G	G	G		G	G-E
redweed	G	P	F						
sicklepod	F-G	P	F	P	P	P-F	P	P	F-G
tropic croton		P	P	P	G	P	P		G
tropical spiderwort		P		G	F		F-G		F-G
velvetleaf	E	P	P-F	P	E	P	G		G
wild poinsettia	G	P	G	P	P	P	G-E		G

Key to response symbols: E=Excellent; G=Good; F=Fair; P=Poor. If no symbol is shown, weed response is unknown.

¹The generic formulations of metolachlor (**Parallel PCS, Stalwart, Me-Too-Lachlor**) have not provided the same length of residual control of certain weeds as similar rates of Dual Magnum formulations in some UGA field trials.

SOYBEAN WEED RESPONSE TO HERBICIDES (continued)

	Scepter	Valor	Valor XLT Envive	Reflex	Prefix	Assure II	Poast	Fusilade DX	Ultra Blazer	Basagran
	PREEMERGENCE					POSTEMERGENCE				
PERENNIAL WEEDS										
bermudagrass	P	P	P			G-E	F	G-E	P	P
johnsongrass (rhizome)	P	P	P			E	G	E	P	P
yellow nutsedge	F-G	P	F-G	G-E	G-E	P	P	P	P	G*
purple nutsedge	P-F	P	P-F			P	P	P	P	P
ANNUAL GRASSES										
broadleaf signalgrass	P-F	P	P	F-G	F-G	G	E	E	P	P
crabgrass	F	P	P	F-G	E	F-G	G	F	P	P
crowfootgrass		P	P		G	G	F-G	F	P	P
fall panicum	P-F	P	P		G	G	G	G	P	P
goosegrass	P-F	P	P		E	F-G	F-G	F-G	P	P
johnsongrass (seedling)	P	P	P			E	G-E	G-E	P	P
sandbur		P	P		G		G	G	P	P
Texas panicum	F	P	P	F	F	F-G	E	G-E	P	P
BROADLEAF WEEDS										
bristly starbur	F	F	F-G	G		P	P	F-G	F	E
burcucumber	P-F	P	P-F			P	P	P	F	P
citronmelon		G	G			P	P	P	G-E	P
cocklebur	E	P	F-G	G	G	P	P	P	G	E
coffee senna	F	P-F	F-G	P	P	P	P	P	P-F	G
common ragweed	G	G-E	G-E	G	G	P	P	P	E	G
copperleaf	P	G-E	G-E			P	P	P	G-E	P
cowpea	P	P	P			P	P	P	F	P
crotalaria		G	G			P	P	P	E	P
Florida beggarweed	P	G-E	G-E	P	P-F	P	P	P	P-F	P
Florida pusley	G-E	G-E	G-E	P	G	P	P	P	E	P
hemp sesbania		G	G-E	P	P	P	P	P	E	P
horseweed		G	G			P	P	P		
ALS-resistant		G	G			P	P	P		
Glyphosate-resistant		G	G			P	P	P		
jimsonweed	E	G	G			P	P	P	E	E
lambsquarters	G-E	G-E	G-E			P	P	P	F	F
morningglories										
cypressvine	F-G	G	G	F	F	P	P	P	G-E	G-E
entireleaf	P	F-G	F-G	F	F	P	P	P	G	P
ivyleaf	P	F-G	F-G	F	F	P	P	P	G	P
pitted	G	F	F-G	F	F	P	P	P	G-E	F
purple	P			F	F	P	P	P	G-E	P
red	F	G	G	F	F	P	P	P	G-E	F-G
smallflower	G	G-E	G-E	G-E	G-E	P	P	P	G-E	G-E
tall	F	F-G	F-G	F	F	P	P	P	G	F
Pennsylvania smartweed		P-F	F			P	P	P	G	G-E
pigweeds	E	G-E	G-E	G-E	G-E	P	P	P	G-E	P-F
ALS-resistant	P	G-E	G-E	G-E	G-E	P	P	P	G-E	P-F
Glyphosate-resistant	E	G-E	G-E	G-E	G-E	P	P	P	G-E	P-F
prickly sida	G-E	G-E	G-E			P	P	P	P	G
purslane		G-E	G-E	G	G	P	P	P	E	G
redweed		G-E	G-E			P	P	P		G-E
sicklepod	F	P	F			P	P	P	P-F	P
tropic croton	P	G	G	F-G	F-G	P	P	P	E	P
tropical spiderwort		P-F	F	P	G-E	P	P	P	P	G
velevetleaf	P-F	G-E	G-E			P	P	P	F	G-E
wild poinsettia	G	F-G	F-G	G-E	G-E	P	P	P	G	P

