

SOYBEAN: SOYBEAN INSECT CONTROL

Phillip Roberts, Extension Entomologist, Mike Toews, Research Entomologist, and David Buntin, Research Entomologist

PEST	INSECTICIDE	MOA	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Bean Leaf Beetles	<i>alpha-cypermethrin</i> Fastac CS	3A	2.8-3.8 oz	0.018-0.025	12 H/ 21 D	<p>Bean leaf beetles are foliage feeders and damage the plant by chewing holes in the leaves and occasionally feeding on stems and pods.</p> <p>Defoliation Threshold: Treat when 30 percent foliage loss has occurred and beetles are present prior to bloom or when 15 percent foliage loss has occurred and beetles are present after bloom.</p> <p>Pod Feeding Threshold: Treat if 50 percent of the plants have pod feeding prior to R6.</p>
	<i>bifenthrin</i> Brigade 2EC Discipline 2EC	3A	2.1-6.4 oz 2.1-6.4 oz	0.033-0.1	12 H/ 18 D	
	<i>carbaryl</i> Sevin 80S Sevin 4F	1A	0.625-1.25 lb 1-2 pt	0.5-1	12 H/ 21 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.6-2.8 oz	0.0125-0.022	12 H/ 21 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	0.77-1.28 oz 0.77-1.28 oz	0.0075-0.0125	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	0.96-1.6 oz 1.92-3.2 oz	0.015-0.025	24 H/ 30 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	2.8-4 oz	0.0175-0.025	12 H/ 21 D	
Beet Armyworms	<i>chlorantraniliprole</i> Prevathon 0.43	28	14-20 oz	0.047-0.067	4 H/ 1 day	<p>Defoliation Threshold: Treat when 30 percent foliage loss has occurred and larvae 1/2" or longer are present prior to bloom or when 15% foliage loss has occurred and larvae 1/2" or longer are present after bloom.</p> <p>Beet armyworm infestations sometimes occur on seedling soybeans, especially on ultra-late planted soybeans.</p>
	<i>indoxacarb</i> Steward 1.25 EC	22	5.6-11.3 oz	0.055-0.1	12 H/ 21 D	
	<i>methoxyfenozide</i> Intrepid 2F	18	4-8 oz	0.06-0.12	4 H/ 14 D	
	<i>novaluron</i> Diamond 0.83 EC	15	6-12 oz	0.039-0.077	12 H/ 28 D	
	<i>spinetoram</i> Radiant 1SC	5	2-4 oz	0.0156-0.0313	4 H/ 28 D	
	<i>spinosad</i> Blackhawk	5	1.7-2.2 oz	0.038-0.049	4 H/ 28 D	
Blister Beetles	<i>alpha-cypermethrin</i> Fastac CS	3A	2.8-3.8 oz	0.018-0.025	12 H/ 21 D	<p>Blister beetles are rarely a problem in soybeans. However, large numbers can cause extensive defoliation. Blister beetles may congregate in isolated areas of fields.</p> <p>Defoliation Threshold: Treat when 30% foliage loss has occurred and beetles are present prior to bloom or when 15% foliage loss has occurred and beetles are present after bloom.</p>
	<i>carbaryl</i> Sevin 4F	1A	1-2 pt	0.5-1	12 H/ 21 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.6-2.8 oz	0.0125-0.022	12 H/ 21 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	1.28-1.54 oz 1.28-1.54 oz	0.0125-0.015	24 H/ 45 D	

SOYBEAN INSECT CONTROL

PEST	INSECTICIDE	MOA	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Blister Beetles (continued)	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	1.6-1.92 oz 3.2-3.84 oz	0.025-0.03	24 H/ 30 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	2.8-4oz	0.0175-0.025	12 H/ 21 D	
Corn Earworms	<i>alpha-cypermethrin</i> Fastac CS	3A	2.8-3.8 oz	0.018-0.025	12 H/ 21 D	<p>Corn earworm infestations are rare in Georgia soybeans and typically occur in more northern areas of the state. Corn earworms may feed on the foliage or more importantly may damage developing pods.</p> <p>Defoliation Threshold: Treat when 30% foliage loss has occurred and larvae 1/2" or longer are present prior to bloom or when 15% foliage loss has occurred and larvae 1/2" or longer are present after bloom.</p> <p>Sweep Net Threshold: 5 larvae/25 sweeps.</p> <p>Drop Cloth Threshold: 2 larvae/1 ft of row.</p>
	<i>bifenthrin</i> Brigade 2EC Discipline 2EC	3A	2.1-6.4 oz 2.1-6.4 oz	0.033-0.10	12 H/ 18 D	
	<i>carbaryl</i> Sevin 4F	1A	1-3 pt	0.5-1.5	12 H/ 21 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.6-2.8 oz	0.0125-0.022	12 H/ 21 D	
	<i>chlorantraniliprole</i> Prevathon 0.43	28	14-20 oz	0.047-0.067	4 H/ 1 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	0.77-1.28 oz 0.77-1.28 oz	0.0075-0.0125	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	0.96-1.6 oz 1.92-3.2 oz	0.015-0.025	24 H/ 30 D	
	<i>esfenvalerate</i> Asana XL .66EC	3A	5.8-9.6 oz	0.03-0.05	12 H/ 21 D	
	<i>indoxacarb</i> Steward 1.25 EC	22	5.6-11.3 oz	0.055-0.1	12 H/ 21 D	
	<i>methomyl</i> Lannate 2.4 LV	1A	0.75-1.5 pt	0.225-0.45	48 H/ 14 D	
	<i>spinetoram</i> Radiant 1SC	5	2-4 oz	0.0156-0.0313	4 H/ 28 D	
	<i>spinosad</i> Blackhawk	5	1.7-2.2 oz	0.038-0.049	4 H/ 28 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	2.8-4 oz	0.0175-0.025	12 H/ 21 D	
Cutworms	<i>alpha-cypermethrin</i> Fastac CS	3A	1.3-3.8 oz	0.018-0.025	12 H/ 21 D	Treat when 10% of stand is lost and larvae are present.
	<i>bifenthrin</i> Brigade 2EC Discipline 2EC	3A	2.1-6.4 oz 2.1-6.4 oz	0.033-0.10	12 H/ 18 D	
	<i>chlorpyrifos</i> Lorsban 4E	1B	2 pt	1	24 H/ 28 D	

SOYBEAN INSECT CONTROL

PEST	INSECTICIDE	MOA	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Cutworms (continued)	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	0.8-1.6 oz	0.0065-0.0125	12 H/ 21 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	0.77-1.28 oz 0.77-1.28 oz	0.0075-0.0125	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	0.96-1.6 oz 1.92-3.2 oz	0.015-0.025	24 H/ 30 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	1.28-4 oz	0.008-0.025	12 H/ 21 D	
Fall Armyworms	<i>chlorantraniliprole</i> Prevathon 0.43	28	14-20 oz	0.047-0.067	4 H/ 1 day	Defoliation Threshold: Treat when 30% foliage loss has occurred and larvae 1/2" or longer are present prior to bloom or when 15% foliage loss has occurred and larvae 1/2" or longer are present after bloom. Fall armyworm may sometimes feed on pods. If pod feeding is observed treat when populations reach 2 larvae/1 ft of row.
	<i>indoxacarb</i> Steward 1.25EC	22	5.6-11.3 oz	0.055-0.1	12 H/ 21 D	
	<i>methomyl</i> Lannate 2.4LV	1A	1.5 pt	0.45	48 H/ 14 D	
	novaluron Diamond 0.83 EC	15	6-12 oz	0.039-0.077	12 H/ 28 D	
	<i>spinetoram</i> Radiant 1SC	5	2-4 oz	0.0156-0.0313	4 H/ 28 D	
	<i>spinosad</i> Blackhawk	5	1.7-2.2 oz	0.039-0.049	4 H/ 28 D	
Grasshoppers	<i>alpha-cypermethrin</i> Fastac CS	3A	3.2-3.8 oz	0.02-0.025	12 H/ 21 D	Grasshoppers are primarily foliage feeders but may also feed on pods. In reduced tillage fields, immature grasshoppers may emerge from egg pods oviposited in the soil the previous fall. Adult grasshoppers migrating into soybeans initially build on field edges. Immature (wingless) grasshoppers are easier to control than adults. Defoliation Threshold: Treat when 30% foliage loss has occurred and grasshoppers are present prior to bloom, or when 15% foliage loss has occurred and grasshoppers are present after bloom.
	<i>bifenthrin</i> Brigade 2EC Discipline 2EC	3A	2.1-6.4 oz 2.1-6.4 oz	0.033-0.1	12 H/ 18 D	
	<i>acephate</i> Orthene 97	1B	0.5 lb	0.48	24 H/ 14 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	2-2.8 oz	0.0155-0.022	12 H/ 21 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	1.28-1.54 oz 1.28-1.54 oz	0.0125-0.015	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	1.6-1.92 oz 3.2-3.84 oz	0.025-0.03	24 H/ 30 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	3.2-4 oz	0.02-0.025	12 H/ 21 D	

SOYBEAN INSECT CONTROL

PEST	INSECTICIDE	MOA	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Green Cloverworms	<i>alpha-cypermethrin</i> Fastac CS	3A	2.8-3.8 oz	0.018-0.025	12 H/ 21 D	Green cloverworms are foliage feeders that have 3 pairs of abdominal prolegs; larvae become very active when prodded. Green cloverworms are attacked by numerous beneficial organisms and rarely requires insecticidal control. Defoliation Threshold: Treat when 30% foliage loss has occurred and larvae 1/2" or longer are present prior to bloom or when 15% foliage loss has occurred and larvae 1/2" or longer are present after bloom. Sweep Net Threshold: 38 larvae/25 sweeps. Drop Cloth Threshold: 8 larvae/1 ft of row.
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	0.8-1.6 oz	0.0065-0.0125	12 H/ 21 D	
	<i>carbaryl</i> Sevin 4F	1A	1-2 pt	0.5-1	12 H/ 21 D	
	<i>chlorantraniliprole</i> Prevathon 0.43	28	14-20 oz	0.047-0.067	4 H/ 1 day	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	0.77-1.28 oz 0.77-1.28 oz	0.0075-0.0125	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	0.96-1.6 oz 1.92-3.2 oz	0.015-0.025	24 H/ 30 D	
	<i>diflubenzuron</i> Dimilin 2L	15	2-4 oz	0.03-0.06	12 H/ 21 D	
	<i>esfenvalerate</i> Asana XL .66EC	3A	2.9-5.8 oz	0.015-0.03	12 H/ 21 D	
	<i>indoxacarb</i> Steward 1.25EC	22	5.6-11.3 oz	0.055-0.1	12 H/ 21 D	
	<i>methomyl</i> Lannate 2.4 LV	1A	0.4-0.75 pt	0.12-0.225	48 H/ 14 D	
	<i>methoxyfenozide</i> Intrepid 2F	18	4-8 oz	0.06-0.12	4 H/ 14 D	
	<i>novaluron</i> Diamond 0.83 EC	15	6-10 oz	0.039-0.064	12 H/ 28 D	
	<i>spinetoram</i> Radiant 1SC	5	2-4 oz	0.0156-0.0313	4 H/ 28 D	
	<i>spinosad</i> Blackhawk	5	1.1-2.2 oz	0.025-0.049	4 H/ 28 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	2.8-4 oz	0.0175-0.025	12 H/ 21 D	
Japanese Beetles	<i>alpha-cypermethrin</i> Fastac CS	3A	2.8-3.8 oz	0.018-0.025	12 H/ 21 D	Japanese beetles are foliage feeders and are most often observed infesting soybean in northern areas of Georgia. Defoliation Threshold: Treat when 30% foliage loss has occurred and beetles are present prior to bloom, or when 15% foliage loss has occurred and beetles are present after bloom.
	<i>carbaryl</i> Sevin 80S Sevin 4F	1A	0.625-1.25 lb 1-2 pt	0.5-1	12 H/ 21 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.6-2.8 oz	0.0125-0.022	12 H/ 21 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	1.28-1.54 oz 1.28-1.54 oz	0.0125-0.015	24 H/ 45 D	

