2026 Weed Management Suggestions for Mississippi Row Crops

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Introduction

This guide contains the 2026 management suggestions for weed control in corn, cotton, grain sorghum, peanut, rice, small grain crops, and soybean grown in Mississippi. Additionally, it includes options for preplant burndown weed management and control of herbicide-resistant weeds common in Mississippi. Information on weed management outside row crops (forages, turfgrass, vegetables, etc.) can be found in Mississippi State Extension Publication 1532 entitled Weed Control Guidelines for Mississippi. The management suggestions in this publication are based on results of research and demonstrations conducted by the Mississippi Agriculture and Forestry Experiment Station and the Mississippi State University Extension Service. Decisions regarding management suggestions are made by the contributing authors listed above and are based on at least 2 years of replicated data at different research sites in Mississippi.

The information given here is for educational purposes only. References to commercial products, trade names, or suppliers are made with the understanding that no endorsement is implied and that no discrimination against other products or suppliers is intended. References to commercial products do not guarantee or warrant the standards of those products.

This publication contains weed management suggestions that are subject to change; therefore, these management suggestions are offered only as a guide. It is always the applicator's responsibility, by law, to read and follow all current label directions for the specific herbicide being used. The label always takes precedence over management suggestions found in this publication. For additional information, please see these websites: www.agrian.com, www.cdms.net, or www.greenbook.net.

Herbicide Modes of Action

WSSA group	HRAC site group of action	Chemical family	Active ingredient
1	Inhibition of acetyl CoA carboxylase (ACCase)	Aryloxyphenoxy-propionate “FOPs”	clodinafop-propargyl, cyhalofop-butyl, diclofop-methyl, fluazifop-P-butyl
		Cyclohexanedione “DIMs”	clethodim, sethoxydim, tralkoxydim
		Phenylpyrazoline “DEN”	pinoxaden
2	Inhibition of acetolactate synthase ALS (acetohydroxy acid synthase AHAS)	Sulfonylurea	chlorimuron-ethyl, chlorsulfuron, foramsulfuron, halosulfuron-methyl, iodosulfuron, mesosulfuron, metsulfuron-methyl, nicosulfuron, orthosulfamuron, primisulfuron-methyl, prosulfuron, rimsulfuron, sulfosulfuron, thifensulfuron-methyl, tribenuron-methyl, trifloxysulfuron
		Imidazolinone	imazapic, imazamox, imazapyr, imazaquin, imazethapyr
		Triazolopyrimidine	cloransulam-methyl, diclosulam, florasulam, flumetsulam, penoxsulam, pyroxsulam
		Pyrimidinyl(thio)benzoate	bispyribac-sodium, pyrithiobac
3	Microtubule assembly inhibition	Dinitroaniline	benefin, ethalfluralin, oryzalin, pendimethalin, trifluralin
		Pyridine	dithiopyr, thiazopyr
		Benzamide	pronamide
		Benzoic acid	DCPA
4	Action like indole acetic acid (synthetic auxins)	Phenoxy-carboxylic-acid	2,4-D, 2,4-DB MCPA
		Benzoic acid	dicamba
		Pyridine carboxylic acid	clopyralid, fluroxypyr, picloram, triclopyr
		Quinoline carboxylic acid	quinclorac
5	Inhibition of photosynthesis at photosystem II	Triazine	atrazine, prometon, propazine, simazine
		Triazinone	hexazinone ,metribuzin
		Uracil	bromacil, terbacil
		Urea	diuron, fluometuron, linuron, siduron, tebuthiuron
		Amide	propanil
6	Inhibition of photosynthesis at photosystem II	Nitrile	bromoxynil
		Benzothiadiazinone	bentazon
8	Inhibition of lipid synthesis (not ACCase inhibition)	Thiocarbamate	EPTC, thiobencarb
		Phosphorodithioate	bensulide
		Benzofuran	ethofumesate
9	Inhibition of EPSP synthase	Glycine	glyphosate

Herbicide Modes of Action

WSSA group	HRAC site group of action	Chemical family	Active ingredient
10	Inhibition of glutamine synthetase	Phosphinic acid	glufosinate, glufosinate-P
12	Bleaching: Inhibition of carotenoid biosynthesis at the phytoene desaturase step (PDS)	Pyridazinone	norflurazon
		Other	fluridone
13	Bleaching: Inhibition of carotenoid biosynthesis (unknown target)	Isoxazolidinone	clomazone
14	Inhibition of protoporphyrinogen oxidase (PPO)	Diphenylether	acifluorfen-Na, fomesafen, lactofen, oxyfluorfen
		N-phenylphthalimide	flumioxazin, flumiclorac-pentyl
		Thiadiazole	fluthiacet-methyl
		Oxadiazole	oxadiazon
		Triazolinone	carfentrazone-ethyl, sulfentrazone, saflufenacil tiafenacil
15	Inhibition of VLCFAs (see Remarks) (Inhibition of cell division)	Chloroacetamide	acetochlor, butachlor, dimethanamid, metolachlor, s-metolachlor
		Isoxazoline	pyroxasulfone
		Acetamide	napropamide
		Oxyacetamide	flufenacet
17	Unknown herbicide mode of action	Organoarsenical	DSMA,MSMA
		Other	dazomet, fosamine, metam oleic acid, pelargonic acid
18	Inhibition of DHP (dihydropteroate) synthase	Carbamate	asulam
19	Inhibition of auxin transport	Phthalamate	naptalam
		Semicarbazone	diflufenzopyr
20, 21	Inhibition of cell wall (cellulose) synthesis	Nitrile	dichlobenil
		Benzamide	isoxaben
22	Photosystem-I-electron diversion	Bipyridylium	diquat, paraquat
27	Bleaching: Inhibition of 4-hydroxyphenyl-pyruvate-dioxygenase (4-HPPD)	Triketone	mesotrione
		Isoxazole	isoxaflutole

Herbicide-Resistant Weed Species

Repeated applications of the same herbicide or a different herbicide with similar mode of action on the same field growing season after growing season has contributed to the widespread occurrence of resistance to herbicides in several weed species around the world, in the U.S., and in Mississippi (see list below). Weed management programs must not depend solely on herbicides to be economically sustainable in the long term. In general, a combination of the following strategies is recommended:

1. Prevent introduction of weeds and weed seed into fields
2. Use residual herbicides
3. Practice crop rotation
4. Rotate herbicides with different modes of action
5. Tank-mix herbicides with different modes of action at full recommended rates
6. Avoid sequential applications of the same herbicide continually
7. Utilize tillage, cultivation, and other cultural practices whenever feasible
8. Ensure spraying equipment works properly and is correctly calibrated
9. Clean equipment thoroughly before and after each use
10. Frequently scout fields and remove weed escapes
11. Control weeds postharvest to reduce soil seedbank
12. Report cases of suspected herbicide resistance

Herbicide-Resistant Weeds in Mississippi

Species	WSSA group	Herbicide active ingredient
Annual bluegrass	5	simazine
Barnyardgrass/junglerice	1	cyhalofop, fenoxaprop
	2	bispyribac-sodium, imazamox, imazethapyr, penoxsulam
	4	quinclorac
	7	propanil
	9	glyphosate
Common cocklebur	2	imazaquin, imazethapyr
	17	DSMA, MSMA
Common ragweed	9	glyphosate
Goosegrass	3	pendimethalin, trifluralin
	9	glyphosate
	17	DSMA, MSMA
Horseweed (marestail)	9	glyphosate
	22	paraquat
Italian ryegrass	1	diclofop, clethodim
	2	imazapic, imazapyr, mesosulfuron, metsulfuron, pyroxsulam, sulfometuron
	9	glyphosate
Johnsongrass	1	fenoxaprop, fluazifop, quizalofop
	3	pendimethalin, trifluralin
	9	glyphosate
Palmer amaranth	2	pyrithiobac
	9	glyphosate
	14	acifluorfen, carfentrazone, fomesafen, lactofen
Pigweed species	2	sulfometuron
Rice flatsedge	2	bispyribac-sodium, halosulfuron, imazethapyr
Spiny amaranth	9	glyphosate
Tall waterhemp	9	glyphosate

Problematic Weed Species in Mississippi Row Crops

Palmer amaranth, Italian ryegrass, morningglory species, barnyardgrass, and broadleaf signalgrass are common in many row crop fields in Mississippi. Palmer amaranth and Italian ryegrass are currently the most troublesome weeds across the state. Some species are widespread but have increased in importance in recent years. Other species are extremely problematic if they are present in row crop fields in Mississippi.

See Herbicide-resistant Weed Species section for details on existing herbicide-resistant weeds in Mississippi. NOTE: Consult individual crop sections in this publication or product labels for specific information.

Weed Species	Crop/Situation	Level of Infestation[1]				
		2021	2022	2023	2024	2025
Bog yellowcress	Burndown	●	●	●	●	●
Cutleaf evening primrose	Burndown			●	●	●
Goosegrass	Corn, cotton, soybean	●	●●●	●●●	●●	●●
Johnsongrass	Corn, cotton, furrow-irrigated rice, soybean	●	●●	●●●	●●●	●●●
Nutsedge species	Corn, cotton, rice, soybean	●	●	●●	●	●●
Prostrate knotweed	Burndown	●	●	●	●●	●
Virginia pepperweed	Burndown	●	●	●●	●●	●●

[1]Level of infestation: • = mild, •• = moderate, ••• = severe

Rainfast Intervals and Rotational Crop Restrictions

Many herbicides used in various crops have planting restrictions. When considering a rotational crop, the following table will help you choose the proper herbicide for the current year. If a rotational crop is planted within the interval stated, or before the interval has expired, unacceptable injury to the rotational crop can occur. Consult individual product labels for more specific information regarding rotational crop restrictions.

		Rotation Interval[1]							
Herbicide	Rainfast Interval	Corn	Cotton	Grain sorghum	Peanut	Rice	Soybean	Wheat	Other grains
2,4-D	6 h	14 d	30 d	29 d	—	30 d	15 d	7 d	1 m
2,4-DB		—	—	—	none	—	none	—	—
Acifluorfen	4 h	100 d	100 d	100 d	none	none	none	40 d	40 d
Acuron[2]	—	none	10 m	10 m	10 m	10 m	10 m	4 m	4 m
Acuron GT	—	none	10 m	10 m	10 m	10 m	10 m	4.5 m	4.5 m
Aim	6-8 h	none	none	none	none	none	none	none	none
Anthem Flex[3]	1 h	none	1-4 m	6 m-1 y	1-4 m	10 m-2 y	0-4 m	0-6 m	11 m-1.5 y
Anthem Maxx[3]	1 h	none	1-4 m	6-10 m	1-4 m	10 m-2 y	0-4 m	1-6 m	11 m-1.5 y
Armezon Pro	1 h	none	9 m	9 m	9 m	9 m	9 m	4 m	4 m
Armezon/Impact	1 h	none	9 m	9 m	9 m	3 m	9 m	3 m	3 m
Atrazine[4]	—	none	ns	none	1 y	2 y	ns	1 y	1 y
Authority Edge[3]	—	4-10 m	1-1.5 y	10 m-1.5 y	4 m	10m - 2 y	0-4 m	4-10 m	10 m-1.5 y
Authority Elite	—	4 m	1-1.5 y	10 m	4 m	10 m	none	4.5 m	1 y
Authority First[3]	—	10 m -1.5 y	1-1.5 y	1 y	1 y	10 m	none	4 m	1 y
Authority Supreme[3]	—	4 m	1 y[6]	10 m-1 y	4 m	10 m-2 y	0-4 m	4-6 m	10 m-1.5 y
Authority XL[3]	—	10 m -1.5 y	1-1.5 y	10 m-1.5 y	1-1.5 y	10 m-1.5 y	none	4 m	4 m
Axial Bold	30 min	3 m	3 m	3 m	3 m	3 m	3 m	none	3 m
Axial XL	30 min	3 m	3 m	3 m	3 m	3 m	3 m	none	3 m
Axiom	—	none	8 m	1 y	1 y	1 y	none	7 d-4 m	1 y
Bentazon	6-8 h	none	none	none	none	none	none	none	none
Beyond or Postscript	1 h	8.5 m	9 m	9 m	9 m	9 m	none	3 m	9 m
Bolero	—	6 m	6 m	6 m	6 m	none	6 m	6 m	6 m
Boundary	—	4 m	1 y	1 y	1 y	8 m	none	4.5 m	1 y
Brake[3]	—	10 m-1.5 y	none	10 m-1.5 y	0-8 m	0-1 y	2 m-1 y	8 m-1 y	8 m-1 y
Cadre	3 h	9 m	1.5 y	1.5 y	none	26 m	9 m	4 m	18-26 m
Capreno	1 h	none	10 m	10 m	11 m	10 m	10 m	4 m	1.5 y[3]
Chlorimuron	1 h	7 m	8 m	9 m	6 m	9 m	none	3 m	3 m
Clearpath	1 h	10 m	1.5 y	1.5 y	10 m	1.5 y	10 m	10 m	10 m
Clethodim	1 h	1 m	none	1 m	none	1 m	none	1 m	1 m
Clincher SF	2 h	3 m	3 m	none	3 m	3 m	3 m	3 m	3 m
Clomazone	—	9 m	none	9 m	9 m	none	none	1 y	1 y
Cobra	30 min	none	none	none	none	none	none	none	none
Dicamba[3]	4 h	none	21 d	15 d	—	15 d	15-28 d	15 d	15 d
Diruon[3]	—	none	none	spring	1 y	1 y	spring	1 y	1 y
Duet	6-8 h	4 m	4 m	4 m	4 m	none	4 m	4 m	4 m
Elevore	1 h	3-14 d	30 d	14 d	9 m	14 d	14 d	14 d	14 d
Envive[3]	1 h	10 m-1.5 y	10 m-2.5 y	1-1.5 y	8 m	10 m-1.5 y	none	4 m	4 m
Envoke	3 h	7 m	7 m	7 m	7 m	7 m	7 m	3 m	1.5 y

Rainfast Intervals and Rotational Crop Restrictions

		Rotation Interval[1]							
Herbicide	Rainfast Interval	Corn	Cotton	Grain sorghum	Peanut	Rice	Soybean	Wheat	Other grains
Ethalfluralin	—	1 y	—	1 y	none	—	none	—	8 m
Fierce or Fierce EZ	1 h	1 m[3]	2 m	1 y	2 m	1 y	none	2 m	1 y
Fierce MTZ or Kyber	—	1 m	1.5 y	1.5 y	1.5 y	1 y	none	8 m	1 y
Fierce XLT[3]	1 h	10 m-1.5 y	1.5-2.5 y	1.5 y	1.5-2.5 y	1.5 y	none	4 m	1.5 y
Finesse Cereal & Fallow[3]	6 h	1.5 y	1.5 y	4 m	—	1.5 y	1.5 y	4 m	10-16 m
FirstRate	2 h	9 m	9 m	9 m	9 m	9 m	none	4 m	9 m-1 y
FirstShot	—	14 d	14 d	14 d	30 d[5]	none	7 d	none	none
Flexstar GT	4 h	10 m	none	1.5 y	10 m	10 m	none	4 m	1 y
Flumioxazin[3]	1 h	30 d	30 d	30 d	none	30 d	none	1 m	3-8 m
Fluometuron	—	8 m	none	9 m	8 m	9 m	9 m	3 m	9 m
Fomesafen	1 h	10 m	none[3]	1.5 y	4 m	10 m	none	4 m	4 m
Fusilade DX	1 h	2 m	none	2 m	none	2 m	none	2 m	2 m
Gambit[3]	4 h	1 m	10 m	2 m	10 m	none	10 m	2 m	2 m
Glufosinate	4 h	none	none	6 m	6 m	none	none	2 m	2 m
Glyphosate	n/a	none	none	none	none	none	none	none	none
Goal 2XL	—	10 m	none	10 m	none	10 m	none	10 m	10 m
Grandstand R	—	4 m	4 m	4 m	4 m	none	4 m	4 m	4 m
Grasp	1 h	3 m	3 m	3 m	3 m	none	3 m	3 m	3 m
Halex GT	—	none	10 m	none[6]	10 m	10 m-1.5 y	10 m	4.5 m	4.5 m
Halosulfuron	4 h	1 m	4 m	2 m	6 m	none	9 m	2 m	2 m
Harmony Extra	—	14 d	14 d	14 d	1.5 m	none	7 d	none	2 m
Harness Max	—	none	10 m	none	10 m	—	10 m	4 m	spring
Huskie	1 h	4 m	—	7 d	—	—	4 m	7 d	9 m
Huskie FX[3]	1 h	4 m	9 m	7 d	9 m	—	4 m	7 d	7 d-1 m
Imazethapyr	1 h	8.5 m	1.5 y	1.5 y	none	3.3 y	none	4 m	9 m
Impact Core	1 h	none	10 m	9 m	10 m	1.5 y	10 m	4 m	9 m
Intimidator	—	10 m	8 m	1.5 y	1.5 y	10 m	none	4.5 m	8 m-1.5 y
Latigo[3]	4 h	7 d-4 m	21 d-4 m	14 d-4 m	4 m	4 m	15 d-4 m	14 d-4 m	14 d-4 m
Laudis	1 h	none	10 m	10 m	11 m	10 m	8 m	4 m	4 m
LeadOff[3]	—	none	1-10 m	10 m-1.5 y	1.5 m-1.5 y	10 m-1.5 y	none[7]-1 m	3-4 m	1.5 y
League	6 h	1 y	8 m	1 y	2 y	none	1 y	1 y	2 y
Lexar EZ[2]	—	none	spring	spring	spring	1.5 y	spring	spring	spring
Liberty ULTRA	4 h	none	none	6 m	6 m	6 m	none	2.5 m	2.5 m
Linuron (DF formulation)	—	none	4 m	none	—	1 y	none	4 m	4 m
Londax	4 h	4 m	4 m	4 m	4 m	none	4 m	4 m	4 m
Loyant	2 h	3 m	3 m	3 m	3 m	none	3 m	3 m	3 m
Metolachlor/*s*-metolachlor[3]	—	none	none	none[6]	none	spring	none	4.5 m	4.5 m
Mesotrione	—	none	10 m	none	10 m	10 m	10 m	4 m	4 m
Metribuzin	6 h	4 m	1.5 y	1.5 y	11 m	1 y	4 m	4 m	1.5 y
MSMA	—	none	none	none	none	none	none	none	4 m

Rainfast Intervals and Rotational Crop Restrictions

		Rotation Interval[1]							
Herbicide	Rainfast Interval	Corn	Cotton	Grain sorghum	Peanut	Rice	Soybean	Wheat	Other grains
Newpath or Preface[8]	1 h	8.5 m	1.5 y	1.5 y	none	1.5 y	none	4 m	1.5 y
Nicosulfuron[3]	4 h	none	10 m	10 m-1.5 y	1.5 y	1.5 y	15 d	4 m	4 m
Osprey	4 h	3 m	3 m	3 m	3 m	3 m	3 m	7 d	7-30 d
Osprey Xtra[9]	4 h	9 m	4 m	9 m	4 m	3 m	3 m	3 m	3-9 m
Outlook[3]	—	none	4 m	none	none	6-9 m	none	4 m	4 m
Paraquat	30 min	none	none	none	none	none	none	none	none
Peak[3]	4 h	1 m	10 m	1 m	10 m	none	10 m	none	none
Pendimethalin	—	none	none	10 m-1 y	none	none	none	4 m	ns
Perpetuo[3]	1 h	none	2-4 m	6-8 m	2-4 m	1-15 y	none	1-4 m	11 m
Permit Plus[3]	4 h	1 m	4 m	2 m	6 m	none	2 m	2 m	2 m
Poast	1 h	—	—	—	—	—	—	—	—
PowerFlex	4 h	9 m	3 m	3 m	9 m	1 y	3 m	1 m	9 m
Prefix	—	10 m	1 m	10 m	4 m	10 m	none	4.5 m	4.5 m
Prometryn	—	5 m	5 m	1 y	1 y	1 y	1 y	1 y	1 y
Propanil	8 h	2 m	2 m	2 m	2 m	none	2 m	2 m	2 m
Provisia	1 h	4 m	none	4 m	4 m	4 m	none	none	4 m
Pyrithiobac	4 h	10 m[4]	none	2 y	10 m	9 m	10 m	4 m	10 m
Python	6 h	none	9 m[3]	1 y	4 m	6 m	none	4 m	4 m
Quelex	4 h	3 m	3 m	3 m	9 m	3 m	3 m	none	0-3 m
Quinclorac (L formulation)	6 h	10 m	10 m	none	10 m	none	10 m	none	10 m
Quizalofop	1 h	4 m	none	4 m	4 m	4 m	none	4 m	4 m
Realm Q	4 h	none	10 m	10 m	10 m	10 m	10 m	9 m	9 m
Regiment	8 h	ns	ns	ns	ns	none	ns	ns	none
Resicore	—	none	1 y	10.5 m	1.5 y	10.5 m	10.5 m	4 m	10.5 m-1.5 y
Reviton[3]	1 h	none	0-7 d	none	none	3 m	0-7 d	none	none
RiceBeaux	6 h	2 m	2 m	2 m	—	none	2 m	2 m	—
RiceOne	—	1 y	none	1 y	1 y	1 y	none	12-14 m	12-14 m
Ricestar HT	1 h	—	—	—	—	none	9 m	—	—
Rogue	—	30 d	30 d	30 d	30 d	30 d	30 d	30 d	30 d
Scepter	—	9.5 m	1.5 y	11 m	11 m	ns	none	3 m	11 m
Sentrallas	1 h	none	4 m	none	4 m	4 m	4 m	none	none
Sequence	—	none	none	none	none	spring	none	4.5 m	4.5 m
Sharpen[3]	1 h	none	1.5-9 m	0-1 m	4-9 m	0-4 m	0-6 m	0-3 m	0-3 m
Simazine	—	—	—	—	—	—	—	—	—
Sinate	4 h	none	9 m	9 m	9 m	3 m	9 m	3 m	3 m
Solicam	—	2 y	30 d	2 y	30 d	2 y	1.5 m	2 y	2 y
Spartan Charge[3]	—	none	1-1.5 y	10 m-1.5 y	none	10 m	none	4 m	4 m-1 y
Status	4 h	7 d	30 d	30 d	3 m	3 m	30 d	30 d	30 d
Steadfast Q	4 h	none	10 m	10 m - 1.5 y[3]	1.5 y	1.5 y	15 d	4 m	4 m
Storm	4 h	100 d	100 d	100 d	none	none	none	40 d	40 d
Strada	6 h	3 m	6 m	1 y	1 y	none	6 m	3 m	3 m

Rainfast Intervals and Rotational Crop Restrictions

		Rotation Interval[1]							
Herbicide	Rainfast Interval	Corn	Cotton	Grain sorghum	Peanut	Rice	Soybean	Wheat	Other grains
Strada PRO	6 h	3 m	6 m	3 y	3 y	none	9 m	3 m	3 m
Strongarm	—	1.5 y	10 m	1.5 y	none	1.5 y	none	4 m	6 m
Suprend	3 h	7 m	7 m	7 m	7 m	7 m	7 m	3 m	1.5 y
Surtain[3]	—	none	6 m	10 m	8 m	14 m	4 m	3 m	11 m
Synchrony XP[3]	1 h	8-10 m	8-10 m	6-8 m	6-8 m	9-10 m	none	3-4 m	3-4 m
Tendovo	—	9 m	1 y	1 y	1 y	9 m	none	4.5 m	1 y
Trifluralin	—	1 y	none	1 y	none	1 y	none	1 y	1 y
Trivence[3]	1 h	10 m	1.5 y	10 m	8 m-1.5 y	1 y	none	4 m	1.5 y
Trivolt[3]	—	none	10 m	1.5 y	1 y	1 y	9 m	4 m	1 y
Valor XLT[3]	1 h	10 m-1.5 y	10 m-2.5 y	10 m-1.5 y	1.5-2.5 y	9 m-1.5 y	none	4 m	4 m
Verdict[3]	1 h	none	6 m	0-1 m	7-9 m	4 m	4-6 m	4 m	4 m
Warrant	—	ns	ns	ns	ns	ns	none	4 m	ns
Warrant Ultra	—	10 m	1 m	1.5 y	10 m	10 m	none	4 m	ns
Yukon[3]	4 h	1 m	4 m	2 m	6 m	2 m	9 m	2 m	2-9 m
Zidua SC[3]	—	none	1-4 m	6 m-1 y	1-4 m	10 m-2 y	0-4 m	1-6 m	11 m-1.5 y
Zone Defense	1 h	10 m	1.5 y	10 m	none	10 m	none	4 m	1 y

[1]Abbreviations: (—) = consult the label for specific instructions; h = hour; min = minute; d = days after application; m = months after application; y = years after application; spring = spring following application; ns = next season.
[2]If applied after June 1, rotating to crops other than corn (all types) may result in crop injury.
[3]Rotational crop restrictions are dependent on herbicide application rate, soil pH, rainfall following application, soil texture, or application technique (PRE, POST, etc.). Consult the product label for specific information.
[4]If applied after June 10, injury may occur if any crop other than corn or grain sorghum is planted the year after application.
[5]Rotation interval applies only for peanut grown in Alabama and Georgia only; no specification for MS.
[6]Replant only with grain sorghum seed safened for applications of Group 15 herbicides.
[7]Rotation interval applies to soybean with Bolt technology.
[8]For Newpath or Preface use rates greater than 8 ounces per acre per season up to 12 ounces per acre per season, only soybean may be planted the following year.
[9]Rotational crop restriction requires bioassay and no less than 4 months for cotton and peanut, bioassay and no less than 3 months for rice.

Burndown Weed Management

Weed Response Ratings for Herbicides Applied in Burndown Prior to Planting[1]

	Herbicide group number	Crop[2,3]	Soil Activity	Annual bluegrass	Italian ryegrass	Bittercress	Buttercup	Carolina geranium	Chickweed	Curly dock (seedling)	Cultleaf evening-primrose	Henbit	Horseweed	Prickly lettuce	Shepherds-purse	Vetch	Virginia pepperweed
2,4-D	4	C, CT, R, S	yes	0	0	**8**	**8**	7	**8**	**8**	**9**	5	**8**	**9**	**8**	6	5
Dicamba	4	C, CT, GS, SG, S	yes	0	0	**8**	**8**	**8**	**8**	**8**	**9**	7	**9**	**9**	**8**	**9**	5
Fomesafen	14	CT, S	yes	0	0	-	-	-	-	-	-	-	3	-	-	-	-
Glufosinate	10	C, CT, S	no	3	7	-	-	**8**	**9**	6	7	6	**9**	-	-	**8**	**9**
Glyphosate	9	C, CT, GS, P, R, SG, S	no	**8**	5	**9**	**9**	7	**9**	6	6	7	5	**8**	**9**	5	**8**
Glyphosate + 2,4-D	9, 4	C, CT, R, S	yes	**9**	5	**9**	**9**	**9**	**9**	**8**	**9**	**8**	**9**	**9**	**9**	6	**9**
Glyphosate + Aim	9, 14	C, CT, GS, P, R, SG, S	no	**9**	5	**9**	**9**	**8**	**9**	**8**	7	7	5	**8**	**9**	5	**9**
Glyphosate + clethodim	9, 1	C, CT, GS, P, R, SG, S	yes	**9**	**8**	**9**	**9**	7	**9**	6	6	7	5	**8**	**9**	5	**9**
Glyphosate + clomazone	9, 13	R, S	yes	**9**	5	**9**	**9**	7	**9**	6	6	7	5	**8**	**9**	5	**8**
Glyphosate + clomazone + Gambit	9, 13, 2	R	yes	**9**	5	**9**	**9**	7	**9**	**8**	7	**8**	7	**8**	**9**	**8**	**8**
Glyphosate + clomazone + Sharpen	9, 13, 14	R, S	yes	**9**	5	**9**	**9**	7	**9**	**9**	7	7	**8**	**9**	**9**	5	**8**
Glyphosate + dicamba	9, 4	C, CT, GS, SG, S	yes	**9**	5	**9**	**9**	**9**	**9**	**9**	**8**	**8**	**9**	**9**	**9**	**9**	**9**
Glyphosate + dicamba + 2,4-D	9, 4, 4	C, CT, S	yes	**9**	5	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**
Glyphosate + Elevore	9, 4	C, CT, GS, R, SG, S	no	**8**	5	**9**	**9**	7	**9**	6	6	**9**	**9**	**8**	**9**	**7**	**8**
Glyphosate + Envive	9, 2, 2, 14	S	yes	**9**	6	**9**	**9**	**8**	**9**	-	**8**	**9**	**9**	-	**9**	-	-
Glyphosate + Fierce or Fierce EZ	9, 14, 15	C, S	yes	**9**	6	**9**	**9**	**8**	**9**	-	**8**	**9**	**8**	-	**9**	-	-
Glyphosate + Firstshot SG	9, 2, 2	C, CT, GS, R, SG, S	yes	**9**	5	**9**	**9**	**8**	**9**	**9**	7	**8**	5	**9**	**9**	**9**	**9**
Glyphosate + flumioxazin	9, 14	C, CT, GS, P, R, S	yes	**9**	5	**9**	**9**	**8**	**9**	-	**8**	**9**	**8**	**9**	**9**	-	**8**
Glyphosate + Goal 2XL	9, 14	CT, S	yes	**9**	5	**9**	**9**	**8**	**9**	7	7	**9**	**8**	**9**	**9**	7	**9**
Glyphosate + LeadOff	9, 2, 2	C, CT, P, S	yes	**9**	6	7	**9**	**9**	**9**	**9**	6	7	7	-	**9**	-	-
Glyphosate + metolachlor/*s*-metolachlor	9, 15	C, CT, GS, P, S	yes	**9**	5	**9**	**9**	7	**9**	6	6	7	5	**8**	**9**	5	**8**
Glyphosate + Reviton	9, 14	C, CT, GS, P, SG, S	no	**9**	7	**9**	**9**	**9**	**9**	**9**	**9**	**9**	7	**9**	**9**	**9**	**9**
Glyphosate + Sharpen	9, 14	C, CT, GS, R, SG, S	yes	**9**	6	**9**	**9**	7	**9**	**9**	7	7	**8**	**9**	**9**	**8**	**8**
Glyphosate + Synchrony XP	9, 2, 2	S	yes	**9**	5	**9**	**9**	7	**9**	**8**	7	7	7	**9**	**9**	5	**8**
Glyphosate + Verdict	9, 14, 15	C, GS, S	yes	**9**	6	**9**	**9**	7	**9**	**9**	7	7	**8**	**9**	**9**	5	**8**
Liberty ULTRA	10	C, CT, S	no	3	7	-	-	**8**	**9**	6	7	6	**9**	-	-	**8**	**9**
Metribuzin	5	S	yes	**9**	6	**9**	**9**	7	**9**	-	6	**8**	5	**8**	**9**	6	6
Paraquat	22	C, CT, GS, P, R, SG, S	no	**9**	**8**	**9**	7	7	**9**	5	7	**9**	6	7	**9**	**8**	5
Paraquat + 2,4-D	22, 4	C, CT, R, S	yes	**9**	**8**	**9**	**9**	7	**9**	7	**8**	**9**	**8**	-	**9**	**8**	8
Paraquat + atrazine	22, 5	C, GS	yes	**9**	**8**	**9**	**9**	**8**	**9**	-	**8**	**9**	**9**	**8**	**9**	**8**	**8**
Paraquat + diuron	22, 5	CT	yes	**9**	**8**	**9**	**9**	**8**	**9**	5	**8**	**9**	**9**	**8**	**9**	7	**8**
Paraquat + Goal 2XL	22, 14	CT, S	yes	**9**	**8**	**9**	**9**	**9**	**9**	5	7	**9**	6	-	**9**	**8**	7
Paraquat + metribuzin	22, 5	S	yes	**9**	**8**	**9**	**9**	**8**	**9**	-	**8**	**9**	**9**	**8**	**9**	**8**	**8**
Paraquat + prometryn	22, 5	CT	yes	**9**	**8**	**9**	**9**	7	**9**	5	7	**9**	**9**	**8**	**9**	**8**	7

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations targeted at approximately the 3- to 5-inch growth stage.

[2]Abbreviations: C, corn; CT, cotton, GS, grain sorghum; P, peanut; R, rice; SG, small grains; S, soybean.

[3]See Rotational Crop Restrictions for additional information about labeling for each crop.

Burndown Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
2,4-D amine – 0.5 to 1 lb/A	Various formulations (See product label for specific rates)	Varies by crop, rate, and/or product (See product label for specific information)	Annual, biennial, and perennial broadleaf weeds	Mix with glyphosate, glufosinate, or paraquat to improve weed control spectrum. Ester formulations are usually more effective than amine formulations in controlling curly dock and wild garlic. Apply esters when temperatures are less than 60° and amines when more than 60°. **Do not** apply by air after March 31.
dicamba – 0.25 lb/A	Various formulations (See product label for specific rates)	Varies by crop, rate, and/or product (See product label for specific information)	Horseweed, clovers; other annual, biennial, and perennial broadleaf weeds	Mix with glyphosate to improve weed control spectrum. Add nonionic surfactant at 0.25% v/v. **Do not** apply this product near emerged soybean. Apply in 10 to 20 gallons water by ground or 5 gallons water by air. **Do not** apply by air after March 31.
fomesafen – 0.25 to 0.38 lb/A	fomesafen 2 or 1.88 lb/gal formulations — 1 to 1.5 pt/A	Varies by crop and/or rate (See product label for specific information)	Small-seeded broadleaf weeds, especially pigweed and prickly sida	Mix with glyphosate, glufosinate, or paraquat to broaden weed control spectrum. Rainfall within 7 days of application is necessary for activation. Some cotton injury can occur if rainfall occurs during or soon after cotton emergence. See label for crop specific instructions.
glufosinate – 0.53 to 0.66 lb/A	glufosinate 2.34 lb/gal formulation — 29 to 36 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 3 inches)	Colder weather may reduce activity. Avoid applications within 2 hours of sunrise or sunset. **Do not** use nozzles and pressure that result in coarse spray droplets. Glufosinate may be mixed with preemergence herbicides for residual control. Labeling requires a 4-hour rainfast period.
glufosinate-P – 0.26 to 0.4 lb/A	Liberty ULTRA 1.76 SL — 19 to 29 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 3 inches)	See *Special Instructions and Remarks* for glufosinate. For additional information on the United States Environmental Protection Agency's mandatory policy on endangered and threatened species, see the Endangered Species Protection Bulletins at www.epa.gov/endangered-species/endangered-species-protection-bulletins.
glyphosate – 1 to 1.5 lb/A	Various formulations (See product label for specific rates)	Preplant or preemergence	Annual and perennial grasses and broadleaf weeds	Apply to actively growing weeds < 6 inches tall. Use higher rate for weeds > 6 inches tall. If tillage is intended after treatment, wait at least 3 days (7 days for perennial weeds) after application. Avoid drift to nontarget areas. Glyphosate may be mixed with preemergence herbicides for residual control.
glyphosate + 2,4-D – 1 to 1.5 lb/A + 0.5 to 1.0 lb/A	Various formulations (See product labels for specific rates)	Varies by crop, rate, and/or product (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate and 2,4-D. Use the full rate of glyphosate.
glyphosate + Aim – 1 to 1.5 lb/A + 0.0195 to 0.05 lb/A	Various formulations (See product label for specific rates) + Aim 2 EC — 1.25 to 3.2 oz/A	Varies by crop, rate, and/or product (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. Use the full rate of glyphosate. Application rate for Aim varies with crop. Coverage is essential for good control.
glyphosate + clethodim – 1 to 1.5 lb/A + 0.063 to 0.13 lb/A	Various formulations (See product labels for specific rates)	Small, actively growing weeds	Annual grasses, johnsongrass, bermudagrass	See *Special Instructions and Remarks* for glyphosate. **Do not** apply within 1 hour of anticipated rainfall. **Do not** apply to stressed grasses. Add ammonium sulfate and crop oil concentrate at 1% v/v with 2 and 3 lb/gal formulations and nonionic surfactant with Select Max formulation.
glyphosate + clomazone – 1 to 1.5 lb/A + 0.3 to 0.6 lb/A	Various formulations (See product label for specific rates) + clomazone 3 lb/gal formulation — 0.8 to 1.6 pt/A	Preplant or preemergence	Annual and perennial grasses and broadleaf weeds plus residual control of annual grasses	See *Special Instructions and Remarks* for glyphosate. Antagonism may occur in some situations. Use the full rate of glyphosate. Sequential postemergence grass herbicide application will be needed. **Do not** apply to recently land-formed fields. See table at beginning of rice section for specific clomazone rates by soil texture.