Key to response symbols: E=Excellent (>90%); G=Good (80-89%); F=Fair (70-79%); P=Poor (<70%). If no symbol is given, weed response is unknown.

*Assumes 2 applications.

SOYBEAN WEED RESPONSE TO HERBICIDES (continued)

	Storm	2,4-DB	Scepter	Classic	Reflex	Cobra	Select Arrow	Ignite	Glyphosate
POSTEMERGENCE									
PERENNIAL WEEDS									
bermudagrass	P	P	P	P	P	P	G-E	p	P-F
johnsongrass (rhizome)	P	P	P	P	P	P	E	P-F	G-E
yellow nutsedge	P	P	P-F	G	F	P-F	P	P	F
purple nutsedge	P	P	P	P-F	P	P	P	P	F-G
ANNUAL GRASSES									
broadleaf signalgrass	P	P	P	P	P	P-F	E	G	E
crabgrass	P	P	P	P	P	P-F	G	F-G	E
crowfootgrass	P	P	P	P	P	P	G	G	E
fall panicum	P	P	P	P	P	P	G	G	E
goosegrass	P	P	P	P	P	P	F-G	P	E
johnsongrass (seedling)	P	P	F	P	P	P	E	G	E
sandbur	P	P	P	P	P	P-F	G		E
Texas panicum	P	P	P	P	P	P	G-E	G	E
BROADLEAF WEEDS									
bristly starbur	G			G		G	P	G-E	G
burcucumber	P-F	P	P	G	F	F	P		E
citronmelon	G	P				G	P	G	G
cocklebur	G-E	G-E	E	E	F-G	G-E	P	E	E
coffee senna	G	F	F	P	P	P-F	P		G
common ragweed	G-E	P	F-G	G	G-E	E	P	G	G
copperleaf	G	P	P	P	G-E	G-E	P		P-F
cowpea	P-F	P-F	P	G	F	P-F	P		F-G
crotalaria	E				G-E	E	P		G
Florida beggarweed	P	P	P	E	P	P-F	P	G-E	G
Florida pusley	E		F	F	G	F-G	P	P-F	P-F
hemp sesbania	E	P	P	E	G	E	P	G-E	F
horseweed ALS-resistant Glyphosate-resistant				F-G P F-G				G G G	F-G F-G P
jimsonweed	E	G	P	G-E	G	E	P	G	G
lambquarters	G		F	P	P-F	P-F	P	E	G
morningglories									
cypressvine	G-E	F	F	P	G-E	G-E	P	G-E	F
entireleaf	F-G	G	P	F-G	F	F-G	P	G-E	F
ivyleaf	F-G	G	P	F-G	F	F-G	P	G-E	F
pitted	G	G	F	G	G	G	P	G-E	P-F
purple	G	G	P	P	G-E	F-G	P	G	P-F
red	G	G-E	F-G	G-E	G-E	G-E	P	G-E	F
smallflower	G-E	G	F	G-E	G	G-E	P	G-E	F
tall	G	G-E	P-F	P-F	G	G	P	G-E	F
Pennsylvania smartweed	G-E	P	F	G	G	G-E	P	G-E	G
pigweeds ALS-resistant Glyphosate-resistant	G-E G-E G-E	F F F	E P E	F P F	G-E G-E G-E	G-E G-E G-E	P P P	F-G F-G F-G	G-E G-E P
prickly sida	G	P	P	P	P	G	P	P-F	P-F
purslane	G	G				E	P	G	G
redweed	G-E			F		F	P		G
sicklepod	P	F	F	F-G	P	P-F	P	G	E
tropic croton	G-E	P		P		E	P	G	G
tropical spiderwort	F						P	P-F	F
veveleaf	F-G	P	P	G-E	F	F	P	E	G
wild poinsettia	F-G	P	F	F	F-G	G-E	P		G