SOYBEAN INSECT CONTROL

PEST	INSECTICIDE	MOA	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Japanese Beetles (continued)	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer I	3A	1.6-1.92 oz 3.2-3.84 oz	0.025-0.03	24 H/ 30 D	Japanese beetles are foliage feeders and are most often observed infesting soybean in northern areas of Georgia.
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	2.8-4 oz	0.0175-0.025	12 H/ 21 D	Defoliation Threshold: Treat when 30% foliage loss has occurred and beetles are present prior to bloom, or when 15% foliage loss has occurred and beetles are present after bloom.
Kudzu Bugs	<i>acephate</i> Orthene 97	1B	0.75-1 lb	0.5-0.97	24 H/ 14 D	Kudzu bugs have sucking mouthparts and feed on the main stem and petioles. Current recommendations include interrupting the development of each generation of kudzu bug by applying an insecticide to target the immature stage of the insect.
	<i>alpha-cypermethrin</i> Fastac CS	3A	3.2-3.8 oz	0.02-0.025	12 H/ 21 D	
	<i>bifenthrin</i> Brigade 2EC Discipline 2EC	3A	5.12-6.4 oz 6.4 oz	0.08-0.1	12 H/ 18 D	Kudzu bug infestations are generally higher on early planted soybeans.
	<i>clothianidin</i> Belay 2.13	4A	3-4 oz	0.05-0.067	12 H/ 21 D	Sweep Net Threshold: 1 immature kudzu bug/sweep. Samples should be taken from all areas of the field, including edges and the middle, taking care not to bias sampling along border rows where populations build initially.
	<i>gamma-cyhalothrin</i> Declare 1.25	3A	1.28-1.54 oz	0.0125-0.015	24 H/ 45 D	Visual Inspection Threshold: As an alternative to sweep-net sampling, visual inspections of insect density lower in the canopy will suffice. If immature kudzu bugs are easily and repeatedly found on leaf petioles and/or main stems, treatment is likely warranted.
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08	3A	1.92 oz	0.03	24 H/ 30 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8 EC	3A	4 oz	0.025	12 H/ 21 D	
Lesser Cornstalk Borers	<i>chlorpyrifos</i> Lorsban 15G Lorsban 4E	1B	8 oz/1,000 ft of row 2 pt	1	24 H/ 28 D	Treat when 10 percent of seedlings are infested with larvae. The risk of lesser cornstalk borer is greatest during hot dry periods. Infestations are more common in conventionally tilled sandy soils. The risk of lesser cornstalk borer is also high when previous crop residues are burned prior to planting. See label for details on application.
Loopers, Soybean	<i>chlorantraniliprole</i> Prevathon 0.43	28	14-20 oz	0.047-0.067	4 H/ 1 D	Soybean looper is a foliage feeder that has 2 pairs of abdominal prolegs. Soybean loopers are highly resistant to pyrethroid insecticides and should not be used for control.
	<i>indoxacarb</i> Steward 1.25 EC	22	5.6-11.3 oz	0.055-0.1	12 H/ 21 D	
	<i>methoxyfenozide</i> Intrepid 2F	18	4-8 oz	0.06-0.12	4 H/ 14 D	Defoliation Threshold: Treat when 30% foliage loss has occurred and larvae 1/2" or longer are present prior to bloom or when 15% foliage loss has occurred and larvae 1/2" or longer are present after bloom.
	<i>spinetoram</i> Radiant 1SC	5	2-4 oz	0.0156-0.0313	4 H/ 28 D	Sweep Net Threshold: 19 larvae/25 sweeps.
	<i>spinosad</i> Blackhawk	5	1.1-2.2 oz	0.025-0.049	4 H/ 28 D	Drop Cloth Threshold: 8 larvae/1 ft of row.
Mites	<i>bifenthrin</i> Brigade 2EC Discipline 2EC	3A	5.12-6.4 oz 5.12-6.4 oz	0.08-0.1	12 H/ 18 D	Mites are an occasional problem in Georgia soybeans. The presence of mites should be confirmed with a hand lens on damaged leaves prior to treating. Treat if infestations become general over the entire field and leaf discoloration is becoming evident. Spot treatment of infested areas is also an option.
	<i>dimethoate</i> Dimethoate 4EC	1B	1 pt	0.5	48 H/ 21 D	

SOYBEAN INSECT CONTROL

PEST	INSECTICIDE	MOA	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Silverleaf Whiteflies	<i>pyriproxyfen</i> Knack 0.86	7C	8-10 oz	0.0537-0.0671	12 H/ 7 D	Silverleaf whitefly is difficult to control with insecticides. Early detection and conservation of natural controls are important. Apply when 50 percent of fully expanded trifoliates are infested with immatures.
	<i>flupyradifurone</i> Sivanto Prime 1.67	4D	10.5-14 oz	0.1369-0.1826	4 H/ 21 D	
Stink Bugs	<i>acephate</i> Orthene 97	1B	0.5-1 lb	0.5-0.97	24 H/ 14 D	<p>Stink bugs damage developing seeds with their sucking mouthparts. Southern green, green, and brown stink bugs are the most common species observed in soybean.</p> <p>Bloom to Mid Pod-Fill (R1-R4): Sweep Net Threshold: 3 stink bugs/25 sweeps. Drop Cloth Threshold: 0.33 stink bugs/1 ft of row.</p> <p>After Mid Pod-Fill (R5-R6.5 + 7 days): Sweep Net Threshold: 9 stink bugs/25 sweeps. Drop Cloth Threshold: 1 stink bug/1 ft of row.</p> <p>*If soybeans are being grown for seed, 1 stink bug/6 ft of row will justify control measures.</p> <p>Diamond is an insect-growth regulator and will not control adults.</p>
	<i>alpha-cypermethrin</i> Fastac CS	3A	3.2-3.8 oz	0.02-0.025	12 H/ 21 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.6-2.8 oz	0.0125-0.022	12 H/ 21 D	
	<i>bifenthrin</i> Brigade 2EC Discipline 2EC	3A	2.1-6.4 oz 2.1-6.4 oz	0.033-0.1	12 H/ 18 D	
	<i>clothianidin</i> Belay 2.13	4A	3-6 oz	0.05-0.1	12 H/ 21 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	1.28-1.54 oz 1.28-1.54 oz	0.0125-0.015	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	1.6-1.92 oz 3.2-3.84 oz	0.025-0.03	24 H/ 30 D	
	<i>novaluron</i> Diamond 0.83 EC	15	6-12 oz	0.039-0.077	12 H/ 28 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	3.2-4 oz	0.02-0.025	12 H/ 21 D	
Sugarcane Beetles	The treatments for lesser cornstalk borer give helpful control.					Sugarcane beetles are a rare and sporadic pest of soybeans in Georgia.
Three-cornered Alfalfa Hoppers	<i>acephate</i> Orthene 97	1B	0.75-1 lb	0.73-0.97	24 H/ 14 D	<p>Three-cornered alfalfa hoppers feed on the main stem above the soil surface in seedling soybeans. Soybeans are most susceptible to main stem girdling when plants are less than 12" in height. Girdling of the main stem may cause plants to lodge. Damaged plants may also lodge in the future as a result of damage during the seedling stage.</p> <p>Threshold (seedling soybeans): treat soybeans less than 12" in height when 10% of the plants are infested with nymphs and/or adults or stand is being reduced below recommended plant population and bugs are present.</p> <p>Both adults and nymphs may also feed on the petioles of leaves, blooms, and pods of reproductive soybeans.</p> <p>Threshold (reproductive soybeans): Sweep Net Threshold: 50 bugs/25 sweeps. Drop Cloth Threshold: 6 bugs/1 ft of row.</p>
	<i>alpha-cypermethrin</i> Fastac CS	3A	2.8-3.8 oz	0.018-0.025	12 H/ 21 D	
	<i>carbaryl</i> Sevin 4F	1A	0.2 pt	1	12 H/ 21 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.6-2.8 oz	0.0125-0.022	12 H/ 21 D	
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	0.77-1.28 oz 0.77-1.28 oz	0.0075-0.0125	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer 1	3A	0.96-1.6 oz 1.92-3.2 oz	0.015-0.025	24 H/ 30 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8E	3A	2.8-4 oz	0.0175-0.025	12 H/ 21 D	

SOYBEAN INSECT CONTROL

PEST	INSECTICIDE	MOA	FORMULATION PER ACRE	LBS. ACTIVE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Velvetbean Caterpillars	<i>alpha-cypermethrin</i> Fastac CS	3A	2.8-3.8 oz	0.018-0.025	12 H/ 21 D	Velvetbean caterpillars are foliage feeders that have 4 pairs of abdominal prolegs; larvae become very active when prodded. Velvetbean caterpillars are voracious feeders and generally occurs during late season.
	<i>carbaryl</i> Sevin 4F	1A	1-2 pt	0.5-1	12 H/ 21 D	
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.6-2.8 oz	0.0125-0.022	12 H/ 21 D	
	<i>chlorantraniliprole</i> Prevathon 0.43	28	14-20 oz	0.047-0.067	4 H/ 1 D	Defoliation Threshold: Treat when 30% foliage loss has occurred and larvae 1/2" or longer are present prior to bloom or when 15% foliage loss has occurred and larvae 1/2" or longer are present after bloom.
	<i>gamma-cyhalothrin</i> Prolex 1.25 Declare 1.25	3A	0.77-1.28 oz 0.77-1.28 oz	0.0075-0.0125	24 H/ 45 D	Sweep Net Threshold: 38 larvae/25 sweeps. Drop Cloth Threshold: 8 larvae/1 ft of row.
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer I	3A	0.96-1.6 oz 1.92-3.2 oz	0.015-0.025	24 H/ 30 D	Preventive applications of Dimilin should be made at the late R2 or R3 growth stage. R3 is defined as beginning pod, 3/16" pod at 1 of the 4 uppermost nodes on the main stem with a fully developed trifoliate.
	<i>diflubenzuron</i> Dimilin 2L	15	2-4 oz	0.03-0.06	12 H/ 21 D	
	<i>esfenvalerate</i> Asana XL .66EC	3A	2.9-5.8 oz	0.015-0.03	12 H/ 21 D	
	<i>methomyl</i> Lannate 2.4 LV	1A	0.4-0.75 pt	0.12-0.225	48 H/ 14 D	
	<i>methoxyfenozide</i> Intrepid 2F	18	4-8 oz	0.06-0.12	4 H/ 14 D	
	<i>novaluron</i> Diamond 0.83 EC	15	6-10 oz	0.039-0.064	12 H/ 28 D	
	<i>spinetoram</i> Radiant 1SC	5	2-4 oz	0.0156-0.0313	4 H/ 28 D	
	<i>spinosad</i> Blackhawk	5	1.1-2.2 oz	0.025-0.049	4 H/ 28 D	
	<i>zeta-cypermethrin</i> Mustang Maxx .8EC	3A	2.8-4 oz	0.0175-0.025	12 H/ 21 D	

Premixed or Co-Packaged Insecticide Products:

Products listed below are available as premixes or co-packages of 2 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. Labeled rates are listed with product names. However, see label for specific rates for target pests.

<i>bifenthrin</i> , <i>imidacloprid</i> (Brigadier: 3.8-6.1oz)	<i>lambda-cyhalothrin</i> , <i>thiamethoxam</i> (Endigo: 3.5-4.5 oz)
<i>chlorantraniliprole</i> , <i>lambda-cyhalothrin</i> (Besiege: 5-10 oz)	<i>methoxyfenozide</i> , <i>spinetoram</i> (Intrepid Edge: 4-6.4 oz)
<i>chlorpyrifos</i> , <i>lambda-cyhalothrin</i> (Cobalt Advanced: 11-38 oz)	<i>spinosad</i> , <i>gamma-cyhalothrin</i> (Consero: See label)
<i>chlorpyrifos</i> , <i>bifenthrin</i> (Tundra Supreme: 5.6-16.8 oz)	<i>zeta-cypermethrin</i> , <i>chlorpyrifos</i> (Stallion: 3.75-11.75 oz)
<i>imidacloprid</i> , <i>cyfluthrin</i> (Leverage: 2.8-3.2 oz)	<i>zeta-cypermethrin</i> , <i>bifenthrin</i> (Hero: 2.6-10.3 oz)

SOYBEAN INSECT CONTROL

Conserve Natural Enemies: Reserve broad spectrum insecticides for late season use. Broad spectrum insecticides disrupt beneficial insects and spiders which suppress insect pest populations.

Insect Control Termination: Generally, insect control can be terminated for foliage-feeding caterpillars, kudzu bugs, and stink bugs at R6 + 7 days (R6.5). The R6 growth stage is defined as: full seed, pod contains a green seed that fills the pod cavity at one of the four uppermost nodes on the main stem with a fully developed trifoliate leaf. R7 is defined as beginning maturity, one normal pod on the main stem that has reached mature pod color, normally brown or tan depending on variety. When terminating insect controls, insect populations should be below threshold levels.

SWEEP NET: If using a 15" diameter sweep net, take several 25-sweep samples in each field, the following treatment threshold levels can be used:

<u>Pests</u>	<u>Average # Per 25 Sweeps</u>
Kudzu Bugs (immatures)	25
Corn Earworms	5
Green Cloverworms	38
Soybean Loopers	19
Stink Bugs	
(bloom to mid-pod)	3
(mid-pod to maturity)	9
Three-cornered Alfalfa Hoppers	50
Velvetbean Caterpillars	38

GROUND CLOTH: If using a ground cloth, make several 3-ft examinations for each 20 acres being surveyed.

<u>Pests</u>	<u>Average # Per Row Foot</u>
Corn Earworms	2
Green Cloverworms	8
Soybean Loopers	8
Stink Bugs	
(bloom to mid-pod)	0.33
(mid-pod to maturity)	1
Three-cornered Alfalfa Hoppers	6
Velvetbean Caterpillars	8

INSECT PEST RESPONSE TO INSECTICIDES USED IN SOYBEAN

Insecticide	Bean Leaf Beetle	Beet Armyworm	Blister Beetle	Corn Earworm	Cutworm	Fall Armyworm	Grasshopper	Green Cloverworm	Japanese Beetle	Kudzu Bug	Lesser Cornstalk Borer	Soybean Looper	Spider Mite	Stink Bug (Southern Green)	Stink Bug (Brown)	Three-cornered Alfalfa Hopper	Velvetbean Caterpillar	Predators	Parasite	Chemical Class (MOA)	REI (Hours)*
<i>acephate</i> Orthene 97	3	5	4	4	2	4	2	4	–	2	–	4	5	2	2	2	3	H	H	1B	24
<i>alpha-cypermethrin</i> Fastac CS	2	4	2	2	2	3	2	1	2	2	–	4	5	1	3	2	1	E	E	3A	12
<i>beta-cyfluthrin</i> Baythroid XL 1	2	4	2	2	2	3	2	1	2	3	–	4	5	1	3	2	1	H	M	3A	12
<i>bifenthrin</i> Brigade 2, Discipline 2, Fanfare 2	2	4	2	2	2	3	2	1	2	1	–	4	2	1	2	2	1	H	M	3A	12
<i>carbaryl</i> Sevin 4F	2	4	3	3	4	3	3	2	2	2	–	5	5	4	4	3	2	E	E	1A	12
<i>chlorantraniliprole</i> Prevathon 0.43	5	1	5	1	3	1	3	1	–	5	–	1	5	5	5	5	1	E	E	28	4
<i>chlorpyrifos</i> Lorsban 4, Lorsban 15G	3	3	4	4	1	3	3	3	–	3	2	4	4	4	4	4	3	H	H	1B	24
<i>clothianidin</i> Belay 2.13	2	5	3	5	5	5	5	5	–	2	–	5	5	2	3	3	5	E	E	4A	12
<i>diflubenzuron</i> Dimilin 2L	5	4	5	5	5	4	3	1	–	5	–	4	5	5	5	5	1	E	E	15	12
<i>dimethoate</i> Dimethoate 4	3	5	3	5	5	4	4	4	–	4	–	5	3	4	4	3	4	M	H	1B	48
<i>esfenvalerate</i> Asana XL 0.66	2	4	3	2	2	3	2	1	2	3	–	4	5	2	4	2	1	H	M	3A	12
<i>gamma-cyhalothrin</i> Declare 1.25, Prolex 1.25	2	4	2	2	2	3	2	1	2	2	–	4	5	1	3	2	1	H	M	3A	24
<i>indoxacarb</i> Steward 1.25	5	1	5	1	3	1	5	1	–	5	–	1	5	4	4	5	3	M	E	22	12

*Read and follow label directions.