Burndown Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
glyphosate + clomazone + halosulfuron + prosulfuron – 1 to 1.5 lb/A + 0.3 to 0.6 + 0.049 to 0.099 lb/A	Various formulations (See product label for specific rates) + clomazone 3 lb/gal formulation — 0.8 to 1.6 pt/A + Gambit 79 WG — 1 to 2 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds, Pennsylvania smartweed, yellow nutsedge	See *Special Instruction and Remarks* for glyphosate and glyphosate plus clomazone. Avoid drift to non STS soybean. Non STS soybean should not be planted for 10 months after application. **Do not** exceed 2 ounces per acre per year.
glyphosate + clomazone + saflufenacil – 1 to 1.5 lb/A + 0.3 to 0.6 lb/A + 0.022 to 0.067 lb/A	Various formulations (See product label for specific rates) + clomazone 3 lb/gal formulation — 0.8 to 1.6 pt/A + Sharpen 2.85 SC — 1 to 2 oz/A	Varies by crop and/or rate (See product label for specific information)	Annual and perennial grasses and broadleaf weeds plus residual control of annual grasses	See *Special Instructions and Remarks* for glyphosate, glyphosate plus clomazone, and glyphosate plus Sharpen.
glyphosate + dicamba – 1 to 1.5 lb/A + 0.25 lb/A	Various formulations (See product labels for specific rates)	Varies by crop, rate, and/or product (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate and dicamba. Use full rate of glyphosate.
glyphosate + dicamba + 2,4-D – 1 to 1.5 lb/A + 0.25 lb/A + 0.5 to 1 lb/A	Various formulations (See product labels for specific rates) + dicamba (4 lb/gal formulation) — 8 oz/A	Varies by crop, rate, and/or product (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate, 2,4-D, and dicamba. Use full rate of glyphosate.
glyphosate + flumioxazin + chlorimuron + thifensulfuron – 1 to 1.5 lb/A + 0.065 to 0.1 lb/A	Various formulations (See product label for specific rates) + Envive 41.3 WDG — 2.5 to 4 oz/A	Preplant or preemergence	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. **Do not** apply preemergence to coarse soils or to Black Belt soils with a pH greater than 7. **Do not** apply more than 4 ounces per season.
glyphosate + flumioxazin + pyroxasulfone – 1 to 1.5 lb/A + 0.14 to 0.18 lb/A	Various formulations (See product label for specific rates) + Fierce 76 WDG — 3 to 3.75 oz/A or Fierce EZ 3 SC – 6 to 7.7 oz/A	Varies by crop and/or rate (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate and glyphosate plus flumioxazin. See label for crop specific instructions. Soybean injury may occur if Fierce is used in same field where flufenacet, metolachlor/*s*-metolachlor, or dimethenamid-P will be used preemergence.
glyphosate + saflufenacil – 1 to 1.5 lb/A + 0.022 to 0.067 lb/A	Various formulations (See product labels for specific rates) + Sharpen 2.85 SC – 1 to 3 oz/A	Varies by crop and/or rate (See product label for specific information)	Annual and perennial grasses and broadleaf weeds plus residual control of some broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. Sharpen application rate varies with crop. Add methylated seed oil at 1% v/v plus ammonium sulfate.
glyphosate + thifensulfuron + tribenuron – 1 to 1.5 lb/A + 0.016 to 0.025 lb/A	Various formulations (See product label for specific rates) + FirstShot 50 SG — 0.5 to 0.8 oz/A	Varies by crop (See product label for specific information)	Winter annual and some perennial broadleaf weeds, including curly dock and Pennsylvania smartweed	See *Special Instructions and Remarks* for glyphosate. Sequential applications allowed as long as total applied during a single season does not exceed 1 ounce per acre. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant.
glyphosate + tiafenacil – 1 to 1.5lb/A + 0.022 to 0.067 lb/A	Various formulations (See product label for specific rates) + Reviton 2.83 SC — 1 to 3 oz/A	Varies by crop (See product label for specific information)	Annual grasses and broadleaf weeds; henbit	See *Special Instructions and Remarks* for glyphosate. Application rate varies by crop with suggestions ranging from 1 to 2 ounces per acre. Add methylated seed oil at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant. Reviton may be applied with urea-ammonium nitrate as carrier.

Burndown Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
glyphosate + flumioxazin – 1 to 1.5 lb/A + 0.032 to 0.096 lb/A	Various formulations (See product label for specific rates) + flumioxazin 51% formulation — 1 to 3 oz/A or 4 lb/gal formulation — 1 to 3 oz/A	Varies by crop and/or rate (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. Soybean injury may occur if flumioxazin is used in the same field where flufenacet, metolachlor/*s*-metolachlor, or dimethenamid-P will be used preemergence. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant.
glyphosate + halauxifen – 1 to 1.5 lb/A + 0.0045 lb/A	Various formulations (See product label for specific rates) + Elevore 0.572 SC — 1 oz/A	Postemergence during spring burndown	Horseweed, henbit, and other winter annual broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. **Do not** make more than two preplant applications per year. Add methylated seed oil or crop oil concentrate at 1% v/v.
glyphosate + oxyfluorfen – 1 to 1.5 lb/A + 0.25 to 0.5 lb/A	Various formulations (See product label for specific rates) + Goal 2XL 2 EC — 1 to 2 pt/A	Varies by crop and/or rate (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. Use the lower rate for late winter and early spring application. Use the higher rate for fall and early winter applications. See label for crop specific instructions. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant.
glyphosate + rimsulfuron + thifensulfuron – 1 to 1.5 lb/A + 0.031 + 0.056 lb/A	Various formulations (See product label for specific rates) + LeadOff 33.4 WDG — 1.5 to 2.7 oz/A	Varies by crop and/or rate (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. Labeling recommends 1.5 ounces per acre for most applications. See label for crop specific instructions. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant.
glyphosate + metolachlor – 1 to 1.5 lb/A + 1.5 to 2.5 lb/A or s-metolachlor – 0.95 to 1.6 lb/A	Various formulations (See product labels for specific rates)	Preplant or preemergence	Annual grasses and some small-seeded broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. Sufficient weed control depends on adequate rainfall for incorporation. See label for crop specific instructions. **See table at beginning of soybean section for specific rates of metolachlor and *s*-metolachlor by soil texture.**
glyphosate + chlorimuron + thifensulfuron – 1 to 1.5 lb/A + 0.0176 to 0.053 lb/A	Various formulations (See product label for specific rates) + Synchrony XP 28.4 DG — 1 to 3 oz/A	From 45 days before planting until just before soybean emergence	Hemp sesbania, morningglory, yellow nutsedge, sicklepod	See *Special Instructions and Remarks* for glyphosate. Application rate is dependent on soil pH. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant.
glyphosate + dimethenamid-P + saflufenacil – 1 to 1.5 lb/A + 0.22 to 0.44 lb/A	Various formulations (See product label for specific rates) + Verdict 5.67 EC — 5 to 10 oz/A	Varies by crop and/or rate (See product label for specific information)	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate. Application rate for Verdict varies with crop. Add methylated seed oil at 1% v/v plus ammonium sulfate.
metribuzin – 0.25 to 0.63 lb/A	metribuzin (75% formulation — 5.33 to 13.4 oz/A or 4 lb/gal formulation — 8 to 20 oz/A	Preplant or preemergence	Hemp sesbania, prickly sida, early sicklepod; annual grasses and small-seeded broadleaf weeds	**See table at beginning of soybean section for specific rates by soil texture**. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Soybean injury may occur (1) on soils with calcareous surface or pH 7.5 and above, (2) to certain varieties, (3) on soil with < 0.5% organic matter, (4) when soybean are planted < 1.5 inches deep, and (5) when heavy rains follow application.
paraquat – 0.5 to 1 lb/A	paraquat 2 lb/gal formulation — 2 to 4 pt/A or 3 lb/gal formulation — 1.33 to 2.67 pt/A	Preplant or preemergence	Annual and perennial grasses and broadleaf weeds	Avoid drift to emerged vegetation. May be mixed with most preemergence herbicides. Apply in a minimum of 10 gallons of water by ground or 5 gallons by air. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.

Burndown Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
paraquat + 2,4-D – 0.5 to 1 lb/A + 0.5 to 1 lb/A	paraquat 2 lb/gal formulation — 2 to 4 pt/A or 3 lb/gal formulation — 1.33 to 2.67 pt/A + Various formulations (See product labels for specific rates)	Varies by crop, rate, and/or product (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for paraquat and 2,4-D.
paraquat + atrazine – 0.5 to 1 lb/A + 1.5 lb/A	paraquat 2 lb/gal formulation — 2 to 4 pt/A or 3 lb/gal formulation — 1.33 to 2.67 pt/A + atrazine 4 lb/gal formulation — 1.5 qt/A or 90% formulation — 1.67 lb/A	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for paraquat. **Do not** use on sand, loamy sand, or sandy loam or any soil with less than 1% organic matter. **Do not** plant crops other than corn or sorghum until the year after treatment. If treatment is made after June 10, crops other than corn or sorghum should not be planted the following year.
paraquat + diuron – 0.5 to 1 lb/A + 0.5 to 1 to 1.6 lb/A	paraquat 2 lb/gal formulation — 2 to 4 pt/A or 3 lb/gal formulation — 1.33 to 2.67 pt/A + diuron 4 lb/gal formulation — 1 to 2 to 3.2 pt/A or 80% formulation — 0.63 to 1.25 to 2 lb/A	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for paraquat. If stand failure occurs, cotton may be replanted with minimum disturbance of the treated soil. In a single season, **do not** exceed 0.8 pound of active ingredient on loamy sand, 1.2 pounds on sandy loam, 1.6 pounds on clay loam, or 2.2 pounds on clay. Rebed only after thorough tillage.
paraquat + oxyfluorfen – 0.5 to 1 lb/A + 0.25 to 0.5 lb/A	paraquat 2 lb/gal formulation — 2 to 4 pt/A or 3 lb/gal formulation — 1.33 to 2.67 pt/A + Goal 2XL 2 EC — 1 to 2 pt/A	Varies by crop and/or rate (See product label for specific information)	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for paraquat and glyphosate plus Goal 2XL.
paraquat + metribuzin – 0.5 to 1 lb/A + 0.25 to 0.63 lb/A	paraquat 2 lb/gal formulation — 2 to 4 pt/A or 3 lb/gal formulation — 1.33 to 2.67 pt/A + metribuzin 75% formulation — 5.33 to 13.4 oz/A or 4 lb/gal formulation — 8 to 20 oz/A	Preplant or preemergence	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for metribuzin and paraquat. **See table at beginning of soybean section for metribuzin rates by soil texture.**
paraquat + prometryn – 0.5 to 1 lb/A + 0.75 to 1 lb/A	paraquat 2 lb/gal formulation — 2 to 4 pt/A or 3 lb/gal formulation — 1.33 to 2.67 pt/A + prometryn 4 lb/gal formulation — 1.5 to 2 pt/A	November 1 up to 14 d before cotton planting	Annual broadleaf weeds	See *Special Instructions and Remarks* for paraquat. Use the high rate for early applications and low rate for applications closer to planting.

Corn Weed Management

Weed Response Ratings for Corn Herbicides Applied Preemergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Italian ryegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Annual sedge	Purple nutsedge	Cocklebur	Common lambsquarters	Hemp sesbania	Horseweed	Morningglory species	Palmer, spiny amaranth, waterhemp	Prickly sida	Sicklepod	Smooth, redroot pigweed
Acuron	5, 15, 27	**9**	**8**	**9**	**9**	**9**	7	2	**8**	**8**	7	**10**	**9**	**8**	**8**	**9**	**9**	**9**	**8**	**9**
Anthem Maxx or Flex	14, 15	**9**	**8**	**9**	**8**	**9**	**9**	4	7	-	0	2	4	3	6	7	**9**	7	-	**9**
Atrazine	5	6	6	7	4	6	**8**	0	4	4	2	**9**	**9**	7	-	**8**	**9**	**8**	**8**	**9**
Atrazine + metolachlor/s-metolachlor + safener	5, 15	**8**	**8**	**9**	**9**	**9**	**8**	0	7	7	3	**8**	**9**	6	-	**8**	**9**	**8**	6	**9**
Lexar EZ	5, 15, 27	**9**	**8**	**9**	**9**	**9**	7	2	**8**	**8**	7	**10**	**9**	**8**	**8**	**9**	**9**	**9**	**8**	**9**
Pendimethalin	3	**8**	6	**8**	**8**	**8**	5	4	7	0	0	**8**	-	0	0	6	7	7	0	**8**
Resicore	4, 15, 27	**9**	**9**	**9**	**9**	**9**	0	0	**8**	4	4	**9**	**9**	**9**	**9**	**9**	**9**	**9**	7	**9**
Sharpen	14	1	1	1	1	1	1	-	1	-	-	6	7	6	**8**	6	**9**	7	5	**9**
Simazine	5	6	5	**8**	6	7	-	0	4	2	0	**9**	**9**	-	3	7	**9**	**9**	**8**	**9**
Surtain	14, 15	**9**	**8**	**9**	**8**	**9**	**9**	4	6	-	-	6	4	3	7	**8**	**8**	7	5	**9**
Trivolt	2, 15, 27	**9**	**8**	**9**	**9**	**9**	**8**	7	**8**	-	-	7	**8**	**9**	-	**7**	**9**	**8**	-	**9**
Verdict	14, 15	**8**	6	**8**	7	**8**	7	0	7	-	-	6	7	6	**8**	6	**9**	7	5	**9**
Zidua SC	15	**9**	**8**	**9**	**8**	**9**	**9**	4	6	-	-	-	4	3	6	7	**8**	7	-	**9**

Rating Scale: 0–3 = none to slight; 4–6 = fair; 7–8 = good; 9–10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected residual control of herbicide-susceptible populations approximately 2 to 3 weeks after application.

Corn Weed Management

Weed Response Ratings for Corn Herbicides Applied Postemergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Italian ryegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Annual sedge	Purple nutsedge	Cocklebur	Common lambsquarters	Hemp sesbania	Horseweed	Morningglory species	Palmer, spiny amaranth, waterhemp	Prickly sida	Sicklepod	Smooth, redroot pigweed
2,4-D	4	1	0	0	2	1	0	0	0	4	2	**8**	**9**	**8**	**8**	**9**	**8**	**8**	**8**	**8**
Acuron	5, 15, 27	**8**	**9**	**9**	**8**	**9**	7	2	7	**8**	7	**9**	**9**	**8**	**8**	**9**	**9**	**9**	**8**	**9**
Acuron GT	9, 15, 27	**9**	**9**	**9**	**9**	**9**	5	**8**	**8**	**8**	**8**	**9**	**8**	**8**	7	**9**	**9**	**9**	**9**	**9**
Armezon or Impact	27	7	6	**8**	6	7	0	4	7	0	0	**9**	**9**	7	-	7	**8**	**9**	6	**9**
Atrazine + oil	5	6	7	**8**	5	6	5	0	3	6	2	**9**	**9**	7	-	6	**9**	**9**	**8**	**9**
Atrazine + metolachlor/s-metolachlor + safener	5, 15	6	5	6	4	6	-	0	4	5	2	**8**	**8**	6	-	6	**8**	7	**8**	**8**
Bentazon	6	0	0	0	0	1	0	0	0	6	2	**9**	0	4	-	3	3	**8**	1	3
Capreno	2, 27	**8**	**8**	**8**	-	-	-	5	**9**	-	-	**8**	**9**	-	-	**8**	**9**	7	7	**9**
Dicamba	4	1	1	1	1	1	0	0	0	3	1	**9**	**9**	**9**	**8**	**9**	8	8	8	8
Dicamba + 2,4-D	4, 4	1	1	1	0	1	0	0	0	3	1	**9**	**8**	**8**	**8**	**8**	**8**	7	7	**8**
Gambit	2, 2	0	0	0	0	0	0	0	0	**9**	7	**8**	6	**8**	7	7	5	6	**8**	7
Glufosinate	10	**8**	**8**	**9**	**9**	5	**8**	7	**8**	**8**	4	**9**	-	**9**	**8**	**9**	**8**	**9**	**9**	**8**
Glyphosate	9	**9**	**9**	**9**	**9**	**9**	6	7	**9**	**9**	7	**8**	**9**	6	5	7	**9**	7	**8**	**9**
Halex GT	9, 15, 27	**9**	**9**	**9**	**9**	**9**	6	7	**9**	**8**	**8**	**9**	**8**	**8**	7	**9**	**9**	**9**	**9**	**9**
Halosulfuron	2	2	2	2	2	2	-	1	2	**9**	**8**	**9**	5	**8**	5	6	6	7	5	**8**
Harness Max	15, 27	7	**8**	**9**	7	-	-	0	0	**-**	**-**	**8**	**9**	**-**	-	**9**	**9**	**9**	5	**9**
Impact Core	15, 27	7	6	**8**	6	7	0	4	7	**0**	**0**	**9**	**9**	7	-	7	**8**	**9**	6	**9**
Laudis	27	7	**8**	**8**	-	7	-	5	6	-	-	**8**	**9**	-	-	**8**	**9**	7	7	**9**
Lexar EZ	5, 15, 27	7	**9**	**9**	**8**	**9**	7	2	**8**	**8**	7	**10**	**9**	**8**	**8**	**9**	**9**	**9**	**8**	**9**
Liberty ULTRA	10	**8**	**8**	**9**	**9**	5	**8**	7	**8**	**8**	4	**9**	-	**9**	**8**	**9**	**8**	**9**	**9**	**8**
Mesotrione	27	7	7	**9**	7	-	-	0	0	-	-	**8**	**9**	-	-	**9**	**9**	**9**	5	**9**
Nicosulfuron	2	8	**8**	5	7	-	6	**8**	**9**	3	-	5	5	7	-	6	6	4	5	**8**
Realm Q	2, 27	**8**	7	**8**	**8**	**8**	4	7	**9**	**8**	6	**9**	**8**	-	-	**8**	**8**	**9**	7	**8**
Resicore	4, 15, 27	7	7	7	7	7	0	0	6	4	4	**9**	**9**	**9**	**9**	**9**	**9**	**9**	7	**9**
Sinate	10, 27	**8**	**8**	**9**	**9**	7	6	7	**8**	**8**	4	**9**	**9**	**9**	**8**	**9**	**9**	**9**	**9**	**9**
Status	4, 19	3	4	3	4	3	0	3	5	0	0	**9**	**9**	**9**	**8**	**9**	**9**	**9**	**9**	**9**
Postemergence - Directed																				
Linuron	5	**9**	**8**	**8**	**8**	7	-	0	6	5	2	7	**9**	**8**	-	**8**	**8**	**8**	**8**	**8**
Paraquat	22	**8**	**8**	**8**	**8**	**8**	7	3	**8**	**9**	0	7	**9**	6	5	6	**9**	6	**8**	**9**
Preharvest																				
2,4-D	4	0	0	0	2	1	0	0	0	4	2	**9**	**9**	**9**	-	**9**	**9**	**8**	**8**	**9**
Aim	14	1	0	0	0	0	0	0	0	0	0	6	7	**8**	-	**8**	**8**	-	0	**8**
Glyphosate	9	**8**	**9**	**9**	**9**	**8**	**-**	6	**9**	**9**	7	**9**	**9**	6	**-**	6	6	5	7	**9**

Rating Scale: 0–3 = none to slight; 4–6 = fair; 7–8 = good; 9–10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance to vary. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations targeted at approximately the 3- to 5-inch growth stage.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Removal of Partial Corn Stands for Replanting				
clethodim – 0.045 lb/A	Various formulations (see product label for specific rates)	Failed stands up to 12 inches tall	Roundup Ready 2 or glufosinate-resistant corn hybrids	**Do not replant within 6 days of application.** Avoid off-site movement to emerged, non-target corn. Adjuvant requirements vary by product. See product label for specific adjuvant information.
paraquat + atrazine – 0.63 to 0.75 lb/A + 0.5 lb/A	paraquat 2 lb/gal formulation — 2.5 to 3 pt/A or 3 lb/gal formulation — 1.68 to 2 pt/A + atrazine 4 lb/gal formulations — 0.5 qt/A or 90% formulation — 0.55 lb/A	When corn is small enough to achieve adequate coverage	Roundup Ready 2 or glufosinate-resistant corn hybrids	**Corn may be replanted immediately.** Avoid off-site movement to emerged vegetation. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
paraquat + diuron – 0.63 to 0.75 lb/A + 0.5 lb/A	paraquat 2 lb/gal formulation — 2.5 to 3 pt/A or 3 lb/gal formulation — 1.68 to 2 pt/A + diuron 4 lb/gal formulation — 0.5 qt/A or 80% formulation — 0.63 lb/A	When corn is small enough to achieve adequate coverage	Roundup Ready 2 or glufosinate-resistant corn hybrids	**Corn may be replanted immediately.** Avoid off-site movement to emerged vegetation. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
Preemergence				
acetochlor – 0.8 to 2.4 lb/A	acetochlor 7 lb/gal formulation — 1 to 2.75 pt/A	Preplant up to 30 days before planting, preplant incorporated, or preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation. Use higher rates on reduced tillage systems. **Do not** use on sweet corn. If stand failure occurs, replant corn but **do not** make second application of acetochlor.
acetochlor + atrazine – 1.1 to 2 + 1 to 1.5 lb/A	Various formulations (see product label for specific rates)	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for acetochlor and atrazine. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** use on sweet corn.
acetochlor + mesotrione + clopyralid – 0.93 to 1.13 lb/A	Resicore 3.29 SC — 2.25 to 2.75 pt/A	Preplant or preemergence	Henbit, morningglory, pigweed, and other broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Split applications with 50% of the total rate applied preemergence and the remaining 50% of the total rate applied postemergence are beneficial with some weed species.
atrazine – 2 lb/A	atrazine 4 lb/gal formulation — 2 qt/A or 90% formulation — 2.22 lb/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Atrazine is a restricted-use pesticide. Do not** plant fall cover crops. **Do not** exceed 2.5 pounds of active ingredient per year. See label for additional restrictions.
atrazine + *s*-metolachlor + safener – 1 to 2 lb/A + 0.8 to 1.6 lb/A	Various formulations (see product label for specific rates)	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine and metolachlor/*s*-metolachlor. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation.
dicamba – 0.25 lb/A	Various formulations (see product label for specific rates)	Preplant or preemergence	Horseweed, clovers; other annual, biennial, and perennial broadleaf weeds	Apply only to medium- or fine-textured soils that contain 2% or greater organic matter. **Do not** apply to coarse-textured soils after crop emergence.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
dimethenamid-P – 0.56 to 0.84 lb/A	Outlook 6 EC — 12 to 18 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation. This treatment provides poor control of most large-seeded broadleaf weeds. See label for mixtures.
dimethenamid-P + saflufenacil – 0.44 to 0.8 lb/A	Verdict 5.67 EC — 10 to 18 oz/A	Preplant, preplant incorporated, or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Use lower rates on coarse soils. **Do not** apply after corn emerges or severe crop injury will occur. **Do not** apply where at-planting application of an organophosphate or carbamate insecticide is planned.
isoxaflutole + thiencarbazone-methyl + flufenacet – 0.569 lb/A	Trivolt 3.65 SC – 20 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Decrease rate to 10.75 oz/A on coarse-textured soil with less than 2% organic matter. Corn seed should be planted a minimum of 1.5 inches deep and must be completely covered with soil and furrow firmed or reduced crop stand or injury may occurred.
mesotrione + atrazine + *s*-metolachlor – 2.08 to 2.78 lb/A	Lexar EZ 3.7 SC — 2.25 to 3 qt/A	Preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply postemergence within 7 days of any organophosphate or carbamate insecticide application.
S-metolachlor + atrazine + mesotrione + bicyclopyrone – 1.9 to 2.6 lb/A	Acuron 3.44 SC — 2.5 to 3 qt/A	Preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine and metolachlor/*S*-metolachlor. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Rate is based more on organic matter than soil texture.
S-metolachlor or metolachlor + safener – 0.8 to 1.6 lb/A	Various formulations (See product label for specific rates)	Preplant or preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation. For soils with 3% or more organic matter, increase rate by 0.5 pint per acre. This treatment provides poor control of most large-seeded broadleaf weeds.
pendimethalin – 0.75 to 1.5 lb/A	pendimethalin 3.8 lb/gal formulation — 1.6 to 3.2 pt/A or 3.3 lb/gal formulation — 1.8 to 3.6 pt/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation. See label for mixtures. This treatment provides poor control of broadleaf signalgrass and most large-seeded broadleaf weeds.
pyroxasulfone – 0.08 to 0.21 lb/A	Zidua 4 SC — 2.5 to 6.5 oz/A	Preplant, preplant incorporated, or preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation. **Do not** apply more than 0.15 pounds active ingredient per acre per year on coarse soils. **Do not** apply more than 0.27 pounds active ingredient per acre per year on medium or fine soils. Weed control optimized when applications are made to seedbeds free of residue.
pyroxasulfone + fluthiacet-methyl – 0.12 to 0.19 lb/A	Anthem Maxx 4.3 SC — 3.6 to 5.7 oz/A	Preplant up to 45 days before planting, preplant incorporated, or pre emergence	Annual grasses and small-seeded broadleaf weeds	See *Special Instructions and Remarks* for Zidua SC. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Use lower rate on coarse-textured soils. Sufficient weed control depends on adequate rainfall for incorporation. Weed control optimized when applications are made to seedbeds free of residue.
pyroxasulfone + carfentrazone – 0.109 to 0.227 lb/A	Anthem Flex 4 SC — 3.5 to 7.28 oz/A	Preplant up to 45 days before planting, preplant incorporated, or preemergence	Annual grasses and small-seeded broadleaf weeds	See *Special Instructions and Remarks* for Anthem Maxx and Zidua SC. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
saflufenacil – 0.045 to 0.067 lb/A	Sharpen 2.85 SC — 2 to 3 oz/A	Preplant, preplant incorporated, or preemergence	Broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Use lower rates on coarse soils. **Do not** apply after corn emerges or severe crop injury will occur. **Do not** apply where at planting application of an organophosphate or carbamate insecticide is planned. **Do not** apply more than 6 ounces per acre per year.
saflufenacil + pyroxasulfone – 0.14 to 0.22 lb/A	Surtain 1.63 SC — 11 to 17 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** use on sweet corn. **Do not** apply where at-planting application of an organophosphate or carbamate insecticide is planned. **Do not** apply more than 27 ounces per acre per year.
simazine – 2 to 2.5 lb/A	Simazine 4 L — 4 to 5 pt/A or 90 DF — 2.2 to 2.7 lb/A	Preplant or preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Till soil in fall to minimize carryover potential to rotational crops. See label for additional restrictions.
Postemergence (glufosinate- and glyphosate-resistant hybrids) See Postemergence (All hybrids) list in this section for information on mixtures with glyphosate or glufosinate.				
glufosinate – 0.53 to 0.79 lb/A	glufosinate 2.34 lb/gal formulation 29 to 43 oz/A	From corn emergence until V6 growth stage	Annual grasses and broadleaf weeds	Sequential applications should be at least 10–14 days apart. **Do not** exceed 87 ounces per growing season from preplant and postemergence applications. **Do not** apply within 70 days of harvest. **Do not** add adjuvant. **Do not** use nitrogen solutions as spray carriers. See label for approved mixtures. Apply when temperatures are warm, as colder weather may reduce activity.
glufosinate-P – 0.26 to 0.4 lb/A	Liberty ULTRA 1.76 SL — 19 to 29 oz/A	From corn emergence until V6 growth stage	Annual grasses and broadleaf weeds; horseweed, pigweed (less than 3 inches)	Make ground application in minimum 15 gallons per acre. **Do not** apply with air induction nozzles. For additional information on the United States Environmental Protection Agency's mandatory policy on endangered and threatened species, see the Endangered Species Protection Bulletins at www.epa.gov/endangered-species/endangered-species-protection-bulletins.
glyphosate – 0.75 to 1 lb/A	Various formulations (See product label for specific rates)	Postemergence until corn reaches V8 growth stage or 30 inches	Annual grasses and broadleaf weeds	Mix with a residual herbicide for optimum control. Single applications must not exceed 0.77 pounds acid equivalent per acre. Allow minimum of 10 days between applications. May be mixed with atrazine up to 12-inch corn. Avoid drift to desirable vegetation.
mesotrione + glyphosate + *s*-metolachlor + atrazine – 1.98 to 2.22 lb/A + 1 to 2 lb/A	Halex GT 4.4 L — 3.6 to 4 pt/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. **Do not** apply postemergence within 7 days of any organophosphate or carbamate insecticide application. Add nonionic surfactant at 0.25% v/v.
s-metolachlor + glyphosate + mesotrione + bicyclopyrone + atrazine – 2.02 lb/A + 1 to 2 lb/A	Acuron GT 4.3 ZC — 3.75 pt/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Do not make more than one application per year. Do not mix with emulsifiable concentrate (EC) products. Add nonionic surfactant at 1% v/v and ammonium sulfate at 17 pounds per 100 gallons of water.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
topramezone + glufosinate – 0.42 to 0.56 lb/A	Sinate 2.57 SC — 21 to 28 oz/A	From corn emergence until V7 growth stage	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for glufosinate. Mix with atrazine to improve weed control spectrum. Add methylated seed oil at 1% v/v and ammonium sulfate at 3 pounds per acre.
Postemergence (Roundup Ready 2 hybrids) **See Postemergence (All hybrids) list in this section for information on mixtures with glyphosate.**				
glyphosate – 0.75 to 1 lb/A	Various formulations (See product label for specific rates)	Postemergence until corn reaches V8 growth stage or 30 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate in Postemergence (glufosinate-resistant hybrids) section.
mesotrione + glyphosate + *s*-metolachlor + atrazine – 1.98 to 2.22 lb/A + 1 to 2 lb/A	Halex GT 4.4 L — 3.6 to 4 pt/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for Halex GT in Postemergence (glufosinate-resistant hybrids) section.
s-metolachlor + glyphosate + mesotrione + bicyclopyrone + atrazine – 2.02 lb/A + 1 to 2 lb/A	Acuron GT 4.3 ZC — 3.75 pt/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for Acuron GT in Postemergence (glufosinate-resistant hybrids) section.
Postemergence (All hybrids)				
2,4-D amine – 0.24 to 0.72 lb/A	Various formulations (see product label for specific rates)	See special instructions	Broadleaf weeds	Direct spray below whorl of corn plants taller than 8 inches. Mix with glyphosate or glufosinate (depending on hybrid) to improve weed control spectrum.
acetochlor + mesotrione + atrazine – 1.19 to 1.92 lb/A + 1 to 2 lb/A	Harness Max 3.85 SC – 40-64 oz/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) to improve weed control spectrum. Severe corn injury may occur if any organophosphate or carbamate insecticide is applied within 7 days before or after Harness Max. **Do not** use methylated seed oil adjuvant.
acetochlor + mesotrione + clopyralid – 0.93 to 1.13 lb/A	Resicore 3.29 SC — 2.25 to 2.75 pt/A	Small, actively growing weeds less than 3 inches tall	Henbit, morningglory, pigweed, other broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. **Do not** apply carbamate or organophosphate insecticide within 7 days before or 7 days after application. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
atrazine – 2 lb/A	atrazine 4 lb/gal formulation — 2 qt/A or 90% formulation — 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) to improve weed control spectrum. **Atrazine is a restricted-use pesticide. Do not** exceed 2.5 pounds of active ingredient per acre per year. **Do not** apply when corn is stressed from cold or excess rain. Application with insecticides, liquid fertilizers, or other materials is not recommended due to compatibility problems or crop injury. Add crop oil concentrate at 1 quart per acre when applied alone.
atrazine + *s*-metolachlor – 1 to 2 lb/A + 0.8 to 1.6 lb/A	Various formulations (see product label for specific rates)	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) to improve weed control spectrum.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
bentazon – 0.75 to 1 lb/A	bentazon 4 lb/gal formulation — 1.5 to 2 pt/A or 5 lb/gal formulation — 1.2 to 1.6 pt/A	Small, actively growing weeds	Cocklebur, prickly sida (2 to 3 inches), smartweed	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Use the low rate for small cocklebur and the high rate for 6- to 10-leaf cocklebur. Control may be poor if applied under drought conditions. Rainfall within 8 hours may reduce efficacy. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
carfentrazone – 0.008 lb/A	Aim 2 EC — 0.5 oz/A	Small, actively growing weeds up to V8 corn stage	Morningglory, pigweed	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. **Do not** apply more than 1.9 ounces per acre per season. Weeds should be less than 4 inches at application. Add nonionic surfactant at 0.25% v/v. Under dry conditions, crop oil concentrate may improve weed control but increase crop injury.
dicamba – 0.25 to 0.5 lb/A	Various formulations (see product label for specific rates)	Before corn is 36 inches tall or until 15 days before tassels emerge	Broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Avoid drift to soybean. **Do not** make more than one application per season. Use high rate before corn reaches 8 inches tall or exceeds 5-leaf stage. Application when corn exceeds 8 inches can cause stalks to lean, become temporarily brittle and prone to break from wind or other physical disturbance.
dicamba + diflufenzopyr – 0.175 to 0.35 lb/A	Status 56 WG — 5 to 10 oz/A	Postemergence to corn from 4 to 36 inches tall or until 15 days before tassels emerge	Broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Avoid drift to soybean. **Do not** exceed 12.5 ounces per acre per season. Mixtures with growth regulator herbicides such as 2,4-D or emulsifiable concentrate formulations of chloroacetamide herbicides are not recommended.
dicamba + 2,4-D – 0.1 to 0.25 + 0.25 to 0.50 lb/A	Various formulations (see product labels for specific rates)	See special instructions	Broadleaf weeds	See *Special Instructions and Remarks* for dicamba and 2,4-D. Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. May be applied overhead before corn is 8 inches high. Application when corn exceeds 8 inches can cause stalks to lean, become temporarily brittle and prone to break from wind or other physical disturbance.
halosulfuron – 0.032 to 0.063 lb/A	halosulfuron 75% formulation — 0.67 to 1.33 oz/A	Postemergence between spike and layby, but at least 30 days before harvest	Nutsedge, cocklebur, hemp sesbania	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Avoid drift to non STS soybean. A minimum of 14 days is required between sequential applications. This treatment may be applied with liquid fertilizer, but fertilizer should not be total carrier. **Do not** make more than two applications per season or exceed 2.67 ounces per acre per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
halosulfuron + dicamba – 0.25 lb/A	Yukon 67.5 WG — 6 oz/A	Postemergence until corn reaches 30 inches	Horseweed, nutsedge, ragweed, broadleaf weeds	See *Special Instructions and Remarks* for dicamba and halosulfuron. Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum.
halosulfuron + prosulfuron – 0.049 to 0.099 lb/A	Gambit 79 WG — 1 to 2 oz/A	Postemergence to corn with 1 to 5 collars	Common ragweed, hemp sesbania, Pennsylvania smartweed, yellow nutsedge	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Avoid drift to non STS soybean. Two applications are allowed but total should not exceed 2 ounces per acre per year. A minimum of 14 days is required between sequential applications.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
halosulfuron + thifensulfuron – 0.035 lb/A	Permit Plus 75 WG — 0.75 oz/A	Postemergence to corn with 1 to 5 collars	Yellow nutsedge and broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Avoid drift to non STS soybean. **Do not** make more than one application per season or exceed 0.75 ounces per acre.
mesotrione + atrazine – 0.094 + 1 to 2 lb/A	mesotrione 4 lb/gal formulation — 3 oz/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Morningglory, cocklebur, pigweed, other broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) to improve weed control spectrum. Severe corn injury may occur if any organophosphate or carbamate insecticide is applied within 7 days before or after mesotrione. **Do not** use methylated seed oil or methylated seed oil blends. Without atrazine, mesotrione may be applied to corn up to 30 inches tall.
mesotrione + atrazine + *s*-metolachlor – 2.08 to 2.78 lb/A	Lexar EZ 3.7 SC — 2.25 to 3 qt/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) to improve weed control spectrum. **Do not** apply postemergence within 7 days of any organophosphate or carbamate insecticide application. Add nonionic surfactant at 0.25% v/v.
s-metolachlor + atrazine + mesotrione + bicyclopyrone – 1.9 to 2.6 lb/A	Acuron 3.44 SC — 2.5 to 3 qt/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. A minimum of 14 days is required between sequential applications. **Do not** make postemergence applications in mixture with organophosphate or carbamate insecticide. Rate is based more on organic matter than soil texture.
nicosulfuron – 0.03 lb/A	Various formulations (See product label for specific rates)	Postemergence from V2 to V6 corn stage	Johnsongrass and other annual weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Avoid drift to non STS soybean. **Do not** apply to corn treated with Counter or soil- or foliar-applied organophosphate insecticides. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
nicosulfuron + rimsulfuron – 0.036 lb/A	Steadfast Q 38 WG — 1.5 oz/A	Postemergence to corn up to 20 inches tall and with up to 6 leaf collars	Annual grass and broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. **Do not** make more than one application per cropping season. **Do not** use in same year as Counter 15G, Counter 20CR, Dyfonate, Lorsban, and Thimet. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
pyroxasulfone + flumiclorac – 0.11 to 0.18 lb/A	Perpetuo 2.3 SC — 6 to 10 oz/A	Postemergence from V2 to V6 corn stage	Annual grasses and broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. **Do not** apply to sweet or popcorn. **Do not** apply more than 10 ounces per acre in a single season. Add crop oil concentrate or methylated seed oil at 1% v/v. Ammonium sulfate at 2 pounds per acre or urea-ammonium nitrate at 2 quarts per acre may also be included.
pyroxasulfone + fluthiacet-methyl – 0.101 to 0.202 lb/A	Anthem Maxx 4.3 SC — 3 to 6.5 oz/A	Postemergence until the V4 corn stage	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Use lower rate on coarse-textured soils. For heavy weed densities and longer residual, use higher rate. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
rimsulfuron + mesotrione + atrazine – 0.098 lb/A + 1 to 2 lb/A	Realm Q 39 SG — 4 oz/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. **Do not** apply to corn treated with Counter or soil- or foliar-applied organophosphate insecticides. Crop injury may occur if there is a prolonged period of cold weather and/or in conjunction with wet soils. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
saflufenacil + pyroxasulfone – 0.14 to 0.18 lb/A	Surtain 1.63 SC — 11 to 14 oz/A	From corn emergence until the V3 corn stage	Annual grasses and broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. **Do not** use on sweet corn. **Do not** apply more than 27 ounces per acre per year. See label for adjuvant requirements.
tembotrione + atrazine – 0.082 lb/A + to 2 lb/A	Laudis 3.5 SC — 3 oz/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Without atrazine, Laudis may be applied up to the eight-leaf collar stage. Mix with glyphosate or glufosinate (depending on hybrid) to improve weed control spectrum. Add methylated seed oil at 1% v/v and ammonium sulfate at 1.5 pounds per acre.
tembotrione + thiencarbazone-methyl + atrazine – 0.081 lb/A + 1 to 2 lb/A	Capreno 3.45 SC — 3 oz/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. **Do not** exceed 6 ounces per acre per growing season. See label for restrictions on insecticide use in same season. Add crop oil concentrate at 1% v/v and ammonium sulfate at 1.5 pounds per acre.
topramezone + atrazine – 0.044 lb/A + 1 to 2 lb/A	Armezon 2.8 SL or Impact 2.8 SC — 2 oz/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Small, actively growing weeds before corn reaches 12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Without atrazine, Armezon or Impact may be applied after corn reaches 12 inches. Add methylated seed oil at 1% v/v and ammonium sulfate.
topramezone + acetochlor – 1.12 to 2.23 lb/A	Impact Core 7.15 SC — 20 to 40 oz/A	Postemergence until corn reaches 11 inches	Annual grasses and broadleaf weeds	See product label for specific application rates based on soil texture. Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Add nonionic surfactant at 0.25% v/v and ammonium sulfate at 1.5 pounds per acre or urea-ammonium nitrate at 2.5% v/v. Crop oil concentrate or methylated seed oil may be substituted for nonionic surfactant but may cause injury.
topramezone + dimethenamid-P – 0.98 lb/A	Armezon PRO 6.25 SL — 20 oz/A	Postemergence until corn reaches V8 growth stage or 30 inches	Annual grasses and broadleaf weeds	Mix with glyphosate or glufosinate (depending on hybrid) and atrazine to improve weed control spectrum. Add methylated seed oil at 1% v/v.
Directed or Hooded Sprayers				
linuron – 0.63 to 1.5 lb/A	linuron 4 lb/gal formulation — 1.25 to 3 pt/A or 50% formulation — 1.25 to 3 lb/A	After corn is at least 15 inches tall and before weeds are 5 inches tall	Annual broadleaf weeds and grasses	Apply as directed spray to cover weeds. **Do not** use on loamy sand or sand. May be applied in N solutions. Use low rate when weeds are less than 2 inches tall and on light soils. Use high rates on weeds up to 5 inches or on heavy soils. Add nonionic surfactant at 0.5% v/v.

