

SUNFLOWER/SAFFLOWER HERBICIDE PERFORMANCE RATINGS

E EXCELLENT (≥91%)

G GOOD (81-90%)

F FAIR (65-80%)

P POOR (<65%)

N NONE

U UNKNOWN

L LABELED **NL** NOT LABELED

GRASSES

PREPLANT or PREEMERGENCE

	SUNFLOWER	SAFFLOWER	CROP TOLERANCE	SITE OF ACTION ^A	Barnyardgrass	Crabgrass	Fall panicum	Foxtail, gi/gr	Foxtail, yellow	Quackgrass	Sandbur, field	Shattercane	Volunteer wheat	Wild oat	Wild proso millet	Yellow nutsedge
Aim EC ⁵ (carfentrazone)	L	L	E	14	N	N	N	N	N	N	N	N	N	N	N	N
Charger MAX/Dual II Magnum (s-metolachlor)	L	NL ³	E	15	G	E	E	E	E	N	F	P	P	P	F	FG
Eptam (EPTC)	L	L	E	8	E	E	E	E	E	F	G	F	G	G	F	G
Eptam + Trust/Treflan HFP (EPTC + trifluralin)	L	L	E	8,3	E	E	E	E	E	F	GE	FG	G	G	F	G
Framework/Prowl H2O (pendimethalin)	L	NL	E	3	E	E	E	E	E	P	E	G	PF	F	F	P
Sequence (glyphosate + s-metolachlor)	L	NL	E	9,15	E	E	E	E	E	GE	E	E	E	E	E	F
Sonalan (ethalfuralin)	L	L	E	3	E	E	E	E	E	P	E	G	PF	F	F	P
Spartan (sulfentrazone)	L	NL	G	14	P	PF	PF	PF	PF	N	N	N	P	P	P	G
Spartan Charge (sulfentrazone + carfentrazone)	L	NL	G	14,14	P	F	F	PF	PF	N	N	N	P	P	P	G
Spartan Elite (sulfentrazone + s-metolachlor)	L	NL	GE	14,15	G	E	E	E	E	N	F	PF	P	P	F	FG
Trust/Treflan HFP (trifluralin)	L	L	E	3	E	E	E	E	E	P	E	G	PF	F	F	P
Vida (pyraflufen)	L	L	E	14	N	N	N	N	N	N	N	N	N	N	N	N

POSTEMERGENCE

Assure II/Targa ^R (quizalofop)	L	NL	E	1	E	E ^R	E	E ^R	GE	GE	E	E	E	E ^R	E	P
Beyond ^{2R} (imazamox)	L	NL	E	2	G	FG	G	E ^R	F ^{GR}	P	F	E ^R	G	G ^R	G	P
Express ^{1R} (tribenuron)	L	NL	E	2	N	N	N	N	N	N	N	N	N	N	N	N
Poast ^R (sethoxydim)	L	L	E	1	E	E ^R	E	E ^R	E	F	E	E	G	E ^R	E	P
Section Three/Select 2 EC/Cleanse ^R (clethodim)	L	L	E	1	E	E ^R	E	E ^R	E	G	E	E	E	E ^R	E	P

HARVEST AID

Gramoxone SL/SL 2.0 (paraquat), Defol 750 (sodium chlorate)	L	NL		22	G	G	G	G	G	P	G	G	G	GE	G	F
Sharpen (saflufenacil)	L	NL		14	N	N	N	N	N	N	N	N	N	N	N	N

^A Site of action, described on page 759.

^R No control of herbicide resistant weed biotypes. See the list of known resistant weeds on the second page of the technical section.

¹ For ExpressSun sunflowers only.

² Clearfield sunflowers only.

³ Charger Basic and Dual Magnum are labeled for safflower.

⁵ Burndown control only.

⁶ See label of pigweed species controlled.