1 – Very Effective; 5 – Not Effective; E – Easy; M – Moderate; H – Hard

INSECT PEST RESPONSE TO INSECTICIDES USED IN SOYBEAN (continued)

Insecticide	Bean Leaf Beetle	Beet Armyworm	Blister Beetle	Corn Earworm	Cutworm	Fall Armyworm	Grasshopper	Green Cloverworm	Japanese Beetle	Kudzu Bug	Lesser Cornstalk Borer	Soybean Looper	Spider Mite	Stink Bug (Southern Green)	Stink Bug (Brown)	Three-cornered Alfalfa Hopper	Velvetbean Caterpillar	Predators	Parasite	Chemical Class (MOA)	REI (Hours)*
<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08, Silencer 1	2	4	2	2	2	3	2	1	2	1	–	4	5	1	3	2	1	H	M	3A	24
<i>methomyl</i> Lannate LV 2.4	3	3	4	2	4	2	4	1	–	–	–	3	5	3	3	3	1	H	M	1A	48
<i>methoxyfenozide</i> Intrepid 2F	5	1	5	5	4	3	5	1	–	5	–	2	5	5	5	5	1	E	E	18	4
<i>novaluron</i> Diamond 0.83EC	–	2	–	4	5	1	3	1	–	–	–	3	5	3	3	–	1	M	E	15	12
<i>spinosad</i> Tracer 4	5	2	5	2	3	2	5	1	–	5	–	2	5	5	5	5	1	E	M	5	4
<i>zeta-cypermetherin</i> Mustang Maxx 0.8	2	4	2	2	2	3	2	1	2	2	–	4	5	1	3	2	1	H	M	3A	12

*Read and follow label directions.

1 – Very Effective; 5 – Not Effective; E – Easy; M – Moderate; H – Hard

SOYBEAN DISEASE CONTROL

Bob Kemeraït, Extension Plant Pathologist

DISEASE	CHEMICAL	MOA	RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Foliar Diseases	<p>General remarks for fungicides applied to soybeans: The presence of Asian soybean rust in Georgia has greatly affected disease control recommendations. 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, Phomopsis pod, and stem blight. Before deciding to apply a fungicide, growers should consider the current yield potential in the field and the potential for further disease spread.</p> <p>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 as soon as the disease is likely to be present in the area.</p>				
	azoxystrobin Azoxystar Quadris 2.08F	11	6-15.5 fl oz 6.2-15.4 fl oz	4 H/ 14 D	
	azoxystrobin + difenoconazole Quadris Top SBX	11 + 3	7-7.5 fl oz	12 H/ 14 D	
	azoxystrobin + propiconazole Cover XL Quilt	11 + 3	10.5-21.1 fl oz 14-20 fl oz	12 H/ 21 D	Cover XL: Apply up until the R6 growth stage.
	benzovindiflupyr (solatenol) + azoxystrobin + propiconazole Trivapro	7 + 3 + 11	13.7-20.7 fl oz	12 H/ 14 D	For management of soybean rust and other foliar diseases. Pre-harvest intervals is 14 D or R6 growth stage, whichever is longer.
	chlorothalonil Bravo Ultrex Bravo Weather Stik Echo 90DF Echo 720 Equus 720 Equus DF	M5	0.9-2.2 lb 1-2.25 pt 0.875-2 lb 1-2.25 pt 1-2.25 pts 0.9-2.2 lb	12 H/ 42 D Equus DF 12 H/ —	For management of foliar diseases of soybean, but not recommended for management of soybean rust.
	cyproconazole Alto	3	2.75-5.5 fl oz	12 H/ 30 D	For control of soybean rust, use 2.75-4 fl oz/A. For other foliar diseases use 4-5.5 fl oz/A.
	fluoxastrobin Evito	11	2-5.7 fl oz	12 H/ 30 D	For management of soybean rust and other foliar diseases.
	fluoxastrobin + tebuconazole Evito T	11 + 3	4-6 fl oz	12 H/ 30 D	For management of soybean rust and other foliar diseases.
	fluoxastrobin + tetraconazole Zolera FX	3 + 11	4.4-6.8 fl oz	12H/ 30D	Use no more than once during a season. Do not apply after growth stage R5 (beginning seed development). Do not use where soybeans are grown for consumption of immature pods.

SOYBEAN DISEASE CONTROL

DISEASE	CHEMICAL	MOA	RATE PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Foliar Diseases (continued)	<i>flutriafol</i> Topguard	3	7-14 fl oz	12 H/ 21 D	For management of soybean rust and other foliar diseases.
	<i>flutriafol</i> + <i>fluoxastrobin</i> TopGuard EQ	3 + 11	5-7 fl oz	12 H/ 30 D	Maximum of 2 applications per season no later than growth stage R5 (beginning seed). Do not apply Fortix within 21 days of harvest for dry beans or 30 days before harvest for seed. For management of soybean rust and other foliar diseases and for suppression of southern blight.
	<i>picoxystrobin</i> Aproach	11	6-12 fl oz	12 H/ 14 D	There should be no more than two sequential applications of Aproach before shifting to a fungicide with a different mode of action. The 6-12 fl oz/A rate should initially be applied prior to disease development. Do not apply Aproach within 14 days of grain harvest. For management of soybean rust and other foliar diseases.
	<i>picoxystrobin</i> + <i>cyproconazole</i> Aproach Prima	11 + 3	5-6.8 fl oz	12 H/ 30 D	There should be no more than two sequential applications of Aproach Prima before shifting to a fungicide with a different mode of action. The 5-6.8 fl oz/A rate should initially be applied prior to disease development. Do not apply Aproach Prima within 30 days of grain harvest.
	<i>propiconazole</i> Tilt Bumper	3	4-6 fl oz	12 H/ —	Apply up to R6 growth stage.
	<i>pyraclostrobin</i> Headline	11	6-12 fl oz	12 H/ 21 D	Although “Headline SBR” is no longer available commercially, growers can tank mix 3.1 fl oz <i>tebuconazole</i> with 4.7 fl oz Headline to create a similar product. For management of foliar disease including Asian soybean rust.
	<i>pyraclostrobin</i> + <i>fluxapyroxad</i> Priaxor	11 + 7	4-8 fl oz	12 H/ 21 D	For management of foliar diseases of soybean; no more than 2 applications in a season.
	<i>tebuconazole</i> Various brands	3	3-4 fl oz	12 H/ 12 D	For management of soybean rust and other foliar diseases.
	<i>tebuconazole</i> + <i>azoxystrobin</i> Custodia	3 + 11	8.6 fl oz	12 H/ 21 D	
	<i>tetraconazole</i> Domark 230 ME	3	4-5 fl oz	12 H/ —	Do not apply after R5 growth stage.
	<i>tetraconazole</i> + <i>azoxystrobin</i> Affiance	3 + 11	10-14 fl oz	12 H/ 14 D	
	<i>thiophanate methyl</i> Topsin-M 4.5 FL Topsin-M 70WP	1	10-20 fl oz 0.5-1 lb	24 H/ 21 D	Controls frog eye leaf spot and other foliar diseases but NOT soybean rust.
	<i>trifloxystrobin</i> + <i>propiconazole</i> Stratego	11 + 3	10 fl oz 4-4.65 fl oz	12 H/ 21 D	For management of soybean rust and other foliar diseases.
	<i>trifloxystrobin</i> + <i>prothioconazole</i> Stratego YLD	11 + 3			Do not apply more than three times in a season.

SOYBEAN SEED TREATMENT

Bob Kemeraït, Extension Plant Pathologist

CHEMICAL	RATE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
<i>apron + terrachlor + vitavax</i> Prevail	4 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.
<i>carboxin + captan</i> Vitavax-Captan HBM Enhance	3 oz/bu	12 H/ —	
<i>carboxin + thiram</i> Vitavax 200	2 fl oz/bu or 4 fl oz/100 lb	12 H/ —	
<i>carboxin + thiram + molybdenum</i> Vitavax-M	6 fl oz/bu or 12 fl oz/100 lb		
<i>captan + carboxin</i> TCI Captan-Vitavax	3 oz/bu		
<i>captan + carboxin + molybdenum</i> Vitavax/Moly	3 oz/bu		
<i>captan + molybdenum</i> Capt'n Moly	3.8 oz/bu		
Dynasty	0.153-0.459 fl oz/CWT	4 H/ —	
<i>metalaxyl + ipconazole + clothianidin</i> Inovate	4.74 fl oz/CWT	24 H/ —	
<i>thiram</i> 42-S Thiram	2 fl oz/bu		
<i>thiram + molybdenum</i> Moly-T Protreat L Protreat TM	3.8 oz/bu 5 fl oz/bu 2 oz/bu		
Trilex 2000	1 fl oz/CWT		

SOYBEAN NEMATODE TREATMENT

Bob Kemeraït, Extension Plant Pathologist

CHEMICAL	RATE /ACRE (36" ROW BASIS)		OZ/1000 FT. OF ROW ANY ROW SPACING	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	ACTIVE INGREDIENT			
<u>Pre-plant Injected:</u> Telone II	3 gal			5 D post application/ –	Inject 12" below the soil surface. Wait 2 weeks between application and planting when using Telone II.
AVICTA Complete Beans				48 H/ –	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	17-34 fl oz	7.1-14.3 fl oz	1.17-2.34 fl oz	48 H/ –	Apply in furrow in 7-10" band (incorporated 2-4") in 10-20 gal/water/A.
AgLogic 15G	5-7 lb/A				Apply granules in seed furrow and immediately cover with soil by mechanical means. Granules may be applied in seed furrow if rate does not exceed 5.5 oz/1000 feet of row OR If rate exceeds 5.5 oz/1000 feet of row (6 lb/A on 30" inch rows), apply a 4-6" band over open seed furrow and immediately cover with soil by mechanical means. For a nematode rate at 7 lb/A, apply a 4-6" band (T Band) over open seed furrow and immediately cover with soil by mechanical means.

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
AgLogic 15G	fair-good
Vydate	poor-fair

SOYBEAN WEED CONTROL

Eric P. Prostko, Extension Agronomist – Weed Science

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Minimum till, strip-till, and no-till burndown options	<i>glyphosate</i> Various trade names 3 lb ae/gal 3.73 lb ae/gal 4 lb ae/gal 4.17 lb ae/gal 4.50 lb ae/gal 5 lb ae/gal	9	16-128 oz 13-103 oz 12-96 oz 11.7-92 oz 11-85 oz 10-77 oz	0.38-3.0 ae	4 H/ 7 D	Controls most emerged annual grass and broadleaf weeds. <i>Glyphosate</i> 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 <i>glyphosate</i> 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 <i>ammonium sulfate</i> (AMS) is only recommended where hard water (Ca, Na, Mg, K) is a concern. Additional spray adjuvants are not required in loaded formulations.
	<i>paraquat</i> Gramoxone SL 2 lb/gal Firestorm/Parazone 3 lb/gal	22	30-60 oz 20-40 oz	0.47-0.94	24 H/ –	Apply during or after planting, but before crop emerges to kill emerged annual grasses and weeds. Add a nonionic surfactant at 0.25% v/v. (1 qt/100 gal spray). Apply in a minimum of 15 GPA. Refer to label for specific cautions and restrictions. Numerous tank-mixes are allowed. Rain-free period is 30 minutes.
	<i>glufosinate</i> Liberty 280 2.34SL Cheetah Kong Interline	10	29-36 oz	0.53-0.66	12 H/ –	Apply during or after planting, but before crop emerges to kill emerged annual grasses and weeds. Liberty will not provide adequate burndown control of small grains. Very effective for burndown control of volunteer peanuts. Can be tank-mixed with <i>glyphosate</i> or 2,4-D. Rain-free period is 4 hours. Generic formulations of glufosinate should be used with caution because limited data has been collected by UGA.
	<i>carfentrazone</i> Aim 2EC	14	0.5-1 oz	0.008-0.016	12 H/ V10	Tank-mix with <i>glyphosate</i> or <i>glufosinate</i> for the improved control of large morningglories. Can be applied up to 24 hours after soybean planting. Rain-free period is 6-8 hours.
	<i>pyraflufen</i> ET 0.208EC	9	0.5-2.0 oz	0.0008-0.003	12 H/ 70 D	Tank-mix with <i>glyphosate</i> or <i>glufosinate</i> for the improved control of large morningglories. Soybeans can be planted immediately. Rain-free period is 1 hour.
	<i>thifensulfuron</i> + <i>tribenuron</i> (FirstShot SG) 5SG	2	0.5-0.8 oz	0.008-0.013 + 0.008-0.013	12 H/ –	Can be tank-mixed with <i>glyphosate</i> , <i>paraquat</i> , <i>glufosinate</i> , and 2,4-D amine. Soybeans can be planted in 7-14 days after treatment depending on soil type (14 days for sands, loamy sands, sandy loams). Use a NIS (0.25% v/v) or COC (1% v/v). Rain-free period not listed on label.
	2,4-D amine Various trade names 3.8 lb/gal 2,4-D choline Enlist One (3.8 lb ae/gal)	4	16 oz	0.475	48 H/ –	Very effective for cutleaf evening-primrose control. Can be tank-mixed with <i>glyphosate</i> , <i>glufosinate</i> , or <i>paraquat</i> to provide broad-spectrum burndown control. Soybeans can be planted in 15 days (<i>amine</i> or <i>choline</i> formulations) after application. When using Enlist One formulation, all labeled restrictions must be followed (nozzle type, boom height, wind speed, buffer zones, etc.) Users of Enlist One must have attended UGA's Using Pesticides Wisely (UPW) Training.