Corn Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
paraquat – 0.25 to 0.47 lb/A	paraquat 2 lb/gal formulation — 1 to 1.88 pt/A or 3 lb/gal formulation — 0.67 to 1.25 pt/A	After corn is 6 inches tall	Annual grasses and broadleaf weeds less than 6 inches tall	**Application only with hooded sprayer.** Keep bottom of the hood in contact with soil surface. Avoid crop contact with spray solution. Avoid use of spray nozzles that produce fine spray droplets. Best results are achieved when mixed with residual broadleaf herbicides. Consult label for specific mixtures. Add nonionic surfactant at 0.25% v/v.
Preharvest				
2,4-D amine – 0.48 to 0.95 lb/A	Various formulations (see product label for specific rates)	After corn is in dent or hard dough stage	Broadleaf weeds	Apply to broadleaf weeds such as morningglory, cocklebur, and sicklepod to facilitate harvest. Wait 5 to 7 days before harvesting.
carfentrazone – 0.031 lb/A	Aim 2 EC — 2 oz/A	After corn grain is physiologically mature and at least 3 days before grain harvest	Morningglory, pigweed, hemp sesbania	Spray volume must be sufficient to provide complete coverage of undesired foliage. A minimum of 10 gallons per acre is suggested for ground application and 5 gallons per acre for aerial application. Add crop oil concentrate at 1% v/v.
paraquat – 0.3 to 0.5 lb/A	paraquat 2 lb/gal formulation — 1.2 to 2 pt/A or 3 lb/gal formulation — 0.8 to 1.33 pt/A	After black layer has formed at the base of the kernels	Annual and perennial grasses and broadleaf weeds	Make one application at least 7 days before harvest. Drought-stressed weeds will not be desiccated. Add nonionic surfactant at 0.25% v/v.
paraquat + sodium chlorate – 0.3 to 0.5 lb/A + 3 lb/A	Various formulations for each (see product labels for specific rates)	After corn grain is physiologically mature and at least 14 days before harvest	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for paraquat and sodium chlorate.
saflufenacil – 0.022 to 0.044 lb/A	Sharpen 2.85 SC — 1 to 2 oz/A	After corn grain is physiologically mature	Broadleaf weeds	**Do not** apply more than 2 ounces per acre per year as a harvest aid. **Do not** apply within 3 days of harvest. Apply in a minimum of 10 gallons per acre by ground and 5 gallons per acre by air. Add methylated seed oil at 1% v/v plus ammonium sulfate.
sodium chlorate – 6 lb/A	Various formulations (see product label for specific rates)	After corn grain is physiologically mature and at least 14 days before harvest	Desiccation of most annual grasses and broadleaf weeds	Apply where grasses such as johnsongrass make harvesting difficult. Apply at least 14 days before anticipated harvest date on clear days when temperatures are expected to go above 70 ° F. **Do not** graze treated fields or feed fodder, forage, or residual seeds within 14 days of application.
glyphosate – 0.77 lb/A	Various formulations (see product label for specific rates)	After corn grain is physiologically mature and grain moisture is 35% or less and at least 7 days before harvest	Johnsongrass and other annual weeds	**Do not** exceed 1 quart per acre by aerial or 3 quarts per acre by ground equipment. **Do not** apply to corn grown for seed.

Cotton Weed Management

Weed Response Ratings for Cotton Herbicides Applied Preemergence[1]

	Herbicide group numbers	Barnyardgrass	Bermudagrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Annual sedge	Nutsedge—purple	Nutsedge—yellow	Cocklebur	Hemp sesbania	Honeyvine milkweed	Morningglory species	Nodding spurge	Palmer, spiny amaranth, waterhemp	Pennsylvania smartweed	Prickly sida	Purslane	Sicklepod	Smooth, redroot pigweed	Spurred anoda	Velvetleaf	Crop tolerance (G = good, F = Fair)
Preplant[2]																										
Fomesafen	14	4	0	3	4	-	4	0	4	7	3	7	7	3	0	4	2	**9**	-	7	7	4	**9**	1	1	G
Pendimethalin	3	**9**	0	**9**	**9**	**9**	**9**	5	**9**	0	0	0	0	0	0	3	1	7	2	0	**9**	1	**8**	0	0	G
Trifluralin	3	**9**	0	**9**	**9**	**9**	**9**	6	**9**	0	0	0	0	0	0	3	1	**8**	2	0	**9**	1	**8**	0	0	G
Preemergence																										
Brake + fluometuron	12, 5	**8**	0	**9**	**9**	**9**	**9**	2	**9**	**9**	-	3	**8**	**8**	-	**8**	5	**9**	**7**	**9**	**9**	6	**9**	**7**	6	G
Clomazone	13	**9**	-	**9**	**9**	**8**	**9**	7	**9**	-	-	-	6	4	-	2	**8**	2	**8**	**9**	**9**	0	2	**9**	**10**	F
Diuron	5	7	0	**8**	**8**	**8**	**8**	0	6	**9**	0	0	7	4	0	7	6	**9**	7	6	**9**	5	**9**	5	7	F
Fluometuron	5	7	0	**8**	**9**	**8**	**8**	0	6	**9**	0	0	**8**	6	0	7	3	7	7	**9**	**9**	6	**8**	3	6	G
Prometryn	5	7	-	7	7	7	7	0	7	-	1	1	7	6	-	**8**	-	7	**8**	**8**	**9**	7	**9**	3	**7**	G
Pyrithiobac	2	6	-	5	5	-	5	2	5	-	-	-	**8**	4	-	**8**	**9**	6	6	**9**	-	6	**8**	**9**	**8**	G
Solicam DF	12	**8**	2	**8**	**9**	7	**8**	2	7	**9**	4	4	3	3	0	5	7	7	7	**9**	**9**	4	7	**8**	7	G
Warrant	15	**8**	0	**8**	**8**	-	**8**	0	**8**	7	5	7	2	0	0	0	6	**8**	-	2	-	2	**8**	0	2	-

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected residual control of herbicide-susceptible populations approximately 2 to 3 weeks after application.

[2]An overlay treatment with the preemergence herbicides will control a broader spectrum of weeds, but the control of a given species may be no better than that for the best herbicide in the specific combination selected.

Cotton Weed Management

Weed Response Ratings for Cotton Herbicides Applied Postemergence[1]

	Herbicide group numbers	Barnyardgrass	Bermudagrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Annual sedge	Nutsedge—purple	Nutsedge—yellow	Cocklebur	Hemp sesbania	Honeyvine milkweed	Morningglory species	Nodding spurge	Palmer, spiny amaranth, waterhemp	Pennsylvania smartweed	Prickly sida	Purslane	Sicklepod	Smooth, redroot pigweed	Spurred anoda	Velvetleaf	Crop tolerance (G = good, F = Fair)
Postemergence directed																										
Aim	14	0	0	0	0	0	0	0	0	0	0	0	7	6	0	**8**	7	6	-	6	-	4	6	-	**10**	G
MSMA	17	7	0	**8**	**8**	7	4	5	**8**	6	6	6	**9**	2	1	3	0	5	1	2	3	3	6	0	0	G
Cobra	14	3	0	3	3	3	3	2	3	2	-	2	**8**	-	5	6	**8**	**8**	7	**8**	**8**	-	**8**	7	**8**	G
+ MSMA	17	**8**	0	**8**	**8**	7	**8**	5	**9**	6	6	6	**9**	7	5	**9**	**8**	**9**	7	**8**	**9**	5	**9**	7	**8**	F
Fluometuron	5	6	-	6	6	6	6	-	6	-	1	1	5	4	-	7	-	6	-	5	-	-	6	-	-	G
+ MSMA	17	**8**	0	**9**	**9**	**8**	**8**	5	**8**	**8**	6	6	**9**	5	2	**8**	4	**9**	4	7	6	**8**	**9**	3	6	F
Goal 2XL	14	4	0	4	4	4	4	2	4	2	2	2	**8**	-	2	**9**	7	7	**9**	**8**	**9**	-	7	-	**8**	G
+ MSMA	17	**8**	0	**8**	**8**	7	**8**	5	**9**	6	6	6	**9**	7	2	**9**	7	**9**	**9**	**8**	**9**	**8**	**9**	5	**8**	F
Prometryn	5	7	-	7	7	7	7	-	7	-	1	1	6	6	-	**8**	-	7	-	7	-	-	7	-	-	G
+ MSMA	17	**8**	0	**9**	**9**	**8**	**8**	5	**9**	**8**	6	6	**9**	6	2	**8**	5	**9**	4	**8**	**8**	**8**	**9**	5	7	F
Suprend	2, 5	**8**	-	**8**	**8**	7	7	0	7	-	1	1	**9**	**9**	-	**9**	7	7	7	**8**	**8**	**9**	**8**	7	7	G
Postemergence over-the-top																										
Clethodim	1	**9**	**9**	**9**	**9**	**8**	**9**	**9**	**9**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E
Envoke	2	6	0	2	2	-	2	5	7	**9**	7	**8**	**9**	**9**	-	**9**	-	7	-	2	-	**9**	**8**	-	**9**	F
Fusilade DX	1	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E
Glufosinate	10	**8**	-	**8**	**8**	-	5	**8**	**8**	-	4	4	**8**	**9**	-	**9**	-	**8**	**8**	**9**	-	**8**	**8**	**9**	7	E
Glyphosate	9	**8**	5	**9**	**9**	**8**	**8**	7	**9**	**9**	5	6	**8**	6	3	6	-	**9**	**9**	**8**	6	7	**9**	**8**	7	G
Liberty ULTRA	10	**8**	-	**8**	**8**	-	5	**8**	**8**	-	4	4	**8**	**9**	-	**9**	-	**8**	**8**	**9**	-	**8**	**8**	**9**	7	E
Outlook[2]	15	**8**	0	7	**8**	**8**	**8**	0	**8**	7	3	5	2	2	0	2	7	**8**	-	2	**8**	2	**8**	0	2	G
Pyrithiobac	2	0	0	0	0	0	0	3	6	-	5	5	7	**9**	-	**9**	7	6	**9**	7	6	5	7	**9**	**9**	G
Sequence	15, 9	**9**	6	**9**	**9**	**9**	**8**	**8**	**9**	**10**	**8**	7	**8**	6	4	**8**	**9**	**9**	7	7	**9**	**8**	**9**	**9**	7	G
S-metolachlor/metolachlor[2]	15	**8**	0	**8**	**8**	-	**8**	0	**8**	7	5	7	2	0	-	0	6	**8**	-	2	-	2	**9**	0	0	G
Warrant[2]	15	**8**	0	**8**	**8**	-	**8**	0	**8**	7	5	7	2	0	0	0	6	**8**	-	2	-	2	**8**	0	2	-
Layby – preemergence only																										
Anthem Flex	14, 15	**9**	-	**9**	**9**	**8**	**8**	4	7	-	-	4	3	6	-	6	**9**	**9**	-	**8**	**9**	7	**9**	-	7	G
Diuron	5	5	0	5	6	5	5	2	5	4	0	0	4	4	1	7	4	**9**	3	4	5	**8**	**9**	3	3	G
+ MSMA	17	**8**	0	**9**	**9**	**8**	**8**	5	**9**	**8**	6	6	**9**	5	2	**8**	4	**9**	4	7	7	**8**	**9**	4	4	F
Fierce or Fierce EZ	14, 15	**9**	**9**	**9**	**8**	**9**	**8**	4	**8**	7	-	-	**8**	4	**8**	4	-	**9**	**8**	**8**	**8**	7	**9**	**8**	**8**	F
Flumioxazin	14	**8**	0	4	4	4	4	2	4	4	4	4	**9**	-	-	**8**	**8**	**8**	**8**	**10**	**8**	**9**	**8**	**8**	**8**	F
Reviton	14	3	5	5	6	5	5	6	**8**	6	-	-	7	**9**	-	**9**	**8**	**9**	7	**8**	**8**	-	**9**	-	**9**	G
Zidua SC	15	**9**	-	**9**	**9**	**8**	**8**	4	7	-	-	4	3	6	-	6	**9**	**9**	-	**8**	**9**	7	**9**	-	7	G

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations targeted at approximately the 3- to 5-inch growth stage.

[2]Outlook, *s*-metolachlor/metolachlor and Warrant will not control emerged weed species. Control ratings given are for residual control of species listed.

Cotton Weed Management

Herbicide Rates for Controlling Grasses with Postemergence Herbicide Applications

	Fusilade DX		Quizalofop		Poast	
Grass species	**Grass size (in)**	**Rate (oz/A)**	**Grass size (in)**	**Rate (oz/A)**	**Grass size (in)**	**Rate (oz/A)**
Barnyardgrass	1 to 2	12	2 to 6	8	1 to 8	24
Bermudagrass	4 to 8	12	3	10	1 to 6	36
Second application	4 to 8	8	3	7	1 to 4	24
Broadleaf signalgrass	2 to 4	12	2 to 6	8	1 to 8	24
Crabgrass	1 to 2	12	2 to 6	8	1 to 6	24
Goosegrass	2 to 4	8	2 to 6	8	1 to 6	24
Red rice	1	16	1 to 4	9	1 to 4	48
Rhizome johnsongrass	8 to 18	12	10 to 24	10	15 to 20	24
Second application	6 to 12	8	6 to 10	7	6 to 10	24
Seedling johnsongrass	2 to 8	6	2 to 8	5	1 to 8	24
Volunteer corn	12 to 24	6	8 to 18	5	12 to 20	24 to 36

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Preplant Incorporated				
norflurazon – 1 to 2 lb/A	Solicam 80 DF — 1.25 to 2.5 lb/A	Within 30 days of planting	Annual grasses and small-seeded broadleaf weeds	Incorporate no deeper than 2 to 3 inches after final seedbed preparation. **Do not** use where johnsongrass or morningglory are a major problem. Application may be split with half the rate preplant incorporated and the other half applied on surface after planting. Provides good to excellent control of prickly sida and good control of spurred anoda.
pendimethalin – 0.48 to 1.9 lb/A	pendimethalin 3.8 lb/gal formulation — 1 to 4 pt/A or 3.3 lb/gal formulation — 1.2 to 4.6 pt/A	Preplant incorporated — up to 60 days before planting; Preplant surface — up to 15 days before planting	Annual grasses and some small-seeded broadleaf weeds such as pigweeds and purslane	See product label for specific application rates based on soil texture and tillage system. Incorporate 1 to 2 inches deep immediately after application for best results.
trifluralin – 0.5 to 1 lb/A	trifluralin 4 lb/gal formulation — 1 to 2 pt/A	Any time after Jan. 1 to immediately before planting	Annual grasses and some small-seeded broadleaf weeds such as pigweeds and purslane	Immediately incorporate 1 to 2 inches deep. Loss of 30% can be expected if incorporation is delayed 24 hours. **Do not** apply to wet soils or soils subject to prolonged flooding.
Preemergence **Preemergence applications should be made after planting but before weed or crop emergence. Avoid planting cotton less than 0.5 inch deep to avoid injury during periods of heavy rainfall. Substituted-urea herbicides such as fluometuron or diuron may interact with organophosphate insecticides at planting, resulting in cotton injury.**				
acetochlor – 0.94 to 1.5 lb/A	Warrant 3 CS — 1.25 to 2 qt/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation.
clomazone – 0.5 to 1 lb/A	clomazone 3 lb/gal formulations — 1.33 to 2.67 pt/A	Preemergence	Annual grasses, purslane, spotted spurge, velvetleaf, wild poinsettia	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Use of organophosphate insecticide in-furrow is required to prevent cotton injury.** These insecticides may cause injury when used with fluometuron or diuron. Provides no control of pigweed. Addition of fluometuron improves morningglory and cocklebur control.

Cotton Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
diuron – 0.5 to 1.6 lb/A	diuron 4 lb/gal formulation — 0.5 to 1 to 1.6 qt/A or 80% formulation — 0.63 to 1.25 to 2 lb/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. If stand failure occurs, cotton may be replanted with minimum disturbance of the treated soil. In a single season, **do not** exceed 0.8 pound of active ingredient on loamy sand, 1.2 pounds on sandy loam, 1.6 pounds on clay loam, or 2.2 pounds on clay. Rebed only after thorough tillage.
fluometuron – 0.75 to 2 lb/A	fluometuron 4 lb/gal formulations — 0.75 to 1.5 to 2 qt/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. If stand failure occurs, cotton may be replanted with minimum disturbance of treated soil. Rebed only after thorough tillage.
fluridone + fluometuron – 0.15 to 0.3 + 0.75 to 2 lb/A	Brake 1.2 L 16 to 32 oz/A + fluometuron 4 lb/gal formulation — 0.75 to 2 qt/A	Preemergence	Annual grasses and pigweed	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Additional moisture may be required for activation compared with other residual herbicides. **Do not** apply to same field more than 2 years in a row. **Do not** apply to emerged cotton.
norflurazon – 1 to 2 lb/A	Solicam 80 DF — 1.25 to 2.5 lb/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	See *Special Instructions and Remarks* for Solicam. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. If stand failure occurs, cotton, soybean, or peanut may be replanted with minimum disturbance of treated soil, or the area may be reworked. Rebed only after thorough tillage.
pendimethalin – 0.5 to 1 lb/A	pendimethalin 3.8 lb/gal formulation — 1 to 2 pt/A or 3.3 lb/gal formulation — 1.2 to 2.4 pt/A	Preemergence	Annual grasses and some small-seeded broadleaf weeds	See *Special Instructions and Remarks* for pendimethalin. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Seedling diseases, cold weather, excessive moisture, shallow or deep planting, low or high soil pH, high soil salt concentration, or drought can weaken seedlings and increase the possibility of crop damage.
prometryn – 1 to 2 lb/A	prometryn 4 lb/gal formulation — 1 to 2 qt/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** use on Sharkey clay soil in Mississippi Delta.
pyrithiobac – 0.033 to 0.053 lb/A	pyrithiobac 3.2 lb/gal formulation — 1.3 to 2.1 oz/A	Preemergence	Spurge, prickly sida, broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** use on coarse soils such as sands or loamy sands.
Cultivation – Utilize so that soil moved will not interfere with subsequent use of postemergence herbicides. Deep cultivation (> 2 inches) usually is not necessary and may damage the crop.				
Postemergence – Directed (Cotton at least 3 inches tall)				
MSMA – 2 lb/A	Various formulations (see product label for specific rates)	After smallest cotton is at least 3 inches tall	Annual grasses, susceptible cocklebur, nutsedge, small johnsongrass	**Do not** apply after first bloom. Mix with glyphosate or glufosinate (depending on variety) to control emerged vegetation. Addition of fluometuron or prometryn will broaden spectrum of weeds controlled. This treatment is more effective during hot, dry periods than in cool, wet periods. Limit to two applications. Add nonionic surfactant at 0.25% v/v if formulation does not contain adjuvant.
fluometuron – 0.8 lb/A	fluometuron 4 lb/gal formulation — 0.8 qt/A	After smallest cotton is at least 3 to 6 inches tall	Annual grasses and broadleaf weeds	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. See *Special Instructions and Remarks* for MSMA. This treatment is relatively safe on young cotton and also provides residual preemergence weed control.
prometryn – 0.5 lb/A	prometryn 4 lb/gal formulation — 1 pt/A	After smallest cotton is at least 3 inches tall	Annual grasses and broadleaf weeds	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. See *Special Instructions and Remarks* for MSMA. **Do not** apply at 3-inch stage if cotton is stressed. Provides some residual control in addition to killing emerged weeds.

Cotton Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Postemergence – Directed (Cotton at least 6 inches tall)				
acetochlor + fomesafen – 1.29 to 1.75 lb/A	Warrant Ultra 3.45 CS — 48 to 65 oz/A	After smallest cotton is at least 6 inches tall	Annual grasses and broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to control emerged vegetation. **Do not** use as post-directed treatment if used preplant or preemergence. **Do not** apply later than 70 days before harvest.
carfentrazone – 0.012 to 0.024 lb/A	Aim 2 EC — 0.8 to 1.6 oz/A	After smallest cotton is at least 6 inches tall with 5 to 6 nodes	Morningglory, pigweed, velvetleaf	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Applications to cotton < 6 inches must be made with hooded or shielded sprayer. Coverage is essential for good control. **Do not** apply more than 3.2 ounces per season in post-directed and layby applications. Add crop oil concentrate at 1% v/v.
diuron – 0.2 to 0.5 lb/A	Diuron 4 lb/gal formulation — 0.4 to 1 pt/A or 80% formulation — 0.25 to 0.63 lb/A	After smallest cotton is at least 6 inches tall	Annual grasses and broadleaf weeds	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. Add nonionic surfactant at 0.25% v/v if MSMA formulation does not contain adjuvant.
fomesafen – 0.25 to 0.38 lb/A	fomesafen 2 or 1.88 lb/gal formulation — 1 to 1.5 pt/A	After smallest cotton is at least 6 inches tall	Hemp sesbania, morningglory, Pennsylvania smartweed, pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Use shielded or hooded applications on 6- to 12-inch cotton. Contact with cotton foliage can cause significant injury. **Do not** apply within 70 days of cotton harvest. **Do not** apply more than 1.5 pints per acre per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
lactofen – 0.2 lb/A	Cobra 2 EC — 0.8 pt/A	After smallest cotton is at least 6 inches tall	Hemp sesbania, morningglory, prickly sida, common ragweed, pigweed	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. Add crop oil concentrate at 0.5 to 1 pint per acre for cotton 6 to 8 inches tall or 1 to 2 pints per acre for cotton taller than 12 inches.
linuron – 0.5 to 0.75 lb/A	linuron 4 lb/gal formulation — 1 to 1.5 pt/A or 50% formulation — 1 to 1.5 lb/A	After smallest cotton is at least 8 inches tall	Annual grasses and broadleaf weeds	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. If a second application is needed, use same rate and apply 1 week or more after first treatment. Add nonionic surfactant at 0.25% v/v if MSMA formulation does not contain adjuvant.
linuron + diuron – 0.5 to 0.75 lb/A	Layby Pro 4 L — 1 to 1.5 pt/A	After smallest cotton is at least 6 to 8 inches tall	Annual grass and broadleaf weeds	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. Use lower rate on 6-inch cotton and higher rate on 8-inch cotton or taller. **Do not** use crop oil concentrate on cotton less than 12 inches tall.
oxyfluorfen – 0.25 or 0.5 lb/A	Goal 2 XL 2 EC — 1 or 2 pt/A	After smallest cotton is at least 6 inches tall	Prickly sida, morningglory, hemp sesbania	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. Good spray coverage is essential for control. Use higher rate on larger weeds or under drought conditions. Add nonionic surfactant at 0.25% v/v if MSMA formulation does not contain adjuvant.
pyroxasulfone – 0.04 to 0.11 lb/A	Zidua 4 SC — 1.25 to 3.5 oz/A	Between the 5-leaf to bloom stages	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum or control emerged vegetation. Zidua SC may be applied impregnated on fertilizer from two-leaf cotton through bloom stages.
prometryn + trifloxysulfuron – 0.8 to 1.2 lb/A	Suprend 80 DF — 1 to 1.5 lb/A	After smallest cotton is at least 6 inches tall	Morningglory, velvetleaf, pigweeds, sicklepod, cocklebur, hemp sesbania	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Apply to weeds less than 6 inches tall. **Do not** apply within 60 days of harvest. Injury may occur if mixed with malathion, or emamectin-benzoate-containing insecticides (Denim), acephate, Bidrin, Capture, or Karate. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.

Cotton Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
tiafenacil – 0.022 to 0.044 lb/A	Reviton 2.83 SC — 1 to 2 oz/A	After smallest cotton is at least 6 inches tall	Prickly sida, morningglory, velvetleaf, pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Use shielded or hooded application as contact with cotton foliage may cause significant injury. Do not apply more than 6 ounces per acre per season for all applications. Add methylated seed oil at 1% v/v.
Postemergence – Over-the-top (Enlist varieties)				
2,4-D – 0.71 to 0.95 lb/A	Enlist One 3.8 SL — 1.5 to 2 pt/A	Preemergence or postemergence up to mid bloom	Annual grasses and broadleaf weeds	See www.enlisttankmix.com and the product label for instructions related to Enlist One.
glyphosate + 2,4-D – 1.46 to 1.98 lb/A	Enlist Duo 3.33 SL — 3.5 to 4.75 pt/A	Preemergence or postemergence up to mid bloom	Annual grasses and broadleaf weeds	See www.enlisttankmix.com and the product label for instructions related to Enlist Duo.
Postemergence – Over-the-top (Enlist, Glytol + LibertyLink, XtendFlex, and Widestrike varieties) **See Postemergence – Over-the-top (All varieties) list in this section for information on mixtures with glyphosate or glufosinate.**				
glufosinate – 0.53 to 0.78 lb/A	glufosinate 2.34 lb/gal formulation — 29 to 43 oz/A	From cotton emergence to early-bloom	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 3 inches)	Ground application should be applied in a minimum of 15 gallons of spray mix. **Do not** apply more than 72 to 87 fluid ounces per acre in a single growing season. Single application rate can be as high as 43 ounces per acre. Maximum total application rate is dependent upon whether glufosinate was applied at burndown and application rate at that time. **Do not** apply within 70 days of harvest. Avoid use of air induction spray nozzles.
glufosinate P – 0.26 to 0.4 lb/A	Liberty ULTRA 1.76 SL — 19 to 29 oz/A	From cotton emergence to early-bloom	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 3 inches)	Make ground application in minimum 15 gallons per acre. **Do not** apply with air induction nozzles. For additional information on the United States Environmental Protection Agency's mandatory policy on endangered and threatened species, see the Endangered Species Protection Bulletins at www.epa.gov/endangered-species/endangered-species-protection-bulletins.
glyphosate – 1 to 1.5 lb/A	Various formulations (see product label for specific rates)	Small, actively growing weeds until 7 days prior to harvest	Annual and perennial grass and broadleaf weeds	Sequential applications should be made 10 to 14 days apart to improve control of larger weeds. See individual product label for specific information on mixtures and rates. Glyphosate-resistant weeds are prevalent throughout Mississippi. See Herbicide Resistant Weed section for additional control options.
glyphosate + *s*-metolachlor 1.6 to 2.3 lb/A	Sequence 5.25 EC— 2.5 to 3.5 pt/A	When cotton is 3 to 12 inches tall	Annual grasses and pigweeds	**Do not** exceed 2.5 pints of Sequence per acre in a single application. **Do not** exceed 3.5 pints per acre in a season. **Do not** apply within 100 days of harvest.
Postemergence – Over-the-top (All varieties)				
acetochlor – 0.94 to 1.5 lb/A	Warrant 3 CS — 1.25 to 2 qt/A	From cotton emergence and first bloom	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Warrant will not control emerged weeds. Apply postemergence to cotton but before weed seedling emergence. **Do not** exceed 4 quarts per acre in a season.
clethodim – 0.063 to 0.13 lb/A	Various formulations (see product label for specific rates)	Small, actively growing weeds	Annual grasses, johnsongrass, bermudagrass	Adjust spray volume and pressure to ensure thorough coverage of grass. **Do not** apply within 1 hour of anticipated rainfall. **Do not** apply to stressed grasses. **Do not** cultivate within 7 days of application. Add ammonium sulfate and crop oil concentrate at 1% v/v with 2 and 3 lb/gal formulations and nonionic surfactant with Select Max formulation.

