

GLYPHOSATE-RESISTANT PALMER AMARANTH MANAGEMENT SYSTEMS

Management of glyphosate-resistant Palmer amaranth (pigweed) is becoming an issue in West Tennessee. Control of Palmer amaranth will center around PRE applied herbicides. PRE applied herbicides require precipitation in order to provide good residual control of Palmer. As a result some kind of two pass approach (i.e. Valor EPP /fb Flexstar early Post in soybean) will provide the best chance of success managing this weed. While considerations should always be given to the entire weed spectrum, one or more of the following strategies are recommended to manage glyphosate-resistant Palmer amaranth in the following crops:

Herbicide	Rate/Acre Broadcast		Remarks
	Active Ingredient	Formulation	
SOYBEAN			
Preplant Incorporated			
Treflan 4 EC and other trade names (Trifluralin)	0.5 lb. ^a 0.75 lb. ^b 1.0 lb. ^c	1.0 pt. ^a 1.5 pts. ^b 2.0 pts. ^c	
Preemergence			
Dual Magnum or Cinch (S-metolachlor)	sandy loam:0.96-1.27 lbs. silt loam: 1.27-1.59 lbs. silty clay loam:1.27-1.59 lbs.	1-1.33 pts. 1.33-1.67 pts. 1.33-1.67 pts.	Requires rainfall or irrigation to be activated provides good small seeded broadleaf weed control. Available package mixtured with glyphosate as Sequence.
Intrro (alachlor)	2.5 lbs.	2.5 qts.	Requires rainfall or irrigation to be activated provides good small seeded broadleaf weed control.
Prefix (Fomesafen + S-metolachlor)	sandy loam: 1.33 lb. silt loam: 1.33-1.66 lb. silty clay loam: 1.82-1.99 lb.	2 pts. 2-2.5 pts. 2.75-3 pts.	Requires rainfall or irrigation to be activated provides good small seeded broadleaf weed control.
Prowl or Pendimax 3.3 (Pendimethalin)	sandy loam: 0.5-0.75 lb. silt loam: 0.75-1.0 lb. silty clay loam: 0.75-1.5 lbs.	1.2-1.8 pts. 1.8-2.4 pts. 1.8-3.6 pts.	Can be applied as a surface application after planting or preplant incorporated 1-2" deep. Surface applications may cause crop lodging later in season (soybeans 8-12" tall) if cool, rainy weather occurs during crop emergence.
Sencor 75DF (Metribuzin)	sandy loam: do not use silt loam: 0.38-0.5 lb. silty clay loam: 0.5-0.6 lb.	----- 0.5-0.67 lb. 0.67-0.83 lb.	Apply either preplant incorporated 1-2" deep or as a surface application after planting. Tank mix with a grass herbicide for more consistent control of Palmer and overall broad spectrum control. Two premixes with grass herbicides are (Domain =Sencor+Flufenacet and Boundary = Sencor+Dual).
Valor 51% WDG (flumioxazin) + broad spectrum herbicide	0.5 - 1 ozs.	1 - 2 ozs.	Apply 21 days before planting up to preemergence. Can see some soybean injury if applied preemergence to tilled soils, particularly sandy soils when rainfall occurs as soybeans emerge.
Postemergence			
Cobra 2E (Lactofen)	0.2 lb.	12.5 ozs.	Apply before Palmer amaranth reaches 6" in height. Add 2 pts. nonionic surfactant, or 2 to 4 pts. crop oil concentrate, per 100 gals. spray. Causes soybean foliar burn which is usually of short duration.

