

Glyphosate and Conventional Herbicide Tank-mixes for Weed Resistance Management:



This is not a substitute for reading the product labels

The glyphosate rates below are based on using a 4.5 lb acid equivalent/gallon product such as Roundup PowerMAX®.

* Maximize glyphosate labeled Rates: (4.5 lb a.e example Roundup Powermax®)	56 oz/A total maximum up to 8-lf stage, 32 oz/A maximum single application 44 oz/A total maximum after 8-lf stage, 22 oz/a maximum single application 96 oz/A total maximum per growing season, emergence through harvest
* Minimum of 10 days between glyphosate applications	
* HSMOC adjuvant is required when tank-mixing glyphosate with Conventional herbicides to avoid antagonism	
* Always include AMS at 1 lb/A or liquid equivalent with any glyphosate application.	

Preventive Weed Resistance Management

1st Application on Cotyledon Sugarbeets:				
Glyphosate = 28 - 32 fl oz/A	Betamix = 8 fl oz/A OR Progress = 6 fl oz/A	Stinger = 2-3 fl oz/A	HSMOC = 1 pt/A	AMS = 1 lb/A
2nd Application 10-14 DAT:				
Glyphosate = 28 - 24 fl oz/A	Betamix = 8 fl oz/A OR Progress = 6 fl oz/A	Stinger = 2-4 fl oz/A	HSMOC = 1 pt/A	AMS = 1 lb/A
3rd Application 10-14 DAT:				
Glyphosate = 22 fl oz/A	Betamix = 8 oz/a OR Progress = 6 oz/a		HSMOC = 1 pt/A	AMS = 1 lb/A

Resistant Ragweed Management

1st Application on Cotyledon Sugarbeets:	Glyphosate = 28 - 32 fl oz/A	Stinger = 2 - 3 fl oz/A	AMS = 1 lb/A	NIS = 0.25%v/v
2nd Application 10-14 DAT:	Glyphosate = 28 - 24 fl oz/A	Stinger = 3 - 4 fl oz/A	AMS = 1 lb/A	NIS = 0.25%v/v
3rd Application 10-14 DAT:	Glyphosate = 22 fl oz/A	Stinger = 3 - 4 fl oz/A	AMS = 1 lb/A	NIS = 0.25%v/v
4th Application 10-14 DAT (if needed):	Glyphosate = 22 fl oz/A	Stinger = 3 - 4 fl oz/A	AMS = 1 lb/a	NIS = 0.25%v/v

Resistant Waterhemp Management

PPI/Pre:	Nortron = 1-3 pt/A & Dual = 0.5-0.75 pt/A	OR	Nortron = 6-7.5 pt/a	OR	Dual = 0.5-0.75 pt/A
*Dual - Syngenta requires farmers to sign indemnified label for PPI/Pre application					
1st Application on Cotyledon Sugarbeets:					
Glyphosate = 28 - 32 fl oz/A	Betamix = 12 fl oz/A OR Progress = 9 fl oz/A	Nortron = 4 fl oz/A	HSMOC = 1 pt/A	AMS = 1 lb/A	
2nd Application 10-14 DAT - 4 lf Sugarbeet:					
Glyphosate = 28-24 fl oz/A	Betamix = 16 fl oz/A OR Progress = 12 fl oz/A	Nortron = 4 oz/A	HSMOC = 1 pt/a	AMS = 1 lb/A	
	Outlook = 15 fl oz/A, OR Dual = 1 pt/A, or Warrant = 3 pt/A				
3rd Application 10-14 DAT:					
Glyphosate = 22 fl oz/A	Betamix = 22 fl oz/A OR Progress = 16 fl oz/A	Nortron = 4 fl oz/A	HSMOC = 1 pt/A	AMS = 1 lb/A	
4th Application 10-14 DAT (if needed):					
Glyphosate = 22 fl oz/a	Betamix = 2-3 pts/a OR Progress = 1.5-2.2 pts/a		HSMOC = 1 pt/A	AMS = 1 lb/a	