Cotton Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
dimethenamid-P – 0.6 to 0.75 lb/A	Outlook 6 EC — 12.8 to 16 oz/A	From 1-true-leaf cotton up to mid-bloom stage	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Outlook will not control emerged weeds. Apply postemergence to cotton but before weed seedling emergence. **Do not** apply preplant incorporated, preplant surface, or preemergence. Split applications are labeled but **do not** apply more than 21 ounces per acre per season.
fluazifop – 0.094 to 0.19 lb/A	Fusilade DX 2 EC — 6 to 16 oz/A **(see table at beginning of section for specific rates by species)**	Small, actively growing weeds	Annual grasses, rhizome johnsongrass, bermudagrass	For annual grasses, re-treat if needed for late emerging grasses. **Do not** apply more than 48 ounces per acre per season. **Do not** apply after boll set or within 90 days of harvest. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
metolachlor – 0.75 to 1.33 lb/A or *s*-metolachlor – 0.48 to 1.27 lb/A	Various formulations (see product label for specific rates)	When cotton is 3 to 12 inches tall	Annual grasses and pigweeds	Mix with glyphosate or glufosinate to improve weed control spectrum. Metolachlor/*s*-metolachlor will not control emerged weeds. Apply postemergence to cotton but before weed seedling emergence. **Do not** apply within 100 days of harvest.
pendimethalin – 0.26 to 0.53 lb/A	pendimethalin 3.8 lb/gal formulation — 1.1 to 3.2 pt/A or 3.3 lb/gal formulation — 1.2 to 3.6 pt/A	Between the 5- and 8-leaf stages	Annual grasses and small-seeded broadleaf weeds	This treatment will not control emerged weeds. When mixed with Roundup PowerMax or Roundup WeatherMax, ammonium sulfate is required.
pyrithiobac – 0.065 to 0.095 lb/A	pyrithiobac 3.2 lb/gal formulation — 2.6 to 3.8 oz/A	From 1-true-leaf cotton up to 60 days before harvest	Broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** mix with insecticides containing malathion. **Do not** mix with metolachlor/*s*-metolachlor as postemergence treatment. **Do not** exceed 3.8 ounces per acre in single application or 5.1 ounces per acre per season. Add nonionic surfactant at 0.25% v/v.
quizalofop – at 0.031 to 0.063 lb/A	quizalofop 0.88 lb/gal formulation — 4.5 to 9.16 oz/A **(see table at beginning of section for specific rates by species)**	Small, actively growing weeds up to 80 days before harvest	Annual grasses, seedling and rhizome johnsongrass, bermudagrass, volunteer grain sorghum, red rice	**Do not** apply using crop-origin (vegetable) oils as an adjuvant or carrier. **Do not** apply more than 18 fluid per ounces per season. **Do not** apply within 24 hours of a postemergence broadleaf herbicide. **Do not** cultivate within 7 days of application. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
sethoxydim – 0.19 to 0.28 lb/A	Poast 1 EC — 24 to 36 oz/A **(see table at beginning of section for specific rates by species)**	Small, actively growing weeds	Annual grasses, seedling and rhizome johnsongrass, bermudagrass, red rice	A second application can be made to control new emergence or regrowth of johnsongrass and bermudagrass. **Do not** apply within 40 days of harvest. Add crop oil concentrate at 1% v/v.
trifloxysulfuron – 0.08 to 0.11 lb/A	Envoke 75 DG — 0.1 to 0.15 oz/A	When cotton has at least 5 true leaves	Morningglory, sicklepod, pigweed, and nutsedge	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Envoke may cause temporary yellowing or stunting of cotton plants. Envoke may be mixed with other products when applied as a post-directed spray (See label for specifics). **Do not** mix with insecticides containing malathion, or emamectin-benzoate. Add nonionic surfactant at 0.25% v/v.
Layby – Directed or hooded sprayer (All varieties)				
carfentrazone – 0.012 to 0.024 lb/A	Aim 2 EC — 0.8 to 1.6 oz/A	When cotton is at least 12 inches tall with sufficient bark development	Morningglory, pigweeds, velvetleaf	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Coverage is essential for good control. **Do not** apply more than 3.2 ounces per season by post-directed and layby applications. Add crop oil concentrate at 1% v/v.

Cotton Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
diuron – 0.5 to 1.2 lb/A	diuron 4 lb/gal formulation — 1 to 2.4 pt/A or 80% formulation — 0.63 to 1.5 lb/A	When cotton is at least 12 inches tall	Annual grasses and broadleaf weeds	Mix with glyphosate, glufosinate (depending on variety), or MSMA to improve weed control spectrum. Add nonionic surfactant at 0.25% v/v if MSMA formulation does not contain adjuvant.
flumioxazin – 0.064 lb/A	flumioxazin 51% formulation — 2 oz/A or 4 lb/gal formulation — 2 oz/A	When cotton is at least 16 inches tall	Annual broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Severe crop injury may result if application is made to green or unbarked stem. Add nonionic surfactant at 0.25% v/v. **Do not** use crop oil concentrate, methylated seed oils, organosilicon surfactants, or products containing these ingredients as severe crop injury may occur.
fluometuron – 0.5 to 1 lb/A	fluometuron 4 lb/gal formulation — 1 to 2 pt/A	After smallest cotton is at least 6 inches tall	Annual grass and broadleaf weeds	Crop injury may occur. Apply only to healthy cotton under favorable growing conditions. Use higher rate on vigorously growing cotton and bigger weeds. Add nonionic surfactant at 0.25% v/v.
fomesafen – 0.25 to 0.38 lb/A	fomesafen 2 or 1.88 lb/gal formulation — 1 to 1.5 pt/A	When cotton has at least 4 inches of brown bark	Small-seeded broadleaf weeds, especially pigweeds and prickly sida	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Avoid contact with any nonbarked portions of plants. Adjust nozzles to provide complete coverage of weeds. **Do not** apply within 70 days of cotton harvest. **Do not** apply more than 1.5 pints per acre per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
linuron – 1 to 1.5 lb/A	linuron 4 lb/gal formulation — 2 to 3 pt/A or 50% formulation — 2 to 3 lb/A	When cotton is at least 20 inches tall	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Apply as directed spray with nozzles adjusted to minimize contact to cotton. Omit adjuvant if no emerged weeds are present at time of treatment.
MSMA – 0.75 to 1 lb/A	Various formulations (see product label for specific rates)	When cotton is 3 to 6 inches tall	Annual grasses, susceptible cocklebur, nutsedge, small johnsongrass	Possible burning and reddish color of foliage may appear. May delay cotton maturity. Apply only to healthy cotton under favorable growing conditions. Add nonionic surfactant at 0.25% v/v unless formulation contains surfactant.
pendimethalin – 0.5 to 1.5 lb/A	pendimethalin 3.8 lb/gal formulation — 1.1 to 3.2 pt/A or 3.3 lb/gal formulation — 1.2 to 3.6 pt/A	After last cultivation	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Apply to the soil between rows as directed spray following last cultivation. Destroy existing weeds prior to application. Avoid spray contact with nonbarked portion of cotton stems and foliage or serious crop injury may occur. Apply at least 60 days before harvest.
pyroxasulfone – 0.08 to 0.11 lb/A	Zidua 4 SC — 2.5 to 3.5 oz/A	Between the 5-leaf and bloom stages	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Applications to cotton with less than 5 to 6 nodes must be applied with hooded or shielded sprayer. Zidua SC may be applied impregnated on fertilizer from two-leaf cotton through bloom stages.
pyroxasulfone + carfentrazone – 0.043 to 0.119 lb/A	Anthem Flex 4 SC — 1.4 to 3.8 oz/A	When cotton is at least 6 inches tall	Annual grasses and small-seeded broadleaf weeds	See *Special Instructions and Remarks* for Zidua. Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum.
pyroxasulfone + flumioxazin – 0.14 lb/A	Fierce 76 WDG — 3 oz/A or Fierce EZ 3 SC — 6 oz/A	When cotton is at least 16 inches tall	Prickly sida, morningglory, pigweed, crabgrass, barnyardgrass; other annual grass and broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. See *Special Instructions and Remarks* for flumioxazin and Zidua.

Cotton Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Hooded Sprayers Use of nonselective herbicides applied with hooded sprayers to avoid contact with the crop may be desirable for weed control in row middles, especially in no-till or conservation tillage systems. Addition of a residual herbicide will extend weed control and may negate the need for a layby application made to 12-inch tall or greater cotton.				
flumioxazin – 0.064 lb/A	flumioxazin 51% formulation — 2 oz/A or 4 lb/gal formulation — 2 oz/A	After cotton is at least 6 inches tall	Annual broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Use only hooded sprayer equipment** designed to minimize exposure of cotton foliage. Hoods must be operated on the ground or skidding along the ground to minimize spray contact with desirable vegetation. See *Special Instructions and Remarks* for flumioxazin in Layby section.
paraquat – 0.31 to 0.63 lb/A	paraquat 2 lb/gal formulation — 1.2 to 2.5 pt/A or 3 lb/gal formulation — 0.8 to 1.7 pt/A	After cotton is at least 6 inches tall	Annual grasses and broadleaf weeds	**Use hooded sprayer ONLY.** Keep bottom edge of the hood in contact with the soil surface. Avoid crop contact with spray solution. Avoid use of nozzles that produce fine spray droplets. **Not all formulations of paraquat are labeled for this use.** Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.

Grain Sorghum Weed Management

Weed Response Ratings for Grain Sorghum Herbicides[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Johnsongrass—rhizome	Johnsongrass — seedling	Cocklebur	Common lambsquarters	Hemp sesbania	Morninggloryspecies	Palmer, spiny amaranth, waterhemp	Prickly sida	Sicklepod	Smooth, redroot pigweed	Crop tolerance (G= good, F = fair)
Preemergence																	
Atrazine	5	6	5	7	4	6	0	3	**8**	**9**	**8**	7	**9**	**8**	**8**	**9**	F
Atrazine + metolachlor/*s*-metolachlor + safener	5, 15	**8**	**8**	**9**	**8**	**9**	0	6	**8**	**9**	7	7	**9**	**8**	**8**	**9**	G
Atrazine + Outlook	5, 15	**8**	**8**	**9**	**8**	**9**	0	6	**8**	**9**	7	7	**9**	**8**	**8**	**9**	G
Halex GT + atrazine	5, 9, 15, 27	**8**	**8**	**9**	**8**	**9**	0	6	**9**	**9**	**8**	**9**	**8**	**8**	**8**	**9**	G
Lexar EZ	5, 15, 27	**9**	**9**	**9**	**8**	**8**	0	5	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	G
Metolachlor/*s*-metolachlor + safener	15	**8**	**8**	**9**	**9**	**9**	0	6	0	6	2	3	**8**	4	5	**8**	G
Outlook	15	**8**	**8**	**9**	**8**	**9**	0	6	0	7	2	5	**8**	6	4	**8**	G
Reviton	14	5	6	5	5	5	7	**8**	**8**	**8**	-	**9**	**9**	**9**	**8**	**9**	G
Sharpen	14	1	1	1	1	1	1	1	6	7	7	7	**9**	7	5	**9**	G
Verdict	14,15	8	7	**8**	7	**8**	0	5	-	7	6	**8**	**9**	7	5	**9**	G
Warrant	15	**8**	**8**	7	**8**	7	0	4	0	-	0	4	7	5	-	**8**	G
Postemergence																	
2,4-D	4	0	0	0	2	1	0	0	**9**	**9**	**9**	**9**	**9**	**8**	**8**	**9**	F
Atrazine	5	6	6	6	4	5	0	3	**9**	**8**	**8**	6	**8**	**8**	7	**8**	G
Atrazine + crop oil concentrate	5	7	7	7	5	6	2	3	**9**	**9**	**8**	7	**9**	**9**	**8**	**9**	F
Atrazine + *s*-metolachlor	5, 15	6	5	6	4	6	0	4	**8**	**8**	6	6	**8**	7	**8**	**8**	G
Bentazon	6	0	0	0	0	0	0	0	**9**	5	2	4	0	7	0	0	G
Dicamba	4	0	0	0	0	0	0	0	**8**	**9**	**9**	**9**	**9**	-	**8**	**9**	G
Gambit	2, 2	0	0	0	0	-	0	0	7	6	**8**	7	5	6	7	**8**	F
Huskie + atrazine	5, 6, 27	6	6	6	5	6	0	0	**9**	**9**	**9**	**9**	**9**	**9**	**8**	**9**	G
Huskie FX + atrazine	4, 5, 6, 27	6	6	6	5	6	0	0	**9**	**9**	**9**	**9**	**9**	**9**	**8**	**9**	G
Halosulfuron	2	0	3	3	3	3	3	3	**9**	5	4	5	6	7	6	**8**	G
Paraquat **(directed/hooded sprayer only)**	22	8	8	8	**8**	**8**	3	7	5	7	2	5	**8**	6	**9**	**8**	F
Peak	2	0	0	0	0	0	0	0	6	**8**	**8**	**8**	7	**9**	**8**	**9**	G
Quinclorac	4	**8**	**8**	7	6	6	0	0	-	6	**8**	**8**	3	-	-	3	G
Quinclorac + atrazine	4, 5	**8**	**9**	**8**	6	7	0	4	**9**	**8**	**9**	**9**	**8**	**8**	7	**8**	G
Yukon	2, 4	0	3	3	3	3	3	3	**8**	**9**	**9**	**9**	**9**	**8**	**8**	**9**	G
Zest (INZEN sorghum only)	2	**8**	**8**	7	7	7	**8**	**9**	5	5	7	6	5	4	5	5	G

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations approximately 2 to 3 weeks after preemergence applications or with postemergence applications targeted at approximately the 3- to 5-inch growth stage.

Grain Sorghum Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Preplant/Preemergence				
acetochlor – 1.13 to 2.25 lb/A	Warrant 3 CS — 3 to 6 pt/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Sorghum seed must be treated with an approved chloroacetamide herbicide safener. Do not** use more than 8 pints per acre per cropping season. Use the lower rate on coarse-textured soils with low organic matter.
atrazine – 1.6 lb/A	atrazine 4 lb/gal formulation — 1.6 qt/A or 90% formulation — 1.8 lb/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Do not** use on sand, loamy sand, or sandy loam or any soil with less than 1% organic matter. **Do not** plant crops other than corn or sorghum until the year after treatment. If treatment is made after June 10, crops other than corn or sorghum should not be planted the following year. **Do not** exceed 2 pounds of active ingredient per acre per year.
atrazine + s-metolachlor + safener – 1 to 2 lb/A + 0.8 to 1.6 lb/A	Various formulations (See product label for specific rates)	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Grain sorghum growing under stress may exhibit injury symptoms.
dimethenamid-P – 0.75 to 0.94 lb/A	Outlook 6 EC — 16 to 20 oz/A	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Sorghum seed must be treated with an approved chloroacetamide herbicide safener.** See label for mixtures and restrictions. **Do not** use on forage sorghum.
glyphosate – 1 to 1.5 lb/A	Various formulations (see product label for specific rates)	Preplant or preemergence	Annual, biennial, and perennial grasses and broadleaf weeds	Use of flood-jets is not suggested. If tillage is intended after treatment, wait at least 3 days (7 days for perennial weeds) after application. Avoid drift to nontarget species or areas. Glyphosate may be mixed with preemergence herbicides for residual control.
mesotrione + atrazine + *s*-metolachlor – 2.08 to 2.78 lb/A	Lexar EZ 3.7 SC — 2.25 to 3 qt/A	Preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Sorghum seed must be treated with an approved chloroacetamide herbicide safener.** Applications more than 7 days before planting reduces risk of crop injury. A split application of 50% applied 7 to 21 days before planting and 50% applied preemergence may be used. **Do not** apply more than 3 quarts per growing season. **Do not** apply to emerged sorghum.
mesotrione + glyphosate + s-metolachlor + atrazine – 2.2 to 3.3 lb/A + 1 to 2 lb/A	Halex GT 4.4 L — 4 to 6 pt/A + atrazine 4 lb/gal formulation — 1 to 2 qt/A or 90% formulation — 1.11 to 2.22 lb/A	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Herbicide must be applied prior to crop emergence. **Sorghum seed must be treated with an approved chloroacetamide herbicide safener.** Add nonionic surfactant at 0.5% v/v.

Grain Sorghum Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
paraquat – 0.63 to 1 lb/A	paraquat 2 lb/gal formulation — 2.5 to 4 pt/A or 3 lb/gal formulation — 1.68 to 2.67 pt/A	Preplant or preemergence	Annual and perennial grasses and broadleaf weeds	**Avoid drift** to desirable vegetation. May be mixed with most residual herbicides. Apply in a minimum of 10 gallons of water by ground or 5 gallons by air. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
saflufenacil – 0.022 to 0.044 lb/A	Sharpen 2.85 SC — 1 to 1.5 oz/A	Preplant or preemergence	Horseweed; other broadleaf weeds	Mix with glyphosate or paraquat to improve control of emerged weeds. **Do not** apply after grain sorghum emergence or severe injury may occur. **Do not** apply to coarse soils or those with < 1.5% organic matter. Add methylated seed oil at 1% v/v plus ammonium sulfate.
saflufenacil + dimethenamid-P – 0.44 to 0.80 lb/A	Verdict 5.67 EC — 10 to 18 oz/A	Preplant up to 14 days before planting or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Sorghum seed must be treated with an approved chloroacetamide herbicide safener.** Herbicide must be applied before sorghum emergence or severe crop injury will occur. **Do not** use on soil with less than 1.5% organic matter. Use the lower rate on coarse-textured soils.
s-metolachlor/metolachlor + safener – 0.96 to 1.6 lb/A	Various formulations (see product label for specific rates)	Preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Sorghum seed must be treated with an approved chloroacetamide herbicide safener.** See label for mixtures and restrictions.
s-metolachlor/metolachlor + atrazine + safener – 0.8 to 1 to 1.6 lb/A + 1 to 1.3 to 1.6 lb/A	Various formulations (see product label for specific rates)	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. See *Special Instructions and Remarks* for atrazine and *s*-metolachlor/metolachlor.
tiafenacil – 0.022 to 0.066 lb/A	Reviton 2.83 SC — 1 to 3 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. Add methylated seed oil at 1% v/v.
Postemergence (INZEN hybrids)				
nicosulfuron – 0.031 to 0.062 lb/A	Zest 75 WDG— 0.67 to 1.33 oz/A	Postemergence to sorghum up to 20 inches tall	Annual grasses	Use only on INZEN grain sorghum hybrids. **Do not** make more than two applications per year. **Do not** apply more than 1.8 ounces per acre per year. Temporary injury may be observed. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
Postemergence (All hybrids)				
2,4-D amine – 0.3 to 0.5 lb/A	Various formulations (see product label for specific rates)	See special instructions	Broadleaf weeds	**Do not** treat during boot, flower, or dough stage or make more than one application per season. **Do not** feed or harvest within 30 days of application.
acetochlor – 1.13 to 2.25 lb/A	Warrant 3 CS — 3 to 6 pt/A	Postemergence to sorghum up to 11 inches tall and with up to (5 to 6 leaves)	Annual grasses and small-seeded broadleaf weeds	This treatment will not control emerged weeds. **Do not** use more than 8 pints per cropping season. Use the lower rate on coarse-textured soils and low organic matter.
atrazine – 2 lb/A	atrazine (4 lb/gal formulation) — 2 qt/A or 90% formulation — 2.2 lb/A	Small, actively growing weeds before sorghum reaches 12 inches	Annual grasses and broadleaf weeds	**Do not** exceed 2 pounds of active ingredient per acre per year. **Do not** use on sand or sandy loam soils. **Do not** use when sorghum is under stress or crop is wet from recent rainfall. If applied after June 10, **do not** plant with crops other than corn or sorghum the following year. See label for other restrictions.

Grain Sorghum Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
atrazine – 1.2 lb/A + crop oil concentrate	atrazine 4 lb/gal formulation — 1.2 qt/A or 90 % formulation — 1.3 lb/A + crop oil concentrate — 1 qt/A	Small, actively growing weeds to sorghum 4 to 12 inches tall	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Be sure crop oil concentrate is not contaminated or crop injury may result.
atrazine + *s*-metolachlor – 1 to 2 lb/A + 0.8 to 1.6 lb/A	Various formulations (See product label for specific rates)	Small, actively growing weeds with sorghum 3-12 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for atrazine. Add ammonium sulfate and crop oil concentrate at 1% v/v.
bentazon – 0.75 to 1 lb/A	bentazon 4 lb/gal formulation — 1.5 to 2 pt/A or 5 lb/gal formulation — 1.2 to 1.6 pt/A	Small, actively growing weeds before sorghum heading	Cocklebur, prickly sida (2 to 3 inches), smartweed	Rainfall within 4 hours after application will reduce effectiveness. **Do not** graze treated sorghum for at least 12 days after the last treatment. **Do not** apply more than 1 pound of active ingredient per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
dicamba – 0.25 lb/A	Various formulations (see product label for specific rates)	Small, actively growing weeds before sorghum is 8 inches tall	Morningglory, sicklepod, other broadleaf weeds	Ground application only. Injury may be severe following applications to grain sorghum greater than 8 inches in height.
halosulfuron – 0.032 to 0.047 lb/A	halosulfuron 75% formulation — 0.67 to 1 oz/A	Small, actively growing weeds between 2-leaf sorghum and head emergence	Nutsedge, cocklebur, hemp sesbania	See label for mixtures with atrazine, dicamba, or 2,4-D and for restrictions. **Do not** use more than 1 ounce per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
halosulfuron + dicamba – 0.25 lb/A	Yukon 67.5 WG — 6 oz/A	Small, actively growing weeds between 2-leaf stage and when sorghum is 15 inches-tall	Horseweed, nutsedge, ragweed, broadleaf weeds	See *Special Instructions and Remarks* for dicamba and halosulfuron. Apply as single application with total application rate not to exceed 6 ounces per season. **Do not** graze or feed treated sorghum forage or silage for 30 days after treatment. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
halosulfuron + prosulfuron – 0.049 to 0.074 lb/A	Gambit 79 WG — 1 to 1.5 oz/A	Postemergence from two-leaf stage to before head emergence	Common ragweed, hemp sesbania, Pennsylvania smartweed, yellow nutsedge	Mix with atrazine to improve weed control spectrum. **Do not** make more than one application with rate not exceed 1.5 ounces per acre per year. Avoid drift to non BOLT or STS soybean.
linuron – 0.5 to 1.0 lb/A	linuron 50% formulation — 1 to 2 lb/A or 4 lb/gal formulation — 1 to 2 pt/A	Directed spray to sorghum 12 to 15 inches tall	Annual grasses and broadleaf weeds	Use shields and/or gauge wheels to direct spray to base of the sorghum. Keep spray off upper leaves and whorl of sorghum. Keep spray pressure low to prevent injury to sorghum. **Do not** apply within 15 days of harvest. Add nonionic surfactant at 0.5% v/v.
prosulfuron – 0.43 to 0.57 lb/A	Peak 57 WDG — 0.75 to 1 oz/A	Small, actively growing weeds when sorghum is 5 to 30 inches tall	Broadleaf weeds	**Do not** use on forage sorghum**.** See label for mixtures with atrazine, dicamba, or 2,4-D. Plant only STS soybean the year following application; apply only low rate if cotton will be planted the following year; allow 10 months between application and planting for both cotton and soybean Add nonionic surfactant at 0.25% v/v.

Grain Sorghum Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
pyrasulfotole + bromoxynil – 0.21 to 0.26 lb/A	Huskie 2.06 EC — 12.8 to 16 oz/A	Small, actively growing weeds between 3-leaf stage and when sorghum is 30 inches and/or before flag-leaf emergence	Waterhemp, Palmer amaranth, redroot pigweed, other broadleaf weeds	**Do not** apply more than 36 ounces per acre per year. Forage sorghum may be cut or grazed 7 days after application. Aerial or chemigation is prohibited. **Do not** use flood-jet or air-induction nozzles. Injury may occur if field was treated with mesotrione. Add nonionic surfactant at 0.25% v/v plus ammonium sulfate at 1 lb/A.
pyrasulfotole + bromoxynil + atrazine – 0.21 to 0.26 lb/A + 0.5 to 1 lb/A	Huskie 2.06 EC — 12.8 to 16 oz/A + atrazine 4 lb/gal formulation — 0.5 to 1 qt/A or 90% formulation — 0.56 to 1.1 lb/A	Small, actively growing weeds before sorghum reaches 12 inches	Waterhemp, Palmer amaranth, redroot pigweed, other broadleaf weeds	See *Special Instructions and Remarks* for atrazine and Huskie.
pyrasulfotole + bromoxynil + fluroxypyr – 0.26 to 0.34 lb/A	Huskie FX 2.3 EC – 15 to 19 oz/A	Small, actively growing weeds between 3-leaf stage and when sorghum is 30 inches and/or before flag-leaf emergence	Palmer amaranth, redroot pigweed, other broadleaf weeds	**Do not** apply more than 38 ounces in a single year. Forage sorghum may be cut or grazed 40 days after application. Aerial or chemigation is prohibited. **Do not** use flood-jet or air-induction nozzles. Injury may occur if field was treated with mesotrione. Add nonionic surfactant 0.25% v/v plus ammonium sulfate at 1 lb/A.
pyrasulfotole + bromoxynil + fluroxypyr + atrazine – 0.26 to 0.34 lb/A + 0.5 to 1 lb/A	Huskie FX 2.3 EC – 15 to 19 oz/A + atrazine 4 lb/gal formulation — 0.5 to 1 qt/A or 90% formulation — 0.56 to 1.1 lb/A	Small, actively growing weeds before sorghum reaches 12 inches	Waterhemp, Palmer amaranth, redroot pigweed, other broadleaf weeds	See *Special Instructions and Remarks* for atrazine and Huskie FX.
quinclorac – 0.34 to 0.5 lb/A	Various formulations (see product label for specific rates)	Small, actively growing weeds before sorghum reaches 12 inches	Barnyardgrass, morningglory, hemp sesbania, other grass and broadleaf weeds	Annual grass should be less than 2 inches tall for effective control. **Do not** use liquid fertilizer as carrier or apply more than 64 ounces per acre per year. Add crop oil concentrate or methylated seed oil at 1% v/v.
quinclorac + atrazine – 0.34 to 0.5 lb/A + 0.5 to 1 lb/A	Various formulations (see product label for specific rates) + atrazine 4 lb/gal formulation — 0.5 to 1 qt/A or 90% formulation — 056 to 1.1 lb/A)	Small, actively growing weeds before sorghum reaches 12 inches	Barnyardgrass, foxtail, broadleaf signalgrass, morningglory, hemp sesbania, other grass and broadleaf weeds	See *Special Instructions and Remarks* for atrazine and quinclorac. Mixing quinclorac with atrazine should improve annual grass control.
Directed or Hooded Sprayer				
carfentrazone – 0.008 to 0.016 lb/A	Aim 2 EC — 0.5 to 1 oz/A	See special instructions	Morningglory, pigweed, waterhemp, velvetleaf	Apply to row middles of emerged crop with hooded sprayer. Hooded sprayers must be designed and adjusted to prevent spray deposition on green tissue or foliage of crop. Base application rate on weed size. Add nonionic surfactant at 0.25% v/v.

Grain Sorghum Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
paraquat – 0.25 to 0.5 lb/A	paraquat 2 lb/gal formulation — 1 to 2 pt/A or 3 lb/gal formulation — 0.67 to 1.33 pt/A	After sorghum is 12 inches tall	Annual grasses and broadleaf weeds	**For hooded or shielded sprayers:** Use sprayer with skids and direct between rows and prevent spray contact with plant. **Without hooded or shielded sprayers: Do not** exceed 30 psi. Use precision equipment adjusted to spray no more than lower 3 inches. **Do not** spray during windy conditions. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
Preharvest				
carfentrazone – 0.016 to 0.031 lb/A	Aim 2 EC — 1 oz/A	After grain is mature, completely hard, and a black layer is present; grain moisture will be less than 25%	Morningglory and other broadleaf weed desiccation	**Do not** apply within three days of harvest. Add nonionic surfactant at 0.25% v/v.
glyphosate – 0.75 to 1.5 lb/A	Various formulations (see product label for specific rates)	After grain is mature, completely hard, and a black layer is present; grain moisture will be less than 25%	Johnsongrass, desiccation of green vegetation	Allow minimum of 7 days before harvest or grazing.
sodium chlorate – 6 lb/A	Various formulations (see product label for specific rates)	After grain is mature, completely hard, and a black layer is present; grain moisture will be less than 25%	Desiccation of most annual grasses and broadleaf weeds	Apply on sunny day when air temperature is above 85 degrees and relative humidity is below 65%. Broadleaf weeds may be defoliated but there will be little desiccation. Add nonionic surfactant at 0.5% v/v for aerial and 0.25% v/v for ground application.

Peanut Weed Management

Weed Response Ratings for Peanut Herbicides Applied Preplant or Preemergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Nutsedge—purple	Nutsedge—yellow	Cocklebur	Common ragweed	Cutleaf groundcherry	Eclipta	Hemp sesbania	Hophornbeam copperleaf	Jimsonweed	Morningglory—entireleaf	Morningglory—palmleaf	Morningglory—pitted	Morningglory—smallflower	Palmer, spiny amaranth, waterhemp	Pennsylvania smartweed	Prickly sida	Sicklepod	Smooth, redroot pigweed	Spurge	Spurred anoda	Velvetleaf	Wild poinsettia	Crop tolerance (G = good, F = Fair)
Brake + flumioxazin	12,14	7	**8**	**8**	**8**	**8**	2	**8**	3	5	3	**9**	7	**9**	**9**	**9**	**9**	**8**	**8**	**8**	**8**	**9**	**9**	**8**	**8**	**9**	**9**	**8**	6	-	F
Brake + metolachlor/ s-metolachlor	12,15	**8**	**9**	**9**	**9**	**9**	2	**9**	4	7	2	**8**	7	**9**	**9**	**8**	**8**	6	6	6	6	**9**	**9**	**8**	6	**9**	**9**	**9**	5	-	F
Flumioxazin	14	6	7	7	6	5	0	5	5	7	0	**9**	5	**9**	**9**	**9**	**8**	**8**	**8**	**8**	**8**	**8**	**9**	7	**8**	**8**	**8**	**8**	5	-	F
Glyphosate	9	**9**	**9**	**9**	**9**	**9**	**9**	**10**	6	7	**10**	**9**	**9**	**8**	7	**8**	**8**	7	**8**	**8**	**9**	**8**	**8**	7	**8**	**9**	**8**	7	7	7	F
Imazethapyr	2	7	5	7	7	7	5	**8**	**9**	**8**	**9**	5	5	6	5	6	**8**	**8**	**8**	**8**	**8**	6	**8**	**9**	5	7	-	**9**	6	**9**	G
Metolachlor/s-metolachlor	15	**8**	**8**	**9**	**9**	**9**	0	6	5	**9**	0	6	6	6	4	2	**8**	6	6	6	6	7	4	7	4	**9**	5	0	4	5	G
Outlook	15	8	8	9	**9**	**9**	0	6	4	5	0	**9**	4	6	0	3	3	6	6	6	6	6	4	4	5	**9**	**8**	0	4	5	F
Paraquat	22	**9**	**9**	**9**	**8**	**8**	0	**8**	5	5	4	**8**	7	6	1	7	7	5	6	4	7	**8**	5	4	**8**	**8**	5	3	6	**8**	G
Pendimethalin	3	**8**	**8**	**8**	**8**	**8**	3	7	3	2	0	3	0	5	5	0	3	5	2	5	2	6	2	7	2	**8**	2	0	2	0	G
Reviton	14	3	5	6	5	5	6	**8**	-	**8**	7	**9**	-	-	7	**8**	**8**	**9**	**9**	**9**	**9**	**9**	-	-	-	**9**	-	-	**8**	-	G
Sonalan	3	**9**	**8**	**9**	**9**	**9**	6	**9**	4	5	4	4	5	6	7	-	5	7	7	**8**	6	**9**	**9**	-	7	**9**	**9**	**9**	**9**	6	G
Spartan Charge	14,14	7	7	7	5	5	2	7	**8**	**8**	**9**	7	-	-	7	**8**	6	**8**	**8**	**8**	6	**9**	**9**	5	5	**10**	6	7	6	7	G
Strongarm	2	7	7	7	7	7	5	6	6	6	**9**	**9**	**8**	**9**	**8**	7	**9**	7	7	7	7	5	**8**	**8**	7	**9**	-	**8**	**9**	**8**	G
Warrant	15	**8**	**8**	7	**8**	7	3	5	6	7	0	5	**9**	5	5	-	4	6	6	6	6	7	4	7	3	**8**	3	2	3	3	G

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected residual control of herbicide-susceptible populations approximately 2 to 3 weeks after application.

