TABLE 7A –Weed Response to Herbicides in Sugar Beets*

			ANNUAL BROADLEAVES										ANNUAL GRASSES							PERENNIALS					
	SITE OF ACTION	CROP RESPONSE**	COCKLEBUR	JIMSONWEED	LAMBSQUARTERS	NIGHTSHADE (BLACK)	PIGWEED	RAGWEED (COMMON)	SMARTWEED	VELVETLEAF	WILD MUSTARD	WILD BUCKWHEAT	BARNYARDGRASS	CRABGRASS	GIANT FOXTAIL	GREEN FOXTAIL	YELLOW FOXTAIL	FALL PANICUM	WITCHGRASS	BINDWEED (FIELD)	BINDWEED (HEDGE)	CANADA THISTLE	PERENNIAL SOWTHISTLE	QUACKGRASS	YELLOW NUTSEDGE
Preplant Incorporated																									
RO-NEET	8	2	P	P	F	F	**G**	F	P	**G**	P	F	**G**	**G**	**G**	**G**	**G**	**G**	**G**	N	N	N	N	F	**G**
Preemergence																									
NORTRON	16	2	F	F	**G**	**G**	**G**	P	**G**	F	**G**	**G**	P	F	**G**	F	F	P	P	N	N	N	N	N	P
Postemergence																									
BETAMIX	5	2	F	F	**G**	F	**G**	**G**	F	P	**G**	F	P	P	F	F	F	P	P	N	N	N	N	N	N
BETANEX	5	2	F	F	F	F	**E**	F	F	P	**G**	P	P	P	P	P	P	P	P	N	N	N	N	N	N
DUAL MAGNUM/CINCH[a]	15	2	N	N	P	F	**G**	P	P	N	P	N	**E**	**E**	**E**	**E**	**E**	**G**	**G**	N	N	N	N	N	P
OUTLOOK[a]	15	2	N	N	P	**G**	**G**	P	P	N	P	P	**E**	**E**	**E**	**E**	**E**	**G**	**G**	N	N	N	N	N	P
WARRANT[a]	15	2	P	N	F	**G**	**G**	F	P	P	P	P	**E**	**E**	**E**	**E**	**E**	**E**	**E**	N	N	N	N	N	P
NORTRON	16	2	P	P	F	**G**	F	P	**G**	P	**G**	**G**	P	P	F	F	F	P	P	N	N	N	N	N	P
UPBEET	2	2	F	–	P	F	F	F	F	**G**	**E**	F	P	P	F	F	F	P	P	N	N	P	N	N	P
PROGRESS	5/16	2	F	F	F/**G**	**G**	**G**	**G**	**G**	P	**G**	**G**	P	P	F	F	F	P	P	N	N	N	N	N	P
STINGER	4	1	**E**	**G**	P	F	P	**E**	F	P	P	F	N	N	N	N	N	N	N	P	P	**G**	**G**	N	N
BETAMIX + UPBEET	2/5	2	F	F	**G**	F	**E**	**G**	**G**	**G**	**E**	**G**	P	P	**G**	F	F	P	P	N	N	P	P	N	P
BETAMIX + STINGER	4/5	2	**E**	**G**	**G**	F	**G**	**E**	**G**	P	**G**	**G**	P	P	F	F	F	P	P	N	N	F	F	N	N
BETAMIX + UPBEET + STINGER	2/4/5	2	**E**	**G**	**G**	**E**	**E**	**E**	**G**	**G**	**E**	**G**	P	P	**G**	F	F	P	P	N	N	F	F	N	P
PROGRESS + UPBEET	2/5/16	3	F	F	F/**G**	**G**	**E**	**G**	**G**	**G**	**E**	**G**	P	P	**G**	F	F	P	P	N	N	P	P	N	P
PROGRESS + STINGER	4/5/16	3	**E**	**G**	F/**G**	**G**	**E**	**E**	**G**	P	**G**	**G**	P	P	F	F	F	P	P	N	N	F	F	N	P
PROGRESS + UPBEET + STINGER	2/4/5/16	3	**E**	**G**	**G**	**E**	**E**	**E**	**G**	**G**	**E**	**E**	P	P	**G**	F	F	P	P	N	N	F	F	N	P
ASSURE II/TARGA	1	1	N	N	N	N	N	N	N	N	N	N	**G**	**G**	**E**	**E**	**G**	**E**	**E**	N	N	N	N	**E**	N
FUSILADE DX	1	1	N	N	N	N	N	N	N	N	N	N	**E**	**G**	**E**	**E**	**E**	**E**	**E**	N	N	N	N	**G**	N
POAST	1	1	N	N	N	N	N	N	N	N	N	N	**E**	**G**	**E**	**E**	**E**	**E**	**E**	N	N	N	N	F	N
SELECT/SELECT MAX/ARROW	1	1	N	N	N	N	N	N	N	N	N	N	**E**	**G**	**E**	**E**	**E**	**E**	**E**	N	N	N	N	**G**	N
Glyphosate-Resistant Sugar Beets																									
GLYPHOSATE[b]	9	1	**E**	**E**	**G**	**G**	**E**	**G**	**G**	**G**	**G**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**G**	**G**	**G**	**G**	**E**	F
SEQUENCE[b]	9/15	2	**E**	**E**	**G**	**G**	**E**	**G**	**G**	**G**	**G**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**G**	**G**	**G**	**G**	**E**	F