Key to response symbols: E=Excellent (>90%); G=Good (80-89%); F=Fair (70-79%); P=Poor (<70%). If no symbol is given, weed response is unknown.

SOYBEAN WEED RESPONSE TO HERBICIDES (continued)

	FirstRate Amplify	Front Row	Pursuit	Harmony GT XP or SG	2,4-DB	Paraquat	Sencor	Sencor + 2,4-DB
	POSTEMERGENCE				POST-DIRECTED			
PERENNIAL WEEDS								
bermudagrass	P	P	P	P	P	P	P	P
johnsongrass (rhizome)	P	P	P	P	P	P	P	P
yellow nutsedge	P-F	P	F-G	P	P	P-F		P-F
purple nutsedge	P-F	P	G	P	P	P-F		
ANNUAL GRASSES								
broadleaf signalgrass	P	P	G	P	P	G		G
crabgrass	P	P	F	P	P	F	E	G-E
crowfootgrass	P	P	F	P	P	G	E	G-E
fall panicum	P	P	F	P	P	G	G	G
goosegrass	P	P	F	P	P	G	E	G-E
johnsongrass (seedling)	P	P	F-G	P	P	G	G	G
sandbur	P	P		P	P	G	E	G
Texas panicum	P	P	P	P	P	G	F	F-G
BROADLEAF WEEDS								
bristly starbur	E	E	F		G	G	G	E
burcucumber	F		P	P-F	P	G		
citronmelon			P		F	F	G	G-E
cocklebur	E	E	G-E	F	E	G	E	E
coffee senna			F		F-G			G-E
common ragweed	E	E	P		G	G	G	E
copperleaf	P		P		P			G-E
cowpea	P	P	P		P-F	G		G
crotalaria			P			G	E	E
Florida beggarweed	F-G	F-G	P		P	G	E	E
Florida pusley	F	F	P			F-G	G	G
hemp sesbania	P	P-F	P		P	P		G
horseweed ALS-resistant Glyphosate-resistant	G P G							
jimsonweed	P	P	F	F	G	G	E	G
lambsquarters	P	F	P	G-E	G	F-G	E	E
morningglories								
cypressvine	G	G	G		F	F	E	E
entireleaf	G	G	G		G	F-G	F	E
ivyleaf	G	G	G		G	F-G	F	E
pitted	G	G	G		G	F-G	G-E	G-E
purple	P-F		P		G			G-E
red	G	G	G		G-E	F-G	G-E	E
smallflower	G	G	G		G	F-G	G-E	E
tall	G	G	G		G-E	F-G	F	G
Pennsylvania smartweed			F-G	G-E	P	P-F		F-G
pigweeds ALS-resistant Glyphosate-resistant	P P P	F P F	E P E	G-E P G-E	F F F	F-G F-G F-G	G-E G-E G-E	G-E G-E G-E
prickly sida	P	E	P		P	P-F	E	G-E
purslane					G	G	G	G
redweed			F		P			
sicklepod	F	F-G	P		G	G	E	G-E
tropic croton			P		P	G	G	G
tropical spiderwort						G-E		
velvetleaf	G		G		P			F
wild poinsettia	G	G	P-F		P	F-G	P-F	F

Key to response symbols: E=Excellent (>90%); G=Good (80-89%); F=Fair (70-79%); P=Poor (<70%). If no symbol is given, weed response is unknown.