Peanut Weed Management

Weed Response Ratings for Peanut Herbicides Applied At-cracking or Postemergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Nutsedge—purple	Nutsedge —yellow	Cocklebur	Common ragweed	Cutleaf groundcherry	Eclipta	Hemp sesbania	Hophornbeam copperleaf	Jimsonweed	Morningglory — entireleaf	Morningglory — palmleaf	Morningglory — pitted	Morningglory — smallflower	Palmer, spiny amaranth, waterhemp	Pennsylvania smartweed	Prickly sida	Sicklepod	Smooth, redroot pigweed	Spurge	Spurred anoda	Velvetleaf	Wild poinsettia	Crop tolerance (G = good, F = Fair)
2,4-DB	4	1	1	1	1	1	1	1	1	1	**9**	7	7	6	6	6	**8**	**8**	**8**	**8**	**8**	7	5	6	7	7	5	5	7	6	G
Acifluorfen	14	**8**	5	5	**8**	5	4	5	5	4	**8**	**10**	**9**	**8**	**10**	**8**	**10**	**9**	**9**	**9**	**9**	**8**	**8**	6	5	**9**	**8**	5	7	**8**	F
Anthem Flex	14, 15	**9**	**9**	**9**	**9**	**8**	4	**8**	5	6	0	-	**8**	7	7	**9**	7	**8**	**8**	**8**	**8**	6	**8**	6	**8**	6	**9**	6	-	7	G
Bentazon	6	3	3	3	3	3	2	3	5	7	**9**	7	7	**8**	5	6	**9**	7	7	7	7	5	**9**	**8**	6	6	5	**8**	**8**	6	G
Cadre	2	**9**	**9**	**9**	**8**	7	**8**	**8**	**9**	**9**	**10**	7	7	7	5	7	**10**	**9**	**9**	**9**	**9**	7	**8**	**8**	**9**	**8**	**8**	**9**	**9**	**10**	G
Chlorimuron	2	3	3	3	3	3	2	3	7	**8**	**10**	**9**	**8**	5	**10**	7	**9**	**9**	**9**	**9**	**9**	7	5	4	**8**	7	7	6	**9**	5	G
Clethodim	1	**8**	**9**	**9**	**10**	**8**	**8**	**9**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	G
Cobra	14	**9**	6	5	5	5	3	5	4	4	**9**	**10**	**8**	**8**	**9**	**8**	**9**	**8**	**8**	**8**	**8**	**9**	**8**	**8**	5	**9**	6	7	**8**	**9**	F
Fusilade DX	1	**9**	**8**	**8**	**9**	**8**	**8**	**9**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	G
Imazethapyr	2	7	7	7	5	5	2	7	5	4	**9**	7	7	0	7	**8**	6	**8**	**8**	**8**	6	7	**9**	5	**9**	7	5	**10**	6	7	G
Metolachlor/s-metolachlor	15	**8**	**8**	**9**	**8**	**9**	0	6	5	**9**	0	6	6	6	0	2	**8**	0	0	0	0	7	4	4	2	**9**	5	0	4	5	G
Paraquat	22	**9**	**9**	**9**	**9**	**9**	3	**9**	0	0	4	7	0	0	0	3	2	2	2	2	6	7	4	1	**9**	0	2	**8**	**8**	0	F
Paraquat + Bentazon	22, 6	**8**	**8**	7	**8**	7	5	**8**	6	7	**9**	7	**8**	7	**8**	**8**	**10**	7	7	7	7	**8**	**9**	**9**	**9**	**8**	**8**	7	**9**	**10**	G
Poast	1	**9**	**9**	**9**	**9**	**8**	6	**8**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	G
Storm	6, 14	**9**	5	5	7	5	3	5	5	7	**9**	**9**	7	**8**	**10**	7	**10**	**8**	**8**	**8**	**8**	**8**	**9**	**8**	7	**9**	7	7	7	**8**	G
Strongarm	2	5	5	5	5	5	5	6	6	6	**9**	**9**	**8**	**9**	7	7	**9**	**8**	**8**	**8**	**8**	7	**8**	7	5	**9**	-	**8**	**9**	**8**	G
Warrant	15	**8**	**8**	7	**9**	7	3	5	6	7	0	5	**9**	5	0	-	4	0	0	0	0	6	4	5	3	**8**	3	2	3	3	G
Zidua SC	15	**9**	**9**	**9**	**9**	**8**	4	**8**	5	6	0	-	**8**	7	7	**9**	7	**8**	**8**	**8**	**8**	6	**8**	6	**8**	6	**9**	6	-	7	G

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations targeted at approximately the 3- to 5-inch growth stage.

Peanut Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Preplant/Preemergence For a broad spectrum of grasses and broadleaf weeds, use of a combination of herbicides may provide greater control than single materials. This may be accomplished through tank mixtures or overlays of a preemergence over a preplant herbicide. Where overlays or combinations are used, they should be applied according to prescribed rate and manner indicated on the respective labels.				
acetochlor – 0.94 to 1.5 lb/A	Warrant 3 CS — 1.25 to 2 qt/A	Preplant or preemergence	Annual grasses, carpetweed, pigweeds, purslane, Florida pusley, lambsquarters, nightshade	Mix with glyphosate or paraquat to control emerged vegetation. Preplant treatments must have cultivation or 0.5 to 0.75 inch of precipitation or overhead irrigation for activation. **Do not** apply more than 4 quarts per season. **Do not** exceed three applications per season. Allow at least 7 days between sequential applications.
diclosulam – 0.024 lb/A	Strongarm 84 WG — 0.45 oz/A	Preplant, preplant incorporated, or preemergence	Broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. Incorporate into top 1 to 3 inches of final seedbed. If surface-applied, at least 0.25 to 0.5 inch of supplemental moisture is needed for activation. Mix with other residual herbicide to improve weed control spectrum. It offers poor control of sicklepod. Nutsedge control is inconsistent.
ethalfluralin – 0.56 to 1.13 lb/A	ethalfluralin 3 lb/gal formulation — 1.5 to 3 pt/A or 10% formulation — 5.6 to 11.3 lb/A	Up to 3 weeks before planting	Annual grasses and small-seeded annual broadleaf weeds	Mix uniformly in top 2 to 3 inches of soil soon after application. Bedding must not expose untreated soil. Use low rate for coarse soils and high rate for clay soils.
flumioxazin – 0.064 to 0.096 lb/A	flumioxazin 51% formulation — 2 to 3 oz/A or 4 lb/gal formulation — 2 to 3 oz/A	Preemergence no later than 2 days after planting	Prickly sida, morningglory, pigweeds, horseweed; other annual broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Do not** irrigate when peanut are cracking. Rainfall or irrigation at cracking will cause temporary crop injury that should not result in reduced yields if applied according to label. Apply within 6 hours of mixing.
fluridone + flumioxazin – 0.15 lb/A + 0.096 lb/A	Brake 1.2 L – 16 oz/A + flumioxazin 51% formulation – 3 oz/A or 4 lb/gal formulation — 3 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for flumioxazin. Crop injury as bleaching may occur if treatment is not incorporated prior to peanut emergence; however, the injury should not reduce yield. Mix with other residual herbicides to improve weed control spectrum.
fluridone + metolachlor/*s*-metolachlor – 0.15 lb/A + 1.3 to 1.6 lb/A	Brake 1.2 L – 16 oz/A + various formulations (see product label for specific rates)	Preplant or preemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for metolachlor/*s*-metolachlor. Crop injury as bleaching may occur if treatment is not incorporated prior to peanut emergence; however, the injury should not reduce yield. Mix with other residual herbicides to improve weed control spectrum.
glyphosate – 1 to 1.5 lb/A	Various formulations (see product label for specific rates)	Preplant or preemergence	Annual, biennial, and perennial grasses and broadleaf weeds	Use of flood-jet nozzles is not suggested. If tillage is intended after treatment, wait at least 3 days (7 days for perennial weeds) after application. Avoid drift to nontarget species or areas. Glyphosate may be mixed with preemergence herbicides for residual control.
imazethapyr – 0.063 lb/A	imazethapyr 2 lb/gal formulation — 4 oz/A	Preplant incorporated, preemergence, or split with postemergence application	Annual grasses and broadleaf weeds; yellow and purple nutsedge suppression	Mix with glyphosate or paraquat to control emerged vegetation. **Do not** apply more than 4 ounces per season, but rate may be split with 2 ounces applied preplant incorporated or preemergence and 2 ounces applied postemergence. **Do not** graze or feed treated forage to livestock. Add nonionic surfactant at 0.25% v/v.

Peanut Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
metolachlor – 2 to 2.5 lb/A or *s*-metolachlor – 1.3 to 1.6 lb/A	Various formulations (see product label for specific rates)	Preplant incorporated within 14 days of planting or preemergence	Annual grasses and small-seeded broadleaf weeds; yellow nutsedge suppression	Mix with glyphosate or paraquat to control emerged vegetation. Incorporation should place herbicide no deeper than 2 inches. If dry period follows surface application, shallow incorporation may be beneficial before peanut emerge. Rainfall is required to activate surface application. Optimum control when rainfall occurs within 10 days after application.
paraquat – 0.63 to 1 lb/A	paraquat 2 lb/gal formulation — 2.5 to 4 pt/A or 3 lb/gal formulation — 1.68 to 2.67 pt/A	Preplant or preemergence	Annual and perennial grasses and broadleaf weeds	Avoid drift to emerged vegetation. May be mixed with most preemergence herbicides. Apply in minimum of 10 gallons of water by ground or 5 gallons by air. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
pendimethalin – 1 lb/A	pendimethalin 3.8 lb/gal formulation — 2 pt/A or 3.3 lb/gal formulation — 2.4 pt/A	Preplant up to 60 days before planting or preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. Incorporate 1 to 2 inches deep. To prevent decreased pegging, adequate incorporation via equipment, overhead irrigation, or rainfall must occur within 48 hours of application.
sulfentrazone + carfentrazone – 0.081 to 0.19 lb/A	Spartan Charge 3.45 SL — 3 to 7 oz/A	Preplant and preemergence up to 3 days after planting	Pigweed, morningglory; other annual broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. **Do not** apply more than 7 fluid ounces per 12-month period. Peanut chlorosis and stunting may occur at pH 7.0 and above, as well as under cold and wet growing conditions. **Do not** use on soils classified as sand, which have less than 1% organic matter. **Do not** irrigate when peanut are cracking.
tiafenacil – 0.022 to 0.066 lb/A	Reviton 2.83 SC — 1 to 3 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate or paraquat to control emerged vegetation. Add methylated seed oil at 1% v/v.
Postemergence Cultivation is often justified as a supplement to chemical weed control. However, haphazard cultivation that disturbs developing pegs or throws soil on the plant will reduce yield and quality. Southern blight (stem rot, *Sclerotium rolfsii*) is often more severe following such practices. Precision cultivation is recommended using flat sweeps set to run shallow in the middle. The use of fenders or shields to prevent soil movement onto plants is a good practice. Rolling cultivators also can be used effectively, but gangs should be set for minimum soil shifting. Positive depth and lateral control of all cultivating equipment is recommended.				
2,4-DB – 0.2 to 0.4 lb/A	2,4-DB 1.75 lb/gal formulation — 0.9 to 1.8 pt/A or 2 lb/gal formulation 0.8 to 1.6 pt/A	2 to 12 weeks after planting. **Do not** apply within 30 days of harvest	Cocklebur, annual morningglory, common ragweed, and sicklepod	**Do not** make more than two applications per season. **Do not** feed treated vines or peanut hay to livestock. **Do not** apply to peanut if suffering from lack of water. Check individual 2,4-DB labels for different use rates and restrictions.
acetochlor – 0.94 to 1.5 lb/A	Warrant 3 CS — 1.25 to 2 qt/A	Postemergence through R1 (beginning bloom) growth stage.	Annual grasses, carpetweed, pigweed, purslane, Florida pusley, lambsquarters, nightshade, and waterhemp	Preplant treatments must have cultivation or 0.5 to 0.75 inch of precipitation or overhead irrigation for activation. **Do not** apply more than 4 quarts per season. **Do not** exceed three applications per season. Allow at least 7 days between sequential applications. Apply before weeds emerge, as this product will not control emerged weeds.

Peanut Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
acifluorfen – 0.125 to 0.375 lb/A	acifluorfen 2 lb/gal formulation — 0.5 to 1.5 pt/A	Small, actively growing weeds	Hemp sesbania, morningglory, pigweeds (less than 2 inches)	**Do not** apply to crop or weeds under stress from weather, pests, or other herbicides. **Do not** apply within 75 days of harvest. **Do not** apply more than 2 pints during the growing season. Rainfall received within 6 hours of application may reduce control. **Do not** use treated plants for feed or forage. Add nonionic surfactant at 0.25% v/v.
bentazon – 0.5 to 1 lb/A	bentazon 4 lb/gal formulation — 1 to 2 pt/A or 5 lb/gal formulation — 0.8 to 1.6 pt/A	Small, actively growing weeds	Cocklebur, prickly sida (2 to 3 inches), smartweed, yellow nutsedge	**Do not** apply if peanut show prior herbicide damage or during periods of drought or cold weather. **Do not** apply more than 2 quarts per season. As late rescue treatment for cocklebur suppression, apply 1.5 pints per acre before blooming up to 24 inches tall and repeat in 10 to 14 days. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
bentazon + acifluorfen – 0.75 lb/A	Storm 4 L — 1.5 pt/A	Small, actively growing weeds	Broadleaf weeds, yellow nutsedge	**Do not** apply Storm to peanut that have been subject to stress conditions. **Do not** apply more than a total of 1.5 pints of Storm within 75 days of peanut harvest. Add crop oil concentrate at 1 pint per acre or substitute nonionic surfactant at 0.125% v/v.
carfentrazone – 0.032 lb/A	Aim 2 EC — 2 oz/A	At least 7 days before harvest	Morningglory, pigweed, velvetleaf	**Do not** apply more than 2 ounces per acre as a harvest aid. Only rotate field to a carfentrazone-registered crop. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
chlorimuron – 0.0078 lb/A	chlorimuron 25% formulation — 0.5 oz/A	Postemergence from 60 days after emergence until 45 days before harvest.	Florida beggarweed, cocklebur, jimsonweed, hemp sesbania, sicklepod, velvetleaf, yellow nutsedge	**Do not** apply to GA-06G or early bunch/Spanish varieties. **Do not** make more than one application per season or when peanut are stressed. Applications can result in greater tomato spotted wilt virus symptoms. Add nonionic surfactant at 0.25% v/v.
clethodim – 0.063 to 0.13 lb/A	Various formulations (see product label for specific rates)	Small, actively growing weeds	Annual grasses, johnsongrass, bermudagrass	**Do not** apply (1) within 40 days of harvest, (2) more than 32 ounces per acre per season, (3) if rainfall is expected within 1 hour, or (4) to stressed plants. Add ammonium sulfate and crop oil concentrate at 1% v/v with 2 and 3 lb/gal formulations and nonionic surfactant with Select Max formulation.
diclosulam – 0.024 lb/A	Strongarm 84 WG — 0.45 oz/A	Postemergence up to 28 days after planting	Benghal dayflower, common ragweed, cocklebur, eclipta, bristly starbur, wild radish	See *Special Instructions and Remarks* for Strongarm in Preplant/Preemergence list in this section. Strongarm has a 24C label for control of Benghal dayflower in peanut. Apply when Benghal dayflower are small. Larger plants will be stunted, but will rarely die.
fluazifop – 0.13 to 0.38 lb/A	Fusilade DX 2 EC — 8 to 24 oz/A	Postemergence until 40 days before harvest	Annual and perennial grasses	**Do not** apply more than 24 ounces in a single application and 48 ounces per season. Allow minimum of 14 days between applications. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
imazapic – 0.5 to 1 lb/A	Cadre 2 AS — 4 oz/A	At cracking to within 90 days of harvest	Sicklepod, morningglory, Florida beggarweed, common cocklebur, nutsedge	Shallow cultivation may improve control of some species. Rainfall within 3 hours of application may reduce control. Add nonionic surfactant at 0.25% v/v.
imazethapyr – 0.063 lb/A	imazethapyr 2 lb/gal formulation — 4 oz/A	At cracking or postemergence	Annual grasses and broadleaf weeds; yellow and purple nutsedge suppression	See *Special Instructions and Remarks* for imazethapyr in Preplant/Preemergence list in this section.

Peanut Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
lactofen – 0.2 lb/A	Cobra 2 EC — 12.5 oz/A	After peanut reach the 6-leaf stage	Hemp sesbania, morningglory, prickly sida, common ragweed, pigweed	Preharvest interval is 90 days. Add crop oil concentrate at 1% v/v.
metolachlor – 2 to 2.5 lb/A or *s*-metolachlor – 1.3 to 1.6 lb/A	Various formulations (see product label for specific rates)	Postemergence to 90 days before harvest	Annual grasses and small-seeded broadleaf weeds; yellow nutsedge suppression	Rainfall is required to activate surface application. Optimum control when rainfall occurs within 10 days after application. See specific product labels for preharvest intervals and maximum use rates. **Do not** use Dual II Magnum formulation after peanut emergence.
paraquat – 0.13 lb/A	Various formulations (see product label for specific rates)	At cracking or early postemergence up to 28 days after ground cracking	Sicklepod, Florida beggarweed, Texas panicum; broadleaf weeds	Peanut foliage injury is usually temporary. Conditions of high humidity, wet foliage, and/or wet soils result in greater foliage burn. Thrips injury retards crop recovery. Mix with bentazon or Storm on larger weeds. When used alone, paraquat is not effective on smallflower morningglory, prickly sida, wild radish, or tropic croton. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
paraquat + bentazon – 0.13 lb/A + 0.25 to 0.5 lb/A	paraquat 2 lb/gal formulation — 0.52 pt/A or 3 lb/gal formulation — 0.35 pt/A + bentazon 4 lb/gal formulation — 0.5 to 1 pt/A or 5 lb/gal formulation — 0.4 to 0.8 pt/A	At cracking through 28 days after ground cracking	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for paraquat and bentazon. **Do not** apply after flower initiation. **Do not** make more than two applications per crop. One pint of bentazon is needed for nutsedge control. Use 0.5 pint of bentazon if it is added only as a safener.
pyroxasulfone – 0.08 to 0.11 lb/A	Zidua 4 SC — 2.5 to 3.5 oz/A	After cracking	Annual grasses and small-seeded broadleaf weeds	**Do not** apply preemergence in peanut. There is no established preharvest interval between application and peanut harvest. Application will not control emerged weeds. May be mixed with other postemergence products.
pyroxasulfone + carfentrazone – 0.08 to 0.13 lb/A	Anthem Flex 4 SC — 2.7 to 4 oz/A	After cracking	Annual grasses and small-seeded broadleaf weeds	**Do not** apply preemergence in peanut. There is no established preharvest interval between application and peanut harvest. Application will not control emerged weeds. May be mixed with other postemergence products.
sethoxydim – 0.19 to 0.38 lb/A	Poast 1.5 EC — 16 to 24 oz/A	Small, actively growing weeds	Annual grasses, seedling and rhizome johnsongrass, bermudagrass, red rice	Apply over the top of peanut or semi-directed to grasses. **Do not** apply (1) to grasses under drought stress or herbicide injury; (2) if rainfall is expected within one hour after application; (3) within 40 days of harvest. Add crop oil concentrate at 1% v/v.
Rope Wick				
paraquat – 0.2 to 0.25 lb/A	Gramoxone SL 2 SL — mix 1 part Gramoxone to 1.5 parts water for a 40–50% solution.	When height differential is achieved between target weeds and peanut canopy	Glyphosate-resistant Palmer amaranth; prevents or minimizes seed production	Calibrate to apply up to 2 pt/A of herbicide water mixture. Position applicator at least 6 inches above peanut canopy. Apply through recirculating rope or carpet roller wicking applicator. Set to avoid dripping onto peanut canopy. Use low ground speed (less than 5 mph). If possible, treat in late afternoon or early evening to enhance control of large weeds. **NOTE (State Label 24c).** Add nonionic surfactant at 0.25% v/v.

Rice Weed Management

Weed Response Ratings for Rice Herbicides Applied Preemergence or Delayed Preemergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Red rice	Sprangletop—Amazon	Sprangletop—bearded	Rice flatsedge	Yellow nutsedge	Ducksalad	Eclipta	Glyphosate-resistant horseweed	Gooseweed	Hemp sesbania (coffeebean)	Morningglory species	Northern jointvetch	Palmer amaranth	Pennsylvania smartweed	Purple ammannia (redstem)	Spikerush	Spreading dayflower	Texasweed	Volunteer glyphosate resistant soybean[2]
Bolero (delayed pre)	8	**8**	4	7	7	0	**9**	**9**	7	4	7	**8**	-	6	4	4	5	-	5	7	7	**8**	5	-
Clomazone	13	**9**	**9**	**9**	**9**	0	**8**	**8**	0	0	0	0	-	0	2	3	3	0	2	0	0	0	0	0
Clomazone + quinclorac	13, 4	**9**	**9**	**9**	**9**	0	**8**	**8**	5	0	7	**8**	-	3	6	7	7	0	2	0	0	5	0	-
Gambit	2, 2	0	0	0	0	0	0	0	**9**	**8**	**9**	**8**	7	-	**8**	7	**8**	5	**8**	7	-	7	**8**	7
League	2	0	0	0	0	0	0	0	**9**	**8**	**8**	**8**	-	-	**8**	5	7	5	-	7	-	7	**8**	0
Pendimethalin (delayed pre)	3	**9**	**8**	**8**	**8**	0	**8**	7	0	0	4	0	-	0	0	0	0	7	2	1	0	0	0	0
Quinclorac	4	**9**	**9**	**9**	**8**	0	0	0	5	0	2	**8**	-	3	6	7	7	4	0	0	-	5	-	-
Quinclorac + Bolero (delayed pre)	4, 8	**9**	**9**	**9**	**9**	0	**8**	**8**	**8**	0	7	**9**	-	5	**8**	**8**	**8**	5	5	7	7	7	-	-
Quinclorac + pendimethalin (delayed pre)	4, 3	**9**	**9**	**9**	**9**	0	**8**	**8**	5	0	0	**8**	-	3	6	**8**	7	7	1	3	-	3	5	-
RiceOne (delayed pre)	13, 3	**9**	**9**	**9**	**9**	0	**8**	**8**	0	0	7	0	-	0	1	2	5	7	2	1	0	7	0	0
Sharpen	14	0	0	0	0	0	0	0	**8**	4	-	-	**8**	-	7	**8**	-	**9**	**8**	-	-	-	7	4

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected residual control of herbicide-susceptible populations approximately 2 to 3 weeks after application.

[2]Control ratings do not apply to BOLT or sulfonylurea-tolerant soybean (STS).

Rice Weed Management

Weed Response Ratings for Rice Herbicides Applied Postemergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Red rice	Sprangletop—Amazon	Sprangletop—hearded	Rice flatsedge	Yellow nutsedge	Ducksalad	Eclipta	Glyphosate-resistant horseweed	Gooseweed	Hemp sesbania (coffeebean)	Morningglory species	Northern jointvetch	Palmer amaranth	Pennsylvania smartweed	Purple ammannia (red-stem)	Spikerush	Spreading dayflower	Texasweed	Volunteer glyphosate resistant soybean2
Clearfield/FullPage Rice																								
Beyond or Postscript	2	**8**	**9**	-	7	**9**	5	5	**8**	-	2	6	-	-	3	**8**	3	6	5	**8**	-	6	5	0
Clearpath (Clearfield only)	2, 4	**9**	**9**	**9**	6	**8**	6	6	**9**	**8**	6	**8**	-	0	7	**8**	7	5	6	**8**	-	6	7	-
Newpath or Preface (2 applications)	2	**9**	**9**	**9**	**9**	**9**	6	**8**	**9**	**8**	7	0	-	5	0	7	0	6	7	**8**	**9**	5	5	0
MaxAce Rice																								
Highcard (2 applications)	1	**9**	**9**	**9**	**9**	**9**	**9**	**9**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Provisia Rice System																								
Provisia (2 applications)	1	**9**	**9**	**9**	**9**	**9**	**9**	**9**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Postemergence (Before Flood)																								
Aim	14	0	0	0	0	0	0	0	0	0	5	7	-	-	**9**	**9**	7	7	**9**	6	0	7	6	2
Clincher SF	1	**8**	**9**	6	**9**	0	**8**	**9**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gambit	2, 2	0	0	0	0	0	0	0	**9**	**8**	**9**	**9**	4	6	**8**	**8**	**7**	5	**8**	**7**	-	**8**	**8**	**7**
Grandstand	4	0	0	0	0	0	0	0	6	0	4	**9**	6	5	**9**	**9**	**8**	**8**	6	**8**	6	6	**8**	**9**
Grasp	2	**8**	0	0	2	0	0	0	**9**	6	**9**	**8**	**8**	-	**8**	5	**8**	6	7	7	**9**	**8**	6	**9**
Halosulfuron	2	0	0	0	0	0	0	0	**8**	**9**	4	5	6	-	**8**	4	7	6	4	7	**8**	**8**	6	**8**
League	2	0	0	0	0	0	0	0	**8**	**8**	7	**8**	-	-	**9**	**8**	**8**	5	7	**8**	**8**	**8**	**8**	**8**
Loyant	4	7	**9**	2	-	0	6	4	**9**	**9**	**9**	**9**	**8**	-	**9**	6	**9**	**9**	7	**9**	-	**9**	3	**9**
Permit Plus	2	0	0	0	0	0	0	0	**8**	**8**	7	**9**	6	-	**9**	7	7	6	**8**	**9**	**8**	**8**	7	**8**
Propanil	5	**9**	**9**	7	**8**	0	5	4	**9**	4	7	**8**	1	5	**9**	5	5	**8**	6	6	**9**	5	6	8
Propanil + bentazon	5, 6	**9**	**9**	7	**9**	0	5	4	**9**	6	7	**9**	1	7	**9**	7	**9**	**8**	**8**	**9**	**9**	**9**	6	**8**
Propanil + Bolero (or RiceBeaux)	5, 8	**9**	**9**	7	**9**	0	**9**	**9**	**9**	5	**8**	**9**	2	6	**9**	6	5	**8**	6	**8**	**9**	**8**	7	**8**
Propanil + Londax (or Duet)	5, 2	**9**	**9**	7	**9**	0	5	4	**9**	**8**	7	**9**	-	**9**	**9**	**9**	**9**	**8**	**8**	**9**	**9**	**8**	7	**8**
Propanil + quinclorac	7, 5	**9**	**9**	7	**9**	0	5	4	**9**	5	6	**8**	**8**	5	**9**	**8**	**9**	**8**	5	6	**9**	5	6	**8**
Quinclorac	4	**9**	**9**	7	6	0	0	0	5	0	3	**9**	6	3	**8**	**8**	**8**	3	0	3	5	3	3	2
Quinclorac + Aim	4, 14	**9**	**9**	7	6	0	0	0	5	0	5	**9**	6	-	**9**	**9**	**8**	**8**	**8**	7	5	7	6	2
Regiment	2	**9**	3	0	0	0	2	2	**8**	5	**9**	7	5	0	**8**	6	7	6	**9**	6	**8**	**8**	**8**	**9**
Ricestar HT	1	**9**	**9**	**8**	7	0	**8**	**9**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sharpen	14	0	0	0	0	0	0	0	0	0	4	**8**	**8**	7	**8**	**9**	**8**	**9**	**8**	**8**	0	6	**8**	6
Storm	6, 14	3	3	3	2	0	2	2	**8**	7	**8**	7	-	-	**9**	**8**	6	7	**8**	**9**	**8**	7	**8**	0
Strada	2	0	0	0	0	0	0	0	**9**	7	6	**8**	5	-	**9**	7	**9**	5	6	**8**	**9**	7	6	8
Strada PRO	2	0	0	0	0	0	0	0	**9**	**9**	7	**8**	6	-	**9**	7	**9**	6	6	**8**	**9**	**8**	6	**8**
Postemergence (After Flood)																								
Acifluorfen	14	0	0	0	0	0	0	0	0	0	0	0	-	0	**9**	**8**	6	6	0	0	0	0	4	0
Propanil	5	4	4	4	4	0	0	0	5	3	3	4	-	0	**8**	0	0	7	5	4	5	0	4	-
Propanil + Grandstand	5, 4	2	2	2	2	0	0	0	6	2	5	6	-	7	**9**	**8**	**8**	6	4	**9**	6	4	4	-
Rogue	27	5	3	-	-	-	**9**	**9**	**9**	6	**9**	-	-	6	6	-	2	-	3	0	6	4	5	-

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations targeted at approximately the 3- to 5-inch growth stage.

[2]Control ratings do not apply to BOLT or sulfonylurea-tolerant soybean (STS).

Rice Weed Management

Herbicide Rates for Preemergence Application in Drill-Seeded Rice

Herbicide	Formulation	Sand, loamy sand	Sandy loam	Loam, silt, silt loam, sandy clay, sandy clay loam	Silty clay, clay loam, silty clay loam, clay
Clomazone	3 ME	0.67 pt/A	0.69 to 0.88 pt/A	1.1 to 1.33 pt/A	1.33 to 2.1 pt/A
Quinclorac	75 DF	Do not use	0.33 to 0.44 lb/A	0.44 to 0.5 lb/A	0.5 to 0.67 lb/A
	4 L	Do not use	0.5 to 0.67 pt/A	0.67 to 0.75 pt/A	0.75 to 1 pt/A
	1.5 L	Do not use	21 to 28 oz/A	28 to 32 oz/A	32 to 42 oz/A

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Clearfield or FullPage Rice				
imazethapyr – 0.063 to 0.094 lb/A	Newpath 2 AS or Preface 2 AS — 4 to 6 oz/A	Preplant-incorporated; **sequential application to 3- to 5-leaf rice required**	Red rice, annual grasses, yellow nutsedge	Use Newpath only on Clearfield rice varieties and Preface only on FullPage hybrids. Flush for activation if rainfall does not occur within a few days of planting. This application must be followed by one postemergence application of Newpath/Preface or Beyond/Postscript. Avoid drift onto conventional rice varieties and hybrids. See label for approved mixtures.
imazethapyr – 0.063 to 0.094 lb/A	Newpath 2 AS or Preface 2 AS — 4 to 6 oz/A	Preemergence; **sequential application to 3- to 5-leaf rice required**	Red rice, annual grasses, yellow nutsedge	See *Special Instructions and Remarks* for Newpath/Preface. Use Newpath only on Clearfield rice varieties and Preface only on FullPage hybrids.
imazethapyr – 0.063 to 0.094 lb/A	Newpath 2 AS or Preface 2 AS — 4 to 6 oz/A	Postemergence to 3-leaf through 5-leaf rice before flooding	Red rice, annual grasses, yellow nutsedge	See *Special Instructions and Remarks* for Newpath/Preface. Use Newpath only on Clearfield rice varieties and Preface only on FullPage hybrids. Mixing with other herbicides will be required for control of broadleaf weeds. This application must be preceded by one preplant-incorporated or preemergence application of Newpath/Preface. Add crop oil concentrate as instructed on individual herbicide label.
imazethapyr – 0.063 to 0.094 lb/A followed by imazethapyr – 0.063 to 0.094 lb/A	Newpath 2 AS or Preface 2 AS — 4 to 6 oz/A followed by Newpath 2 AS or Preface 2 AS — 4 to 6 oz/A	First postemergence application at spike to 1-leaf rice followed by second postemergence application approximately 14 days later	Red rice, annual grasses, yellow nutsedge	See *Special Instructions and Remarks* for Newpath/Preface. Use Newpath only on Clearfield rice varieties and Preface only on FullPage hybrids. A soil-applied herbicide should be included in first application to aid in residual control of annual grasses. Mixing with other herbicides will be required for control of broadleaf weeds. Add crop oil concentrate as instructed on individual herbicide label.
imazethapyr + quinclorac – 0.5 + 0.72 lb/A followed by imazethapyr – 0.063 to 0.094 lb/A	Clearpath 75 DF — 0.5 lb/A followed by Newpath 2 AS — 4 to 6 oz/A	Preplant-incorporated, preemergence, or postemergence from spike to 1-leaf rice followed by application of Newpath approximately 14 days later	Red rice, annual grasses; improved control of some grasses and broadleaf weeds over Newpath alone	See *Special Instructions and Remarks* for Newpath. Use Clearpath only on Clearfield rice varieties. Mixing with other herbicides will be required for control of broadleaf weeds. Clearpath at 0.5 pound per acre provides 4 ounces of Newpath and 0.3 pounds active ingredient of quinclorac. Add crop oil concentrate at 1 to 2 pints per acre.