Resistant Kochia Management

PPI/Pre:	Nortron = 6-7.5 pt/A				
1st Application on Cotyledon Kochia:					
Glyphosate = 28 - 32 fl oz/A	Betamix = 12 fl oz/A OR Progress = 9 fl oz/A	Nortron = 4 fl oz/A	HSMOC = 1 pt/A	AMS = 1 lb/A	
2nd Application 10-14 DAT - Cotyledon Kochia & 4 lf Sugarbeet:					
Glyphosate = 28-24 fl oz/A	Betamix = 16 fl oz/A OR Progress = 12 fl oz/A	Nortron = 4 fl oz/A	HSMOC = 1 pt/A	AMS = 1 lb/A	
3rd Application 10-14 DAT:					
Glyphosate = 22 fl oz/A	Betamix = 22 fl oz/A or Progress = 16 fl oz/A	Nortron = 4 fl oz/A	HSMOC = 1 pt/A	AMS = 1 lb/A	
4th Application 10-14 DAT (if needed):					
Glyphosate = 22 fl oz/a	Betamix = 2-3 pts/a OR Progress = 1.5-2.2 pts/a		HSMOC = 1 pt/A	AMS = 1 lb/a	

Product Notes:

- * Stinger: Labeled on cotyledon to 8-lf sugarbeets; total maximum per season = 10.7 fl oz/A; 45 day PHI
- *Nortron: total maximum per season = 1 gal/A; 90 day PHI
- *Betamix & Progress = 75 day PHI
- *glyphosate = 30 day PHI

Generic Betamix products are:	Sugarbeet Mix	&	Phen-Des 8+8
Generic Progress Product is:	BnB Plus		

Note on Post Quadris Application: Quadris **SHOULD NOT** be tank-mixed with the Conventional Herbicides or applied right before or after a Conventional application as sugarbeet injury will occur. Optimal timing is 3 days before or 3 days after application.





Notes on Combined Glyphosate and Conventional Herbicide Applications

1. Timing of herbicide applications will have to be compromised as timing will be off for both glyphosate and Conventional herbicides:
 - a. Conventional herbicide is most effective on small (< 1/2" tall) weeds and should be sprayed early in the season.
 - b. Glyphosate is typically applied after the 1st flush of weeds has emerged and weeds are 1-2" tall.
 - c. Higher rates of Conventional herbicides are typically applied later in the day to avoid crop injury.
 - d. Glyphosate performs best when applied during the heat of the day to increase herbicide absorption into the plant.
2. They each have very different application techniques:
 - a. Betamix and other conventionals are contact herbicides; should be applied in small spray droplets at 15 - 20 GPA water volumes.
 - b. Glyphosate is a systemic herbicide; performs best applied in larger droplets (pile effect) and lower water volumes (5-15 GPA).
3. When glyphosate is applied together with conventional herbicides there can be antagonism.
 - a. Always use AMS at 1 lb/A plus NIS at 0.25% v/v to aid in absorption and reduce antagonism.
 - b. NIS is not needed when using HSMOC.
 - c. Always use a HSMOC (High Surfactant Methylated Oil Concentrate) when mixing glyphosate with Betamix or Progress and UpBeet.
 - Other types of oil cause antagonism with glyphosate.
4. Always use the maximum rate of glyphosate for the application (Rates based on a 4.5 lb acid equivalent per gal product, example Roundup PowerMax®)
 - a. Maximum label rate is 56 fl oz/A of glyphosate up to 8-lf stage with a maximum one time application of 32 fl oz/A
 - Structure first two applications as either 28 & 28 fl oz/A (recommended) or 32 & 24 fl oz/A
 - b. Maximum label rate is 44 fl oz/A after 8-lf stage with a maximum one time app of 22 fl oz/A
 - c. Total maximum label rate is 96 fl oz/A from sugarbeet emergence through harvest
5. Adjust Conventional herbicide dependent on sugarbeet and weed size

Tankmixing Order for Glyphosate and Conventional Herbicides

1. Fill spray tank 1/3 full with clean water (warmed water is best)
2. If used - slurry UpBeet in warm water
3. Add AMS (1 lb/acre)
4. If used - Add Slurried UpBeet to tank
5. If used - Add Nortron
6. Fill 2/3 full of water
7. Add Betamix, Progress, or Betanex
8. If used - Add Stinger
9. Add glyphosate
10. Fill spray tank with water and when nearly full add the HSMOC if used
11. Gentle agitation will result in less precipitate than strong agitation
12. Spray tank empty as soon as possible