**WEED AND COVER CROP RESPONSE TO BURNDOWN HERBICIDES USED IN CONSERVATION TILLAGE
SOYBEAN PRODUCTIONS SYSTEMS IN GEORGIA**

Weed	Glyphosate	Glyphosate + 2,4-D	Glyphosate + Clarity	Glyphosate + Aim or ET	Glyphosate + FirstShot	Paraquat	Paraquat + 2,4-D	Paraquat + Sencor	Ignite
Carolina geranium	P	F-G	G	F-G	G-E	G-E	G-E	G-E	G-E
chickweed	E	E	E	E	E	E	E	G-E	G-E
corn spurry	G-E	G-E	G-E			F-G			
crimson clover	P-F	F	F-G	F		G	G-E	G	
cutleaf evening primrose	P-F	E	G	F	F	F	E	G	G-E (mature plant)
henbit	G	E	E	E	G-E	G	E	G	G-E
Horseweed	F-G	G-E	E	G	G-E	F	G	G	G-E
Glyphosate-resistant	P	F-G	E	P	P			G	
red sorrel	E	E	E			E	E	E	P-F
ryegrass**	G	G	G	G	G	P-F	P-F	P-F	P
small grains	E	E	E	E	E	F-G	F-G	F-G	P-F
swinecress	F-G	G	F-G	F-G	G	P-F	F-G		G-E
volunteer peanut	F	F	G	F	F	P	P-F	F	G-E
wild radish	F-G	G-E	G-E	G	G-E	F	G-E	F	G-E (mature plant)
Soybean plant-back restriction	0 days	7-15 days	14-28 days 1” rainfall or irrigation	0 days	7-14 days	0 days	7-15 days	0 days	0 days

PREPACKAGED TANK-MIXES FOR SOYBEANS

[See manufacturer's label for specific rates and application uses.]

Product Name	Active Ingredients (lbs ai/gal or % ai)	Product Name	Active Ingredients (lbs ai/gal or % ai)
Authority Assist	sulfentrazone (3.33) + imazethapyr (0.67)		
Authority MTZ	Sulfentrazone (18%) + metribuzin (27%)	Backdraft	imazaquin (0.25) + glyphosate (1.25)
Authority XL	sulfentrazone (62%) + chlorimuron (8%)		
Axiom	flufenacet (54.4%) + metribuzin (13.6%)	Authority First	sulfentrazone (62.1%) + chloransulam (7.9%)
Boundary	metribuzin (1.25) + S-metolachlor (5.25)	Broadstrike + Treflan	flumetsulam (0.25) + trifluralin (3.4)
Canopy	chlorimuron (10.7 %) + metribuzin (64.3 %)	Canopy EX	chlorimuron (22.7%) + tribenuron (6.8%)
Canopy XL	sulfentrazone (46.9%) + chlorimuron (9.4%)		
Commence	clomazone (2.25) + trifluralin (3.0)	Concert	chlorimuron (12.5%) + thifensulfuron (12.5%)
Detail	imazaquin (0.5) + dimethenamid (3.6)	Domain	flufenacet (24%) + metribuzin (36%)
Enlite	chlorimuron (2.85%) + flumioxazin (36.21%) + thifensulfuron (8.8%)	Envive	chlorimuron (9.2%) + flumioxazin (29.2%) + thifensulfuron (2.9%)
Extreme	imazethapyr (0.17) + glyphosate (2.0)	Flexstar GT 3.5	fomesafen (0.56) + glyphosate (2.26)
Freedom	alachlor (2.67) + trifluralin (0.33)		
Fusion	fluazifop (2.0) + fenoxaprop (0.56)	Galaxy	bentazon (3.0) + acifluorfen (0.67)
Gangster	flumioxazin (51%) + cloransulam (84%)	Gauntlet	sulfentrazone (75%) + cloransulam-methyl (84%)
Prefix	fomesafen (0.95) + S-metolachlor (4.34)	Passport	trifluralin (2.4) + imazethapyr (0.2)
Pursuit Plus	imazethapyr (0.2) + pendimethalin (2.7)	Reliance STS	thifensulfuron (9%) + chlorimuron (16%)
Sequence	glyphosate (2.25) + S-metolachlor (3.0)	Sonic	sulfentrazone (62.1%) + chloransulam (7.9%)
Spartan Advance	sulfentrazone (0.56) + glyphosate (4.04)	Spartan Charge	sulfentrazone (3.15) + carfentrazone (0.35)
Squadron	imazaquin (0.33) + pendimethalin (2.0)	Steel	pendimethalin (2.25) + imazethapyr (0.17) + imazaquin (0.17)
Stellar	lactofen (2.4) + flumiclorac (0.7)	Storm	bentazon (2.67) + acifluorfen (1.33)
Synchrony XP	chlorimuron (21.5%) + thifensulfuron (6.9%)	Tackle	imazethapyr (0.128) + glyphosate (4.0)
Typhoon	fluazifop (0.47) + fomesafen (0.94)	Valor XLT	flumioxazin (30%) + chlorimuron (10.3%)