SUNFLOWER/SAFFLOWER WEEDS

SUNFLOWER/SAFFLOWER HERBICIDE PERFORMANCE RATINGS

BROADLEAVES

	Bindweed, field	Buffalobur	Canada thistle	Cocklebur	Jimsonweed	Knotweed	Kochia	Lambquarters, common	Marshelder	Morningglory, annual	Mustard, wild	Nightshade, black	Nightshade, hairy	Pigweed ⁶	Puncturevine	Ragweed, common	Ragweed, giant	Russian thistle	Smartweed	Sunflower, volunteer	Velvetleaf	Wild buckwheat		
PREPLANT or PREEMERGENCE																								
—	N	P	F	P	P	GE	U	G	GE	F	FG	P	GE	GE	GE	U	F	F	FG	P	P	E	PF	● Aim EC ⁵
---	N	P	N	P	P	P	P	F	P	P	P	G	F	P	P	G	P	P	P	P	P	P	P	● Charger MAX/Dual II Magnum
—	P	F	P	P	P	P	F	F	P	FG	P	FG	FG	F	U	F	P	P	P	P	P	P	F	● Eptam
—	P	F	P	P	P	P	G	G	P	F	P	FG	FG	G	P	F	P	F	P	P	P	P	P	● Eptam + Trust/Treflan HFP
---	P	P	P	P	P	P	G	G	P	P	P	P	P	G	P	P	P	FG	P	P	P	P	P	● Framework/Prowl H2O
—	FG	G	G	E	E	G	G ^R	E	U	F	E	G	G	E	U	E ^R	E	E	G	E	E	FG	● Sequence	
—	P	P	P	P	P	P	GE	E	P	P	P	F	F	E	U	P	P	FG	P	P	P	PF	● Sonalan	
---	F	U	N	P	F	P	E	E	FG	GE	PF	GE	FG	GE	P	PF	P	GE	G	P	F	FG	● Spartan	
—	F	U	N	F	GE	P	F	E	E	U	E	P	E	U	E	U	F	P	GE	G	PF	E	FG	● Spartan Charge
—	P	F	N	P	P	P	E	E	P	GE	P	GE	G	GE	PF	F	P	GE	G	P	F	P	● Spartan Elite	
---	P	P	P	P	P	P	G	G	P	P	P	P	P	G	P	P	P	FG	P	P	P	P	P	● Trust/Treflan HFP
—	N	P	F	P	P	GE	U	G	GE	F	FG	P	GE	GE	GE	U	F	F	FG	P	P	E	PF	● Vida
POSTEMERGENCE																								
—	N	N	N	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	● Assure II/Targa ^R
---	P	G	F	G ^R	G	P	F	G ^R	G ^R	GE	FG	E ^R	E ^R	G	E ^R	G	F ^R	F ^R	F ^R	G	G ^R	G	F	● Beyond ^{2R}
—	N	N	GE	F	N	F	E ^R	E ^R	G	N	E ^R	N	F	G ^R	G	N	N	E ^R	N	P	F	N	PF	● Express ^{1R}
—	N	N	N	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	● Poast ^R
---	N	N	N	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	● Section Three/Select 2 EC/Cleanse ^R
HARVEST AID																								
—	P	P	P	F	U	P	FG	G	P	G	E	F	F	FG	U	G	G	G	FG	F	G	F	● Gramoxone SL/SL 2.0, Defol 750	
---	F	U	F	E	G	U	E	E	E	G	E	E	E	E	G	E	E	E	E	E	E	E	E	● Sharpen