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Minimum till, strip-till, and no-till burndown options (continued)	<i>dicamba</i> Clarity, Sterling, Vision, others 4 lb/gal Engenia 5SL Fexapan + VG 2.9SL Xtendimax + VG 2.9SL	4	8-16 oz 6.4-12.8 oz 11-22 oz 11-22 oz	0.25-0.50	24 H/ –	Can be tank-mixed with <i>glyphosate</i> , <i>paraquat</i> , or <i>glufosinate</i> to improve the control of broadleaf weeds such as horseweed. Non- <i>dicamba</i> tolerant soybeans can be planted 14 days after planting (0.25 lb ai/A) or 28 days after planting (0.5 lb ai/A) if 1” of rainfall and/or irrigation has occurred since application. <i>Dicamba</i> -tolerant soybeans can be planted any time after newer formulations (Engenia, Fexapan, Xtendimax) are applied. Rain-free period is 4 hours. The newer formulations of <i>dicamba</i> require the use of approved nozzles/pressure that produce a specific droplet size. <i>Dicamba</i> should not be applied during temperature inversions. Newer <i>dicamba</i> formulations must be applied in 10-15 GPA (depending on formulation) and boom heights cannot exceed 24”. Refer to latest product labels for all application requirements. Growers who intend to use <i>dicamba</i> on <i>dicamba</i> -tolerant soybeans must have completed the UGA “Using Pesticides Wisely” training.
Pre-plant incorporated or pre-emergence	<i>pendimethalin</i> Prowl/Pendimax 3.33EC Prowl H ₂ O 3.8ASC	3	19-38 oz 24-34 oz	0.5-1 0.71-1	24 H/ 85 D	For annual grasses and small seeded broadleaf weed control. Soil incorporate 2” deep within 7 D of application. Mechanical incorporation is not required if rain of 0.5” or more occurs within 7 D of application.
	<i>trifluralin</i> Treflan, others 4 lb/gal	3	16-32 oz	0.5-1	12 H/ –	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.
	<i>metribuzin</i> Metri, Metribuzin, Tricor 75DF 4F	5	5.3-8 oz 8-12 oz	0.25-0.38	12 H/ 70 D	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. Refer to soybean seed label for information on sensitivity to <i>metribuzin</i> . Do not apply with soil-applied organic phosphate pesticides such as Di-Syston, Thimet, OR Lorsban, 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 <i>Metribuzin</i> 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 pre-emergence 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 <i>metribuzin</i>.

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Pre-plant incorporated or pre-emergence (continued)	<i>metribuzin</i> + <i>chlorimuron</i> Canopy, Cloak 75DG Canopy Blend 58DG	5 + 2	6-10 oz 7.75-12.4 oz	0.24-0.40 + 0.04-0.07	12 H/ –	Canopy may be soil incorporated or applied pre-emergence for control of several broadleaf weeds. The rate of application varies with soil type and OM (refer to labels for specific rates). Not recommended for use on sands and any other coarse soil types with < 1% OM. Incorporation should be 1-2” deep. Canopy may be tank-mixed with Prowl or Treflan for broader spectrum weed control. Refer to Remarks and Precautions discussion of <i>metribuzin</i> 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. Rotation restrictions: soybeans – 0 months; barley, wheat, rye – 4 months; field corn – 9-10 months; cotton, tobacco, sorghum – 10-18 months; peanuts – 8-18 months (see label); canola, onions – 18 months. Crop injury can be minimized (not eliminated) by planting a <i>metribuzin</i> tolerant + STS/SRS soybean variety.
	<i>metribuzin</i> + <i>S-metolachlor</i> Boundary 6.5 lb/gal	5 + 15	19-34 oz	0.19-0.33 + 0.94-1.64	12 H/ –	Incorporate uniformly within top 2” of soil. Not recommended for use on sands or any other coarse soil types with < 1% OM. Follow rate restrictions for soil type, pH, varieties, etc., listed under remarks and precautions for <i>metribuzin</i> . Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to metribuzin. Rotation restrictions: soybeans – 0 months; barley, wheat – 4 months; canola, corn, cotton, peanuts, sorghum, tobacco, tomato – 12 months; onions – 18 months.
	<i>imazethapyr</i> Pursuit 2 lb/gal 70DG	2	4 oz 1.44 oz	0.063	4 H/ 85 D	Controls several annual broadleaf weeds and suppresses nutsedge. May be tank-mixed with Prowl or <i>trifluralin</i> for improved annual grass control. Incorporate to a depth of 1-2”. Pursuit should only be applied 1 time per year to soybeans. Do not apply Classic, Canopy, Scepter, Scepter O.T., or use Pursuit either pre-emergence or post-emergence on fields previously treated with Pursuit. Refer to the label for rotation restrictions.
	<i>flumetsulam</i> Python 80WDG	2	0.9-1 oz	0.045-0.05	12 H/ –	Controls a wide range of broadleaf weeds. Incorporate 2”-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.
	<i>sulfentrazone</i> + <i>metribuzin</i> Authority MTZ 45DG	14 + 5	12-14 oz	0.135-0.156 + 0.20-0.24	12 H/ –	General broadleaf weed control with minimal control of annual grasses. Follow same precautions as for other <i>metribuzin</i> 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. Rotational crop restrictions: barley, field corn, wheat – 4 months; peanuts, sorghum, tobacco – 12 months; cotton – 18 months. <i>Sulfentrazone</i> is also available in other premixes: Authority Assist (<i>sulfentrazone</i> + <i>imazethapyr</i>); Authority Elite (<i>sulfentrazone</i> + <i>S-metolachlor</i>); Authority First (<i>sulfentrazone</i> + <i>chloransulam</i>) Authority XL (<i>sulfentrazone</i> + <i>chlorimuron</i>); Spartan Advance (<i>sulfentrazone</i> + <i>glyphosate</i>); and Spartan Charge (<i>sulfentrazone</i> + <i>carfentrazone</i>).

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Pre-plant incorporated or pre-emergence (continued)	<i>sulfentrazone</i> + <i>chlorimuron</i> Authority XL 70DG	14 + 2	3-6 oz	0.117-0.233 + 0.015-0.029	12 H/ –	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): soybeans, peanuts – anytime; small grains – 4 months; field corn, sorghum, tobacco – 10 months; cotton – 12-18 months*; canola – 36 months. *Some UGA research suggests that the cotton rotation restriction should be 18 months. Crop injury can be minimized (not eliminated) by planting an STS/SRS soybean variety.
	<i>ethalfuralin</i> Sonalan HFP 3EC	3	24-32 oz	0.56-0.75	24 H/ –	Uniformly incorporate into top 2-3” of soil within 48 hours of application. Do not plant soybeans deeper than 2”. Can also be applied PRE after planting and incorporated with 0.5-1” of rainfall or irrigation within 48 hours after application.
Pre-emergence	<i>linuron</i> Lorox 50DF Linex 4L	7	1-2 lb 1-2 pt	0.50-1	24 H/ –	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. Sicklepod will not be controlled effectively with Lorox or Linex. Linuron may be tank-mixed with Lasso, Dual, or Prowl. Plant soybeans at least 1.5” deep to reduce injury.
	<i>metolachlor</i> Stalwart, Parallel PCS, Me-Too-Lachlor <i>S-metolachlor</i> Dual Magnum 7.62E	15	16-21 oz 16-21 oz	1-1.33 0.95-1.27	24 H/ 90 D	Can be applied PPI, PRE, or POST. *The generic formulations of <i>metolachlor</i> (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. Dual Magnum can also be applied post-emergence in soybeans. The total Dual Magnum rate applied PPI, PRE, or POST during any one crop should not exceed 2.6 pt/A.
	<i>flumioxazin</i> 51WDG Valor Panther Rowel Outflank	14	2-3 oz	0.064-0.096	12 H/ –	Provides good to excellent control of many annual broadleaf weeds. Will not control grass weeds, nutsedges, cocklebur, and sicklepod. Apply as a pre-emergence treatment only. Do not apply to emerging soybeans. Should be tank-mixed with Command or Prowl/Pendimax. Do not use in the same field with Axiom, Domain, Intrro/Micro-Tech, Dual, or Frontier/Outlook or severe injury can occur. Can also be tank-mixed with <i>glyphosate</i> for use as a pre-plant burndown in reduced tillage production systems. Refer to label for specific rotation restrictions. Panther SC and Valor EZ are liquid formulations of <i>flumioxazin</i> but have not been adequately tested by UGA. RedEagle- <i>flumioxazin</i> is another dry formulation that also has not been adequately tested by UGA.

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Pre-emergence (continued)	<i>pyroxasulfone</i> Zidua 85WG Zidua 4.17SC	15	1.5-2 oz 2.45-3.25 oz	0.089-0.106	12 H/ –	Zidua may be applied PPI, PRE, or early post-emergence (V1-V3) for the residual control of certain annual grasses and Palmer amaranth. DO NOT APPLY BETWEEN EMERGENCE THRU UNIFOLIOLATE STAGE. On lighter soils, soil applications of Zidua may cause temporary soybean stunting. POST applications may cause stunting and leaf burn. Pre-slurry in water before adding to larger spray tank. Crop rotation restrictions for Zidua are as follows: corn, soybeans – 0 months; cotton, peanuts, wheat – 4 months; canola, tobacco – 18 months.
	<i>pyroxasulfone</i> + <i>flumioxazin</i> Fierce 76WG	15 + 14	3 oz/A	0.080 + 0.063	12 H/ –	Apply pre-emergence within 3 days of soybean planting. Do not tank-mix with Intro, Micro-Tech, Dual Magnum, or Outlook. Will provide residual control of annual broadleaf weeds and certain grasses. May cause early season stunting. Crop rotation restrictions: cotton – 45 days (conventional till), 30 days (reduced tillage); field corn – 7 days (reduced/ minimum/ no-till), 30 days (conventional till); soybean – 0 months; wheat – 30 days; peanuts – 4 months; other crops – 18 months.
	<i>flumioxazin</i> + <i>chlorimuron</i> + <i>thifensulfuron</i> Envive 41.3DG	14 + 2 + 2	2.5-4 oz	0.046-0.073 + 0.014 -0.023 + 0.0045-0.007	12 H/ –	A three-way mixture of Valor + Classic + Harmony GT. Do not tank-mix with Boundary, Micro-Tech, Intro, Dual, Outlook or Warrant within 14 days of planting soybeans unless soybeans are planted under no-till or minimum tillage conditions on wheat stubble or no-till field corn stubble. Can be tank-mixed with Prowl to improve grass control. Do not use on soil types with less than 0.5% OM. USE LOW RATE ON COARSE SOILS. 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. Crop injury can be minimized (not eliminated) by planting an STS/SRS soybean variety. Rotation restrictions: soybeans – anytime; small grains – 4 months; peanuts – 8 months; cotton, field corn – 10 months; sorghum – 12 months.
	<i>acetochlor</i> Warrant 3ME	15	40-48 oz	0.94-1.125	12 H/ –	Will provide control of certain annual grasses and small-seeded broadleaf weeds including Palmer amaranth. May be applied pre-plant, at-planting, pre-emergence or EPOST (R2). Mechanical incorporation is not recommended. If PRE and POST applications of Warrant are made, do not exceed 4 qt/A/season of Warrant. Warrant is also labeled for center-pivot applications. For the following soil types, do not apply Warrant within 50 feet of any well where the depth to groundwater is 30 feet or less: sands < 3% OM; loamy sands < 2% OM; sandy loams < 1% OM. These restrictions do not apply for areas more than 50 feet from a well or if groundwater is more than 30 feet below land surface. Warrant can be tank-mixed with Valor (<i>flumioxazin</i>).

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Pre-emergence <i>(continued)</i>	<i>s-metolachlor</i> + <i>metribuzin</i> + <i>fomesafen</i> Intimidator 4.81EC	15 + 5 + 14	30-38 oz	0.81-1.02 + 0.18-0.23 + 0.16-0.20	24 H/ 90 D	Apply PRE for the control of certain annual broadleaf and grass weeds, including Palmer amaranth. Can also be applied PPI. Plant soybeans at least 1.5” deep. Only for use on <i>metribuzin</i>-tolerant soybean varieties. Refer to the end of this section for an up-to-date list of soybean varieties that have exhibited acceptable tolerance to <i>metribuzin</i> in UGA field tests. Do not use on sand, sandy loam, or loamy sand soils with < 1% OM. Crop rotation restrictions: soybeans – anytime; wheat – 4.5 months; field corn – 10 months; cotton, sorghum – 12 months; peanuts – 18 months.
	<i>pyroxasulfone</i> + <i>fluthiacet</i> Anthem Maxx 4.3SC	15 + 14		0.08-0.11 + 0.002-0.003		Can be applied PRE or early post-emergence (V3). Provides residual control of certain annual grasses and broadleaf weeds. Can be tank-mixed with glyphosate, Liberty, Cobra. POST applications will cause leaf burn/speckling. Rotation restrictions for ≤ 3.25 oz/A: corn, soybeans – 0 months; cotton – 2 months; peanuts – 4 months; wheat – 1 month; grain sorghum – 6 months. Rain-free period is 1 hour.
	<i>flumioxazin</i> + <i>chloransulam</i> Surveil 48WG	14 + 2		2.0-2.5 oz		0.07-0.08 + 0.0019-0.0024
Post-emergence	Application of post-emergence herbicide treatments to moisture stressed weeds will usually result in poor control.					
	<i>bentazon</i> Basagran 4L Depend 4L Leader 4L Broadloom 4L Basagran 5L	6	24-32 oz 24-32 oz 24-32 oz 24-32 oz 19-26 oz	0.75-1	48 H/ –	Apply to soybeans at the second or third trifoliate (V2 or V3) leaf stage, but before weeds exceed 2-4” in height (14-21 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.
	<i>acifluorfen</i> Ultra Blazer 2 lb/gal	14	24 oz	0.38	48 H/ 50 D	Blazer requires a nonionic surfactant (1 qt/100 gal) to be added to the spray tank when used alone and when tank-mixed with Basagran. Apply to soybeans at the second or third trifoliate (V2 or V3) leaf-stage, but before weeds have more than 4-6 true leaves (14-21 days after planting). Control of larger weeds may be poor. Ultra Blazer can be tank-mixed with Classic, or Basagran. Rain-free period is 4 hours.
	<i>lactofen</i> Cobra 2 lb/gal	14	12.5 oz	0.20	12 H/ 45 D	Apply to soybeans in the first or second trifoliate leaf stage if weeds are in the 2-6 leaf stage. Add a crop oil concentrate at 0.25% to 1% v/v depending on humidity (refer to label). With aerial applications, the use of 1 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 after growth stage R6 (full seed).