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
imazamox – 0.039 to 0.047 lb/A	Beyond 1 AS or Postscript 1 AS — 5 to 6 oz/A	**After at least one application of Newpath/ Preface.** Apply from 4-leaf rice until 14 days after panicle initiation on varieties and 4-leaf rice to panicle initiation on hybrids	Barnyardgrass, broadleaf signalgrass, fall panicum, morningglory, red rice	Use Beyond only on Clearfield rice varieties and Postscript only on FullPage hybrids. May be substituted for second application of Newpath/Preface, but two applications are required before flooding. An emergency salvage application may be applied for late-season suppression of red rice. Avoid drift of Beyond/Postscript onto conventional rice varieties and hybrids. Add crop oil concentrate as instructed on individual herbicide label.
MaxAce Rice				
quizalofop + safener – 0.089 to 0.11 lb/A followed by quizalofop + safener– 0.089 to 0.11 lb/A	Highcard 0.88 EC – 13 to 15.5 oz/A followed by Highcard 0.88 EC – 13 to 15.5 oz/A	First postemergence application at 2-leaf rice followed by second postemergence application approximately 14 days later	Red rice, annual grasses, volunteer rice	Use on MaxAce rice varieties and hybrids only. A residual herbicide should be included in first application to aid control of annual grasses. **Do not** apply more than 31 ounces per acre per season or 15.5 ounces per acre in a single application. **Do not** apply any other quizalofop product to MaxAce rice. Mixing with broadleaf or sedge herbicides can result in loss of grass control. Injury has been observed during periods of cloudy weather. Add crop oil concentrate at 1% v/v.
Provisia Rice System				
quizalofop – 0.076 to 0.11 lb/A followed by quizalofop – 0.069 to 0.11 lb/A	Provisia 0.88 EC – 11 to 15.5 oz/A followed by Provisia 0.88 EC – 10 to 15.5 oz/A (second and/or third application)	First postemergence application at 2- to 3-leaf rice followed by second and/or third postemergence application approximately 14 to 21 days later	Red rice, annual grasses, volunteer rice	Use on Provisia rice varieties only. A residual herbicide should be included in first application. **Do not** apply more than 31 ounces per acre per season, apply 15.5 ounces per acre in a single application, or apply the last application after panicle initiation. Mixing with broadleaf or sedge herbicides can result in loss of grass control. To avoid injury, apply when Provisia rice is actively growing under sunny conditions with air temperature at least 60 F for three days prior to and after application. Add crop oil concentrate at 1% v/v.
Preemergence/Delayed Preemergence				
clomazone – 0.25 to 0.8 lb/A	clomazone 3 lb/gal formulation – 0.67 to 2.1 pt/A	Preemergence	Annual grasses	Clomazone may be applied from planting to rice emergence but before weed emergence. **Do not** apply to recently land-formed fields. If grasses emerge after application, rainfall or flushing may be needed for activation or reactivation. See label for mixtures. **See table at beginning of section for specific clomazone rates by soil texture.**
clomazone plus pendimethalin – 0.99 to 1.42 lb/A	RiceOne 3.63 CS — 35 to 50 oz/A –	Delayed preemergence; **Do not apply if rice is beginning to emerge**	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for clomazone and pendimethalin. **See table at beginning of section for specific clomazone rates by soil texture.**
clomazone + quinclorac – 0.3 to 0.5 lb/A + 0.3 to 0.5 lb/A	clomazone 3 lb/gal formulation – 0.8 to 1.33 pt/A + Various formulations (see product label for specific rates)	Preemergence or delayed preemergence	Annual grasses, eclipta	See *Special Instructions and Remarks* for clomazone and quinclorac. If grasses emerge after application, rainfall or flushing will be required for activation or reactivation of the herbicide. **See table at beginning of section for specific clomazone and quinclorac rates by soil texture.**

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
glyphosate plus clomazone – 1 to 1.5 lb/A + 0.3 to 0.6 lb/A	Various formulations (See product label for specific rates) + clomazone 3 lb/gal formulation – 0.8 to 1.6 pt/A	Prior to rice emergence; **Do not apply if rice is beginning to emerge**	Annual and perennial grasses and broadleaf weeds plus residual control of annual grasses	See *Special Instructions and Remarks* for glyphosate and clomazone. The field must be free of standing water at application. Antagonism may occur in some situations. Sequential postemergence grass herbicide application will be needed. **See table at beginning of section for specific clomazone rates by soil texture.**
glyphosate + clomazone + saflufenacil – 1 to 1.5 + 0.3 to 0.6 + 0.045 to 0.067 lb/A	Various formulations (see product label for specific rates) + clomazone 3 lb/gal formulation – 0.8 to 1.6 pt/A + Sharpen 2.85 SC – 2 to 3 oz/A	Prior to rice emergence; **Do not apply if rice is beginning to emerge**	Annual and perennial grasses and broadleaf weeds plus residual control of annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for clomazone, glyphosate plus clomazone, and glyphosate plus Sharpen. **See table at beginning of section for specific clomazone and quinclorac rates by soil texture.**
glyphosate + pendimethalin – 1 to 1.5 lb/A + 0.75 to 1 lb/A	Various formulations (see product label for specific rates) + pendimethalin 3.8 lb/gal formulation – 1.6 to 2.1 pt/A or 3.3 lb/gal formulation – 1.8 to 2.4 pt/A	Delayed preemergence; **Do not apply if rice is beginning to emerge**	Annual and perennial grasses and broadleaf weeds plus residual control of annual grasses	See *Special Instructions and Remarks* for glyphosate plus clomazone and for pendimethalin.
glyphosate + saflufenacil – 1 to 1.5 lb/A + 0.045 to 0.067 lb/A	Various formulations (See product labels for specific rates) + Sharpen 2.85 SC – 2 to 3 oz/A	Prior to rice emergence; **Do not apply if rice is beginning to emerge**	Annual and perennial grasses and broadleaf weeds plus residual control of some broadleaf weeds	See *Special Instructions and Remarks* for glyphosate plus clomazone. Add methylated seed oil at 1% v/v plus ammonium sulfate.
halosulfuron + prosulfuron – 0.049 to 0.099 lb/A	Gambit 79 WG – 1 to 2 oz/A	Preplant or preemergence	Pennsylvania smartweed, yellow nutsedge, annual weeds	**Do not** apply within 48 days of harvest. Avoid drift to non BOLT or STS soybean. **Do not** exceed 2 ounces per acre per year. Add nonionic surfactant at 0.25% v/v or crop oil concentrate or methylated seed oil at 1% v/v.
imazosulfuron – 0.19 to 0.3 lb/A	League 75 WG – 4 to 6 oz/A	Preemergence	Annual grasses except sprangletop; eclipta, hemp sesbania, jointvetch, morningglory	Rice injury may occur if League is applied at more than 3.2 ounces per acre on clay soil with a pH greater than 8. Yield reductions have not been observed. Soybean may not be planted for 12 months after League application. A half-mile buffer to emerged non BOLT or STS soybean is required for aerial applications.
pendimethalin – 0.75 to 1 lb/A	pendimethalin 3.8 lb/gal formulation – 1.6 to 2.1 pt/A or 3.3 lb/gal formulation – 1.8 to 2.4 pt/A	Delayed preemergence	Annual grasses	Apply after rice seed has imbibed water and germinated and after soil has been sealed by at least 1 inch of rainfall or irrigation (flush). If soil has not been sealed, apply when 80% of germinated seeds have the radicle at least 0.5 inch long. Under some conditions, use of gibberellic-acid-treated seed, heavy rainfall, or flushing after application may result in herbicide injury.

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
quinclorac – 0.25 to 0.5 lb/A	Various formulations (see product label for specific rates, **see table at beginning of section for specific rates by soil texture**)	Preemergence or delayed preemergence	Annual grasses except sprangletop; eclipta	**Do not** use on sand or loamy sand soils. **Do not** allow quinclorac to drift onto sensitive crops such as cotton, soybean, corn, or vegetables. **Do not** use on precision-cut fields until the second rice crop. Rice seed exposed to the spray may be severely injured. **See product labels for yearly maximum use rates. See table at beginning of section for specific rates by soil texture.**
quinclorac + pendimethalin – 0.25 to 0.5 lb/A + 0.75 to 1 lb/A	Various formulations (see product label for specific rates) + pendimethalin 3.8 lb/gal formulation — 1.6 to 2.1 pt/A or 3.3 lb/gal formulation — 1.8 to 2.4 pt/A	Delayed preemergence	Annual grasses, including sprangletop; eclipta	See *Special Instructions and Remarks* for quinclorac and pendimethalin. Rice seed exposed to the spray may be severely injured. **See table at beginning of section for specific quinclorac rates by soil texture.**
quinclorac + thiobencarb – 0.25 to 0.5 lb/A + 2.5 to 4 lb/A	Various formulations (see product label for specific rates) + Bolero 8 EC — 2.5 to 4 pt/A	Preemergence or delayed preemergence	Annual grasses, including sprangletop; eclipta	See *Special Instructions and Remarks* for quinclorac and thiobencarb. Rice seed exposed to the spray may be severely injured. **See table at beginning of section for specific quinclorac rates by soil texture.**
thiobencarb – 2.5 to 4 lb/A	Bolero 8 EC — 2.5 to 4 pt/A	Delayed preemergence	Barnyardgrass, sprangletop, aquatic weeds	Seedbed should be sealed by rain or flushing. **Do not** allow soil to crack after application. Application to rice stressed by high salt and/or high pH soil may cause excessive rice injury.
thiobencarb + pendimethalin – 2.5 to 4 lb/A + 0.75 to 1lb/A	Bolero 8 EC — 2.5 to 4 pt/A + pendimethalin 3.8 lb/gal formulation — 1.6 to 2.1 pt/A or 3.3 lb/gal formulation — 1.8 to 2.4 pt/A	Delayed preemergence	Barnyardgrass, broadleaf signalgrass, sprangletop, aquatic weeds	See *Special Instructions and Remarks* for pendimethalin and thiobencarb. Seedbed should be sealed by rain or flushing. **Do not** allow soil to crack after application.
Postemergence (Before Flood)				
acifluorfen + bentazon – 0.25 to 0.5 lb/A + 0.25 to 0.5 lb/A	Storm 4 L — 1.5 pt/A	After rice tillering to boot	Dayflower, flatsedge, hemp sesbania, morningglory, redstem, smartweed, yellow nutsedge	See *Special Instructions and Remarks* for bentazon. Add nonionic surfactant at 0.25% v/v.
bentazon – 0.75 to 1 lb/A	bentazon 4 lb/gal formulation — 1.5 to 2 pt/A or 5 lb/gal formulation — 1.2 to 1.6 pt/A	At least 24 hours before flooding	Dayflower, flatsedge, smartweed, redstem, yellow nutsedge	Apply to actively growing weeds. **Do not** apply to submerged weeds. **Do not** apply more than 2 pounds per acre per season. Mix with propanil to increase weed spectrum. Add crop oil concentrate at 1.25% v/v.

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
bispyribac-sodium – 0.02 to 0.033 lb/A	Regiment 80 WP — 0.4 to 0.67 oz/A	3-leaf rice up to green ring	Barnyardgrass, junglerice, johnsongrass, hemp sesbania, ducksalad, Pennsylvania smartweed	See label for list of approved adjuvants. Apply in at least 10 gallons per acre and **do not** exceed 1.06 ounces per acre per year. Avoid drift to soybean. It provides little or no control of sprangletop. Medium-grain varieties may be more sensitive stressed conditions.
carfentrazone – 0.025 to 0.05 lb/A	Aim 2 EC — 1.6 to 3.2 oz/A	At least 2-leaf rice and weeds up to 4 inches tall	Cocklebur, hemp sesbania, morningglory, smartweed	**Do not** apply more than 8.6 ounces per season. If flood is lowered, return to normal 24 hours following treatment. Avoid applications from flag leaf emergence through harvest-aid application. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
carfentrazone + halosulfuron – 0.025 to 0.05 lb/A + 0.032 to 0.063 lb/A	Aim 2 EC — 1.6 to 3.2 oz/A + halosulfuron (75% formulation) — 0.67 to 1.33 oz/A	At least 2-leaf rice and weeds up to 4 inches tall	Flatsedge, hemp sesbania, morningglory, smartweed (1- to 2-leaf), yellow nutsedge	See *Special Instructions and Remarks* for Aim and halosulfuron. Add nonionic surfactant at 0.25% v/v.
carfentrazone + quinclorac – 0.015 to 0.03 + 0.19 to 0.375 lb/A	Aim 2 EC — 1 to 2 oz/A + Various formulations (see product label for specific rates)	From 2-leaf rice stage and before flooding	Barnyardgrass, morningglory, hemp sesbania, other annual grass and broadleaf weeds	See *Special Instructions and Remarks* for Aim and quinclorac. **See table at beginning of section for specific quinclorac rates by soil texture.** Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
clomazone – 0.3 to 0.6 lb/A	clomazone 3 lb/gal formulation — 0.8 to 1.6 pt/A	1- to 2-leaf rice	Residual control of annual grasses	See *Special Instructions and Remarks* for clomazone. For control of grass weeds emerged at application, include postemergence grass herbicide such as Clincher SF, propanil, quinclorac, or Ricestar HT. See table at beginning of section for specific clomazone rates by soil texture.
clomazone plus pendimethalin – 0.99 to 1.42 lb/A	RiceOne 3.63 CS — 35 to 50 oz/A	1- to 2-leaf rice	Residual control of annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for clomazone and pendimethalin. For control of grass weeds emerged at application, include postemergence grass herbicide such as Clincher SF, propanil, or Ricestar HT. **See table at beginning of section for specific clomazone rates by soil texture.**
clomazone + quinclorac – 0.3 to 0.5 lb/A + 0.3 to 0.5 lb/A	clomazone 3 lb/gal formulation — 0.8 to 1.33 pt/A + Various formulations (see product label for specific rates)	1- to 5-leaf rice	Residual control of annual grasses; barnyardgrass (1- to 2-leaf), broadleaf signalgrass, hemp sesbania, eclipta; morningglory (2- to 6-leaf)	See *Special Instructions and Remarks* for clomazone and quinclorac. Mix with other herbicides to broaden spectrum. Add crop oil concentrate at 1 quart per acre. **See table at beginning of section for specific clomazone and quinclorac rates by soil texture.**
cyhalofop-butyl – 0.25 to 0.28 lb/A	Clincher SF 2.38 EC — 13.5 to 15 oz/A	1-leaf rice up to 60 days before harvest	Barnyardgrass, broadleaf signalgrass, fall panicum, seedling johnsongrass, sprangletop	Apply in at least 10 gallons per acre by air or ground. Soil moisture is critical for good activity. Mixing with broadleaf or sedge herbicides can result in loss of grass control. **Do not** exceed 25 ounces per acre per year. Add crop oil concentrate or methylated seed oil at 1 quart per acre.
fenoxaprop + safener – 0.077 to 0.1088 lb/A	Ricestar HT 0.58 EC — 17 to 24 oz/A	1-leaf rice to tillering but before panicle initiation	Barnyardgrass, sprangletop, broadleaf signalgrass, seedling johnsongrass, fall panicum	**Do not** apply within 48 hours of an application of methyl parathion. Soil moisture is critical for good activity. Mix only with approved herbicides on Ricestar HT label.

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
florpyrauxifen-benzyl – 0.026 lb ai/A	Loyant 0.21 EC — 1 pt/A	2-leaf rice until 60 days prior to harvest	Rice flatsedge, hemp sesbania, Palmer amaranth	Greatest efficacy will be achieved with applications within 5 days before flooding. No more than two applications can be made in a single season. Loyant should not be mixed with other herbicides containing propanil. Cotton, soybean, vegetables, flowers, and ornamental trees and shrubs are extremely sensitive to Loyant. Add methylated seed oil at 0.5 pint per acre.
halosulfuron – 0.032 to 0.063 lb/A	halosulfuron 75% formulation — 0.67 to 1.33 oz/A	Prior to rice emergence until after flooding	Yellow or purple nutsedge (1- to 6-inch, 0.67 oz/A; 6-to 12-inch sedges, 1 to 1.33 oz/A)	**Do not** apply within 48 days of harvest. Avoid drift to non BOLT or STS soybean. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
halosulfuron + prosulfuron – 0.049 to 0.099 lb/A	Gambit 79 WG — 1 to 2 oz/A	Prior to rice emergence until after flooding	Pennsylvania smartweed, yellow nutsedge, annual weeds	**Do not** apply within 48 days of harvest. Avoid drift to non BOLT or STS soybean. Soybean may not be planted for 10 months after Gambit application. Add nonionic surfactant at 0.25% v/v or crop oil concentrate or methylated seed oil at 1% v/v.
halosulfuron + thifensulfuron – 0.024 + 0.0028 lb/A	Permit Plus 75 WG — 0.75 oz/A	Before rice emergence until 48 days before harvest	Pennsylvania smartweed, yellow nutsedge, annual weeds	**Do not** apply within 48 days of harvest. Avoid drift to non BOLT or STS soybean. **Do not** exceed 1.5 ounces per acre in a season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
imazosulfuron – 0.15 to 0.19 lb/A	League 75 WDG — 3.2 to 4 oz/A	2-leaf rice but before 2-inch internode elongation	Hemp sesbania, morningglory, annual weeds	See label for list of approved adjuvants and mixtures. Soybean may not be planted for 12 months after application. **A half-mile buffer to emerged non-STS soybean is required for aerial applications.**
orthosulfamuron – 0.053 to 0.065 lb/A	Strada 50 WG — 1.7 to 2.1 oz/A	Early postemergence to 0.5-inch internode elongation	Flatsedge, hemp sesbania, northern jointvetch	Mix with other herbicides to broaden spectrum. See label for adjuvant requirements. Only one application per season is allowed.
orthosulfamuron + halosulfuron – 0.07 to 0.084 lb/A	Strada PRO 54 WG — 2.08 to 2.5 oz/A	Early postemergence to 0.5-inch internode elongation	Hemp sesbania, northern jointvetch, yellow nutsedge	Mix with other herbicides to broaden spectrum. See label for adjuvant requirements. Only one application is allowed per year.
penoxsulam – 0.031 to 0.036 lb/A	Grasp 2 SC — 2 to 2.3 oz/A	Emergence to 60 days before harvest	Eclipta (up to 7-leaf), hemp sesbania, northern jointvetch, flatsedge, ducksalad (up to 4-leaf), and barnyardgrass	Little to no control of sprangletop, broadleaf signalgrass, and fall panicum. May cause stunting and root pruning, especially if higher than labeled rates are applied. **Avoid use on high pH soils (>7.8).** Add crop oil concentrate or methylated seed oil at 1 quart per acre.
propanil – 3 to 6 lb/A	Various formulations (see product label for specific rates)	1- to 4-leaf barnyardgrass	Barnyardgrass and other annual grasses and broadleaf weeds	Apply in 10 gallons of water for aerial application and 15 to 20 gallons of water for ground application. If grass is in the 4- to 5-leaf stage, apply 4 to 5 pounds of active ingredient per acre. To prevent reinfestation, flood 1 or 2 days after application. Complete spray coverage is necessary. Weed foliage must not be covered with water at time of application. Avoid drift to susceptible crops. Consult label concerning adjuvant use.
propanil – 6 to 8 lb/A (For split application where flooding is delayed)	Various formulations (see product label for specific rates)	3 to 4 lb/A when weeds are in 1- to 3-leaf stage and second 3 to 4 lb/A treatment when needed	Barnyardgrass, sprangletop, and other annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for propanil. Flood 1 or 2 days after final application. This treatment may not provide satisfactory control of sprangletop species.

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
propanil + bensulfuron – 3 to 5 lb/A + 0.038 to 0.063 lb/A	Various formulations (see product label for specific rates) + Londax 60 DF — 0.75 to 1 oz/A or Duet 4.03 F — 3 to 5 qt/A	1 to 7 days before flood	Annual grasses and broadleaf weeds; yellow nutsedge	See *Special Instructions and Remarks* for propanil. For best results, maintain flood and keep water as static as possible.
propanil + halosulfuron – 3 to 4 lb/A + 0.032 to 0.063 lb/A	Various formulations (see product label for specific rates) + halosulfuron (75% formulation)	Emerged weeds	Eclipta, flatsedge, hemp sesbania, northern jointvetch, morningglory, yellow nutsedge	See *Special Instructions and Remarks* for propanil and halosulfuron.
propanil + pendimethalin – 3 to 4 lb/A + 0.75 to 1 lb/A	Various formulations (see product label for specific rates) + pendimethalin 3.8 lb/gal formulation — 1.6 to 2.1 pt/A or 3.3 lb/gal formulation — 1.8 to 2.4 pt/A	After rice emerges and barnyardgrass is in 1- to 3-leaf stage	Postemergence control of barnyardgrass and other annual grasses and broadleaf weeds; residual control of barnyardgrass and annual grasses	See *Special Instructions and Remarks* for pendimethalin and propanil. The seedbed should be firm and free of large clods, trash, and surface water at application. Fields should be flushed if adequate rainfall does not occur within 7 days. **Do not** make more than one application of pendimethalin per season.
propanil + quinclorac – 3 to 5 lb/A + 0.25 to 0.5 lb/A	Various formulations for each product (see product labels for specific rates)	Early postemergence	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for quinclorac and propanil. See labels for instructions on mixing and use of adjuvants. **See table at beginning of section for specific quinclorac rates by soil texture.**
propanil + thiobencarb – 3 to 4 lb/A + 3 to 4 lb/A	Bolero 8 EC — 3 to 4 pt/A + Various formulations (see product label for specific rates) or RiceBeaux 6 EC — 4 qt/A	Annual grasses in 1- to 3-leaf stage, aquatics less than 0.5 inch, and broadleaf weeds less than 2 inches	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for thiobencarb and propanil. Soil should be moist at application and not allowed to crack after application. **Do not** apply to stressed rice. RiceBeaux at 4 quarts per acre provides 3 pints of Bolero and 3 quarts of propanil per acre.
propanil + triclopyr – 3 to 4 lb/A + 0.125 to 0.25 lb/A	Various formulations (see product label for specific rates) + Grandstand 3 SL — 0.5 to 0.67 pt/A	After rice reaches 2-leaf stage and before weeds exceed 6 inches	Barnyardgrass, morningglory, hemp sesbania, northern jointvetch, eclipta	See *Special Instructions and Remarks* for propanil and Grandstand. Flood should be delayed for 72 hours after application. **Do not** exceed Grandstand at 0.5 pint per acre before 4-leaf rice and utilize up to 0.67 pints per acre after 4-leaf stage.
quinclorac – 0.25 to 0.5 lb/A	Various formulations (see product label for specific rates, **see table at beginning of section for specific rates by soil texture**)	Early postemergence	Barnyardgrass (1- to 2-leaf), broadleaf signalgrass, hemp sesbania, eclipta, morningglory (2- to 6-leaf)	See *Special Instructions and Remarks* for quinclorac. Does not control sprangletop. Soil moisture is critical for good activity. Rainfall or flush will be required for residual grass control from quinclorac after application. Add crop oil concentrate at 1 quart per acre to maximize weed control.

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
quinclorac + acifluorfen – 0.25 to 0.5 lb/A + 0.125 to 0.25 lb/A	Various formulations (see product label for specific rates) + acifluorfen 2 lb/gal formulation — 0.5 to 1 pt/A	After rice reaches 3-leaf stage	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for quinclorac. See labels for mixing instructions. Add nonionic surfactant at 0.25% v/v.
quinclorac + acifluorfen + bentazon – 0.25 to 0.5 lb/A + 0.75 lb/A	Various formulations (see product label for specific rates) + Storm 4 L — 1.5 pt/A	After rice reaches 3-leaf stage	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for quinclorac and Storm. See labels for mixing instructions. Add nonionic surfactant at 0.25% v/v.
quinclorac + fenoxaprop + safener – 0.25 to 0.5 lb/A + 0.077 to 0.1088 lb/A	Various formulations (see product label for specific rates) + Ricestar HT 0.58 EC — 17 to 24 oz/A	Small, actively growing weeds	Annual grasses and broadleaf weeds, including eclipta, hemp sesbania, morningglory	See *Special Instructions and Remarks* for quinclorac and Ricestar HT. Soil moisture is critical for good activity.
saflufenacil – 0.0223 lb/A	Sharpen 2.85 SC — 1 oz/A	3-leaf to 0.5-inch internode elongation	Hemp sesbania, morningglory, Palmer amaranth	**Do not** apply to rice in spiking to 2-leaf stage. **Do not** use methylated seed oil or nonionic surfactant in postemergence applications. Sequential applications are allowed, but **do not** apply more than 2 ounces per acre per season after rice emergence. **Do not** mix with emulsifiable concentrate herbicides. Add crop oil concentrate at 1 to 2 pints per acre.
triclopyr – 0.25 to 0.375 lb/A	Grandstand 3 SL — 0.5 to 1 pt/A	3-leaf to 0.5-inch internode elongation	Hemp sesbania, eclipta, morningglory, northern jointvetch, redstem	Flood must be delayed 72 hours to prevent rice injury for applications made prior to flood. If flood is lowered for application, **do not** expose the crown of rice plants and wait 48 hours before raising the flood level. **Do not** use on precision-leveled land until the second rice crop. Add nonionic surfactant at 0.25% crop oil concentrate at 1% v/v.
triclopyr + halosulfuron – 0.25 to 0.375 lb/A + 0.032 to 0.063 lb/A	Grandstand 3 SL — 0.67 to 1 pt/A + halosulfuron 75% formulation — 0.67 to 1.33 oz/A	3-leaf to 0.5-inch internode elongation	Hemp sesbania, morningglory, northern jointvetch, yellow nutsedge	See *Special Instructions and Remarks* for Grandstand and halosulfuron. Add nonionic surfactant at 0.25% v/v.
Postemergence (After Flood)				
2,4-D amine – 1 to 1.5 lb/A	Various formulations (see product label for specific rates)	Late tillering stage but before 0.5-inch internode elongation	Hemp sesbania, redstem, ducksalad, smartweed, spikerush, water hyacinth, morningglory, dayflower	Follow Mississippi Department of Agriculture Bureau of Plant Industry regulations for phenoxy herbicides. Fields should have shallow flood at treatment. **Do not** apply nitrogen within 5 to 21 days before treatment. Avoid drift to susceptible crops. Add nonionic surfactant at 0.25% v/v.
acifluorfen – 0.125 to 0.25 lb/A	acifluorfen 2 lb/gal formulation — 0.5 to 1 pt/A	When hemp sesbania is flowering and prior to early boot stage of rice	Hemp sesbania	**Do not** mix acifluorfen with oils, drift control agents, liquid fertilizers or other pesticides. Apply in 5 to 10 gallons water. See label for other restrictions. Add nonionic surfactant at 0.25% v/v.
bensulfuron – 0.038 to 0.06 lb/A	Londax 60 DF — 1 to 1.6 oz/A	Apply to flooded field with submerged weeds	Aquatic weeds	Apply after flood but before weeds reach 3-leaf stage. Hold water static for at least 7 days after application. Add crop oil concentrate at 1% v/v or nonionic surfactant at 0.25% v/v.

Rice Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
benzobicyclon – 0.33 lb/A	Rogue 3.4 SC — 12.6 oz/A	Postflood before 2-tiller stage of rice	Sprangletop species, annual sedges, aquatic weeds	Make applications only to zero-grade or straight-levee fields. Rogue must make contact with water, and flood must be maintained after application. **Do not** apply to RiceTec RT 3202 medium-grain rice.
bispyribac-sodium – 0.034 lb/A	Regiment 80 WP — 0.67 oz/A	Postflood but before green ring	Barnyardgrass, junglerice (4 tiller up to booting)	See label for list of approved adjuvants. Avoid drift to soybean.
cyhalofop-butyl – 0.25 to 0.28 lb/A	Clincher SF 2.38 EC — 13.5 to 15 oz/A	Postflood	Annual grasses	Mixing with broadleaf or sedge herbicides can result in loss of grass control. **Do not** exceed 25 ounces per acre per year. Add crop oil concentrate or methylated seed oil at 1 quart per acre.
halosulfuron – 0.47 to 0.63 lb/A	halosulfuron 75% formulation — 1 to 1.33 oz/A	Postflood to 48 days before harvest	Hemp sesbania, jointvetch, flatsedge	Avoid drift to soybean. **Do not** apply more than 1.3 ounces per acre in a season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
halosulfuron + prosulfuron – 0.049 to 0.099 lb/A	Gambit 79 WG — 1 to 2 oz/A	Postflood to 48 days before harvest	Pennsylvania smartweed, yellow nutsedge, annual weeds	**Do not** apply within 48 days of harvest. Avoid drift to soybean. **Do not** exceed 2 ounces per acre per year. Soybean may not be planted for 10 months after Gambit application. Add nonionic surfactant at 0.25% v/v or crop oil concentrate or methylated seed oil at 1% v/v.
orthosulfamuron – 0.065 lb/A	Strada 50 WG — 2.1 oz/A	Postflood before 0.5-inch internode elongation	Hemp sesbania, northern jointvetch	See label for adjuvant requirements. This product is used to prevent black seed production by hemp sesbania and northern jointvetch.
orthosulfamuron + halosulfuron – 0.084 + lb/A	Strada PRO 54 WG — 2.5 oz/A	Postflood before 0.5-inch internode elongation	Hemp sesbania, northern jointvetch	See label for adjuvant requirements. This product is used to prevent black seed production by hemp sesbania and northern jointvetch.
penoxsulam – 0.036 to 0.044 lb/A	Grasp 2 SC — 2.3 to 2.8 oz/A	Postflood to 60 days before harvest but before heading if targeting barnyardgrass	Barnyardgrass (prior to heading), hemp sesbania, jointvetch, ducksalad	Emergency salvage treatment. Regrowth of treated weeds may occur. Add crop oil concentrate or methylated seed oil at 1 quart per acre.
propanil + triclopyr – 2 to 3 lb/A + 0.25 to 0.38 lb/A	Various formulations (see product label for specific rates) — 2 to 3 qt/A + Grandstand 3 SL — 0.5 to 1 pt/A	Postflood before 0.5-inch internode elongation	Broadleaf weeds, including hemp sesbania less than 5 feet tall	See *Special Instructions and Remarks* for propanil and Grandstand. Consult propanil label concerning adjuvant use. Floodwater should cover soil surface and root area of treated plants.
Preharvest				
carfentrazone – 0.025 lb/A	Aim 2 EC — 1.5 oz/A	Rice moisture content is ≤ 25%	Morningglory	Aim labeling requires application at least 3 days before harvest. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
sodium chlorate – 4.5 lb/A	Various formulations (see product label for specific rates)	7 days before harvest	Desiccation of weeds and lodged rice	Allow 7 days between application and harvest. Apply in 10 gallons water per acre.

RED/WEEDY RICE CONTROL. Take steps to prevent the introduction of this weed into rice fields. These steps include use of rice seed free of red/weedy rice, cleaning equipment before entering uninfested fields, and hand-roguing of light infestations. Where severe infestations occur, several cycles of a 2-year soybean rotation with rice are suggested. During the years out of rice, strive for 100% red/weedy rice control. Use a combination of preemergence and postemergence herbicides. A combination of shallow spring and fall disking in conjunction with clod disruption also should be used to reduce the soil seedbank. When rice is planted, an early-season variety should be used. It should be planted late to allow for additional spring tillage and seeded at a rate that allows a good competitive stand. The early-season varieties mature earlier, thereby limiting the amount of red/weedy rice that shatters before harvesting, as well as extending the time interval for additional fall tillage.

Small Grain Weed Management

Weed Response Ratings for Herbicides Applied in Small Grains[1]

	Herbicide group numbers	Annual bluegrass	Carolina foxtail	Cheat	Italian ryegrass	Little barley	Buttercup	Chickweed	Coreopsis	Curly dock	Cutleaf evening-primrose	Henbit	Horseweed	Mayweed	Mustard species	Shepherds-purse	Vetch	Virginia pepperweed	Wild garlic
2,4-D	4	0	0	0	0	0	**9**	7	**8**	**8**	**9**	7	**9**	6	**8**	7	**9**	**9**	7
Anthem Flex	14, 15	**9**	**9**	**9**	**9**	**9**	7	7	-	-	-	**8**	7	-	-	7	0	-	2
Axial Bold	1, 1	6	7	**8**	**8**	-	0	0	0	0	0	0	0	0	0	0	0	0	0
Axial XL	1	1	3	4	**8**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Axiom	5, 15	**9**	0	5	6	2	**8**	**8**	-	2	2	**8**	**9**	-	**9**	**8**	5	-	0
Dicamba	4	0	0	0	0	0	**9**	**8**	-	**9**	6	7	**9**	-	-	**8**	**9**	**9**	-
Finesse Cereal and Fallow	2, 2	**9**	-	-	7	3	**9**	**9**	-	**8**	**9**	**9**	-	-	-	**9**	3	-	5
Harmony Extra	2	0	0	0	0	0	**9**	**8**	**8**	**9**	**8**	6	7	**9**	**9**	**9**	**9**	6	**8**
Huskie	6, 27	0	-	0	-	-	-	**9**	-	**8**	**8**	**8**	**9**	**9**	**9**	**8**	-	**9**	0
MCPA	4	**0**	0	0	0	0	**9**	6	**8**	5	**9**	**9**	7	6	7	7	**9**	**9**	7
Metribuzin	5	**9**	6	7	3	7	**8**	**9**	6	0	0	7	**8**	5	7	4	0	**9**	0
Osprey	2	**9**	**9**	3	**9**	5	-	6	-	-	-	5	4	3	7	7	5	-	-
Osprey Xtra	2, 2	**9**	**9**	3	**9**	5	-	6	-	-	-	5	4	3	7	7	7	-	-
Peak	2	4	0	0	0	0	**8**	**8**	-	**8**	**8**	**8**	7	**8**	6	7	**8**	-	**8**
PowerFlex HL	2	5	**8**	**8**	**9**	5	**8**	**9**	**8**	7	7	**9**	3	**9**	**9**	**8**	**8**	**8**	5
Prowl H2O	3	**8**	6	3	6	3	6	6	2	0	4	**8**	5	0	**8**	6	0	-	0
Quelex	2, 4	0	0	0	0	0	**9**	7	6	-	**9**	**9**	**9**	**8**	7	**8**	7	**8**	6
Sentrallas	2, 4	7	7	7	**8**	**7**	3	-	-	-	-	-	-	-	-	-	-	-	-
Zidua SC	15	**9**	**9**	**9**	**9**	**9**	7	**8**	-	-	-	**8**	7	-	-	7	0	-	2

Rating Scale: 0–3 = none to slight; 4–6 = fair; 7–8 = good; 9–10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations approximately 2 to 3 weeks after preemergence applications or with postemergence applications targeted at approximately the 3- to 5-inch growth stage.