Herbicide Site of Action: The site of action key is located on pages 15-16.

Herbicide Effectiveness: P = Poor; F = Fair; **G** = Good; **E** = Excellent; N = None; – = Not enough information to rank

* *The above ratings are a relative comparison of herbicide effectiveness. Weather conditions greatly influence the herbicide's effectiveness, and weed control may be better under favorable conditions or poorer under unfavorable conditions.*

** Crop Tolerance: 1=Minimal risk of crop injury; 2=Crop injury can occur under certain conditions; 3=Severe crop injury can occur. Follow precautions under Remarks and Limitations and on the label.

[a] *Dual Magnum, Cinch*, *Outlook* and *Warrant* will not control emerged weeds, but will provide residual control of the above listed species.

[b] Use only on glyphosate-resistant sugar beets. Glyphosate will provide better control of most broadleaf weeds compared with current postemergence sugar beet broadleaf herbicides. Weed response ratings are based on experiences with glyphosate and should not be compared with other postemergence sugar beet broadleaf herbicides.

TABLE 7B – Sugar Beet Herbicides – Remarks and Limitations

Sugar Beets – Preplant Incorporated

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Annual grasses	cycloate *(Ro-Neet)*	3	2 qt 6L	• Refer to Table 7A for weed control and crop tolerance ratings. • Incorporate immediately to 2-3 inches. • DO NOT apply *Nortron* preemergence. • Injury can occur when *Betamix, Betanex,* or *Progress* is applied at standard rates prior to 6-leaf sugar beets if *Ro-Neet* was applied. • The risk of injury is reduced if *Betamix, Betanex,* or *Progress* is applied at micro- or split-application rates. • *Ro-Neet* can be applied preplant incorporated prior to postemergence glyphosate applications in glyphosate-resistant sugar beet. • *Ro-Neet* provides good velvetleaf suppression. • Refer to label and Table 12 for crop rotation restrictions.

Sugar Beets – Preemergence

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Annual broadleaves	ethofumesate *(Nortron)*	1.5	3 pt 4SC	• Refer to Table 7A for weed control and crop tolerance ratings. • *Nortron* will provide some suppression of annual grasses. • Increase *Nortron* rate to 4 pt/A on clay soils if weed pressure is heavy. • *Nortron* can be applied preemergence prior to post-emergence glyphosate applications in glyphosate-resistant sugar beet. • The rotation interval is reduced to 6 months if less than 12 oz/A is applied. • Refer to label and Table 12 for crop rotation restrictions.