SOYBEAN PRE-MIXTURES AND EQUIVALENT RATES

Pre-Mixture	Rate/A	Equivalent Rates/A
Authority MTZ 45DG	14 oz/A	Spartan 4L @ 5.04 oz Sencor 75DG @ 5.04 oz
Boundary 6.5EC	1.5 pt	Dual Magnum 7.62EC @ 16.5 oz Sencor 75DF @ 4.9 oz
Canopy 75DG	6 oz	Sencor 75DG @ 5.1 oz Classic 25DG @ 2.6 oz
Envive 41.3DG	4 oz	Valor 51WG @ 2.29 oz Classic 25DG @ 1.47 oz Harmony 75DG @ 0.16 oz
Flexstar GT 3.5 2.82 SL	3.5 pt	Touchdown Total 4.17SL @ 30.4 oz Reflex 2SL @ 15.7 oz
Prefix 5.29SL	2.33 pt	Dual Magnum 7.62EC @ 21.2 oz Reflex 2SL @ 17.7 oz
Sequence 5.25SL	3 pt	Dual Magnum 7.62EC @ 18.9 oz Touchdown Total 4.17SL @ 25.9 oz
Valor XLT 40.3DG	4 oz	Valor 51WG @ 2.35 oz Classic 25DG @ 1.65 oz

RR CORN CONTROL IN RR SOYBEANS

Herbicide*	Corn Size (in)	Rate/A (ozs)
Arrow/Select	4-12	4-6
	12-24	6-8
Assure II/Targa	1-12	1-12
	12-18	12-18
	18-30	18-30
Fusilade	12-24	6-8
Poast	1-12	12
	12-20	16
Poast Plus	1-12	18
	12-20	24
SelectMax / TapOut	4-12	8-12
	12-18	10-14
	18-24	12-16

*In RR soybean production systems, these grass herbicides can be tank-mixed with glyphosate.

HERBICIDE PROGRAMS FOR MANAGING VOLUNTEER RR COTTON IN RR SOYBEANS¹

Preemergence	Postemergence ²
Canopy / Cloak 75DG (6-8 oz/A ³) or Metribuzin, Tricor 75DF (5.3-8 oz/A ³)	glyphosate + Resource (4 oz/A), or 2,4-DB (2 oz/A), or Reflex (12 oz/A), or Classic (0.33 oz/A)

¹A combination of preemergence and postemergence herbicides is needed to provide optimum control.

²Postemergence applications should be made when cotton is 6" or less.

³Rate depends upon soil type. Refer to label.