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Post-emergence (continued)	<i>fomesafen</i> Reflex/Dawn/TopGun 2 lb/gal Sinister 2.87SL	14	24 oz 17 oz	0.38	24 H/ 45 D	Apply when soybeans have reached at least the V1 stage of growth. Apply Reflex when weeds are small and not stressed from dry weather. Application should be made when weeds have 1-4 true leaves (14-21 days after planting). Add a nonionic surfactant (0.25 % v/v) or crop oil concentrate (1% v/v) to the spray mixture. Can be tank-mixed with <i>glufosinate</i> or certain formulations of <i>glyphosate</i> . However, avoid tank-mixing Reflex with potassium salt formulations of glyphosate (Credit Extreme, Roundup Original MAX, Roundup WeatherMAX, Roundup PowerMAX, Touchdown HiTech, Touchdown Total, Touchdown CT2, Traxion). Rain-free period is 1 hour. Rotational crop restrictions: cotton, soybean – 0 months; small grains – 4 months; field corn, peanuts, sorghum, tobacco – 10 months. Reflex can also be applied PRE but POST applications are preferred.
	<i>imazethapyr</i> Pursuit 2 lb/gal 70 DG	2	4 oz 1.44 oz	0.063	4 H/ 85 D	Pursuit may be applied anytime after soybean emergence until R1 stage but before weeds exceed 3 inches. Add 0.25% v/v NIS. After application wait at least 10 days before cultivation. Do not apply Pursuit if Canopy, Scepter, or Pursuit was used as a pre-plant incorporated or pre-emergence treatment. Refer to the label for rotational restriction. Rain-free period is 1 hour.
	<i>bentazon + acifluorfen</i> Storm 4 lb/gal	6 + 14	24 oz	0.5 + 0.25	48 H/ 50 D	Apply to soybeans at the first or second trifoliate 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 pt/A. Any crop injury should be temporary. Rain-free period is 4 hours.
	<i>cloransulam</i> FirstRate, Amplify 84WD	2	0.3-0.6 oz	0.016-0.032	12 H/ Forage/Hay 25 D Grain 70 D	Controls a wide range of annual broadleaf weeds (except prickly and arrowleaf sida, common lambsquarters, black nightshade, and pigweed). May be applied from soybean emergence up to R2 (an open bloom at one of the 2 uppermost nodes). Add either 0.25% v/v nonionic surfactant or 1% v/v crop oil concentrate to the spray mix. May be tank-mixed with Blazer, Basagran, Cobra, Reflex, Pursuit, <i>glyphosate</i> , or post-emergence grass herbicides. Maximum total in-crop use rate/year is 1.05 oz/A. Rotational crop restrictions: soybeans – 0 months; wheat – 3 months; field corn, cotton, peanuts, sorghum, oats – 9 months. Rain-free period is 2 hours.
	<i>chlorimuron</i> Classic 25DF	2	0.5-0.66 oz	0.008-0.01	12 H/ 60 D	Apply over-the-top after soybeans have their first trifoliate leaf (V1). 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 <i>chlorimuron</i> is used following a pre-plant incorporated or pre-emergence treatment of <i>metribuzin</i> . Do not apply when soybeans or weeds are under temperature or drought stress. Classic can be tank-mixed with <i>glyphosate</i> for improved control of morningglories and other broadleaf weeds in Roundup Ready soybeans only . When tank-mixed with <i>glyphosate</i> , apply Classic at 0.25-0.33 oz/A. Crop rotation restrictions: cereal grains – 3 months; field corn – 7 months; tobacco – 9 months; peanuts – 6 months; cotton – 8 months; sweet potatoes – 10 months; other vegetable crops – 18-30 months (check label). Rain-free period is 1 hour.

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Post-emergence (continued)	<i>thifensulfuron</i> Harmony SG 50SG	2	1/8 oz	0.004	4 H/ 60 D	Salvage treatment for the control of Palmer amaranth (pigweed) that is NOT ALS-resistant. Can be applied any time after the first trifoliate 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 at 1 qt/A or AMS at 3 lb/A). Can be tank-mixed with <i>glyphosate</i> for use in RR soybeans. Rotational crop restrictions: wheat, barley, oats, triticale, soybeans, field corn – anytime; all other crops-45 days. Rain-free period is 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! *Higher rates of Harmony SG (0.50 oz/A) can be used on STS/SR soybean varieties. A partial list of STS/SR soybean varieties is provided at the end of this section. **Harmony will not control ALS-resistant Palmer amaranth.
	<i>flumiclorac</i> Resource 0.86 EC	14	4 oz	0.027	4 H/ 14 D	Tank-mix with <i>glyphosate</i> 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 <i>ammonium sulfate</i> (2.5 lbs/A). Rain-free period is 2 hours.
	<i>glyphosate</i> Various trade names 3 lb ae/gal 3.73 lb ae/gal 4 lb ae/gal 4.17 lb ae/gal 4.50 lb ae/gal 5 lb ae/gal	9	24-64 oz 19-52 oz 18-48 oz 17-46 oz 16-43 oz 14-38 oz	0.56-1.50 ae	4 H/ 14 D	Apply <i>glyphosate</i> 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 <i>glyphosate</i> . Controls a wide range of grass and broadleaf weeds. May be applied from the cracking stage through the R2 (full- flowering) stage of soybeans. Use the low rate on weeds up to 3” tall. Higher rates are needed as weeds increase in size. For morningglories, applications should be made when morningglories are less than 3” tall. Sequential treatments may be applied provided that the maximum post-emergence (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 Glyfos). There are no crop rotational restrictions for <i>glyphosate</i> . Not all formulations are labeled for use on RR soybeans. Refer to specific product label. The use of <i>ammonium sulfate</i> (AMS) is only recommended where hard water (Ca, Na, Mg, K) is a concern. Additional spray adjuvants are not required in loaded formulations.

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Post-emergence (continued)	<i>imazethapyr</i> + <i>glyphosate</i> Extreme 2.17 lb/gal	2 + 9	48 oz	0.063 + 0.75	48 H/ 85 D	Apply Extreme only to Roundup Ready soybeans. Add a nonionic surfactant at a rate of 1 pt/100 gallons and spray grade <i>ammonium sulfate</i> (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 <i>imazethapyr</i> + 1 lb ai/A of <i>glyphosate</i>). Very effective for the control of tropical spiderwort if applied early. Rain-free period is 1 hour.
	<i>S-metolachlor</i> + <i>glyphosate</i> Sequence 5.25 lb/gal	15 + 9	48-56 oz	1.13 -1.31 + 0.84-0.98	24 H/ 90 D	Apply Sequence only to Roundup Ready soybeans. Most effective when applied from cracking up through the 3rd trifoliate leaf stage. Very effective for the control of tropical spiderwort if applied early.
	<i>quizalofop</i> Assure II, Targa 0.88 lb/gal	1	5 -12 oz	0.03-0.08	12 H/ 80 D	Apply to annual and perennial grasses at recommended rate and stage of growth (until R3-R4 stage of growth). Use in combination with a COC (1% v/v) or NIS (0.25% v/v). The maximum amount that can be used in a single season is 18 oz/A. Tank-mixtures with broadleaf herbicides may reduce grass control. Rain-free period is 1 hour.
	<i>sethoxydim</i> Poast 1.5 lb/gal Poast Plus 1 lb/gal	1	16-24 oz 24-36 oz	0.19-0.28	12 H/ 75 D	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/A may be used at the 6-10" stage. Do not apply more than 7.5 pts/A/year. Rain-free period is 1 hour.
	<i>fluzifop-P</i> Fusilade DX 2 lb/gal	1	12 oz	0.19	12 H/ 60 D	Apply with a crop oil concentrate (0.5-1% 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" high. If regrowth occurs or new plants emerge, apply a second application of 8 fl oz when the johnsongrass is 6-12" tall. Do not apply more than 32 oz/A/year. Rain-free period is 1 hour.
	<i>clethodim</i> Select, Arrow, others 2EC Select Max /TapOut, others 0.97EC	1	6-8 oz 12 -16 oz	0.09-0.125	24 H/ 60 D	Apply to annual grasses at recommended stage of growth. A crop oil concentrate at 1% 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/A/year for Select Max/TapOut. Rain-free period is 1 hour.

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Post-emergence (continued)	<i>S-metolachlor</i> + <i>fomesafen</i> Prefix 5.29EC	15 + 14	32-37 oz	1.095-1.26 + 0.24-0.28	24 H/ 90 D	Apply when soybeans are in at least the V1 stage of growth. Can be tank-mixed with <i>glyphosate</i> for use on RR soybeans. Use a NIS at 0.25% v/v (1 qt/100 gal) when applying alone or in combination with <i>glyphosate</i> products that do not contain a built-in adjuvant. Do not exceed 3 pt/A of Prefix/season. Do not use Prefix post-emergence if a soil-applied application of <i>S-metolachlor</i> containing products was used. Rain-free period is 1 hour. Prefix can also be applied PPI or PRE but POST applications are preferred. Statement is a generic formulation of <i>metolachlor</i> + <i>fomesafen</i> . However, this formulation is only labeled for PPI or PRE use in soybean.
	<i>pyraflufen</i> ET 0.208EC	14	0.5-0.75 oz	0.0008-0.0016	12 H/ Forage/Hay 7 D Grain 70 D	Can be applied over-the-top of soybeans up to V6 stage of growth. Can be tank-mixed with <i>glyphosate</i> 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 <i>glyphosate</i> will increase soybean leaf burn but this symptom is usually temporary. Rain-free period is 1 hour. Do not use a COC adjuvant.
	<i>fluthiacet-methyl</i> Cadet 0.91L	14	0.4-0.6 oz	0.0028-0.0042	12 H/ 60 D	Tank-mix with <i>glyphosate</i> (RR soybeans) or <i>glufosinate</i> (LL soybeans) to improve the control of annual morningglory and pigweed. Additions of Cadet to <i>glyphosate</i> or <i>glufosinate</i> 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 R2 (full flowering). Rain-free period is 4 hours.
	<i>fomesafen</i> + <i>glyphosate</i> Flexstar GT 3.5 2.82SL	14 + 9	3.5-5.3	0.25-0.37 + 0.99-1.50	24 H/ 45 D	Only for use on RR soybean varieties. Use in combination with a NIS (0.25% v/v) or COC (1% v/v). Rotational crop restrictions: cotton, soybeans – 0 months; small grains – 4 months; field corn, peanuts, sorghum, tobacco – 10 months. Rain-free period is 1 hour.
	<i>glufosinate</i> Liberty 280 2.34SL Cheetah Kong Interline	10	22-36 oz	0.19-0.28	12 H/ 70 D	Only for use on LibertyLink® soybean varieties. . The use of Liberty on other varieties will result in severe injury or crop death. Liberty can be applied from soybean emergence (VE) up to but not including the beginning bloom stage of growth (R1). Up to 2 applications of Liberty can be applied per season (5 days apart – POST). Apply in 15 GPA with pressure/nozzles that deliver medium to coarse droplets. Do not apply more than 87 oz/A/ year on soybeans. If Liberty is used in a burndown prior to planting, only 1 in-crop application at 32-43 oz/A can be used. Optimum time of application for Liberty is between 9 am–6 pm. Avoid tank-mixes with grass herbicides such as Assure, Fusilade, Poast, and Select. If desired, a residual herbicide such as Dual Magnum or Warrant or Reflex can be tank-mixed with Liberty. However, tank-mixes with residual herbicides will increase crop injury. Liberty should be applied in a minimum of 15 GPA using flat fan nozzle tips or other nozzle tips that produce medium size spray droplets (300-400 microns). Rain-free period is 4 hours. * Do not rely exclusively on Liberty. The use of a soil residual herbicide at planting and/or post-emergence is mandatory for optimum weed control in the LibertyLink soybean system and to help delay the development of herbicide resistance. Generic formulations of <i>glufosinate</i> should be used with caution because limited data has been collected by UGA. Cheetah Max is a combination of <i>glufosinate</i> + <i>fomesafen</i>