Sugar Beets – Micro-Rate Postemergence

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Annual broadleaves	desmedipham + phenmedipham *(Betamix)*	0.08	8 oz 1.3L	• Refer to Table 7A for weed control and crop tolerance ratings. • Micro-rate applications may be applied to sugar beets at any growth stage. TIME THE FIRST MICRO-RATE application when weeds are less than 0.125 inch tall. This can be as early as 14 days after sugar beet planting. • Make the second micro-rate application when emerging weeds are less than 0.125 inch tall. This will be 5-14 days later, depending on temperature and moisture. • Continue TIMELY micro-rate applications (usually every 7 days) as needed until beet canopy closure. • Reduce the number of micro-rate applications and minimize sugar beet injury by timing micro-rate applications using growing degree-days. See the next section on TIMING MICRO-RATE APPLICATIONS USING GROWING DEGREE-DAYS (GDD). • The *Betamix* rate may be increased up to 12 oz/A when sugar beets are in the cotyledon to 4-leaf growth stage, and increased up to 16 oz/A if the smallest sugar beet plants in the field are in the 4-true-leaf stage. Use caution when using higher rates on early 2-leaf sugar beets — injury may occur. • IF WEEDS EXCEED 0.25 inch, return to standard herbicide application rates. • *Select/Arrow* at 2 oz/A, *Select Max* at 3 oz/A, *Assure II/Targa* at 4 oz/A, or *Poast* at 5.3 oz/A can be added to each micro-rate application OR wait until grasses reach 2–3 inches tall and add one of these herbicides at standard rates to one of the micro-rate applications. • Apply micro-rates in 10–12 gal. water/A. The methylated seed oil concentration must be a minimum of 1 pt/A in spray volumes of 4–8 gal. water/A. • Micro-rates can be applied at any time of day. • DO NOT tank mix micro-rates with *Quadris*. • Refer to label and Table 12 for crop rotation restrictions.
	+	+	+	
	triflusulfuron methyl *(UpBeet)*	0.0039	0.125 oz 50WG	
	+	+	+	
	clopyralid *(Stinger)*	0.0235	1 oz 3L	
	+		+	
	methylated seed oil		1.5%	
		AND REPEAT		
	desmedipham + phenmedipham ethofumesate *(Progress)*	0.08	5.7 oz 1.8L	• Refer to Table 7A for weed control and crop tolerance ratings. • SEE ALL REMARKS IN THE *BETAMIX* MICRO-RATE SECTION. • *Betamix* micro-rate applications will provide more consistent pigweed control. • The *Progress* rate may be increased up to 8.7 oz/A when sugar beets are in the cotyledon to 4-leaf growth stage, and increased up to 11.6 oz/A if the smallest sugar beet plants in the field are in the 4-true-leaf stage. Use caution when using higher rates on early 2-leaf sugar beets — injury may occur. • DO NOT tank mix micro-rates with *Quadris*. • Refer to label and Table 12 for crop rotation restrictions.
	+	+	+	
	triflusulfuron methyl *(UpBeet)*	0.0039	0.125 oz 50WG	
	+	+	+	
	clopyralid *(Stinger)*	0.0235	1 oz 3L	
	+		+	
	methylated seed oil		1.5%	
		AND REPEAT		

Sugar Beets – Timing Micro-Rate Applications Using Growing Degree-Days (GDD)

$$\text{GDD formula} = \frac{(\text{High Temp.} + \text{Low Temp.})}{2} - 34°\text{F}$$

EXAMPLE CALCULATION:

Day 1 = (75 + 55) / 2 – 34°F = 31 GDD
Day 2 = (80 + 60) / 2 – 34°F = 36 GDD

Two-day accumulation 67 GDD

- Timing micro-rate applications on GDD may reduce the number of herbicide applications during periods of cool weather.

GENERAL GUIDELINES:

- After the first micro-rate application, apply a micro-rate when 225 GDD have accumulated for average weed pressures on most soils. REPEAT.
- If soils are sandy, have high weed pressure, or are high in organic matter, adjust application timings to 175 GDD, particularly when pigweed is the target weed.
- Early in the season, when lambsquarters is the predominant species, micro-rate timings may be extended to 275 GDD. However, when pigweeds start to emerge, switch to 175 or 225 GDD.
- Delayed applications will result in reduced weed control.