Small Grain Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Preplant/Preemergence (Wheat or Barley)				
chlorsulfuron + metsulfuron – 0.0094 to 0.023 lb/A	Finesse Cereal and Fallow 75 DF — 0.2 to 0.5 oz/A	Preplant or preemergence	Broadleaf weeds, annual bluegrass, volunteer corn, non-ALS resistant Italian ryegrass	**Do not** apply to soils with pH above 7.9. **Minimum rotational cropping interval for STS soybean is 6 months; non-STS soybean, corn, sorghum, and cotton require 18 months.** Annual bluegrass and Italian ryegrass activity may be improved with sequential application of metribuzin. Wheat planted less than 1 inch deep (broadcast seeding) is more susceptible to crop injury.
Delayed Preemergence to Early Postemergence (Wheat)				
pyroxasulfone – 0.05 to 0.125 lb/A	Zidua 4 SC — 1.75 to 4 oz/A	Delayed preemergence after wheat seeds have germinated and have shoots longer than 0.5 inch, up until the 4th tiller stage	Italian ryegrass, annual bluegrass, annual weeds	Wheat must be planted with drill to ensure complete seed coverage and sufficient seeding depth (0.5 to 1.5 inches) to minimize crop injury. Crop residue covering more than 25% of soil surface may reduce herbicide effectiveness. This herbicide will not control germinated or emerged weeds.
pyroxasulfone + carfentrazone – 0.063 to 0.141 lb/A	Anthem Flex 4 SC — 2 to 4.5 oz/A	Delayed preemergence after wheat seeds have germinated and have shoots longer than 0.5 inch, up until the 4th tiller stage	Italian ryegrass, annual bluegrass, annual weeds	Wheat must be planted with drill to ensure complete seed coverage and sufficient seeding depth (0.5 to 1.5 inches) to minimize crop injury. Crop residue covering more than 25% of soil surface may reduce herbicide effectiveness. This herbicide will not control germinated or emerged weeds.
Postemergence (Wheat, Oats, Barley, Rye)				
2,4-D amine – 0.48 to 0.96 lb/A; 2,4-D LV esters – 0.21 to 0.5 lb/A; or 2,4-D acid formulation – 0.21 to 0.7 lb/A	Various formulations (see product label for specific rates)	From full tillering until stem elongation	Wild mustard, vetch, buttercup, and pepperweed	Apply to emerged and actively growing weeds. This treatment may be applied in combination with liquid nitrogen fertilizer. Oats are less tolerant to 2,4-D than wheat. **Do not** apply when grains are in boot to dough stage. The low-volatile ester formulation should be used where wild garlic and/or onions are a problem. Provides poor control of henbit and curly dock.
2,4-D + dicamba – 0.50 + 0.13 lb/A	Various formulations (see product labels for specific rates)	From full tillering until stem elongation	Wild mustard, vetch, buttercup, and pepperweed	See *Special Instructions and Remarks* for 2,4-D. See label for injury precautions and grazing restrictions for lactating dairy cows. Add nonionic surfactant at 0.25% v/v. Provides poor control of wild garlic, henbit, and curly dock.
2,4-D acid + dicamba acid – 0.13 + 0.3 lb/A	Latigo 4.2 L — 1 pt/A	From full tillering until stem elongation	Wild mustard, vetch, buttercup, and pepperweed	See *Special Instructions and Remarks* for 2,4-D. Consult label for application instructions, injury precautions, and grazing restrictions.
MCPA – 0.23 to 0.77 lb/A	Various formulations (see product label for specific rates)	From 3- to 4-leaf stage up to early boot stage	Wild mustard, vetch, buttercup, and pepperweed	Apply to emerged and actively growing weeds. **Do not** apply from boot to dough stage.
Early Postemergence (Wheat, Barley, Rye, Triticale)				
pyrasulfotole + bromoxynil – 0.18 to 0.24 lb/A	Huskie 2.06 EC — 11 to 15 oz/A	From 1-leaf up to flag leaf stage	Broadleaf weeds	See label for weeds that are controlled and those that are only partially controlled. Use 80- to 110-degree flat-fan nozzles that deliver medium spray droplets and 50-mesh or larger screens. **Do not** use flood-jet or cone nozzles. See label for aerial application instructions.

Small Grain Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Postemergence (Wheat)				
flufenacet + metribuzin – 0.17 to 0.43 lb/A	Axiom 68 DF — 4 to 10 oz/A	From spiking to 2-leaf wheat stage	Broadleaf weeds, annual bluegrass, and ryegrass	Wheat seed must be planted 1 to 2 inches deep (generally best achieved by drill-planting, rather than broadcast seeding). Axiom rate varies with soil texture and must be applied preemergence to weeds. Apply broadcast by ground at 10 or more gal per acre. **Do not** add crop oil concentrate or other oil-based adjuvants with mixtures. **Do not** allow animal grazing for 30 days after application.
mesosulfuron – 0.013 lb/A	Osprey 4.5 WDG — 4.75 oz/A	From wheat emergence through jointing	Non-ALS resistant Italian ryegrass, annual bluegrass	Wheat injury may occur if nitrogen is applied within 14 days of application. **Do not** apply within 30 days of forage harvest or within 60 days of hay, grain, and straw harvest. Application must include (1) methylated seed oil at 1.3 to 1.5 pints of per acre; or (2) nonionic surfactant at 0.5% v/v plus either ammonium sulfate (1.5 to 3 pounds per acre) or urea-ammonium nitrate (1 to 2 quarts per acre).
metribuzin – 0.094 to 0.14 lb/A	metribuzin 75% formulation — 2 to 3 oz/A or 4 lb/gal formulation — 3 to 4.5 oz/A	During fall when wheat is actively growing and has at least 2 leaves and 1-inch secondary roots	Annual bluegrass and annual broadleaf species	Crop tolerance to metribuzin may vary depending upon variety, wheat health, and root development. Seed planted less than 1 inch deep (broadcast seeding) are more susceptible to crop injury. **Do not** use on soils with less than 0.75% organic matter. **Do not** use crop oil concentrate or any adjuvant containing vegetable or petroleum oils. **Do not** apply in combination with fluid fertilizer.
pendimethalin – 0.71 to 1.43 lb/A	pendimethalin 3.8 lb/gal formulation — 1.5 to 3 pt/A or 3.3 lb/gal formulation — 1.7 to 3.5 pt/A	From 1-leaf wheat stage up to before flag leaf is visible	Italian ryegrass, annual grasses and broadleaf weeds	Seed should be planted at least 0.5 to 1 inch deep to avoid crop injury. Pendimethalin may be mixed with postemergence herbicides because it only provides residual control. Plant residue may inhibit weed control, so only use in tilled seedbeds. Rate is dependent upon soil texture. **Do not** apply more than 2 pints per acre on coarse-textured soils.
pyroxsulam – 0.0164 lb/A	PowerFlex HL 13 DG — 2 oz/A	From 3-leaf wheat stage up to joint	Italian ryegrass, annual grasses and broadleaf weeds	**Do not** mix with dicamba, 2,4-D amine, MCPA, or organophosphate insecticides. **Do not** apply organophosphate products for 5 days before or 5 days after application. **Do not** use on wheat varieties sensitive to ALS herbicides. Consult label for specific instructions on crop rotation restrictions, tank mix compatibility, tank cleanout, application with liquid N fertilizer, and harvest and grazing intervals. Add nonionic surfactant at 0.25% v/v.
Postemergence (Wheat, Barley)				
pinoxaden – 0.053 lb/A	Axial XL 0.42 EC — 16.4 oz/A	From 2-leaf stage up to pre-boot	Italian ryegrass, annual bluegrass	Additional adjuvant is not required. Apply to small, actively growing Italian ryegrass. Axial XL may be mixed in spray solution containing up to 50% nitrogen fertilizer. **Do not** make more than one application per crop season. **Do not** graze or harvest forage for hay for 30 days after application. **Do not** harvest for grain or straw for livestock feed within 60 days of application.
pinoxaden + fenoxaprop – 0.08 lb/A	Axial Bold 0.69 EC — 15 oz/A	Postemergence	Annual bluegrass, Italian ryegrass, and other annual grasses	See *Special Instructions and Remarks* for Axial XL. **Do not** apply to crop stressed by frost, low fertility, flooding, or damage. For winter wheat, apply from emergence to preboot stage. For barley, apply from emergence to until prior to jointing. **Do not** apply to barley after jointing.
Postemergence (Wheat, Oats, Barley)				
thifensulfuron + fluroxypyr – 0.084 to 0.17 lb/A	Sentrallas 1.55 SC — 7 to 14 oz/A for wheat and barley or 7.9 oz/A for oats	Postemergence after two-leaf stage but prior to flag leaf emergence	Curly dock, Carolina geranium, smartweed	**Do not** apply more than 14 ounces per acre in a single application to wheat and barley and more than 9 ounces per acre in a single application to oats. Add nonionic surfactant at 0.25% v/v or crop oil concentrate or methylated seed oil at 1% v/v.

Small Grain Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Postemergence (Wheat, Barley, Triticale)				
halauxifen + florasulam – 0.0096 lb/A	Quelex 20 WDG — 0.75 oz/A	Postemergence to weeds less than 4 inches tall and with 2 to 4 leaves	Horseweed, henbit, purple deadnettle, buttercup, Carolina geranium, wild mustard, shepherd's-purse	**Do not** apply more than 0.75 ounces per acre per season. **Do not** apply in more than two consecutive seasons. When applied alone, add nonionic surfactant at 0.2 to 0.5% v/v or crop oil concentrate or methylated seed oil at 1% v/v.
Postemergence (Wheat, Oats, Rye)				
prosulfuron – 0.018 lb/A	Peak 57 WDG — 0.5 oz/A	From 3-leaf stage until stem elongation	Broadleaf weeds, wild garlic	See label concerning mixtures with dicamba and restrictions. **Do not** plant cotton or non-STS soybean for 10 months after application. **Do not** graze or feed forage for 30 days after application. **Do not** harvest for grain and silage for 60 and 40 days after application, respectively. Add nonionic surfactant at 0.25% v/v.
Postemergence (Wheat, Oats, Triticale, Barley)				
thifensulfuron + tribenuron – 0.014 to 0.028 lb/A	Harmony Extra 50 SG with TotalSol — 0.45 to 0.9 oz/A	From 2-leaf wheat stage up to before flag leaf is visible	Broadleaf weeds, wild garlic, curly dock	Apply to actively growing annual broadleaf weeds less than 4 inches tall. For wild garlic control, use 0.75 to 0.9 ounces per acre when weeds are less than 12 inches tall with 2 to 4 inches of new growth. Two applications may be made per crop season if total does not exceed 1.5 ounces per acre. For oats, use 0.45 to 0.6 ounces per acre. Add nonionic surfactant at 0.25% v/v unless liquid N comprises at least 50% of spray volume.
Postemergence (Wheat, Triticale)				
mesosulfuron + thiencarbazone – 0.018 lb/A	Osprey Xtra 6 WDG — 4.75 oz/A	Postemergence from emergence to jointing	Annual bluegrass, wild oat, wild mustard, wild radish	Use only on winter wheat or fall-sown triticale. **Do not** apply within 30 days of harvesting or grazing wheat or triticale forage and 60 days for hay, grain, or straw. Wheat injury may occur if nitrogen fertilizer is applied with 14 days of application. Add nonionic surfactant at 0.5% v/v and urea-ammonium nitrate at 1 to 2 quarts per acre or ammonium sulfate at 1.5 to 3 pounds per acre.
Preharvest (Wheat)				
carfentrazone – 0.016 to 0.032 lb/A	Aim 2 EC — 1 to 2 oz/A	After wheat kernels are mature, brown, and hard; grain moisture will be less than 25%.	Broadleaf weeds	Thorough spray coverage is essential for satisfactory performance. **Do not** apply more than 2 ounces per season. Aim may be mixed with glyphosate to improve control of grasses and other weeds. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
glyphosate – 1 lb/A	Various formulations (see product label for specific rates)	After wheat kernels are mature, brown, and hard; grain moisture will be less than 25%.	Annual grasses and broadleaf weeds	**Do not** use on wheat grown for seed. Avoid drift to nearby crops that are not glyphosate tolerant.
Preharvest (Wheat, Barley, or Triticale)				
saflufenacil – 0.022 to 0.044 lb/A	Sharpen 2.85 SC — 1 to 2 oz/A	After wheat kernels are mature, brown, and hard; grain moisture will be less than 25%.	Broadleaf weeds	**Do not** apply on labeled crops grown for seed production. Thorough spray coverage is essential for satisfactory performance. Allow up to 7 days for optimum desiccation, depending upon environmental conditions. May be mixed with glyphosate to improve control of grasses and other weeds. Add methylated seed oil at 1% v/v plus ammonium sulfate.

Soybean Weed Management

Weed Response Ratings for Soybean Herbicides Applied Preemergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Volunteer glyphosate-resistant corn	Yellow nutsedge	Balloonvine	Cocklebur	Common ragweed	Cutleaf groundcherry	Hemp sesbania	Hophornbeam copperleaf	Jimsonweed	Morningglory—entireleaf	Morningglory—palmleaf	Morningglory—pitted	Morningglory—smallflower	Palmer, spiny amaranth, waterhemp	Pennsylvania smartweed	Prickly sida	Purple moonflower	Purslane	Showy crotalaria	Sicklepod	Smooth, redroot pigweed	Spurge	Spurred anoda	Velvetleaf	Wild poinsettia	Crop tolerance (G = good, F = Fair)
PPI-Preplant-Incorporated[2]																																	
Pendimethalin or Trifluralin	3, 3	**9**	**9**	**9**	**9**	**9**	3	**9**	-	**8**	1	0	-	-	0	-	5	2	2	2	2	7	2	0	1	**9**	3	4	**8**	-	0	4	-	G
Preplant or Preemergence																																	
Anthem Flex	14, 15	**9**	**9**	**9**	**8**	**8**	0	**8**	0	4	-	-	5	-	6	6	7	6	-	6	-	**9**	-	**8**	-	**9**	-	6	**9**	6	5	5	-	G
Anthem Maxx	14, 15	**9**	**9**	**9**	**8**	**8**	0	**8**	0	4	-	-	5	-	-	-	7	6	-	6	-	**9**	-	**8**	-	**9**	-	-	**9**	-	-	7	-	G
Authority Edge	14, 15	**9**	**9**	**9**	**8**	**8**	4	**8**	0	5	-	4	7	**8**	6	**8**	**8**	**8**	**8**	**8**	**8**	**9**	**8**	**8**	**8**	**9**	-	4	**9**	6	-	7	-	F
Authority Elite	14, 15	**9**	**9**	**9**	**9**	**8**	0	**8**	0	7	-	**8**	7	**8**	4	**8**	7	**8**	**8**	**8**	**8**	**9**	**9**	**8**	**8**	**9**	-	4	**9**	6	-	7	-	F
Authority First	2, 14	5	5	5	5	5	0	5	6	7	-	7	**8**	**8**	6	**8**	**8**	**8**	**8**	**9**	7	7	**9**	7	7	**9**	-	-	**9**	**8**	**8**	**8**	7	G
Authority Supreme	14, 15	**9**	**9**	**9**	**8**	**8**	4	**8**	0	5	-	4	7	**8**	6	**8**	**8**	**8**	**8**	**8**	**8**	**9**	**8**	**8**	**8**	**9**	-	4	**9**	6	-	7	-	F
Authority XL	2, 14	6	6	6	6	5	2	5	-	**9**	-	**9**	**8**	-	5	**9**	**8**	**9**	**9**	**9**	**9**	**9**	**9**	4	-	**8**	-	6	**9**	**8**	-	**9**	**9**	F
Boundary	5, 15	**8**	**8**	**8**	**8**	**8**	0	7	-	7	**9**	5	**9**	**9**	**9**	**9**	**8**	3	7	7	**8**	**8**	**9**	**9**	5	**9**	6	7	**9**	**9**	**9**	**8**	6	F
Clomazone	13	**9**	**9**	**9**	**8**	**9**	3	**9**	-	-	5	6	5	0	4	**8**	**8**	4	6	7	6	0	**8**	**9**	3	**9**	3	0	4	**8**	**9**	**10**	**9**	G
Envive	2, 2, 14	6	5	6	6	5	0	5	-	7	7	**9**	**9**	**8**	**8**	**9**	**8**	**9**	**9**	**9**	6	**9**	**8**	**8**	**9**	**9**	**9**	7	**9**	**8**	**9**	**8**	-	F
Fierce or Fierce EZ	5, 15	**9**	**9**	**9**	**8**	**8**	4	**8**	0	4	-	4	7	**8**	**8**	**8**	**8**	7	7	7	6	**9**	**9**	**8**	-	**9**	**9**	6	**9**	6	7	**8**	**8**	F
Fierce MTZ or Kyber	5, 14, 15	**9**	**9**	**9**	**8**	**8**	4	**8**	0	4	-	7	**9**	7	**9**	**9**	**8**	**8**	**8**	**8**	6	**9**	**9**	**8**	**9**	**9**	**9**	**8**	**9**	**9**	**9**	**8**	7	F
Fierce XLT	2, 15, 5	**9**	**9**	**9**	**8**	**8**	4	**8**	4	6	-	4	**8**	**8**	**9**	**9**	**8**	**8**	**8**	**9**	6	**9**	**9**	**9**	-	**9**	**9**	**8**	**9**	**9**	**9**	**9**	**9**	F
Flumioxazin	14	5	5	5	6	5	0	5	-	7	7	0	**9**	5	**9**	**9**	**8**	**8**	**8**	**8**	6	**8**	**9**	**8**	**9**	6	**9**	7	**8**	**8**	**8**	5	-	F
Fomesafen	14	4	3	4	-	4	0	4	-	7	-	7	7	**8**	4	-	4	5	6	**8**	5	**8**	7	**8**	4	7	-	7	**8**	-	1	-	6	G
Intimidator	5, 14, 15	**8**	**8**	**8**	**8**	**8**	0	6	-	7	**9**	5	**9**	**9**	**9**	**9**	**8**	3	7	7	**8**	**9**	**9**	**9**	5	**9**	6	7	**9**	**9**	**9**	**8**	6	F
Metolachlor/s-metolachlor	15	**8**	**8**	**9**	**9**	**9**	0	6	-	**9**	1	0	6	6	0	2	**8**	0	0	0	0	7	4	4	0	**9**	3	2	**9**	5	0	4	-	G
Metribuzin	5	**8**	6	**8**	7	7	0	5	-	2	**9**	6	**9**	**9**	**9**	**9**	**8**	2	2	7	**8**	7	**9**	**9**	6	**9**	7	**8**	**9**	**9**	**9**	**8**	7	F
Outlook	15	**8**	**8**	**9**	**9**	**9**	0	6	-	5	1	0	**9**	4	0	3	3	0	0	0	0	6	4	4	0	**9**	5	3	**9**	5	0	4	-	G
Pendimethalin	3	**9**	**9**	**9**	**9**	**9**	3	**9**	-	0	0	0	3	0	0	0	3	2	2	2	2	6	2	4	1	**9**	0	2	**8**	2	0	2	0	G
Perpetuo	14, 15	**9**	**9**	**9**	**8**	**8**	4	7	0	4	-	3	6	-	6	**8**	6	5	5	5	6	**9**	7	**8**	-	**9**	-	7	**9**	**9**	-	7	-	G
Prefix	14, 15	**9**	**8**	**9**	**8**	**9**	0	7	-	**9**	-	5	**9**	**9**	7	6	**8**	5	5	5	4	**9**	4	4	**9**	6	4	5	**8**	**9**	**9**	6	-	G
Python	2	3	3	3	3	3	0	3	-	-	3	**8**	**8**	**9**	0	7	-	5	7	7	**8**	6	**9**	**9**	-	**9**	3	7	**9**	**9**	**9**	**9**	6	G
Scepter	2	7	7	7	5	5	2	7	-	4	5	**9**	7	-	7	7	**8**	6	**8**	**8**	**8**	6	**9**	**9**	5	**9**	-	5	**10**	6	7	6	7	G
Solicam DF	12	**8**	**8**	**9**	7	**8**	2	7	-	4	-	4	-	-	6	-	-	4	5	5	4	7	5	**8**	4	**9**	-	5	**8**	**8**	7	7	-	F
Tendovo	2,5,15	**9**	**9**	**9**	**9**	**8**	2	7	2	**8**	**9**	**9**	**9**	**9**	**9**	**9**	**8**	**8**	**8**	**9**	**9**	**9**	**9**	**9**	**8**	**8**	-	7	**9**	**9**	**9**	**8**	6	G
Valor XLT	2, 14	6	5	6	6	5	0	5	-	**8**	7	**9**	**9**	5	**8**	**9**	**9**	**9**	**9**	**9**	6	**9**	**8**	**8**	**9**	**9**	**9**	7	**9**	6	**9**	5	-	F
Warrant	15	**8**	7	7	7	7	3	5	-	7	-	0	5	**9**	6	-	4	0	0	0	0	6	4	5	0	**9**	3	3	**8**	4	2	3	3	G
Zidua SC	15	**9**	**9**	**9**	**8**	**8**	4	7	0	4	-	3	5	-	6	**8**	7	6	6	6	6	**9**	7	**8**	-	**9**	-	7	**9**	**9**	-	7	-	G
Zone Defense	14, 14	6	5	6	6	5	3	5	-	7	7	**8**	**9**	5	**9**	**9**	**8**	**9**	**9**	**9**	6	**9**	**9**	**9**	**9**	**7**	**9**	7	**9**	**8**	**8**	7	-	F

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected residual control of herbicide-susceptible populations approximately 2 to 3 weeks after application.

[2]An overlay treatment with the preemergence herbicides will control a broader spectrum of weeds, but the control of a given species may be no better than that for the best herbicide in the specific combination selected.

Soybean Weed Management

Weed Response Ratings for Soybean Herbicides Applied Postmergence[1]

	Herbicide group numbers	Barnyardgrass	Broadleaf signalgrass	Crabgrass	Fall panicum	Goosegrass	Johnsongrass—rhizome	Johnsongrass—seedling	Volunteer glyphosate-resistant corn	Yellow nutsedge	Balloonvine	Cocklebur	Common ragweed	Cutleaf groundcherry	Hemp sesbania	Hophornbeam copperleaf	Jimsonweed	Morningglory—entireleaf	Morningglory—palmleaf	Morningglory—pitted	Morningglory—smallflower	Palmer, spiny amaranth, waterhemp	Pennsylvania smartweed	Prickly sida	Purple moonflower	Purslane	Showy crotalaria	Sicklepod	Smooth, redroot pigweed	Spurge	Spurred anoda	Velvetleaf	Wild poinsettia	Crop tolerance (G = good, F = Fair)
Acifluorfen	14	3	4	3	2	3	2	3	-	3	**8**	5	**8**	**9**	**9**	**8**	**8**	**8**	**9**	**9**	**8**	7	7	1	**9**	**8**	**9**	3	**8**	7	2	-	7	G
Acifluorfen + 2,4-DB	14, 4	3	4	3	2	3	2	3	-	-	**8**	7	**8**	**9**	**9**	**8**	**8**	**8**	**9**	**9**	**8**	7	7	1	**9**	**8**	**9**	3	**8**	7	-	-	**8**	F
Bentazon	6	0	0	0	0	0	0	0	-	6	**8**	**9**	**9**	6	4	0	**8**	2	7	6	**9**	4	**9**	**8**	3	7	0	0	5	0	**8**	**9**	7	G
Bentazon + 2,4-DB	6, 4	0	0	0	0	0	0	0	-	6	**8**	**9**	**9**	6	5	0	**8**	5	**9**	**8**	**9**	4	**9**	**8**	5	7	0	0	5	0	**8**	**9**	6	F
Chlorimuron	2	0	0	0	0	0	0	0	-	6	5	**10**	**8**	-	**8**	4	**9**	**9**	**9**	**8**	**8**	6	**9**	2	**9**	5	-	7	**10**	0	4	**8**	**8**	G
Clethodim	1	**9**	**9**	**9**	**8**	**9**	7	**9**	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	G
Cobra	14	4	4	4	3	3	2	3	-	3	**9**	**8**	**8**	**9**	**9**	**8**	**9**	**8**	**8**	**9**	**8**	**8**	6	**8**	**9**	**9**	**9**	5	**9**	**8**	6	**8**	**8**	F
FirstRate	2	0	0	0	0	0	0	0	-	6	-	**9**	**8**	-	3	4	-	**8**	**8**	**9**	**9**	2	-	2	-	-	-	7	2	4	-	7	-	G
Fomesafen	14	3	3	3	2	3	3	3	-	6	**8**	**8**	**8**	**9**	**9**	**8**	**9**	**8**	**8**	**9**	**8**	**8**	7	2	**9**	**8**	**9**	3	**9**	5	2	-	**8**	G
Fusilade DX	1	**8**	**8**	**8**	**8**	**9**	**9**	**9**	**8**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	G
Glufosinate[2]	10	7	7	7	7	5	7	**8**	9	4	**9**	**9**	**9**	6	**8**	**8**	**8**	**9**	**9**	**9**	**8**	**9**	**9**	7	-	6	-	**8**	**8**	**8**	**7**	**7**	-	G
Glyphosate[3]	**9**	**9**	**9**	**9**	**9**	**8**	**8**	**9**	-	6	**8**	**10**	**9**	**9**	7	**8**	**8**	7	**8**	**8**	**9**	**8**	**8**	7	**8**	**8**	**8**	**8**	**9**	**8**	7	7	**9**	G
Liberty ULTRA	10	7	7	7	7	5	7	**8**	9	4	**9**	**9**	**9**	6	**8**	**8**	**8**	**9**	**9**	**9**	**8**	**9**	**9**	7	-	6	-	**8**	**8**	**8**	**7**	**7**	-	G
Permit Plus[4]	2	0	0	0	0	0	0	0	**0**	**9**	-	**8**	**8**	-	**9**	-	-	-	-	-	-	-	**8**	-	-	-	-	-	-	-	-	**8**	-	G
Perpetuo	14,15	**9**	**8**	**9**	**9**	**8**	4	6	2	0	-	-	6	-	**8**	5	7	-	-	-	-	**8**	7	7	-	**9**	3	7	**9**	4	3	3	5	G
Poast	1	**8**	**9**	**9**	**9**	**9**	7	**9**	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	G
Prefix	14,15	3	3	3	2	3	3	3	-	7	**8**	**8**	6	**8**	**9**	**9**	0	**8**	**8**	**9**	**8**	**8**	7	2	**9**	**8**	**8**	**9**	**9**	**8**	2	**9**	6	G
Quizalofop	1	**9**	**9**	**9**	**9**	**8**	**8**	**9**	**8**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	G
Scepter	2	2	2	3	5	3	5	6	-	5	0	**10**	6	-	2	3	0	5	6	6	7	6	7	3	5	**9**	0	3	**10**	3	2	3	7	G
Storm	6, 14	3	4	3	2	3	3	0	-	6	**8**	**9**	**9**	**9**	**9**	7	**8**	**8**	**9**	**9**	**9**	7	**8**	7	7	**8**	**9**	2	**8**	6	7	**8**	6	G
Sequence	9, 15	**9**	**9**	**9**	**9**	**8**	**8**	**9**	-	7	**8**	**10**	**9**	**9**	7	**8**	**8**	7	**8**	**8**	**9**	**9**	**8**	7	**8**	**8**	**8**	**8**	**9**	**8**	7	7	9	G
Synchrony XP[4]	2	**8**	**8**	**8**	**9**	7	0	6	-	7	-	**9**	-	0	**8**	7	7	**9**	**9**	**9**	**9**	**8**	**8**	6	7	**8**	-	-	**8**	**8**	-	**8**	0	G
Warrant Ultra	14,15	**8**	**8**	7	**9**	7	3	5	3	0	7	-	7	7	**8**	5	-	4	5	**8**	5	**8**	7	7	4	**9**	3	7	**9**	3	2	2	6	G
Postemergence-Directed																																		
2,4-DB	4	0	0	0	0	0	0	0	-	0	1	**9**	1	0	3	2	4	**9**	**9**	**9**	**9**	**8**	0	3	**9**	3	-	0	2	0	2	3	3	G
Linuron	7	7	7	**8**	7	7	0	7	-	-	**8**	7	**8**	**8**	**8**	7	7	**8**	**8**	**8**	**8**	**8**	7	**8**	7	**8**	-	7	**8**	7	**8**	6	7	G
Linuron + 2,4-DB	7, 4	7	7	**8**	7	7	0	7	-	2	**9**	**9**	**9**	**10**	**8**	**9**	**8**	**10**	**9**	**9**	**10**	**9**	7	**8**	**9**	**9**	-	**9**	**9**	7	**8**	7	**8**	G
Metribuzin	5	7	7	**8**	-	7	0	7	-	0	**8**	**8**	7	7	7	-	-	7	7	7	7	**8**	7	**8**	7	-	-	**8**	**8**	4	**8**	**8**	5	G
Metribuzin + 2,4-DB	5, 4	7	7	**8**	-	7	0	7	-	0	**9**	**9**	**8**	**8**	7	**8**	7	**9**	**9**	**9**	**9**	**8**	7	**8**	**8**	3	-	**9**	**8**	4	**8**	**8**	7	G
Paraquat (2 applications)	22	**9**	**9**	**9**	**8**	**8**	0	**8**	-	3	2	4	**8**	7	1	7	7	5	6	4	7	**8**	5	4	4	**8**	-	**8**	**8**	5	3	6	**8**	G

Rating Scale: 0-3 = none to slight; 4-6 = fair; 7-8 = good; 9-10 = excellent.

[1]Control expected under optimum conditions. Mississippi State University does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Mississippi (See Herbicide-Resistant Weed Species). Ratings reflect expected control of herbicide-susceptible populations targeted at approximately the 3- to 5-inch growth stage.

[2] Enlist, LibertyLink, or LibertyLink GT27 soybean varieties only.

[3] Enlist, LibertyLink GT27, Roundup Ready 2, Roundup Ready 2 Xtend, and Roundup Ready 2 XtendFlex soybean varieties only.

[4]BOLT or STS soybean cultivars only.

Soybean Weed Management

Herbicide Rates for Preemergence Application in Soybean

Herbicide	Formulation	Sandy loam, sandy loam	Loam, silt, silt loam, sandy clay, sandy clay loam	Silty clay, clay loam, silty clay loam, clay
Metolachlor	8 EC	1.5 to 2 pt/A	2 to 2.5 pt/A	2 to 2.5 pt/A
S-metolachlor	7.62 EC	1 to 1.33 pt/A	1.33 to 1.67 pt/A	1.33 to 1.67 pt/A
Metribuzin	75 DF	0.33 to 0.5 lb/A	0.5 to 0.67 lb/A	0.67 to 0.83 lb/A
	4 L	0.5 to 0.75 pt/A	0.75 to 1 pt/A	1 to 1.25 pt/A

Herbicide Rates for Controlling Grasses with Postemergence Herbicide Applications

	Fusilade DX		Quizalofop		Poast	
Grass species	Grass size (in)	Rate (oz/A)	Grass size (in)	Rate (oz/A)	Grass size (in)	Rate (oz/A)
Barnyardgrass	1 to 2	12	2 to 6	8	1 to 8	24
Bermudagrass	4 to 8	12	3	10	1 to 6	36
Second application	4 to 8	8	3	7	1 to 4	24
Broadleaf signalgrass	2 to 4	12	2 to 6	8	1 to8	24
Crabgrass	1 to 2	12	2 to 6	8	1 to 6	24
Goosegrass	2 to 4	8	2 to 6	8	1 to 6	24
Red rice	1	16	1 to 4	9	1 to 4	48
Rhizome johnsongrass	8 to 18	12	10 to 24	10	15 to 20	24
Second application	6 to 12	8	6 to 10	7	6 to 10	24
Seedling johnsongrass	2 to 8	6	2 to 8	5	1 to 8	24
Volunteer corn	12 to 24	6	8 to 18	5	12 to 20	24 to 36