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS										
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT												
Post-emergence <i>(continued)</i>	<i>acetochlor</i> + <i>fomesafen</i> Warrant Ultra 3.45SC	15 + 14	48-50 oz/A	1.06-1.10 + 0.236-0.244	24 H/ 45 D	Can be applied POST up until R2 (full bloom—an open flower at one of the 2 uppermost nodes) stage of soybean growth (wait until at least V1 stage). Apply with NIS at 0.25% v/v (1 qt/100 gal). Crop rotation restrictions: soybeans – 0 months; cotton – 1 month; wheat – 4 months; field corn, grain sorghum, peanuts – 10 months. Can also be applied PRE. Only 1 application/year can be made. Tank-mix with <i>glyphosate</i> for use in RR soybeans.										
	<i>dicamba</i> Engenia 5SL Fexapan + VG 2.9SL Xtendimax + VG 2.9 SL	4	12.8 oz 22 oz 22 oz	0.50	24H Forage 7 D Hay 14 D	For use on <i>dicamba</i>-tolerant (Xtend) soybeans only! Significant label changes are anticipated for 2019 so refer to the most recent labels for information about <i>dicamba</i> use in Xtend soybeans. Growers must have completed the UGA “Using Pesticides Wisely” training before applying <i>dicamba</i> to <i>dicamba</i> -tolerant soybeans. Only labeled <i>dicamba</i> formulations can be applied PPLNT, PRE, or POST (R1 stage; beginning bloom). Only approved nozzles and approved tank-mixtures can be applied. <i>Dicamba</i> should not be applied during temperature inversions. Newer <i>dicamba</i> formulations must be applied in 10-15 GPA (depending upon formulation) and boom heights cannot exceed 24”. An additional POST application of <i>dicamba</i> can be made in 7 days if needed. For more information regarding nozzles, tank-mixtures, buffers, and other application requirements, refer to the following web-sites: Engenia: agproducts.basf.us/campaigns/engenia/tankmixselector/ Fexapan: www.dupont.com/products-and-services/crop-protection/soybean-protection/articles/fexapan-application.html Xtendimax: xtendimaxapplicationrequirements.com/Pages/default.aspx ** It is extremely important to remember that starting clean, using residuals, and making POST applications before the largest pigweed in a field exceeds 4” in height will most likely result in the best weed control and help maintain the longevity of this technology! Rain-free period is 4 hours.										
Post-emergence Directed	<i>metribuzin</i> Metribuzin, Tricor 75DF 4F	5	5.3-10.7 oz 8-16 oz	0.25-0.50	12 H/ 70 D	Do not apply until soybeans have reached the following minimum heights: <table><thead><tr><th>Herbicide</th><th>Minimum Soybean Height Prior to Directed Spraying</th></tr></thead><tbody><tr><td><i>metribuzin</i></td><td>8-12”</td></tr><tr><td><i>metribuzin</i> + 2,4-DB</td><td>8-12”</td></tr><tr><td><i>paraquat</i></td><td>8”</td></tr><tr><td>2,4-DB</td><td>8”</td></tr></tbody></table> 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” in height, the tank-mix of 2,4-DB with <i>metribuzin</i> will improve weed control. When using <i>paraquat</i> adjust equipment to spray no higher than 3” of the soybean plant. <i>Paraquat</i> can also be applied in a hooded or shielded sprayer. **DO NOT apply <i>metribuzin</i> post-directed to sensitive soybean varieties.	Herbicide	Minimum Soybean Height Prior to Directed Spraying	<i>metribuzin</i>	8-12”	<i>metribuzin</i> + 2,4-DB	8-12”	<i>paraquat</i>	8”	2,4-DB	8”
	Herbicide	Minimum Soybean Height Prior to Directed Spraying														
	<i>metribuzin</i>	8-12”														
	<i>metribuzin</i> + 2,4-DB	8-12”														
<i>paraquat</i>	8”															
2,4-DB	8”															
<i>paraquat</i> Gramoxone SL 2 lb/gal	22	16-32 oz	0.25-0.50	24 H/ Forage 46 D												
Firestorm/Parazone/ Helmquat 3 lb/gal		5.3 fl oz	0.124													
2,4-DB 1.75 lb/gal 2 lb/gal	4	16 oz 14 oz	0.22	48 H/ 60 D												

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
Post-emergence Directed (continued)	<i>carfentrazone</i> Aim 2EC	14	0.5-1.5 oz	0.008-0.025	12 H/ V 10	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.
Rope Wick	<i>glyphosate</i> Various trade names	9	1-2 gal of water		4 H/ 7 D	Use in wiper applicators at a ratio of 1 gallon of <i>glyphosate</i> 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 <i>glyphosate</i> may be labeled for this use. Refer to specific product label.
Post-emergence Shielded or Hooded Sprayers	<i>glyphosate</i> various trade names 3 lb ae/gal 3.73 lb ae/gal 4 lb ae/gal 4.17 lb ae/gal 4.50 lb ae/gal 5 lb ae/gal	9	16-48 oz 13-39 oz 12-36 oz 11.7-35 oz 11-32 oz 10-29 oz	0.38-1.13 ae	4 H/ 7 D	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 <i>glyphosate</i> does not contact soybean green stems or foliage. Apply in a spray volume of 3-10 GPA. Not all formulations of <i>glyphosate</i> are labeled for this use. Refer to specific product label.
	<i>paraquat</i> Gramoxone SL 2 lb/gal	22	16-32 oz	0.25-0.50	24 H/ Forage 46 D	Do not apply until soybeans have reached the following minimum height of 8”. 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” in height, the tank-mix of 2,4-DB with <i>metribuzin</i> will improve weed control. When using <i>paraquat</i> adjust equipment to spray no higher than 3” of the soybean plant.
HARVEST AIDS						
Harvest Aid	<i>glyphosate</i> Various trade names 3 lb ae/gal 3.73 lb ae/gal 4 lb ae/gal 4.17 lb ae/gal 4.50 lb ae/gal 5 lb ae/gal	9	32-64 oz 26-52 oz 24-48 oz 23-46 oz 21-42 oz 19-38 oz	0.75-1.5 ae	4 H/ 7 D	Apply after soybean pods have lost all green color. Application is usually timed 14-21 days before harvest. May be aerially applied. This treatment is not recommended for conventional soybeans grown for seed purposes. Not all formulations of <i>glyphosate</i> are labeled for this use. Refer to specific product label.

SOYBEAN WEED CONTROL

STAGE OF APPLICATION	HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
			AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
HARVEST AIDS <i>(continued)</i>						
Harvest Aid <i>(continued)</i>	<i>paraquat</i> Gramoxone SL 2 lb/gal	22	16 oz	0.25	24 H/ 15 D	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. Tank-mix with Aim if annual morningglories are also a problem (except smallflower).
	Firestorm/Parazone/ Helmquat 3 lb/gal		10.7 oz			
	<i>carfentrazone</i> Aim 2EC	14	1.5 oz	0.023	12 H/ 3 D	For the pre-harvest desiccation of pigweed and annual morningglories (<i>Ipomoea</i> species). Can be applied by ground or air. Use with a crop oil concentrate at 1% v/v. Can be tank-mixed with <i>glyphosate</i> or <i>paraquat</i> to improve the spectrum of control.
	<i>saflufenacil</i> Sharpen 2.85SC	14	1-2 oz	0.02-0.04	12 H/ 3 D	Apply when soybeans have reached physiological maturity at least 3 days before harvest. Could take 7-10 days for optimum desiccation. Use a MSO at 1% v/v (must contain at least 60% MSO) and AMS (8.5 lbs/gal). Do not apply to soybeans grown for seed production. Indeterminate Varieties: > 65% brown pods and > 70% leaf drop or when seed moisture is 30% or less. Determinate Varieties: soybeans are fully developed, > 50% leaf drop, remaining leaves are yellowing. Crop Rotation Restrictions: corn/sorghum/small grains-0 months; soybeans – 1 month; cotton – 1.5-3 months; peanuts – 4-5 months Rain-Free Period is 1 hour.
Center Pivot Irrigation Application	<i>metolachlor</i> Stalwart, Parallel PCS, Me-Too-Lachlor	15	16 oz	1	24 H/ 90 D	Herbicides should be applied only through center pivot systems that water uniformly. Apply in 1/4-1/2” of irrigation water/A. Equipment must have appropriate check valves or other suitable devices in the system to ensure that the herbicide solution cannot siphon back into water supply. Refer to labels for more specific information regarding center-pivot applications.
	<i>S-metolachlor</i> Dual Magnum 7.62EC		16 oz	0.97		
	<i>metribuzin</i> Metri, Metribuzin, Tricor 75DF 4F	5	5.3-8 oz 8-12 oz	0.25-0.38	12 H/ 70 D	

SOYBEAN WEED RESPONSE TO HERBICIDES

Eric P. Prostko, Extension Agronomist – Weed Science

	Prowl Pendimax	Scepter	Treflan	Squadron	Sonalan	Metribuzin	Pursuit	Canopy	Authority MTZ	Authority XL
PRE-PLANT 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

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

	Prowl Pendimax	Scepter	Treflan	Squadron	Sonalan	Metribuzin	Pursuit	Canopy	Authority MTZ	Authority XL
PRE-PLANT INCORPORATED										
BROADLEAF WEEDS (continued)										
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
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
pigweed 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

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

	Python	Prowl Pendimax	Zidua Anthem	Dual Magnum ¹	Command	Warrant	Pursuit	Linex Lorox	Metribuzin
	PPI/PRE	PRE-EMERGENCE							
PERENNIAL WEEDS									
bermudagrass	P	P		P	P	P	P	P	P
johnsongrass (rhizome)	P	P		P	P	P	P	P	P
yellow nutsedge	P	P	P	F-G	P	F	F-G	P	P
purple nutsedge	P	P	P	P	P	P	G	P	P
ANNUAL GRASSES									
broadleaf signalgrass		G	F-G	F-G	E	F-G	P		P
crabgrass	P	G-E	G-E	G-E	E	G-E	P	G	G
crowfootgrass	P	G-E	G-E	G-E	G	G-E	P	G	G
fall panicum	P	G	G-E	G-E	G	G-E	P	G	P
goosegrass	P	G	G-E	G-E	G	G-E	P	G	G
johnsongrass (seedling)	P	G			F		P		P
sandbur	P	G	G-E	G-E	F	G-E	P	G	
Texas panicum	P	G	F	P-F	F-G	P-F	P		P
BROADLEAF WEEDS									
bristly starbur	E	P		P		F	F	F	G
burcucumber	P	P		P	P	P	P	P	P
citronmelon		P		P	P	P			F
cocklebur	E	P	P	P	P	P	F-G	P	F
coffee senna	F	P		P	F	P-F	P		G
common ragweed	G	P		P	F-G	P	P	G	G
copperleaf	F	P		P		P	P	P	G-E
cowpea	P	P		P	P	P	P	P	F
crotalaria		P							F
Florida beggarweed	F-G	P		P-F	F-G	F	P	G	E
Florida pusley	G	G		G	F-G	G	E	G	G
hemp sesbania		P		P		P	P		G-E

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

¹ 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.

SOYBEAN WEED RESPONSE TO HERBICIDES

	Python	Prowl Pendimax	Zidua Anthem	Dual Magnum ¹	Command	Warrant	Pursuit	Linex Lorox	Metribuzin
	PPI/PRE	PRE-EMERGENCE							
BROADLEAF WEEDS <i>(continued)</i>									
jimsonweed	P	P		P	F-G	P	G		G
horseweed	G								G
ALS-resistant	P								G
glyphosate-resistant	G								G
lambsquarters	E	G		F	G-E	F	P-F	G-E	G
MORNINGGLORIES									
cypressvine	F-G	P					G		F-G
entireleaf	F-G	P		P	P	P	G	G	P-F
ivyleaf	F-G	P		P	P	P	G	G	P-F
pitted	F-G	P		P	P	P	G	G	F-G
purple	P	P		P	P	P	P		P
red	F-G	P		P	P		G		F
smallflower	G-E	P		P-F	G	P	E	G	G
tall	F-G	P		P	P	P	G	G	P-F
Pennsylvania smartweed		P		P	G	P			G
pigweed	E	G	G-E	G-E	P	G-E	E	G	G-E
ALS-resistant	P	G	G-E	G-E	P	G-E	P	G	G-E
glyphosate-resistant	E	G	G-E	G-E	P	G-E	E	G	G-E
prickly sida	E	P		F	G	G	G-E		G
purslane		E		G	G	G		G	G-E
redweed	G	P							
sicklepod	F-G	P		P	P	P	P	P	F-G
tropic croton		P		P	G	P	P		G
tropical spiderwort		P	G	G	F		F-G		F-G
velvetleaf	E	P		P	E	P	G		G
wild poinsettia	G	P		P	P	P	G-E		G

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

¹ 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.

SOYBEAN WEED RESPONSE TO HERBICIDES

	Fierce	Valor	Valor XLT Envive	Surveil	Reflex Dawn	Prefix Statement	Assure II	Poast	Fusilade DX	Ultra Blazer	Basagran Broadloom
	PRE-EMERGENCE						POST-EMERGENCE				
PERENNIAL WEEDS											
bermudagrass	P	P	P	P			G-E	F	G-E	P	P
johnsongrass (rhizome)	P	P	P	P			E	G	E	P	P
yellow nutsedge	P	P	F-G	P	G-E	G-E	P	P	P	P	G*
purple nutsedge	P	P	P-F	P			P	P	P	P	P
ANNUAL GRASSES											
broadleaf signalgrass	F-G	P	P	P	F-G	F-G	G	E	E	P	P
crabgrass	G-E	P	P	P	F-G	E	F-G	G	F	P	P
crowfootgrass	G-E	P	P	P		G	G	F-G	F	P	P
fall panicum	G-E	P	P	P		G	G	G	G	P	P
goosegrass	G-E	P	P	P		E	F-G	F-G	F-G	P	P
johnsongrass (seedling)		P	P	P			E	G-E	G-E	P	P
sandbur	G-E	P	P	P		G		G	G	P	P
Texas panicum	F	P	P	P	F	F	F-G	E	G-E	P	P
BROADLEAF WEEDS											
bristly starbur	F	F	F-G	F-G	G		P	P	F-G	F	E
burcucumber	P	P	P-F				P	P	P	F	P
citronmelon	G	G	G				P	P	P	G-E	P
cocklebur	P	P	F-G	F-G	G	G	P	P	P	G	E
coffee senna	P-F	P-F	F-G		P	P	P	P	P	P-F	G
common ragweed	G	G-E	G-E	G	G	G	P	P	P	E	G
copperleaf	G-E	G-E	G-E	G			P	P	P	G-E	P
cowpea	P	P	P				P	P	P	F	P
crotalaria	G	G	G				P	P	P	E	P
Florida beggarweed	G-E	G-E	G-E	G-E	P	P-F	P	P	P	P-F	P
Florida pusley	G	G-E	G-E	G-E	P	G	P	P	P	E	P
hemp sesbania	G	G	G-E	G	P	P	P	P	P	E	P
horseweed ALS-resistant glyphosate-resistant	G G G	G G G	G G G	G G G			P P P	P P P	P P P		
jimsonweed	G	G	G	G			P	P	P	E	E
lambsquarters	G	G-E	G-E	G			P	P	P	F	F