Sugar Beets – Early Postemergence

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Annual broadleaves	desmedipham phenmedipham *(Betamix)*	0.5	3 pt 1.3L	• Refer to Table 7A for weed control and crop tolerance ratings. • Split low rates of *Betamix* + *UpBeet* followed by *Betamix* + *UpBeet* + *Stinger* may be applied to sugar beets at early growth stages (less than the 4-true-leaf stage) to control weed seedlings at the cotyledon stage. Weeds not completely controlled by the first treatment will be checked and controlled by the second application. • The second application MUST BE MADE AT LEAST 7 days but not more than 10 days AFTER the first application. • Growing degree-day recommendations for split low-rate applications: 400 GDD prior to the first application and 350 to 400 GDD prior to the second application. • The rate of *Betamix* in the second application can be increased to 4.6 pt/A. • Adding *Stinger* to the second application will control cocklebur and common and giant ragweed and improve lambsquarters control. • Add surfactant at 0.25% v/v to THE SECOND APPLICATION ONLY. • DISPERSE *UpBeet* thoroughly in the tank before adding other herbicides. • Rainfall within 6 hours of application may reduce control. • If *Stinger* is added, DO NOT plant dry beans for 18 months if organic matter is less than 2%. • Refer to label and Table 12 for crop rotation restrictions.
	+	+	+	
	triflusulfuron-methyl *(UpBeet)*	0.0156	0.5 oz 50WG	
	FOLLOWED BY:			
	desmedipham + phenmedipham *(Betamix)*	0.5	3 pt 1.3L	
	+	+	+	
	triflusulfuron-methyl *(UpBeet)*	0.0156	0.5 oz 50WG	
	+	+	+	
	clopyralid *(Stinger)*	0.094	0.25 pt 3L	

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Sugar Beets – Early Postemergence *(continued)*

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
(continued)				
Annual broadleaves	desmedipham + phenmedipham + ethofumesate *(Progress)*	0.25	1.13 pt 1.8L	• Refer to Table 7A for weed control and crop tolerance ratings. • DISPERSE *UpBeet* thoroughly in the tank before adding other herbicides. • Split (low-rate) applications of *Progress* plus *UpBeet* followed by *Progress* plus *UpBeet* plus *Stinger* may be applied to sugar beets at early growth stages (cotyledon to 4-true-leaf stage) to control weed seedlings at the cotyledon stage. • The second application MUST BE MADE AT LEAST 7 days but not more than 10 days AFTER the first application. • Growing degree-day recommendations for split low-rate applications: 400 GDD prior to the first application, and 350 to 400 GDD prior to the second application. • The rate of *Progress* in the second application can be increased to 2 pt/A if sugar beets are at 2-leaf pairs or larger. • Adding *UpBeet* to *Progress* results in velvetleaf control and provides more consistent control of pigweed, mustard, smartweed and wild buckwheat. • *Stinger* added to the second application controls cocklebur and common and giant ragweed. • DO NOT tank mix *Progress* split-rates with *Quadris*. • Rainfall within 6 hours of application may reduce control. • If *Stinger* is added, DO NOT plant dry beans for 18 months if organic matter is less than 2%. • Refer to label and Table 12 for crop rotation restrictions.
	+	+	+	
	triflusulfuron-methyl *(UpBeet)*	0.0156	0.5 oz 50WG	
	FOLLOWED BY:			
	desmedipham + phenmedipham + ethofumesate *(Progress)*	0.33	1.5 pt 1.8L	
	+	+	+	
	triflusulfuron methyl *(UpBeet)*	0.0156	0.5 oz 50WG	
	+	+	+	
	clopyralid *(Stinger)*	0.094	0.25 pt 3L	

Sugar Beets – Postemergence

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Annual grasses	s-metolachlor *(Dual Magnum, EverpreX)*	1.27	1.33 pt 7.62 EC	• Refer to Table 7A for weed control and crop tolerance ratings. • *Dual Magnum, Dual II Magnum* or *Cinch* should be applied to sugar beets after they have **2 true leaves**. • Sugar beets MUST HAVE 2-fully expanded true leaves before application; applications prior to this stage will result in significant crop injury and possible stand reduction. • Crop safety is greater when *Dual Magnum, Dual II Magnum* or *Cinch* applications are made after beets reach the 4-leaf stage. • *Dual Magnum, Dual II Magnum* or *Cinch* may be tank mixed with micro-rate or standard-split herbicide applications, or with glyphosate for residual weed control in glyphosate-resistant sugar beets. • *Dual Magnum, Dual II Magnum* or *Cinch* will not control emerged weeds, but will provide residual control of annual grasses and some broadleaf weeds. • MSU **does not** recommend preplant incorporated or premergence applications of *Dual Magnum, Dual II Magnum* or *Cinch* — severe stand reductions can occur. • More than one postemergence application can be made, but the total should not exceed 2.6 pt/A. • Refer to label and Table 12 for crop rotation restrictions.
	OR		OR	
	(Dual II Magnum, Cinch)		1.33 pt 7.64 EC	