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
Preplant Incorporated				
pendimethalin – 0.5 to 0.75 to 1.0 lb/A	pendimethalin 3.8 lb/gal formulation — 1 to 1.5 to 2 pt/A or 3.3 lb/gal formulation — 1.2 to 1.8 to 2.4 pt/A	Preplant or preemergence	Annual grasses and some small-seeded broadleaf weeds such as pigweeds and purslane	Immediately incorporate 1 to 2 inches deep. Loss of 15% can be expected if incorporation is delayed 24 hours. If stand failure occurs, replant soybean, but **do not** re-treat. Increase rate by 0.5 pint on medium-textured soils and 1 pint on fine-textured soils if heavy weed populations are anticipated.
trifluralin – 0.5 to 0.75 to 1 lb/A	trifluralin 4 lb/gal formulation — 1 to 1.5 to 2 pt/A	Preplant or preemergence	Annual grasses and some small-seeded broadleaf weeds such as pigweeds and purslane	Immediately incorporate 1 to 2 inches deep. Loss of 30% can be expected if incorporation is delayed 24 hours. If stand failure occurs, replant soybean, but **do not** re-treat.
Preplant or Preemergence				
acetochlor + fomesafen – 1.29 to 1.89 lb/A	Warrant Ultra 3.45 CS – 48 to 70 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Mechanical incorporation is not recommended. Application with other herbicides or during periods of cold, wet weather may increase potential for crop injury.
clomazone – 1.0 to 1.25 lb/A	clomazone 3 lb/gal formulation — 2.6 to 3.3 pt/A	Preemergence	Annual grasses, prickly sida, purslane, spotted spurge, velvetleaf, wild poinsettia	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** (1) apply within 1,500 feet of towns, subdivisions, commercial vegetables, greenhouses, or nurseries; (2) graze or feed forage, hay, or straw from treated fields to livestock. Select rates according to soil texture and weed pressure.
cloransulam – 0.032 to 0.039 lb/A	FirstRate 84 DG — 0.6 to 0.75 oz/A	Within 2 weeks of planting for preplant applications or within 2 days after planting for PRE applications	Horseweed, morningglory, prickly sida, common ragweed, giant ragweed, smartweed, velvetleaf	At least 0.5 inch rainfall needed for incorporation. Mix with glyphosate or other nonselective herbicides to improve control of emerged vegetation. Mix with preemergence herbicides to improve residual control. **Do not** exceed 1.05 ounces per acre in a season.
dimethenamid-P – 0.47 to 0.98 lb/A	Outlook 6 EC — 10 to 21 oz/A	Preplant or preemergence	Annual grasses and some small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Provides poor control of most large-seeded broadleaf weeds. May cause temporary growth suppression of soybean with high rainfall and water-saturated soil. **Do not** use more than 21 ounces of Outlook per season.
fomesafen – 0.25 to 0.38 lb/A	fomesafen 2 or 1.88 lb/gal formulation — 1 to 1.5 pt/A	Preemergence	Small-seeded broadleaf weeds, especially pigweeds and prickly sida	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** exceed a cumulative total of 0.375 pound of fomesafen per acre per year. Sufficient weed control depends on adequate rainfall for incorporation. Temporary injury to soybean can result if rainfall occurs soon after crop emergence; new soybean growth emerging after rainfall will be normal.
flumetsulam – 0.05 to 0.067 oz/A	Python 80 WDG — 1.0 to 1.33 oz/A	Preemergence	Annual broadleaf weeds	**Do not** (1) apply more than 1.4 ounces in a year; (2) exceed 0.07 lb flumetsulam per year; (3) apply to soils with a pH of 7.8 or higher; (4) aerially apply.
flumioxazin – 0.063 to 0.096 lb/A	flumioxazin 51% formulation — 1 to 2.5 oz/A or 4 lb/gal formulation — 1 to 2.6 oz/A	Preplant or preemergence	Prickly sida, morningglory, pigweeds, horseweed; other annual broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Soybean injury is possible under cool and wet conditions following planting or when incorporating rainfall occurs as seedlings are cracking. To reduce injury potential, use preplant and allow rainfall to occur before planting. Injury may occur if used in same field where flufenacet, metolachlor/*s*-metolachlor, or dimethenamid-P will be used.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
flumioxazin + chlorimuron – 0.076 lb/A	Valor XLT 40.3 WDG — 3 oz/A	Preplant or preemergence	Prickly sida, morningglory, pigweed, horseweed; other annual broadleaf weeds	See *Special Instructions and Remarks* for flumioxazin. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Provides increased morningglory, annual grass, cocklebur, and sicklepod control and longer residual control of glyphosate-resistant horseweed (marestail).
flumioxazin + chlorimuron + thifensulfuron – 0.065 to 0.1 lb/A	Envive 41.3 WDG — 2.5 to 4 oz/A	Preplant or preemergence	Prickly sida, morningglory, pigweed, horseweed; other annual broadleaf weeds	See *Special Instructions and Remarks* for Valor XLT and flumioxazin. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 4 ounces per season.
flumioxazin + chlorimuron + metribuzin – 0.23 to 0.34 lb/A	Trivence 61.3 WDG — 6 to 9 oz/A	Preplant or preemergence	Prickly sida, morningglory, pigweed, horseweed; other annual broadleaf weeds	See *Special Instructions and Remarks* for Valor XLT, flumioxazin, and metribuzin. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 9 ounces per season. **Do not** apply to Black Belt soils with a pH > 7.0 or history of nutrient deficiency such as iron chlorosis.
flumioxazin + pyroxasulfone – 0.14 to 0.18 lb/A	Fierce 76 WDG — 3 to 3.75 oz/A or Fierce EZ 3 SC — 6 to 7.7 oz/A	Preplant or preemergence	Prickly sida, morningglory, pigweed, crabgrass, barnyardgrass; other annual grass and broadleaf weeds	See *Special Instructions and Remarks* for flumioxazin. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 3.75 ounces of Fierce 76 WDG per season.
flumioxazin + pyroxasulfone + chlorimuron – 0.15 to 0.2 lb/A	Fierce XLT 62.4 WDG — 3.75 to 5.25 oz/A	Preplant or preemergence	Prickly sida, morningglory, pigweed, crabgrass, barnyardgrass; other annual grass and broadleaf weeds	See *Special Instructions and Remarks* for flumioxazin and Valor XLT. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 3.75 ounces per acre on soils with pH greater than 6.8.
flumioxazin + pyroxasulfone + metribuzin – 0.33 to 0.5 lb/A	Fierce MTZ 2.64 SC — 1 to 1.5 pt/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 1.5 pints per acre per year. **Do not** make more than one application per year.
imazaquin – 0.125 lb/A	Scepter 70 DG — 2.86 oz/A	Preemergence	Cocklebur, morningglory, prickly sida, smartweed, and common ragweed	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation. In no-till or double-crop following wheat, use at least 20 gallons water. Add nonionic surfactant at 0.25% v/v.
metolachlor – 1.5 to 2.5 lb/A or *s*-metolachlor – 0.95 to 1.6 lb/A	Various formulations **(see table at beginning of section for specific rates by soil texture)**	Preemergence	Annual grasses and some small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Sufficient weed control depends on adequate rainfall for incorporation. If stand failure occurs, **do not** re-treat unless replanting is in the middles.
s-metolachlor + fomesafen – 1.32 lb/A	Prefix 5.29 EC — 2 pt/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. A maximum of 3 pints per acre can be applied within a single cropping season (includes preemergence and postemergence timings). Injury can occur if applied at soybean cracking or after soybean emergence if rainfall occurs after soybean emergence.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
s-metolachlor + metribuzin – 0.98 to 2 lb/A	Boundary 6.5 EC — 1.2 to 2.5 pt/A	Preplant or preemergence	Barnyardgrass, crabgrass, pigweed, prickly sida, hemp sesbania; other grass and broadleaf weeds	See *Special Instructions and Remarks* for metolachlor/*s*-metolachlor and metribuzin. **Do not** use rates > 1.5 pints per acre on soils above pH 7.0. **Do not** use on sands with less than 0.5% organic matter.
s-metolachlor + metribuzin + fomesafen – 1.2 to 2.69 lb/A	Intimidator 4.8 EC — 2 to 4.48 pt/A	Preplant or preemergence	Barnyardgrass, crabgrass, pigweed, prickly sida, hemp sesbania; other grass and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** exceed 4.48 pints per acre per season. **Do not** exceed cumulative total of 0.375 pound of fomesafen per acre per year.
s-metolachlor + metribuzin + cloransulam-methyl — 1.25 to 1.83 lb/A	Tendovo 4.18 EC — 2.39 to 3.5 pt/A	Preplant or preemergence	Barnyardgrass, crabgrass, pigweed, prickly sida, hemp sesbania; other grass and broadleaf weeds	See *Special Instructions and Remarks* for metolachlor/*s*-metolachlor and metribuzin. **Do not** apply more than 4.7 pints per acre in a single year. Injury may be increased following use in areas with a history of iron chlorosis.
metribuzin – 0.25 to 0.63 lb/A	metribuzin 75% formulation — 5.33 to 13.4 oz/A or 4 lb/gal formulation — 8 to 20 oz/A **(see table at beginning of section for specific rates by soil texture)**	Preplant or preemergence	Hemp sesbania, prickly sida, early sicklepod; annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Injury may occur (1) on soils with calcareous surface or pH 7.5 and above, (2) to certain soybean varieties **(see label for list)**, (3) on soil with < 0.5% organic matter, (4) when soybean are planted < 1.5 inches deep, and (5) when heavy rains follow application, especially in poorly drained areas where water may stand several days.
pendimethalin – 0.5 to 0.75 to 1.0 lb/A	pendimethalin 3.8 lb/gal formulation — 1 to 1.5 to 2 pt/A or 3.3 lb/gal formulation — 1.2 to 1.8 to 2.4 pt/A	Preplant or preemergence	Annual grasses and some small-seeded broadleaf weeds such as pigweed and purslane	See *Special Instructions and Remarks* for pendimethalin. Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. Rainfall or overhead irrigation is needed within 7 days for activity. Seedling diseases, cold weather, excessive moisture, shallow or deep planting, low or high soil pH, high soil salt concentration or drought can weaken seedlings and increase crop injury.
pyroxasulfone – 0.08 to 0.18 lb/A	Zidua 4 SC — 2.5 to 5.75 oz/A	Preplant or preemergence	Pigweed, crabgrass, barnyardgrass, prickly sida, velvetleaf; other grass and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 0.11 pound active ingredient per acre on coarse soils or more than 0.19 pound active ingredient per acre on all other soils per cropping season.
pyroxasulfone + carfentrazone – 0.07 to 0.2 lb/A	Anthem Flex 4 SC — 2.25 to 6.4 oz/A	Preplant or preemergence	Pigweed, crabgrass, barnyardgrass, prickly sida, velvetleaf; other grass and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to improve weed control spectrum. **Do not** apply more than 3.8 ounces per acre on coarse soils or more than 5.45 ounces per acre on medium soils or more than 6.4 ounces per acre on fine soils.
pyroxasulfone + flumiclorac – 0.11 to 0.18 lb/A	Perpetuo 2.3 SC — 6 to 10 oz/A	Preplant or preemergence	Annual grasses and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to improve weed control spectrum. **Do not** apply more than 10 ounces per acre in a single season. **Do not** apply more than 8 ounces per acre in a single season to coarse soils.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
pyroxasulfone + fluthiacet-methyl – 0.067 to 0.185 lb/A	Anthem Maxx 4.3 SC — 2 to 5.5 oz/A	Preplant or preemergence	Pigweed, crabgrass, barnyardgrass, prickly sida, velvetleaf; other grass and broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 3.4 ounces on coarse soils or more than 5.7 ounces on all other soils per cropping season.
pyroxasulfone + sulfentrazone – 0.2 to 0.52 lb/A	Authority Edge 4.25 SC — 5.9 to 15.7 oz/A	Preplant or preemergence	Annual grasses, Palmer amaranth, prickly sida, velvetleaf	Mix with glyphosate, paraquat, or glufosinate to improve weed control spectrum. **Do not** apply more than 9.4 ounces per acre on coarse soils or more than 15.7 ounces per acre on all other soils.
pyroxasulfone + sulfentrazone – 0.14 to 0.5 lb/A	Authority Supreme 4.16 SC — 4.3 to 15.4 oz/A	Preplant or preemergence	Annual grasses, Palmer amaranth, prickly sida, velvetleaf	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 15.4 ounces per acre per year. **Do not** apply more than the cumulative amounts of 0.27 pounds active ingredient per acre of pyroxasulfone and 0.24 pounds active ingredient of sulfentrazone per year.
sulfentrazone + carfentrazone-ethyl – 0.15 to 0.23 lb/A	Spartan Charge 3.45 SL — 5.75 to 8.5 oz/A	Preplant or preemergence	Pigweed, morningglory; other broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 8.5 fluid ounces per acre per 12-month period. Soybean chlorosis and stunting may occur at pH 7.5 and above, as well as under cold and wet growing conditions. **Do not** use on soils classified as sand, which have less than 1% organic matter.
sulfentrazone + cloransulam-methyl – 0.18 to 0.28 lb/A	Authority First 70 WDG — 4 to 6.45 oz/A	Preplant or preemergence	Yellow nutsedge, pigweed, prickly sida, morningglory, common ragweed, horseweed	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 8 ounces per season.
sulfentrazone + flumioxazin – 0.19 to 0.24 lb/A	Zone Defense 77 WDG — 4 to 5 oz/A	Preplant or preemergence	Pigweed, morningglory, prickly sida; other broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to improve weed control spectrum. Use higher rate for soils with pH less than 7.0 and lower rate for soils with pH greater than 7.0. Injury may occur if excessive rainfall occurs after application but before soybean emergence.
sulfentrazone + *s*-metolachlor – 1.04 to 2.11 lb/A	Authority Elite 7 SC — 19 to 38.7 oz/A	Preplant or preemergence	Annual grasses and small-seeded broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply after crop emerges. **Do not** apply more than 38.7 ounces per cropping season.
sulfentrazone + chlorimuron ethyl – 0.13 to 0.35 lb/A	Authority XL 70 DG — 3 to 8 oz/A	Preplant or preemergence	Pigweed, morningglory, prickly sida; other annual broadleaf weeds	Mix with glyphosate, paraquat, or glufosinate to control emerged vegetation. **Do not** apply more than 9.6 ounces per year. **Do not** apply after soybean emergence or severe injury may occur. **Do not** apply to Black Belt soils with a pH of more than 6.8 or history of nutrient deficiency.
Cultivation: Use so that the soil moved will not interfere with subsequent use of postemergence herbicides. Cultivation within 7 days before or after a postemergence herbicide application may reduce control from that treatment. Deep cultivation (more than 2 inches) is usually not necessary and may damage the crop.				
Postemergence (Enlist varieties)				
2,4-D – 0.71 to 0.95 lb/A	Enlist One 3.8 SL — 1.5 to 2 pt/A	Preemergence or postemergence up to R2 growth stage	Annual and perennial broadleaf weeds	See www.enlisttankmix.com and the product label for instructions related to Enlist One.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
glufosinate – 0.53 to 0.79 lb/A	glufosinate 2.34 lb/gal formulation — 29 to 43 oz/A	Preemergence or postemergence until just prior to R1 growth stage	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 3 inches)	Do not apply more than 87 fluid ounces per season. Sequential applications should be made 10 to 14 days apart to improve control of larger weeds. Apply when temperatures are warm, as colder weather may reduce activity. Do not use nozzles and pressure that result in coarse spray droplets.
glufosinate P – 0.26 to 0.4 lb/A	Liberty ULTRA 1.76 SL — 19 to 29 oz/A	Preemergence or postemergence until just prior to R1 growth stage	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 3 inches)	Make ground application in minimum 15 gallons per acre. **Do not** apply with air induction nozzles. For additional information on the United States Environmental Protection Agency's mandatory policy on endangered and threatened species, see the Endangered Species Protection Bulletins at www.epa.gov/endangered-species/endangered-species-protection-bulletins.
glyphosate + 2,4-D – 1.46 to 1.98 lb/A	Enlist Duo 3.33 SL — 3.5 to 4.75 pt/A	Preemergence or postemergence up to R2 growth stage	Annual grasses and broadleaf weeds	See www.enlisttankmix.com and the product label for instructions related to Enlist Duo.
Postemergence (Enlist, LibertyLink, LibertyLink GT27, Roundup Ready 2 XtendFlex varieties) See Postemergence (all varieties) list in this section for information on mixtures with glufosinate.				
glufosinate – 0.53 to 0.66 lb/A	glufosinate 2.34 lb/gal formulation — 29 to36 oz/A	Preemergence or postemergence until just prior to R1 growth stage	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 4 inches)	See *Special Instructions and Remarks* for glufosinate under Postemergence (Enlist varieties).
glufosinate P – 0.26 to 0.4 lb/A	Liberty ULTRA 1.76 SL — 19 to 29 oz/A	Preemergence or postemergence until just prior to R1 growth stage	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 3 inches)	See *Special Instructions and Remarks* for Liberty ULTRA under Postemergence (Enlist varieties).
Postemergence (Enlist, LibertyLink GT27, Roundup Ready 2, Roundup Ready 2 Xtend, Roundup Ready 2 XtendFlex varieties) See Postemergence (all varieties) list in this section for information on mixtures with glyphosate.				
glyphosate – 1 to 1.5 lb/A	Various formulations (see product label for specific rates)	From soybean emergence through R2 growth stage	Annual and perennial grass and broadleaf weeds	**Do not** apply more than 2.25 pounds (ae) in a single growing season. Sequential applications should be made 10 to 14 days apart to improve control of larger weeds. Glyphosate-resistant weeds are prevalent throughout Mississippi. See Herbicide Resistant Weed section for additional control options.
glyphosate + fomesafen – 1.23 lb/A	Flexstar GT 3.5 SL — 3.5 pt/A	Small, actively growing weeds after first trifoliate	Annual grasses and broadleaf weeds; horseweed, morningglory, pigweed (less than 4 inches)	See *Special Instructions and Remarks* for glyphosate and fomesafen. **Do not** exceed 5.3 pints per acre in a season.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
glyphosate + *s*-metolachlor – 1.6 to 2.3 lb/A	Sequence 5.25 EC — 2.5 to 3.5 pt/A	Soybean emergence to V3	Annual and perennial grass and broadleaf weeds	See *Special Instructions and Remarks* for glyphosate and metolachlor/*s*-metolachlor. Provides residual control of small-seeded grasses and broadleaf weeds. Rainfall is required for residual control. **Do not** apply > 3.5 pints per acre. Expect poor control of large-seeded grasses like browntop millet and Texas panicum.
Postemergence [Sulfonylurea-Tolerant Soybean (STS) or BOLT varieties]				
chlorimuron + thifensulfuron – 0.0066 to 0.02 lb/A	Synchrony XP 28.4 DG — 0.38 to 1.13 oz/A	Small, actively growing weeds from before soybean emergence to 60 days before harvest	Hemp sesbania, morningglory, yellow nutsedge, sicklepod	The 1- to 1.125-ounce rates provide some residual control of certain small-seeded broadleaf weeds. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant.
halosufuron + thifensulfuron – 0.031 + 0.0036 lb/A	Permit Plus 75 WDG — 0.75 oz/A	Small, actively growing weeds from between the V1 and R2 soybean growth stages	Yellow nutsedge, purple nutsedge, hemp sesbania, common ragweed, velvetleaf	Only one application is allowed per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v if applied with glyphosate formulation not preloaded with adjuvant. Ammonium sulfate at 8.5 to 17 pounds per 100 gallons of water is recommended.
Postemergence (All varieties)				
acetochlor – 0.94 to 1.5 lb/A	Warrant 3 CS — 1.25 to 2 qt/A	Soybean emergence to R2 growth stage; optimum at V2-V3 growth stage	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Warrant will not control emerged weeds. Apply postemergence to soybean but before weed seedling emergence. **Do not** apply more than 4 quarts per season.
acetochlor + fomesafen – 1.29 to 1.89 lb/A	Warrant Ultra 3.45 CS — 48 to 70 oz/A	Soybean emergence up to R2 growth stage; optimum at V2-V3 growth stage	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Use higher rate where weed infestations are heavy. **Do not** apply postemergence if applications were made preplant or preemergence.
acifluorfen – 0.38 to 0.50 lb/A	acifluorfen 2 lb/gal formulation — 1.5 to 2 pt/A	Small, actively growing weeds	Hemp sesbania, morningglory, pigweeds (less than 2 inches)	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** apply to soybean and weeds under stressed conditions, within 50 days of harvest, or more than 4 pints per acre per growing season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
acifluorfen + 2,4-DB – 0.38 to 0.50 + 0.03 lb/A	acifluorfen 2 lb/gal formulation — 1.5 to 2 pt/A + 2,4-DB 1.75 lb/gal formulation — 2.2 oz/A or 2 lb/gal formulation — 1.9 oz/A	Small, actively growing weeds	Hemp sesbania, morningglory, groundcherry, pigweeds (less than 2 inches)	See *Special Instructions and Remarks* for acifluorfen. Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** apply within 60 days of harvest. Mixtures with 2,4-DB will cause soybean injury and may reduce yield. **Do not** use crop oil concentrate.
acifluorfen + bentazon – 0.75 lb/A	Storm 4 L — 1.5 pt/A	Small, actively growing weeds	Broadleaf weeds	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** (1) apply more than 1.5 pints per application; (2) exceed 3 pints per season; (3) apply by air if sensitive crops are less than 200 feet down wind; (4) apply within 50 days before harvest. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
bentazon – 0.75 to 1 lb/A	bentazon 4 lb/gal formulation — 1.5 to 2 pt/A or 5 lb/gal formulation — 1.2 to 1.6 pt/A + 2,4-DB 1.75 lb/gal formulation — 2.2 oz/A or 2 lb/gal formulation — 1.9 oz/A	Small, actively growing weeds	Cocklebur, prickly sida (2 to 3 inches), smartweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** apply more than 4 pints per acre per season, within 65 days of harvest, or under stressed conditions. For added control of hemp sesbania, 0.5 to 1 pint of acifluorfen plus surfactant may be added to bentazon.. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
bentazon + 2,4-DB – 0.75 to 1 + 0.03 lb/A	bentazon 4 lb/gal formulation — 1.5 to 2 pt/A or 5 lb/gal formulation — 1.2 to 1.6 pt/A + 2,4-DB 1.75 lb/gal formulation — 2.2 oz/A or 2 lb/gal formulation — 1.9 oz/A	Small, actively growing weeds	Cocklebur; prickly sida (2 to 3 inches), smartweed, morningglory	See *Special Instructions and Remarks* for bentazon. Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. The 2,4-DB mix will cause soybean injury and may reduce yield. **Do not** add surfactant.
chlorimuron – 0.0078 to 0.0104 to 0.0117 lb/A	chlorimuron 25% formulation — 0.5 to 0.67 to 0.75 oz/A	After soybean have 1 trifoliate leaf until 60 days before maturity	Entireleaf and ivyleaf morningglory, giant ragweed, sicklepod (two applications 14 days apart)	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** use on soybean grown on Black Belt soils having a pH greater than 7.0 or a history of iron chlorosis. A sequential application may be applied 14 to 21 days after first application, but **do not** exceed a total of 1.5 ounces of per season. Soybean may be stunted, particularly from sequential applications. Add nonionic surfactant at 0.25% v/v.
clethodim – 0.063 to 0.13 lb/A	Various formulations (see product label for specific rate)	Small, actively growing weeds	Annual grasses, johnsongrass, bermudagrass	Apply over-the-top or as a semi-directed spray to cover grasses. **Do not** apply (1) more than 32 ounces per acre per season (1 EC), (2) if rainfall is expected within 1 hour, or (3) to stressed plants. See label for sequential and mixture instructions for broadleaf herbicides. Add ammonium sulfate and crop oil concentrate at 1% v/v with 2 and 3 lb/gal formulations and nonionic surfactant with Select Max.
cloransulam – 0.015 lb/A	FirstRate 84 WG — 0.3 oz/A	Small, actively growing weeds	Common cocklebur, morningglory, ragweed, sicklepod	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** (1) apply through irrigation system; (2) make more than two applications per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1.2% v/v.
flumetsulam – 0.0063 lb/A	Python 80 WDG — 0.125 oz/A	When soybean is in 1–5 trifoliate growth stage	Prickly sida (less than 2 inches tall)	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** apply to soybean with more than five trifoliates. **Do not** apply more than two postemergence applications, and applications must be separated by at least 14 days. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
fomesafen – 0.25 to 0.38 or 0.24 to 0.35 lb/A	fomesafen 2 or 1.88 lb/gal formulation — 1 to 1.5 pt/A	Small, actively growing weeds	Hemp sesbania, morningglory, Pennsylvania smartweed, pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. May cause temporary soybean leaf bronzing, crinkling, and/or spotting. Rainfall within 4 hours of application may reduce control. **Do not** apply more than 1.5 pints per season or apply to stressed plants. Add nonionic surfactant at 0.25% v/v.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
fluazifop – 0.094 to 0.25 lb/A	Fusilade DX 2 EC — 6 to 16 oz/A **(see table at beginning of section for specific rates by species)**	Small, actively growing weeds	Annual grasses, seedling and rhizome johnsongrass, bermudagrass, volunteer grain sorghum, red rice	Apply over-the-top or semi-directed to cover grasses. **Do not** apply (1) more than 32 ounces per acre per season, (2) after first bloom, or (3) if rainfall is expected within 1 hour after application. See label for sequential and mixture instructions. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
imazaquin – 0.063 or 0.13 lb/A	Scepter 70 DG — 1.43 to 2.86 oz/A	Small, actively growing weeds	Cocklebur (up to 12 inches tall), wild poinsettia, sicklepod.	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. For effective sicklepod control, use sequential preemergence and postemergence treatments. Apply at least 90 days before soybean harvest. **Do not** apply more than 0.25 pound of active ingredient per season. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.
lactofen – 0.2 lb/A	Cobra 2 EC — 12.5 oz/A	Before soybean exceed three trifoliate leaves	Hemp sesbania, morningglory, prickly sida, common ragweed, pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Apply over-the-top or as a directed spray. Temporary speckling, burn, and/or crinkling of soybean leaves will occur. **Do not** (1) cultivate 5 days prior to application or while spraying; (2) apply more than once per growing season; (3) not later than 90 days before harvest. Add nonionic surfactant at 0.125% v/v or crop oil concentrate at 1 to 2 pt/A.
metolachlor – 1.5 to 2 lb/A or *s*-metolachlor – 0.95 to 1.27 lb/A	Various formulations **(see table at beginning of section for specific rates by soil texture)**	Soybean emergence to V3	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Metolachlor/*s*-metolachlor should be applied postemergence to soybean but before weed seedling emergence.
s-metolachlor + fomesafen – 1.32 lb/A	Prefix 5.29 EC — 2 pt/A	When soybean is in V1 to V3 growth stage	Morningglory, pigweed, hemp sesbania, Pennsylvania smartweed	See *Special Instructions and Remarks* for fomesafen and metolachlor/*s*-metolachlor. Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Application should be made to weeds no larger than 3- to 4-leaf growth stage. **Do not** add crop oil concentrate, as severe soybean injury can occur.
pyroxasulfone – 0.053 to 0.12 lb/A	Zidua 4 SC — 1.7 to 3.8 oz/A	Soybean emergence to V5	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Apply postemergence to soybean but before weed seedling emergence.
pyroxasulfone + fluthiacet-methyl – 0.055 to 0.11 lb/A	Anthem Maxx 4.3 SC — 1.65 to 3.25 oz/A	Soybean emergence to V3	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. Apply postemergence to soybean but before weed seedling emergence.
pyroxasulfone + fllumiclorac – 0.11 to 0.18 lb/A	Perpetuo 2.3 SC — 6 to 10 oz/A	Soybean emergence to V6	Annual grasses and pigweed	Mix with glyphosate or glufosinate (depending on variety) to improve weed control spectrum. **Do not** apply more than 8 ounces per acre in a single season to coarse soils. Add crop oil concentrate or methylated seed oil at 1% v/v. Ammonium sulfate at 2 pounds per acre or urea-ammonium nitrate at 2 quarts per acre may also be included.
quizalofop – 0.034 to 0.069 lb/A	quizalofop 0.88 lb/gal formulation — 5 to 10 oz/A **(see table at beginning of section for specific rates by species)**	Small, actively growing weeds before soybean pod set, and/or 80 days before soybean harvest	Annual grasses, seedling and rhizome johnsongrass, bermudagrass, volunteer grain sorghum, red rice	**Do not** apply (1) with crop oil concentrates; (2) > 20 ounces per season; (3) to drought-stressed grasses; or (4) if rain is expected within 1 hour after application. **Do not** cultivate 7 days before or after application or mix with bentazon or chlorimuron except as specified on the label. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
sethoxydim – 0.19 to 0.38 lb/A	Poast 1 EC — 24 to 48 oz/A **(see table at beginning of section for specific rates by species)**	Small, actively growing weeds	Annual grasses, seedling and rhizome johnsongrass, bermudagrass, red rice	**Do not** apply (1) to grasses under drought stress or herbicide injury; (2) if rainfall is expected within one hour after application; (3) within 90 days of harvest; (4) more than a total of 7.5 pints in one season. Bentazon at labeled rate according to weed growth stage may be added, but Poast rates must be increased 50%. Add crop oil concentrate at 1 quart per acre.
Directed or Hooded Sprayers				
2,4-DB – 0.20 lb/A	2,4-DB 1.75 lb/gal formulation — 0.9 pt/A or 2 lb/gal formulation — 0.8 pt/A	After soybean are 8 inches tall	Cocklebur; partial control or of small pigweed and morningglory	Apply once or twice as a semi-directed spray when soybean are 8 to 12 inches tall with sprays directed to contact no more than lower one-third of stems. Precise application is essential to prevent soybean injury. **Do not** apply if soybean are under drought stress. Avoid spray pressures in excess of 40 psi. **Do not** add surfactant to spray mixtures.
linuron – 0.5 to 1.0 lb/A	linuron 4 lb/gal formulation — 1 to 2 pt/A or 50% formulation — 1 to 2 lb/A	After soybean are 12 inches tall	Annual grasses and broadleaf weeds	Apply only single application as directed spray at base of crop plants striking the soybean plants no higher than 2 to 3 inches above the ground. **Do not** exceed 25 psi nozzle pressure or apply under windy conditions. Add nonionic surfactant at 0.25% v/v.
linuron + 2,4-DB – 0.5 + 0.20 lb/A	linuron 4 lb/gal formulation — 1 pt/A or 50% formulation — 1 lb/A + 2,4-DB 1.75 lb/gal formulation — 0.9 pt/A or 2 lb/gal formulation — 0.9 pt/A	After soybean are 12 inches tall	Most annual grasses, cocklebur, morningglory, hemp sesbania, sicklepod prickly sida	See *Special Instructions and Remarks* for linuron and 2,4-DB.
metribuzin – 0.25 to 0.50 lb/A	metribuzin 75% formulation — 5.33 to 10.67 oz/A or 4 lb/gal formulation — 8 to 16 oz/A **(see table at beginning of section for specific rates by soil texture)**	After soybean are 8 inches tall	Annual grasses and broadleaf weeds	Apply as a directed spray at base of soybean plants spraying no more than lower 1/4 to 1/3 of plants. Soybean leaves contacted by spray will be killed. **Do not** exceed 30 psi nozzle pressure or apply to sensitive varieties. Controls most broadleaf weeds < 3 inches tall except morningglory, most annual grasses < 1 inch tall. For hemp sesbania and prickly sida control, use 0.375 to 0.5 pounds active ingredient per acre.
metribuzin + 2,4-DB – 0.25 to 0.5 lb/A + 0.2 lb/A	metribuzin 75% formulation — 5.33 to 10.67 oz/A or 4 lb/gal formulation — 8 to 16 oz/A + 2,4-DB 1.75 lb/gal formulation — 0.8 pt/A	After soybean are 8 inches tall	Annual grasses and broadleaf weeds	See *Special Instructions and Remarks* for metribuzin and 2,4-DB.
s-metolachlor + metribuzin – 1.06 to 1.63 lb/A	Boundary 6.5 EC — 1.3 to 2 pt/A	After soybean are 8 inches tall	Annual grasses and broadleaf weeds	Boundary may be mixed with other herbicides labeled for directed or hooded applications to improve control of emerged weeds. Do not exceed 3.9 pints of Boundary per acre per season. Do not allow spray to contact more than the lower 1/4 to 1/3 of soybean plants.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
paraquat – 0.07 to 0.13 lb/A	paraquat 2 lb/gal formulation — 0.28 to 0.52 pt/A or 3 lb/gal formulation — 0.19 to 0.35 pt/A	After soybean are 8 inches tall	Annual grasses and broadleaf weeds, pigweeds, purslane	Use low rate for weeds less than 2 inches in height and higher rate for weeds greater than 2 inches. Soybean less than 8 inches will be injured or killed. Adjust nozzles to spray the lower 3 inches of the soybean plants. Do not exceed 30 psi to avoid drift. Do not apply more than twice. The second application should follow the first by 7 to 14 days.
Midseason Cocklebur Control				
2,4-DB – 0.20 lb/A	2,4-DB 1.75 lb/gal formulation — 0.9 pt/A or 2 lb/gal formulation — 0.8 pt/A	7 to 10 days before soybean bloom until mid-bloom	Cocklebur	See *Special Instructions and Remarks* for 2,4-DB. Apply as broadcast spray after cocklebur plants have elongated and are as tall as soybean plants. 2,4-DB usually causes soybean injury but symptoms generally disappear within one week after treatment. Do not add surfactant.
Spot Spraying				
clethodim	Various formulations — 0.25% + 1% crop oil concentrate by volume	Actively growing weeds	Johnsongrass, bermudagrass, annual grasses	Spray to wet foliage but not to point of runoff. Mixing example would be clethodim at 1 pint plus crop oil concentrate at 4 pints in 50 gallons of water.
fluazifop	Fusilade DX 2 EC — 0.5% + 0.25% nonionic surfactant or 1% crop oil concentrate by volume	Actively growing weeds	Johnsongrass (12 to 18 inches), bermudagrass, annual grasses	Spray to wet foliage but not to point of runoff. Make last application before soybean bloom. If surfactant is used instead of crop oil concentrate, use only nonionic surfactants that contain at least 75% surface active agent. Mixing example would be Fusilade DX at 1 quart plus nonionic surfactant at 1 pint or crop oil concentrate at 4 pints in 50 gallons of water.
quizalofop	quizalofop 0.88 lb/gal formulation — 0.375% + 0.25% nonionic surfactant or 1% crop oil concentrate by volume	Actively growing weeds before soybean pod set and/or within 80 days of soybean harvest	Johnsongrass (10 to 16 inches), bermudagrass (6 inches), annual grasses	Spray to wet foliage but not to point of runoff. Mixing example would be quizalofop at 1.5 pints plus nonionic surfactant at 1 pint or crop oil concentrate at 4 pints in 50 gallons of water.
sethoxydim	Poast 1 EC — 1.5% + 1.0% crop oil concentrate by volume	Actively growing weeds	Johnsongrass (15 inches), bermudagrass, annual grasses	Spray to wet foliage but not to point of runoff. Do not apply within 90 days of harvest. Mixing example would be Poast at 6 pints plus crop oil concentrate at 4 pints in 50 gallons of water.
glyphosate	Various formulations — 1% by volume for annual weeds or 2% by volume for perennial weeds	After johnsongrass reaches 12 inches in height but before soybean pod set	Johnsongrass, bermudagrass, annual and perennial weeds	Use high rate mix for bermudagrass. Spray to wet foliage of johnsongrass stems or other undesirable vegetation. Non-Roundup Ready soybean in treated area will be killed. Keep drift to a minimum. Do not apply if soybean are setting pods.
Preharvest				
carfentrazone – 0.016 to 0.023 lb	Aim 2 EC — 1 to 1.5 oz/A	Mature, fully developed soybean with 50% natural defoliation and remaining leaves yellow	Morningglory desiccation	Do not apply more than 1.5 ounces per acre per season. Do not apply within 3 days of harvest. Aim may be mixed with glyphosate to improve control of grasses and other weeds. Add nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v.

Soybean Weed Management

Situation and active ingredient rate per broadcast acre	Formulated product per broadcast acre	Time of application	Weeds controlled	Special instructions and remarks
glyphosate – 0.75 to 3.5 lb/A	Various formulations (see product label for specific rates)	Preharvest but after soybean pods have lost all green color	Annual grasses, johnsongrass, some broadleaf weeds	Do not apply more than 3.5 pounds (ae) per acre for preharvest applications. Do not apply more than 1.5 pounds (ae) of glyphosate per acre by air. Allow a minimum of 7 days between application and harvest. Use rates greater than 1.5 pounds ae would be beneficial for perennial weed control.
paraquat – 0.13 to 0.25 lb/A	paraquat 2 lb/gal formulation — 0.52 to 1 pt/A or 3 lb/gal formulation — 0.35 to 0.67 pt/A	Mature, fully developed soybean with at least 50% of leaves dropped and remaining leaves yellow	Annual and perennial grasses and broadleaf weeds	Drought-stressed weeds will not be desiccated. Immature soybean will be injured and yields reduced. Interval between application and soybean harvest is minimum of 15 days. Add crop oil concentrate at 1% v/v. Avoid drift to rice.
paraquat + sodium chlorate – 0.25 lb/A + 3 lb/A	paraquat 2 lb/gal formulation — 0.52 to 1 pt/A or 3 lb/gal formulation — 0.35 to 0.67 pt/A + various formulations (see product label for specific rates)	Mature, fully developed soybean with at least 50% of leaves dropped and remaining leaves yellow	Annual and perennial grasses and broadleaf weeds	See *Special Instructions and Remarks* for paraquat and sodium chlorate. Avoid drift to rice.
saflufenacil – 0.022 to 0.044 lb/A	Sharpen 2.85 SC — 1 to 2 oz/A	Soybean that have reached physiological maturity	Broadleaf weeds	Apply to indeterminate varieties with at least 65% brown pods and 70% defoliation or when seed moisture is 30% or less. Apply to determinant varieties when seed are fully developed with greater than 50% defoliation and remaining leaves are yellowing. Do not apply more than 2 fluid ounces per acre as a harvest aid per cropping season. Do not apply within 3 days of harvest. Add methylated seed oil at 1% v/v plus ammonium sulfate.
sodium chlorate – 6 lb/A	Various formulations (see product label for specific rates)	7 to 10 days before soybean harvest	Desiccation of most annual grasses and broadleaf weeds	Drought-stressed weeds will not be desiccated. Immature soybean will be injured and yields reduced. Do not graze treated fields or feed treated bean foliage and fodder.

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