SUGGESTIONS FOR HORSEWEED (MARESTAIL) CONTROL IN SOYBEANS

Time of Application	Treatment	Comments
Preplant Burndown	Ignite 280 2.34SL @ 29-36 oz/A	Use at least 15 GPA and flat fan nozzle tips. Apply between 9:00 am and 6:00 pm. Temperatures less than 75°F will reduce control. Labeled for 6-12" horseweed plants.
	Roundup PowerMax 5.5 SL @ 22-43 oz/A + Clarity 4SL @ 8 oz/A	Soybeans can be planted in 14 days if 1" of rainfall or irrigation has occurred since application.
	Roundup PowerMax 5.5SL @ 22-43 oz/A + 2,4-D amine 3.8SL @ 1.5-2.0 pt/A	Soybeans can be planted 30 days after application.
	Gramoxone Inteon / Gramoxone SL 2SL @ 48 oz/A + Metribuzin/Tricor 75DF @ 4 oz/A + NIS @ 0.25% v/v	Apply to 6" or smaller horseweed plants. Use at least 15 GPA and flat fan nozzle tips. Plant a metribuzin tolerant soybean variety.
Residual Control	Valor SX 51WG @ 2-2.5 oz/A	Excellent residual control but no postemergence activity
	Python 80WG @ 1 oz/A	Will not control ALS-resistant populations.
Postemergence (in-crop)	Firstrate 84DG @ 0.3 oz/A + NIS @ 0.25% v/v	Apply to horseweed plants that are 6" tall or less. Can also be tank-mixed with glyphosate in RR soybeans. Will not control ALS-resistant populations.

HERBICIDE PROGRAMS FOR MANAGING GLYPHOSATE/ALS-RESISTANT PALMER AMARANTH AND DELAYING PPO RESISTANCE IN SOYBEANS¹

Soybean Variety	Preemergence ²	Postemergence ^{3,4}
Roundup Ready	Metribuzin/TriCor or Canopy /Cloak ⁵ or Boundary ⁶ or Authority MTZ ¹⁴ or Authority XL ¹⁵ or Dual Magnum or Intro	glyphosate + Reflex ⁷ or glyphosate + Ultra Blazer ⁷ or glyphosate + Cobra ⁷ or glyphosate + Prefix ^{7,8} or glyphosate + Warrant or Sequence ⁹ or Flexstar GT ^{7,10}
Liberty-Link	Prowl or Dual Magnum or Intro or Valor or Envive ^{7,11} , or Prefix ^{7,8} or Valor XLT ^{7,12}	Ignite ¹³
Conventional	Metribuzin/TriCor or Canopy / Cloak ⁵ or Boundary ⁶ or Authority MTZ ^{7,14} or Authority XL ¹⁵ + Prowl	Reflex ⁷ or Ultra Blazer ⁷ or Cobra ^{6,7} or Prefix ^{7,8}

¹ Glyphosate- and ALS-resistant Palmer amaranth are very serious concerns. An aggressive management program is necessary to slow spread of resistant biotypes and to reduce selection pressure in areas currently not infested with resistant biotypes.

² Generic brands of metribuzin and Prowl (pendimethalin) are available and perform similarly. When using Authority MTZ, Boundary, Sencor or Canopy, follow label for appropriate rates, soil pH restrictions, and soybean variety tolerance. Dryland growers should consider mechanically incorporating Authority MTZ, Metribuzin/Tricor, Canopy, Boundary, and Prowl. If mechanically incorporating herbicides, Trellan can be used instead of Prowl if preferred.

³ When applied in combination with glyphosate, use either 12-16 oz/A of Reflex, 1.0-1.5 pt/A of Ultra Blazer, or 12.5 ozs/A of Cobra. Applications should be made before Palmer amaranth exceeds 2" in height.

⁴ If residual herbicides are activated by a timely rainfall or irrigation event, a second postemergence application will usually not be needed. The total amount of these herbicides that can be applied per acre per year are as follows: Cobra - 25 ozs/A; Reflex - 1.5 pt/A; and Ultra Blazer - 2.0 pt/A. Reflex may be preferred because of residual control of Palmer amaranth. On Roundup Ready soybean, glyphosate can be included in the second application if needed for the control of other weeds.

⁵ Canopy is a pre-mixture of metribuzin + chlorimuron (Classic).

⁶ Boundary is a pre-mixture of metribuzin and S-metolachlor (Dual Magnum).

⁷ Authority MTZ, Authority XL, Cobra, Envive, Flexstar GT, Prefix, Reflex, Ultra Blazer, Valor, Valor XLT have the same mode of action (PPO inhibitor). More than 1 application of these herbicides in a single season should be avoided if at all possible to prevent/delay the development of PPO resistance.