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Sugar Beets – Postemergence *(continued)*

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
(continued)				
Annual grasses	dimethenamid-P *(Outlook)*	0.75	16 oz 6L	• Refer to Table 7A for weed control and crop tolerance ratings. • Sugar beets MUST HAVE 2-fully expanded true leaves before application; applications prior to this stage will result in significant crop injury and possible stand reduction. • Crop safety is greater when *Outlook* applications are made after beets reach the 4-leaf stage. • Apply *Outlook* before sugar beets exceed the 8-leaf stage. • *Outlook* may be tank mixed with micro-rate or standard-split herbicide applications, or with glyphosate for residual weed control in glyphosate-resistant sugar beets. • *Outlook* will not control emerged weeds, but will provide residual control of annual grasses and some broadleaf weeds. • More than one application of *Outlook* can be made; maintain a minimum of 14 days between applications, and the total should not exceed 21 oz/A. • Refer to label and Table 12 for crop rotation restrictions.
	acetochlor *(Warrant)*	1.125	3 pt 3SC	• Refer to Table 7A for weed control and crop tolerance ratings. • Apply *Warrant* postemergence to sugar beet from the 2-leaf up to the 8-leaf stage. • Sugar beets MUST HAVE 2-fully expanded true leaves before application; applications prior to this stage will result in significant crop injury and possible stand reduction. • Crop safety is greater when *Warrant* applications are made after beets reach the 4-leaf stage. • *Warrant* may be tank mixed with other herbicides labeled for use in sugarbeet including glyphosate for residual weed control in glyphosate-resistant sugarbeet. • *Warrant* applied alone will not control emerged weeds, but will provide residual control of annual grasses and some small seeded broadleaf weeds, e.g., pigweed and nightshade. • More than one postemergence application can be made, but the total should not exceed 4 qt/A of *Warrant* per season. • If a sugarbeet stand is lost, replanting sugarbeet after a *Warrant* application is not recommended and may result in significant crop injury. • Refer to label and Table 12 for crop rotation restrictions.

Sugar Beets – Postemergence *(continued)*

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Velvetleaf	triflusulfuron-methyl *(UpBeet)* + surfactant	0.0156	0.5 oz 50WG + 0.25% AND REPEAT	• SEE TABLE ON NEXT PAGE, "Guidelines for Velvetleaf Control with UpBeet." • *UpBeet* provides better velvetleaf control than *Pyramin* postemergence. • DISPERSE *UpBeet* thoroughly in the tank before adding surfactant. • A MINIMUM OF Two applications are needed For velvetleaf CONTROL. • Apply to velvetleaf at the 1-true-leaf stage. REPEAT application 7-10 days later. • Add 2 qt/A 28% liquid nitrogen or 2.5 lb ammonium sulfate in addition to surfactant if velvetleaf plants have 1 to 2 true leaves and beets are at 2-leaf-pair stage. • A third application of 0.5 oz/A of *UpBeet* + surfactant can be made. • The maximum amount of *UpBeet* that can be applied in 1 year is 2.5 oz/A. • *UpBeet* can be tank mixed with *Betamix, Progress* or glyphosate. • Rainfall within 6 hours of application may reduce control. • Allow at least 60 days between *UpBeet* application and sugar beet harvest. • Refer to label and Table 12 for crop rotation restrictions.

Guidelines for Velvetleaf Control with UpBeet

Beet Size	Velvetleaf Size	Other Weeds?	UpBeet Application*
cotyledon	coty — 1st true leaf	No	UpBeet + NIS
> cotyledon	coty — 2nd true leaf	No	UpBeet + 28% N + NIS
coty — 1st leaf pair	coty — 1st true leaf	Yes	UpBeet + Betamix
coty — 1st leaf pair	coty — 1st true leaf	Yes	UpBeet + Progressa
≥ 2nd leaf pair	coty — 1st true leaf	Yes	UpBeet + Betamix + NIS
≥ 2nd leaf pair	coty — 1st true leaf	Yes	UpBeet + Progress[a]

* UpBeet at 0.5 oz/A. NIS—nonionic surfactant.