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

	Fierce	Valor	Valor XLT Envive	Surveil	Reflex Dawn	Prefix Statement	Assure II	Poast	Fusilade DX	Ultra Blazer	Basagran Broadloom
	PRE-EMERGENCE						POST-EMERGENCE				
BROADLEAF WEEDS <i>(continued)</i>											
MORNINGGLORIES			F-G	G							
cypressvine	F	G	G		F	F	P	P	P	G-E	G-E
entireleaf	F	F-G	F-G	G	F	F	P	P	P	G	P
ivyleaf	F	F-G	F-G	G	F	F	P	P	P	G	P
pitted	F	F	F-G	G	F	F	P	P	P	G-E	F
purple					F	F	P	P	P	G-E	P
red	F	G	G	G	F	F	P	P	P	G-E	F-G
smallflower	F	G-E	G-E	G	G-E	G-E	P	P	P	G-E	G-E
tall	F	F-G	F-G	G	F	F	P	P	P	G	F
Pennsylvania smartweed	P-F	P-F	F				P	P	P	G	G-E
pigweed	E	E	E	E	E	E	P	P	P	G-E	P
ALS-resistant	E	E	E	E	E	E	P	P	P	G-E	P
glyphosate-resistant	E	E	E	E	E	E	P	P	P	G-E	P
prickly sida	G-E	G-E	G-E	G			P	P	P	P	G
purslane	G-E	G-E	G-E	G-E	G	G	P	P	P	E	G
redweed	G-E	G-E	G-E				P	P	P		G-E
sicklepod	P	P	F	F			P	P	P	P-F	P
tropic croton	G	G	G	G	F-G	F-G	P	P	P	E	P
tropical spiderwort	F-G	P-F	F	F	P	G-E	P	P	P	P	F
velevetleaf	G	G-E	G-E	G-E			P	P	P	F	G-E
wild poinsettia	F-G	F-G	F-G	F-G	G-E	G-E	P	P	P	G	P

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

	Storm	2,4-DB	Scepter	Classic	Reflex Dawn	Cobra	Select Arrow	Liberty Cheetah Kong Interline	Glyphosate
POST-EMERGENCE									
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

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

	Storm	2,4-DB	Scepter	Classic	Reflex Dawn	Cobra	Select Arrow	Liberty Cheetah Kong Interline	Glyphosate
POST-EMERGENCE									
BROADLEAF WEEDS (continued)									
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
lambsquarters	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
pigweed 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	P	P-F	P	G	E
tropic croton	G-E	P		P		E	P	G	G
tropical spiderwort	F			F			P	P-F	F
velevetleaf	F-G	P	P	G-E	F	F	P	E	G
wild poinsettia	F-G	P	F	F	F-G	G-E	P		G

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

	FirstRate Amplify	Pursuit	Harmony GT XP or SG	Warrant Ultra	dicamba	2,4-DB	Paraquat	Metribuzin	Metribuzin + 2,4-DB
	POST-EMERGENCE					POST-DIRECTED			
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-F	F-G	P	P	P	P	P-F		P-F
purple nutsedge	P-F	G	P	P	P	P	P-F		
ANNUAL GRASSES									
broadleaf signalgrass	P	G	P	P	P	P	G		G
crabgrass	P	F	P	P	P	P	F	E	G-E
crowfootgrass	P	F	P	P	P	P	G	E	G-E
fall panicum	P	F	P	P	P	P	G	G	G
goosegrass	P	F	P	P	P	P	G	E	G-E
johnsongrass (seedling)	P	F-G	P	P	P	P	G	G	G
sandbur	P		P	P	P	P	G	E	G
Texas panicum	P	P	P	P	P	P	G	F	F-G
BROADLEAF WEEDS									
bristly starbur	E	F			E	G	G	G	E
burcucumber	F	P	P-F	F	F	P	G		
citronmelon		P			E	F	F	G	G-E
cocklebur	E	G-E	F	F-G	E	E	G	E	E
coffee senna		F		P	G	F-G			G-E
common ragweed	E	P		G-E	E	G	G	G	E
copperleaf	P	P		G-E		P			G-E
cowpea	P	P		F	E	P-F	G		G
crotalaria		P		G-E	G		G	E	E
Florida beggarweed	F-G	P		P	G	P	G	E	E
Florida pusley	F	P		F-G	G		F-G	G	G
hemp sesbania	P	P		G	E	P	P		G
horseweed ALS-resistant glyphosate-resistant	G P G				G G G				
jimsonweed	P	F	F	G	E	G	G	E	G
lambsquarters	P	P	G-E	P-F	E	G	F-G	E	E

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

	FirstRate Amplify	Pursuit	Harmony GT XP or SG	Warrant Ultra	dicamba	2,4-DB	Paraquat	Metribuzin	Metribuzin + 2,4-DB
	POST-EMERGENCE					POST-DIRECTED			
BROADLEAF WEEDS (continued)									
MORNINGGLORIES									
cypressvine	G	G		G-E	G	F	F	E	E
entireleaf	G	G		F	G	G	F-G	F	E
ivyleaf	G	G		F	G	G	F-G	F	E
pitted	G	G		G	G	G	F-G	G-E	G-E
purple	P-F	P		G-E	G	G			G-E
red	G	G		G-E	G	G-E	F-G	G-E	E
smallflower	G	G		G	G	G	F-G	G-E	E
tall	G	G		G	G	G-E	F-G	F	G
Pennsylvania smartweed		F-G	G-E	G	E	P	P-F		F-G
pigweed	P	E	G-E	G-E	G-E	F	F-G	G-E	G-E
ALS-resistant	P	P	P	G-E	G-E	F	F-G	G-E	G-E
glyphosate-resistant	P	E	G-E	G-E	G-E	F	F-G	G-E	G-E
prickly sida	P	P			E	P	P-F	E	G-E
purslane					E	G	G	G	G
redweed		F				P			
sicklepod	F	P		P	G-E	G	G	E	G-E
tropic croton	F	P			G	P	G	G	G
tropical spiderwort	F				F-G**		G-E		
velvetleaf	G	G			F-G	P			F
wild poinsettia	G	P-F		F		P	F-G	P-F	F

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

** When tank-mixed with *glyphosate*. On larger weeds, 2 applications will be required.

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

	<i>Glyphosate</i>	<i>Glyphosate + 2,4-D amine or choline</i>	<i>Glyphosate + dicamba</i> ¹	<i>Glyphosate + Aim or ET</i>	<i>Glyphosate + FirstShot</i>	<i>Paraquat</i>	<i>Paraquat + 2,4-D</i>	<i>Paraquat + Metribuzin</i>	<i>Glufosinate</i>
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	F
horseweed <i>glyphosate-resistant</i>	F-G P	G-E F-G	E E	G P	G-E P	F	G	G G	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	15 days	14-28 days 1" rainfall or irrigation	0 days	7-14 days	0 days	7-15 days	0 days	0 days

¹Various formulations of *dicamba* are labeled. Refer to specific labels for rates, timings, and application requirements (nozzles, buffers, GPA, boom height, tractor speed, etc.)

PREPACKAGED TANK-MIXES FOR SOYBEANS
See manufacturer's label for specific rates and application uses.

PRODUCT NAME	ACTIVE INGREDIENTS (LBS AI/GAL OR % AI)
Anthem	<i>pyroxasulfone</i> (2.087) + <i>fluthiacet</i> (0.063)
Anthem Maxx	<i>pyroxasulfone</i> (4.174) + <i>fluthiacet</i> (0.126)
Authority Assist	<i>sulfentrazone</i> (3.33) + <i>imazethapyr</i> (0.67)
Authority Elite	<i>sulfentrazone</i> (0.7) + <i>S-metolachlor</i> (6.3)
Authority First	<i>sulfentrazone</i> (62.1%) + <i>chloransulam</i> (7.9%)
Authority MTZ	<i>sulfentrazone</i> (18%) + <i>metribuzin</i> (27%)
Authority XL	<i>sulfentrazone</i> (62%) + <i>chlorimuron</i> (8%)
Axiom	<i>flufenacet</i> (54.4%) + <i>metribuzin</i> (13.6%)
Backdraft	<i>imazaquin</i> (0.25) + <i>glyphosate</i> (1.25)
Boundary	<i>metribuzin</i> (1.25) + <i>S-metolachlor</i> (5.25)
Broadstrike + Treflan	<i>flumetsulam</i> (0.25) + <i>trifluralin</i> (3.4)
Canopy	<i>chlorimuron</i> (10.7 %) + <i>metribuzin</i> (64.3 %)
Canopy Blend	<i>chlorimuron</i> (8.3%) + <i>metribuzin</i> (50%)
Canopy EX	<i>chlorimuron</i> (22.7%) + <i>tribenuron</i> (6.8%)
Canopy XL	<i>sulfentrazone</i> (46.9%) + <i>chlorimuron</i> (9.4%)
Cheetah Max	<i>glufosinate</i> (2.0) + <i>fomesafen</i> (1.0)
Commence	<i>clomazone</i> (2.25) + <i>trifluralin</i> (3.0)
Concert	<i>chlorimuron</i> (12.5%) + <i>thifensulfuron</i> (12.5%)
Detail	<i>imazaquin</i> (0.5) + <i>dimethenamid</i> (3.6)
Domain	<i>flufenacet</i> (24%) + <i>metribuzin</i> (36%)
Enlite	<i>chlorimuron</i> (2.85%) + <i>flumioxazin</i> (36.21%) + <i>thifensulfuron</i> (8.8%)
Envive	<i>chlorimuron</i> (9.2%) + <i>flumioxazin</i> (29.2%) + <i>thifensulfuron</i> (2.9%)
Extreme	<i>imazethapyr</i> (0.17) + <i>glyphosate</i> (2.0)
Fierce	<i>flumioxazin</i> (33.5%) + <i>pyroxasulfone</i> (42.5%)

PRODUCT NAME	ACTIVE INGREDIENTS (LBS AI/GAL OR % AI)
Flexstar GT 3.5	<i>fomesafen</i> (0.56) + <i>glyphosate</i> (2.26)
Freedom	<i>alachlor</i> (2.67) + <i>trifluralin</i> (0.33)
Fusion	<i>fluazifop</i> (2.0) + <i>fenoxaprop</i> (0.56)
Galaxy	<i>bentazon</i> (3.0) + <i>acifluorfen</i> (0.67)
Gangster	<i>flumioxazin</i> (51%) + <i>cloransulam</i> (84%)
Gauntlet	<i>sulfentrazone</i> (75%) + <i>cloransulam-methyl</i> (84%)
Passport	<i>trifluralin</i> (2.4) + <i>imazethapyr</i> (0.2)
Prefix	<i>fomesafen</i> (0.95) + <i>S-metolachlor</i> (4.34)
Pursuit Plus	<i>imazethapyr</i> (0.2) + <i>pendimethalin</i> (2.7)
Reliance STS	<i>thifensulfuron</i> (9%) + <i>chlorimuron</i> (16%)
Sequence	<i>glyphosate</i> (2.25) + <i>S-metolachlor</i> (3.0)
Sonic	<i>sulfentrazone</i> (62.1%) + <i>chloransulam</i> (7.9%)
Spartan Advance	<i>sulfentrazone</i> (0.56) + <i>glyphosate</i> (4.04)
Spartan Charge	<i>sulfentrazone</i> (3.15) + <i>carfentrazone</i> (0.35)
Squadron	<i>imazaquin</i> (0.33) + <i>pendimethalin</i> (2.0)
Steel	<i>pendimethalin</i> (2.25) + <i>imazethapyr</i> (0.17) + <i>imazaquin</i> (0.17)
Stellar	<i>lactofen</i> (2.4) + <i>flumiclorac</i> (0.7)
Storm	<i>bentazon</i> (2.67) + <i>acifluorfen</i> (1.33)
Surveil	<i>flumioxazin</i> (36%) + <i>chloransulam</i> (12%)
Synchrony XP	<i>chlorimuron</i> (21.5%) + <i>thifensulfuron</i> (6.9%)
Tackle	<i>imazethapyr</i> (0.128) + <i>glyphosate</i> (4.0)
Typhoon	<i>fluazifop</i> (0.47) + <i>fomesafen</i> (0.94)
Valor XLT	<i>flumioxazin</i> (30%) + <i>chlorimuron</i> (10.3%)
Warrant Ultra	<i>acetochlor</i> (2.82) + <i>fomesafen</i> (0.63)

SOYBEAN PRE-MIXTURES AND EQUIVALENT RATES

PRE-MIXTURE	RATE/A	EQUIVALENT RATES/A
Authority MTZ 45DG	14 oz	Spartan 4L at 5.04 oz Metribuzin 75DG at 5.04 oz
Boundary 6.5EC	24 oz	Dual Magnum 7.62EC at 16.5 oz Metribuzin 75DF at 4.9 oz
Canopy 75DG	6 oz	Metribuzin 75DG at 5.1 oz Classic 25DG at 2.6 oz
Envive 41.3DG	2.5 oz	Valor 51WG at 1.44 oz Classic 25DG at 0.90 oz Harmony 75DG at 0.14 oz
Fierce 76WG	3 oz	Valor 51WG at 2.0 oz/A Zidua 85DG at 1.5 oz/A
Flexstar GT 3.5 2.82 SL	56 oz	Touchdown Total 4.17SL at 30.4 oz Reflex 2SL at 15.7 oz
Prefix 5.29SL	37 oz	Dual Magnum 7.62EC at 21.2 oz Reflex 2SL at 17.7 oz
Sequence 5.25SL	48 oz	Dual Magnum 7.62EC at 18.9 oz Touchdown Total 4.17SL at 25.9 oz
Surveil 48WG	2.8 oz	Valor 51WG at 2 oz/A FirstRate 84DG at 0.73 oz/A
Warrant Ultra 3.45SC	48 oz	Warrant 3ME at 45.1 oz Reflex 2SL at 15.1 oz

RR CORN CONTROL IN RR SOYBEANS

HERBICIDE*	CORN SIZE (IN)	RATE/A (OZ)
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

PRE-EMERGENCE	POST-EMERGENCE ²
Canopy/Cloak 75DG (6-8 oz/A ³) or Metribuzin 75DF (5.3-8 oz/A ³)	<i>glyphosate</i> + Resource (4 oz/A), or Reflex (16-24 oz/A), or Classic (0.5 oz/A)

¹ A combination of pre-emergence and post-emergence herbicides is needed to provide optimum control.