⁸ Prefix is a pre-mixture of fomesafen (Reflex) and S-metolachlor (Dual Magnum).

⁹ Sequence is a pre-mixture of glyphosate and S-metolachlor (Dual Magnum). Sequence will not control emerged glyphosate resistant pigweed.

¹⁰ Flexstar GT is a pre-mixture of fomesafen (Reflex) and glyphosate (Touchdown).

¹¹ Envive is a pre-mixture of chlorimuron (Classic), flumioxazin (Valor) and thifensulfuron (Harmony).

¹² Valor XLT is a pre-mixture of flumioxazin (Valor) and chlorimuron (Classic).

¹³ Ignite can be tank-mixed with Dual Magnum or Reflex to improve residual control.

¹⁴ Authority MTZ is a pre-mixture of sulfentrazone (Spartan) and metribuzin.

¹⁵ Authority XL is a pre-mixture of sulfentrazone (Spartan) and chlorimuron (Classic).

Soybean varieties that have exhibited acceptable tolerance to metribuzin herbicides (Boundary, Canopy, TriCor) in UGA tests conducted in 2008-2011 include the following:

Group IV: Asgrow 4903 RR/STS, Southern States RT4808

Group V: Asgrow 5905RR, AGS 568RR, Delta Pineland DP5634, Pioneer 95Y20, Pioneer 95Y40, Pioneer 95Y50RR, Pioneer 95Y70, Southern States RT5951NRR, Southern States RT5960NRR

Group VI: Asgrow 6301RR, Delta Pineland DP6568, Pioneer 96M60, Southern States RT 6451NRR, Vigoro V61N9

Group VII: AGS 758RR, Asgrow 7501RR, Asgrow H7242, Benning, Northrup King NKS 76L9, Northrup King NKS 78G6, Pioneer 97M50, Southern States RT7270NRR, USG 7732nRR, Vigoro V74N9, Woodruff

Group VIII: Northrup King NKS 80P2, Prichard RR

** Soybean varieties not included in this list have not been adequately evaluated.

** Rates tested in these studies include the following: Boundary 6.5EC @ 24 oz/A; Canopy 75DG @ 6 oz/A; Metribuzin 75DG @ 5.3 oz/A.

** Metribuzin herbicides are NOT recommended for use on sands or other coarse soils with less than 1% OM.

METRIBUZIN HERBICIDES SHOULD NOT BE USED ON THE FOLLOWING SOYBEAN VARIETIES: Southern States LL 511N or LL595N; AG6730; AG6130

2012 STS SOYBEAN VARIETIES

SOUTHERN STATES

- 1) RT 4470N-ST5
- 2) SS 4700 RS-ST5
- 3) RT 4808N-ST5
- 4) RT 4996N-ST5
- 5) RT 5160N-ST5
- 6) SS 5200-ST5 (CONVENTIONAL)
- 7) RT 5471N-ST5

PIONEER

- 1) 95Y70 RR/ST5
- 2) 95M50 RR/ST5

ASGROW

- 1) AG 4031 GENRR2T/ST5
- 2) AG 4232 GENRR2Y/ST5
- 3) AG 4404 RR/ST5
- 4) AG 4531 GENRR2Y/ST5
- 5) AG 4605 RR/ST5
- 6) AG 4730 GENRR2Y/ST5
- 7) AG 4831 GENRR2Y/ST5
- 8) AG 5405 RR/ST5
- 9) AG 5605 RR/ST5
- 10) AG 5632 GENRR2Y/ST5

DELTAPINE

- 1) DP 4888 RR/ST5
- 2) DP 5335 RR/ST5

NORTHRUP KING

- 1) NK S44-D5 RR/ST5
- 2) NK S41-M5 RR/ST5
- 3) NK S54-T5 RR/ST5
- 4) NK S54-V4 RR/ST5

DEKALB

- 1) DK 4866 RR/ST5