[a] DO NOT use if RoNeet was applied.

Sugar Beets – Postemergence *(continued)*

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Cocklebur **Ragweeds** **Jimsonweed** **Volunteer alfalfa** **Sweet clover** **Canada thistle** **Perennial sowthistle**	clopyralid *(Stinger)* + crop oil concentrate	0.09-0.18	0.25-0.5 pt 3L + 1%	• Refer to Table 7A for weed control and crop tolerance ratings. • DO NOT use on sands, loamy sands, or permeable soils where water tables are shallow because of potential groundwater contamination. • Apply 0.25 pt/A to control cocklebur, giant ragweed, jimsonweed, volunteer alfalfa and sweet clover up to the 6-leaf stage and common ragweed up to the 5-leaf stage. • Smartweed, wild buckwheat, and nightshade up to the 3-leaf stage will be suppressed at 0.25 pt/A. • Tank mix with other postemergence herbicides to control other annual broadleaf weeds • After sugar beets have reached the third leaf pair, apply 0.33 pt/A to Canada thistle (just prior to flowering) for control. Increase the rate to 0.5 pt/A under drought conditions. DO NOT include crop oil concentrate if 0.5 pt/A is tank mixed with *Betamix* or *Progress*. • After sugar beets have reached the third leaf pair, apply 0.5 pt/A for perennial sowthistle control. Increase the rate to 0.67 pt/A under drought conditions. DO NOT tank mix with other herbicides for perennial thistle control. • DO NOT apply within 45 days of beet harvest. • DO NOT plant dry beans for 18 months if soil organic matter is less than 2%. • Refer to label and Table 12 for crop rotation restrictions.
Annual grasses **Volunteer corn** **Cereals** **Quackgrass**	quizalofop-P-methyl *(Assure II/Targa)* + crop oil concentrate + ammonium sulfate	0.03-0.06	5-10 oz 0.88L + 1% + 2.5 lb	• Refer to Table 7A for weed control and crop tolerance ratings. • Apply 7 oz/A to actively growing annual grasses up to 4 inches tall; 8 oz/A is required for barnyardgrass and crabgrass control. • Apply 5 oz/A for control of volunteer corn up to 18 inches tall. • Apply 8 oz/A to control spring-seeded cereals up to 4 inches tall. • Apply 10 oz/A to control fall-seeded cereals. • Make an application of 10 oz/A to 6- to 8-inch-tall quackgrass. A second application of 7 oz/A may be required 14-21 days later. • Surfactant may be used instead of crop oil concentrate. Ammonium sulfate is not required for all *Assure II/Targa* applications. • Grass control may be reduced if *Assure II/Targa* is tank mixed with *Betamix, Progress*, or *UpBeet*. Apply 5 days later. • DO NOT include ammonium sulfate with *Betamix, Progress, UpBeet*, or *Stinger* tank mixes. • *Assure II/Targa* at 4 oz/A can be added to each micro-rate application for annual grass control. • DO NOT apply within 45 days of beet harvest. • Refer to label and Table 12 for crop rotation restrictions.
	fluazifop-P-butyl *(Fusilade DX)* + crop oil concentrate	0.188	12 oz 2L + 1%	• Refer to Table 7A for weed control and crop tolerance ratings. • Apply 6 oz/A of *Fusilade DX* to control volunteer corn. • Apply 8 oz/A to control spring seeded cereals up to 6 inches tall. • Two applications 7-14 days apart are usually needed for control of perennial grasses. • DO NOT apply more than 48 oz/A of *Fusilade DX* per season. • DO NOT apply within 90 days of sugarbeet harvest. • Refer to label and Table 12 for crop rotation restrictions.