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Flexstar 1.88 SC (fomesafen + adjuvants)	0.24 – 0.35 lb.	1.0 – 1.5 pints	Apply before Palmer amaranth reaches 6” in height. Contains same active ingredient as Reflex, but is formulated with an adjuvant system that allows better tankmixing with glyphosate. Always add 1-2 qts. nonionic surfactant, or 0.5-1 gal. crop oil concentrate per 100 gals. of spray mix.												
Sequence (S-metolachlor + Glyphosate)	1.64 lb.	2.5 pts.	Apply up to 3 trifoliates.												
Ultra Blazer 2L (Acifluorfen)	0.13-0.38 lb.	0.5-1.5 pts.	Apply before Palmer amaranth reaches 6” in height. See label regarding the use of surfactant.												
COTTON															
Preplant Incorporated															
Treflan 4 EC and other trade names (Trifluralin)	0.5 lb. ^a 0.75 lb. ^b 1.0 lb. ^c	1.0 pt. ^a 1.5 pts. ^b 2.0 pts. ^c													
Preplant															
Reflex 2LC (Fomesafen)	0.25-0.38 lb.	1-1.5 pts.	A minimum of 14 days must pass and 1 inch of rainfall/irrigation must occur between Reflex application and planting of cotton. Do not plant sorghum within 18 months of application.												
Valor 51% WDG (flumioxazin) + broad spectrum herbicide	0.5 - 1 ozs.	1 - 2 ozs.	A minimum of 30 days must pass, and 1 inch of rainfall/irrigation must occur, between Valor application and planting of cotton in conventional till and 21 days for no-till.												
Preemergence															
Caparol 4L (Prometryn)	0.75-1.0 lbs. ^a 2.4 lbs. ^{bc}	1.5-2.0 pts. ^a 4.8 pts. ^{bc}	Good to excellent control of most annual grasses and broadleaf weeds, particularly residual pigweed control.												
Cotoran 4L or 85DF (Fluometuron)	1.0 lb. ^a	2 pts. 4L, or 1.2 lbs. 85DF, or 1.25 lbs. 80DF ^a	For improved pigweed control, particularly in no-till, reduced rates of Caparol may be applied in combination with Cotoran preemergence. See label for precautions. Rates in pints/A are based on soil texture: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;"><u>coarse</u></td> <td style="text-align: center;"><u>medium</u></td> <td style="text-align: center;"><u>fine</u></td> </tr> <tr> <td>Caparol 4L</td> <td style="text-align: center;">1.5-2</td> <td style="text-align: center;">2</td> <td style="text-align: center;">-----</td> </tr> <tr> <td>Cotoran 4L</td> <td style="text-align: center;">2</td> <td style="text-align: center;">2.5-3</td> <td style="text-align: center;">3-3.5</td> </tr> </table>		<u>coarse</u>	<u>medium</u>	<u>fine</u>	Caparol 4L	1.5-2	2	-----	Cotoran 4L	2	2.5-3	3-3.5
	<u>coarse</u>	<u>medium</u>	<u>fine</u>												
Caparol 4L	1.5-2	2	-----												
Cotoran 4L	2	2.5-3	3-3.5												
Direx 4L or Direx 80 DF (Diuron)	0.2-0.4 lb. + 2.0 lbs.	0.4-0.8 pt. 4L or 0.25-0.5 80 DF													

Prowl or Pendimax 3.3 (Pendimethalin) 0.5-0.75 lb. ^a	0.75-1.0 lb. ^b 1.0-1.5 lbs. ^c 1.2-1.8 pts. ^a	1.8-2.4 pts. ^b 2.4-3.6 pts. ^c	Excellent control of most annual grasses. Tank-mix with Cotoran or Zorial for improved broadleaf control. A compatibility agent may be required in tank mixes.
Postemergence			
Ignite 280 (Glufosinate) Liberty Tolerant Cotton Only	1.67-2.09 lbs.	22 – 43 ozs.	Apply before Palmer amaranth reaches 6” in height. Apply over the top to Ignite (Liberty) tolerant cotton varieties. No more than 40 ozs./A may be applied per application and no more than 87 ozs./A may be applied per cotton growing season. Thorough spray coverage is essential for optimal performance. Ground application requires a minimum of 15 gallons of water/acre. See label for further application instructions.
Post-directed			
Cotoran (fluometuron) + MSMA	1.0 lb.+ 2.0 lbs.	32 + 42 ozs.	May be applied to cotton at least 6 inches tall until bloom. Precise application is necessary to avoid cotton injury.
Direx (diuron)+ MSMA	0.8 -1.2 lbs.+ 2.0 lbs.	1.6 - 2.4 pts. + 42 ozs.	May be applied after cotton reaches 12 inches tall until bloom. May injure fall-seeded cover crops.
Reflex	0.25-0.375 lbs.	1-1.5 pts.	Reflex may be applied to cotton at least 6 inches in height through lay-by as post-directed application. All post-directed applications should avoid spray contact with any green non-barked parts of the cotton plant or foliage as unacceptable injury will occur. Apply Reflex at 1-1.5 pts./A in a minimum of 10 gallons spray solution per acre. Applications may be made broadcast or banded. Crop rotation is restricted 4 months for wheat and 10 months for corn.
Suprend (prometryn + trifloxysulfuron) + MSMA	1.25+ 2.0 lbs.	1.56 lbs+ 42 ozs.	May be applied to cotton at least 6 inches tall until bloom. Precise application is necessary to avoid cotton injury.

(u)- *Restricted Use Herbicide*