² Post-emergence applications should be made when cotton is 6" or less.

³ Rate depends on soil type. Refer to label.

HERBICIDE SUGGESTIONS FOR HORSEWEED (MARESTAIL) CONTROL IN SOYBEANS*

TIME OF APPLICATION	TREATMENT	COMMENTS
Pre-plant Burndown	Liberty 280 2.34SL at 32-43 oz/A**	Use at least 15 GPA and flat fan nozzle tips or other nozzle tips that produce medium size spray droplets (300-400 microns). Apply between 9 am-6 pm. Temperatures less than 75°F will reduce control. Labeled for 6-12" horseweed plants.
	Roundup PowerMax 5.5 SL at 22-43 oz/A + <i>dicamba</i>	Refer to <i>dicamba</i> in minimum tillage section earlier in this chapter.
	Roundup PowerMax 5.5SL at 22-43 oz/A + 2,4-D amine 3.8SL at 24-32 oz/A	Soybeans can be planted 30 days after application.
	Gramoxone SL 2SL at 48 oz/A + Metribuzin/ Tricor 75DF at 4 oz/A + NIS at 0.25% v/v	Apply to 6" or smaller horseweed plants. Use at least 15 GPA and flat fan nozzle tips. Plant a <i>metribuzin</i> -tolerant soybean variety.
Residual Control	Valor SX 51WG at 2-2.5 oz/A	Excellent residual control but no post-emergence activity
	Python 80WG at 1 oz/A	Will not control ALS-resistant populations.
Post-emergence (in-crop)	Firstate 84DG at 0.3 oz/A + NIS at 0.25% v/v	Apply to horseweed plants that are 6" tall or less. Can also be tank-mixed with <i>glyphosate</i> in RR soybeans. Will not control ALS-resistant populations.
	Liberty 2.34 SL at 32-43 oz/A**	For use in LL soybeans only. Apply in at least 15 GPA with flat fan nozzle tips or other nozzle tips that produce medium size spray droplets (300-400 microns). Apply between 9 am-6 pm for optimum activity. Labeled for use on 6-12" tall horseweed plants.
	Engenia 5SL at 12.8 oz/A or Fexapan + VG 2.9SL at 22 oz/A or Xtendimax + VG 2.9SL at 22 oz/A	For use in Xtend (<i>dicamba</i>) soybeans only. Refer to <i>dicamba</i> in post-emergence section earlier in this chapter. Pay close attention to nozzles, wind speed, boom height, buffers, tractor speed, temperature inversions, and other application requirements. Repeat application in 7 days if needed but before R1 stage. Refer to most recent labels and website for up-to-date application information.

* Tillage is also a very effective method for controlling horseweed.

** Generic formulations of *glufosinate* are also available including Cheetah, Kong, and Interline. Cheetah Max is a combination of *glufosinate* + *fomesafen*. Generic formulations of *glufosinate* should be used with caution because limited data has been collected by UGA.

HERBICIDE PROGRAMS FOR MANAGING GLYPHOSATE/ALS-RESISTANT PALMER AMARANTH AND DELAYING PPO/VLCFA RESISTANCE IN SOYBEANS.¹

SOYBEAN VARIETY	PROGRAM	PRE-EMERGENCE ²	POST-EMERGENCE ^{3,4}
Roundup Ready	1	TriCor/Metribuzin; or Canopy/Cloak ⁵ ; or Authority MTZ ^{7,13}	<i>glyphosate</i> + Reflex ^{7,20} ; or <i>glyphosate</i> + Prefix ^{7,8} or Warrant Ultra ¹⁷ ; or Flexstar GT ^{7,10}
	2	Boundary ⁶	<i>glyphosate</i> + Reflex ^{7,20} ; or Flexstar GT ^{7,10}
	3	Prowl; or Dual Magnum ¹⁵ ; or Warrant ¹⁵ or Zidua ¹⁵ or Anthem Maxx ^{15,17}	<i>glyphosate</i> + Reflex ^{7,20} ; or Flexstar GT ^{7,10}
	4	Valor; or Envive ^{7,11} ; or Authority XL ^{7,14} ; or Fierce ^{7,16} or Surveil ²²	<i>glyphosate</i> + Warrant ¹⁵ or Dual Magnum ¹⁵ or Zidua ¹⁵ ; or Sequence ⁹
LibertyLink	1	Prowl; or Dual Magnum ¹⁵ ; or Warrant ¹⁵ ; or Zidua ¹⁵ or Anthem Maxx ^{15,17}	Liberty ¹⁹ + Reflex ^{7,20}
	2	Valor; or Envive ^{7,11} ; or Authority XL ^{7,14} ; or Fierce ^{7,16} ; or Surveil ²²	Liberty ¹⁹ + Dual Magnum ¹⁵ or Warrant ¹⁵ or Zidua ¹⁵ or Anthem ^{15,17}
Dicamba-Tolerant (Xtend)	1	One of the following: Authority XL ^{7,14} Boundary ⁶ Canopy ⁵ Dual Magnum ¹⁵ Envive ^{7,11} Fierce ^{7,16} Surveil ²² TriCor/Metribuzin Valor	1) Approved <i>Glyphosate</i> + Xtendimax+VG ²¹ or Fexapan+VG ²⁴ + Warrant or 2) Approved <i>Glyphosate</i> + Engenia ²³ + Zidua For a current list of approved tank-mix partners for Xtendimax or Engenia or Fexapan, refer to the following: www.xtendimaxapplicationrequirements.com www.engeniatankmix.com www.dupont.com/products-and-services/crop-protection/soybean-protection/articles/fexapan-tank-mix-partner.html ♦ Growers who want to apply <i>dicamba</i> in Xtend crops must have completed UGA's "Using Pesticide Wisely" training.
Conventional	1	TriCor/Metribuzin; or Canopy ⁵ ; or Authority MTZ ^{7,13} (include Prowl for grass control)	Reflex ^{7,20} ; or Ultra Blazer ⁷ + Dual Magnum ¹⁵ or Warrant ¹⁵ ; or Cobra ⁷ + Dual Magnum ¹⁵ or Warrant ¹⁵ ; or Prefix ^{7,8} or Warrant Ultra ¹⁷
	2	Boundary ⁶	Reflex ^{7,20}
	3	Prowl; or Dual Magnum ¹⁵ ; or Warrant ¹⁵ ; or Zidua ¹⁵ or Anthem Maxx ^{15,17}	Reflex ^{7,20}

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 Prowl (*pendimethalin*) are available and perform similarly. When using Authority MTZ, Boundary, TriCor/Metribuzin, or Canopy, follow label for appropriate rates, soil pH restrictions, and soybean variety tolerance. Dryland growers should consider mechanically incorporating Authority MTZ, Metribuzin, Canopy, Boundary, and Prowl. If mechanically incorporating herbicides, Treflan can be used instead of Prowl if preferred. If Envive or Authority XL are used, consider planting an STS/ST soybean variety to help minimize potential early-season Classic injury caused by cool, wet weather.

³ Post-emergence applications MUST be made before the largest Palmer amaranth plant in the field exceeds 3" in height. If a pre-emergence herbicide is used but not moisture activated, this could occur as early as 10-14 days after planting, depending on the time of year. Palmer amaranth plants can grow from 1-3" per day. When applied in combination with *glyphosate*, use either 16-24 oz/A of Reflex, 24 oz/A of Ultra Blazer, or 12.5 oz/A of Cobra.

⁴ If residual herbicides are activated by a timely rainfall or irrigation event, a second post-emergence application may not be needed. The total amounts of these herbicides that can be applied per acre per year are as follows: Cobra – 25 oz/A; Reflex – 24 oz/A; and Ultra Blazer – 32 oz/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/Cloak 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, and Fierce 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 Authority MTZ is a pre-mixture of *sulfentrazone* (Spartan) and *metribuzin*.

¹⁴ Authority XL is a pre-mixture of *sulfentrazone* (Spartan) and *chlorimuron* (Classic).

¹⁵ Dual Magnum and Warrant are members of the same herbicide family (chloroacetamide) and have the same mode of action (inhibit very long chain fatty acids). Multiple applications (> 2) of these herbicides in a single year should be avoided to prevent or delay the evolution of resistance. Anthem and Zidua are not in the same herbicide family as Dual or Warrant but do have the same mode of action. These herbicides have no post-emergence activity except Anthem.

¹⁶ Fierce is a pre-mixture of *flumioxazin* (Valor) and *pyroxasulfone* (Zidua).

¹⁷ Anthem Maxx is a pre-mixture of *pyroxasulfone* (Zidua) + *fluthiacet* (Cadet).

¹⁸ Warrant Ultra is a pre-mixture of *fomesafen* (Reflex) and *acetochlor* (Warrant).

¹⁹ Generic formulations of *glufosinate* are also available including Cheetah, Kong, and Interline. Cheetah Max is a combination of *glufosinate* + *fomesafen*. Generic formulations of *glufosinate* should be used with caution because limited data has been collected by UGA.

²⁰ Generic formulations of Reflex 2SL (*fomesafen*) are also available (Dawn, TopGun). Sinister contains 2.87 lb ai/gal of *fomesafen*.

²¹ Xtendimax with Vapor Grip Technology (*dicamba*-DGA).

²² Surveil is a pre-mixture of *flumioxazin* (Valor) + *chloransulam* (FirstRate).

²³ Engenia (*dicamba*-BAPMA).

²⁴ Fexapan + VG = *dicamba*-DGA + Vapor Grip.

SOYBEAN VARIETY TOLERANCE TO METRIBUZIN HERBICIDES

Soybean varieties that have exhibited acceptable tolerance to *metribuzin* herbicides (i.e. Boundary, Canopy, TriCor, etc.) based on multiple sources include the following:

Group IV		Group V		Group VI	Group VII	Group VIII
Asgrow AG42X6	Pioneer 46T01R	Asgrow AG53X6	Pioneer P52T73SR	Asgrow AG6931	AGS 758RR	Prichard RR
Asgrow AG4336	Pioneer P46T30X	Asgrow AG5535	Pioneer P53T18X	Asgrow AG69X6	Asgrow AG7231	
Asgrow AG44X6	Pioneer P46T59R	Asgrow AG5732	Pioneer P53T62L	Dyna-Gro S64LS95	Asgrow AG7535	
Asgrow AG45X6	Pioneer P47T44X	Asgrow AG5831	Pioneer P55T81R	Pioneer P67T90R2	Benning	
Asgrow AG47X6	Pioneer P48T27X	AGS 568RR	Pioneer P56T03R2	Vigoro V61N9	Dyna-Gro S72RS36	
Pioneer 94Y23	Pioneer 49T09BR	Hutcheson	Pioneer P56T12SR		Northrup King NKS74-M3	
Pioneer P42T71PR	Pioneer 49T31L	Pioneer 95Y70	Pioneer P56T29R2		Northrup King NKS78-G6	
Pioneer P43T14L		Pioneer P50T15BR			Pioneer P73T38X	
Pioneer P44T82SR		Pioneer P50T56X			Pioneer P76T54R2	
Pioneer P45T39L		Pioneer P50T92X			Santee	
Pioneer P45T48R					Southern Harvest 7418LL	
Pioneer 45T74X					Stonewall	
					Vigoro V74N9	
					Woodruff	

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

*** *METRIBUZIN* HERBICIDE SHOULD NOT BE USED ON THE FOLLOWING SOYBEAN VARIETIES: AG4232; AG4835; AG49X6; AG5935; AG6130; AG6730; AG75X6; AG7934; AGS LL5911; Dyna-Gro S61RY93; Pioneer P47T06X, P47T36R, P49T80R, P49T97R, P60T95X, P67T25R2.

SULFONYL-UREA TOLERANT (STS)/SULFONYL-UREA READY (SR) SOYBEAN VARIETIES

ASGROW	NORTHROP KING	PIONEER	DYNA-GRO	UNISOUTH GENETICS
AG4135 (RR2Y/SR)	NKS39-T3 (GENRR2Y/STS)	95Y70 (RR/STS)	S46XS587 (RR2/STS)	USG 74F24RS (RR2)
AG41X8 (RR2X/SR)	NKS45-R7 (GENRR2Y/STS)	P56T12SR (STS/R)	S48RS53 (RR2/STS)	USG 74A74RS (RR2)
AG43X7 (RR2X/SR)	NKS53-C5 (GENRR2Y/STS)		S49LS65 (LL/STS)	USG 74D95RS (RR2)
AG45X6 (RR2X/SR)			S49XS76 (RR2/STS)	USG 74K95RS (RR2)
AG45X8 (RR2X/SR)			S52RS86 (RR2/STS)	USG 74F53RS (RR2)
AG4632 (RR2Y/SR)			S55LS75 (LL/STS)	USG 74D42S (Conv)
AG46X7 (RR2X/SR)			S59LS45 (LL/STS)	USG 77J25RS (RR2)
AG46X8 (RR2X/SR)			S64LS95 (LL/STS)	
AG47X6 (RR2X/SR)			S72RS36 (RR2/STS)	
AG4835 (RR2Y/SR)				
AG48X7 (RR2X/SR)				
AG48X8 (RR2X/SR)				
AG4934 (RR2Y/SR)				
AG51X8 (RR2X/SR)				
AG5335 (RR2Y/SR)				
AG55X8 (RR2X/SR)				