(Continued on next page)

Sugar Beets – Postemergence *(continued)*

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
(continued)				
Annual grasses **Volunteer corn** **Cereals** **Quackgrass**	sethoxydim *(Poast)* + crop oil concentrate + ammonium sulfate	0.19-0.29	1-1.5 pt 1.5SC + 1% + 2.5 lb	• Refer to Table 7A for weed control and crop tolerance ratings. • *Poast* is not as effective as the other postemergence grass herbicides. • For foxtails, barnyardgrass, and fall panicum 8 inches or less and crabgrass 4 inches or less, apply 1 pt/A. The rate can be reduced to 0.75 pt/A if grasses are 1-4 inches tall. • Apply 1 pt/A for control of volunteer corn up to 20 inches tall. • Apply 1.5 pt/A to cereals prior to tillering (less than 4 inches tall). • Make an application of 1.5 pt/A to 6- to 8-inch-tall quackgrass. A second application of 1 pt/A may be required 14-21 days later. • Grass control may be reduced if *Poast* is tank mixed with *Betamix, Progress* or *UpBeet*. Apply 5 days later. • DO NOT include ammonium sulfate with *Betamix, Progress, UpBeet* or *Stinger* tank mixes. • DO NOT apply within 60 days of beet harvest. • Refer to label and Table 12 for crop rotation restrictions.
	clethodim *(Select/Arrow)* + crop oil concentrate + ammonium sulfate	0.09-0.25	6-16 oz 2EC + 1% + 2.5 lb	• Refer to Table 7A for weed control and crop tolerance ratings. • For foxtails, barnyardgrass, and fall panicum 8 inches or less and crabgrass 4 inches or less, apply 6 oz/A. The rate can be reduced to 4-5 oz/A if grasses are 1-4 inches tall. • Apply 6 oz/A for control of volunteer corn up to 18 inches tall. The rate can be reduced to 4 oz/A if corn is 4-12 inches tall. • Oats can be controlled with 8 oz/A. • Spring-seeded cereals are labeled for control at 8 oz/A. However, 16 oz/A will provide more consistent control. • Apply 16 oz/A to control fall-seeded cereals. Cereals should not exceed 6 inches tall. • Two applications of 8 oz/A, 14-21 days apart, are generally needed for quackgrass control. • Grass control may be reduced if *Select/Arrow* is tank mixed with *Betamix, Progress* or *UpBeet*. Apply 5 days later. • *Select/Arrow* at 2 oz/A can be added to each micro-rate application for annual grass control. • DO NOT include ammonium sulfate with *Betamix, Progress, UpBeet* or *Stinger* tank mixes. • DO NOT apply within 40 days of beet harvest. • Refer to label and Table 12 for crop rotation restrictions.
	clethodim *(Select Max)* + surfactant + ammonium sulfate	0.07-0.18	6-16 oz 0.97EC + 0.25% + 2.5 lb	• Refer to Table 7A for weed control and crop tolerance ratings. • For foxtails, barnyardgrass, and fall panicum 8 inches or less and crabgrass 4 inches or less, apply 9 oz/A. The rate can be reduced to 6 oz/A if grasses are 1-4 inches tall. • Apply 6 oz/A for volunteer corn control. • Oats can be controlled with 12 oz/A. • Apply 24 oz/A to for consistent control of cereals. Cereals should not exceed 6 inches tall. • Two applications of 12 oz/A 14-21 days apart are generally needed for quackgrass control. • Grass control may be reduced if *Select Max* is tank mixed with *Betamix, Progress* or *UpBeet*. Apply 5 days later. • *Select Max* at 3 oz/A can be added to each micro-rate application for annual grass control. • DO NOT include ammonium sulfate with *Betamix, Progress, UpBeet* or *Stinger* tank mixes. • DO NOT apply within 40 days of beet harvest. • Refer to label and Table 12 for crop rotation restrictions.

Weed Control in Glyphosate-Resistant Sugar Beets

Sugar beets that are resistant to glyphosate are designated *Roundup Ready* sugar beets. Glyphosate products labeled for postemergence use on glyphosate-resistant sugar beets can be broadcast applied postemergence on glyphosate-resistant sugar beets only. Read carefully all remarks and limitations written below and on the labels for each of the glyphosate products registered for use in glyphosate-resistant sugar beets. See Table 10 for a list of glyphosate products registered for use in glyphosate-resistant sugar beets.

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
Annual grasses **Annual broadleaves** **Suppression of** **Perennials**	glyphosate (See Table 10) + ammonium sulfate	0.75–1.13 a.e.	22–32 oz 5.5L + 17 lb/100 gal	• **APPLY TO GLYPHOSATE-RESISTANT SUGAR BEETS ONLY.** • Refer to Table 7A for weed control and crop tolerance ratings. • Many glyphosate products are registered for application to glyphosate-resistant sugar beets. Read the label and see Table 10 to determine application rates and additives needed for different products. • Glyphosate should be applied at a minimum rate of 0.75 lb a.e./A (22 oz of a 4.5 lb a.e./gal glyphosate products, see Table 10). • Always add ammonium sulfate (17 lb/100 gal) to maximize glyphosate performance and reduce antagonism from hard water. • Glyphosate-resistant sugar beets should be planted in a weed-free seedbed. • The first glyphosate application should be made before annual weeds exceed 2 inches tall. Subsequent applications should be made before additional weed flushes are 4 inches tall to maximize weed control and sugar beet yield. • Two to four applications of glyphosate will be needed for season-long weed control and to maximize sugar beet yield. • Maximum in crop glyphosate applications include two applications prior to 8-leaf sugar beets totaling 1.9 lb a.e./A (56 oz/A) and two applications after the 8-leaf stage until 30 days prior to harvest totaling 1.5 lb a.e./A (44 oz/A). • Increase the glyphosate rate up to 1.1 lb a.e./A (32 oz/A) to control hard-to-control weeds. This rate can only be used prior to 8-leaf sugar beets. • *Dual Magnum, Dual II Magnum, Cinch*, *Outlook* or *Warrant* can be tank mixed with subsequent glyphosate applications to provide residual control of late-emerging grasses and pigweed. Sugar beets should have at least 4 true leaves. See product descriptions. • Postemergence grass herbicides may be tank mixed with glyphosate to control VOLUNTEER GLYPHOSATE-RESISTANT CORN. Consult the volunteer corn remarks section for specific products and rates. • *Stinger* at 2 to 4 oz/A should be tank-mixed with glyphosate to control VOLUNTEER GLYPHOSATE-RESISTANT SOYBEAN. • Tank mix *Stinger* with glyphosate to control glyphosate-resistant horseweed. Use a minimum of two applications of *Stinger* at 3 oz/A. Best results have been observed with three applications of *Stinger* at 2 oz/A followed by 4 oz/A followed by 4 oz/A tank-mixed with glyphosate. *Stinger* has a preharvest interval of 45 days. It is important not to exceed a total of 10.7 fl oz of *Stinger* and to be mindful of crop rotation restrictions. • The addition of micronutrient fertilizers (e.g., manganese) to glyphosate can cause a reduction in weed control. For best results, apply glyphosate and the fertilizers separately or use a full-chelated form of the fertilizer, and always include ammonium sulfate (17 lb/100 gal).

(Continued on next page)

Weed Control in Glyphosate-Resistant Sugar Beets *(continued)*

Weed Controlled	Herbicide	Rate lb/A a.i.	Formulation/A	Remarks and Limitations
(continued) **Annual grasses** **Annual broadleaves** **Suppression of** **Perennials**				• Continuous use of the same herbicide can lead to the development of herbicide-resistant weeds. Keep this in mind when planning weed management strategies for the full crop rotation. Glyphosate may be best utilized in glyphosate-resistant sugar beets. Include herbicides with other modes of action and/or tillage in other crops of the rotation to help minimize the development of glyphosate-resistant weeds. • Refer to label and Table 12 for crop rotation restrictions.
	glyphosate + s-metolachlor *(Sequence)* + ammonium sulfate	1.64	2.5 pt 5.25L + 17 lb/100 gal	• **APPLY TO GLYPHOSATE-RESISTANT SUGAR BEET ONLY.** • Refer to Table 7B for weed control and crop tolerance ratings. • Apply to sugar beet from the 2-true leaf stage to canopy closure. • DO NOT apply within 60 days of beet harvest. • *Sequence* is designed to control existing weeds and provide residual control of grasses and some small-seeded broadleaf weeds, including pigweeds and nightshade. • On fine and medium textured soils, *Sequence* can be applied at 3 pt/A prior to 8-true leaf sugar beet. • *Sequence* at 2.5 pt/A contains 22 fl oz/A of *Touchdown Total* (0.7 lb a.e./A of glyphosate) and 0.98 pt/A of *Dual Magnum*. • DO NOT exceed total maximum glyphosate use rate restrictions for glyphosate-resistant sugar beet when using *Sequence*. • DO NOT apply more than 7 pt/A of *Sequence* per season. • Refer to label and Table 12 for crop rotation restrictions.