SUNFLOWER/SAFFLOWER WEEDS

SUNFLOWER/SAFFLOWER HERBICIDE APPL. TIMING AND RESTRICTIONS

Herbicide	Application Timing*	Labeled Crops**	Comments/Restrictions	GPA ¹		Rainfast (hrs)	Aerial Application	Intervals* (Days)		
				Ground	Aerial			Feeding Forage	Grazing Animals	Harvest
Aim EC	PP PRE	SU, SA	PP prior to planting. PRE within 24 hr after planting.	10	3	6-8	Y	NR	NR	0
Assure II	POST	SU	Apply up to 60 days PHI.	10	3	1	Y	NO	NO	60
Beyond	POST	SU	Clearfield sunflowers only in 2-8 leaf stage. Apply when broadleaves are <3" and grasses <4-5 leaf.	10	5	1	Y	NR	NR	NR
BroadAxe XC/Spartan Elite	PRE	SU	Apply up to 3 days after planting. PPI 2".	10	5		Y	NO	NO	NR
Charger Basic/Dual Magnum	PP PRE	SU, SA	PPI up to 2" up to 14 days before planting. NR for safflower. PRE prior to crop emergence.	10	2		Y	NO,NR	NO,NR	NR
Charger Max/Dual II Magnum	PP PRE	SA	PPI up to 2" up to 14 days before planting. PRE prior to crop emergence.	10	2		Y	NR	NR	NR
Cornerstone 5 Plus/ Tomahawk 5	PP PRE	SU	PP prior to planting. PRE prior to crop emergence.	3-40	3-15	S	Y	NO	NO	NR
Defol 6 or 750	PH	SU, SA	Apply 7 or more days before harvest when seedheads are fully mature. Do not graze or feed safflower.	5-10	20-30	24	Y	14,NO	14,NO	7
Durango DMA/Duramax	PP PRE POST PH	SU, SA	PP prior to planting. PHI 56 days for safflower harvest or feeding. PRE prior to crop emergence. Hooded or shielded sprayer or wiper. Safflower when seed has lost opaque color, ap 20-30 days after the end of secondary branch flowering; sunflower when back of heads are yellow and bracts turning brown and seed moisture is <35%.	3-40	3-15	S	Y	NO,56	NO,56	NR,56
Elevore	PP	SU	Burndown up to 14 days before planting.	8	5	1	Y	NL	NL	NL
Eptam 7E or Eptam 20G	PP	SU, SA	Sunflowers: PPI spring- apply and incorporate just before planting. Use 20-G only in CO, KS, NE, MN, ND, and SD. PPI FALL - apply in late fall before ground freezes. Use 20-G only in MN and ND. Safflowers: apply and incorporate just before planting- see 7E label for states.	10			NL	NR	NR	NR
Express	PP POST	SU	ND only for Express Sun. DuPont ExpressSun trait sunflowers only from V1 to pre-bud.	5	2	3+	Y	NR	NR	70
Framework	PP PRE	SU	PPI spring, 1.5-2" up to 60 days before planting- incorporate within 7 days. PPI FALL in MN, ND, SD late fall soil temp ≤ 45°F and before ground freezes. Incorporate immediately in fall and spring. Conventional tillage: up to 2 days after planting (except CA). NO-TILL (except CA): PP up to 30 days before planting or PRE immediately after planting.	10	5		Y	NO	NO	NR
Gramoxone SL/SL 2.0	PP PRE PH	SU, SA	PP prior to planting. PRE prior to crop emergence. Apply when back of heads are yellow and bracts turning brown and seed moisture is <35%.	10	5	0.5	Y	NR	NR	NR
Harmony SG	POST	SA	Apply up to 81 days PHI.	5-20	2-5	1	Y	NR	NR	81
Optify	PGR		Plant Growth Regulator. Soil applications can begin prior to planting and continue while plants are in vegetative stage. Formulate with liquid fertilizer and/or through irrigation system. Foliar applications may begin when plants are ≥ 4-leaf stage of development. Best to apply before leaf hardening.	5 ^{Foliar}	NO		NO	NL	NL	0
Poast	POST	SU, SA	Apply up to PHI- 70 days sunflower, 30 days safflower.	5-20	5	1	Y	NO	NO	70,30
Prowl H2O	PP PRE	SU	PPI spring, 1.5-2" up to 60 days before planting. PPI FALL in MN, ND, SD late fall soil temp ≤ 45°F and before ground freezes. Incorporate immediately in fall and spring. Conventional tillage: up to 2 days after planting (except CA). NO-TILL (except CA): PP up to 30 days before planting or PRE immediately after planting.	10	5		Y	NO	NO	NR
Roundup PowerMAX/ WeatherMAX	PP PRE POST PH	SU, SA	PP prior to planting. NR for safflower. PRE prior to crop emergence. Shielded/hooded sprayer or wiper. Safflower: when seed has lost opaque color, ap 20-30 days after the end of secondary branch flowering; sunflower when back of heads are yellow and bracts turning brown and seed moisture is <35%.	3-40	3-15	S	Y	NO,NR	NO,NR	NR

SEE NOTES AT END OF SECTION.

SUNFLOWER/SAFFLOWER HERBICIDE APPL. TIMING AND RESTRICTIONS

Herbicide	Application Timing*	Labeled Crops**	Comments/Restrictions	GPA ¹		Rainfast (hrs)	Aerial Application	Intervals* (Days)		
				Ground	Aerial			Feeding Forage	Grazing Animals	Harvest
RT 3	PP	SU, SA	PP prior to planting. See label for state and county restrictions. NR for safflower.	3-40	3-15		Y	NR	NR	NR
	PRE PH		PRE prior to crop emergence. Safflower when seed has lost opaque color, about 20-30 days after the end of secondary branch flowering; sunflower when back of heads are yellow and bracts turning brown and seed moisture is <35%.			S		7	7	7
Section Three/Select 2 EC/Cleanse	POST	SU, SA	Apply up to 70 days PHI.	5-40	3-10	1	Y	NR	NR	70
Select Max	POST	SU, SA	Apply up to 70 days PHI.	5-40	3	1	Y	NR	NR	70
Sequence	PP		Apply before, during, or after planting but before crop emergence.	10-40	3-5	S	Y	NO	NO	NR
	PRE	SU								
Sharpen	PH	SU	Apply to mature crop, <36% moisture. Not for seed production.	5	3	1	Y	NR	NR	7
Sonalan HFP or 10G	PP	SU, SA	PPI spring or fall prior to planting, incorporate 2-3" within 2 days. PPI FALL, Oct 1-Dec 31, (HFP on dry fertilizer for sunflower) and incorporate. Second incorporation 3-5 days later.	5			N	NO	NO	NR
Spartan 4F	PP	SU	PP in spring. PPI up to 2"; at least 7-14 days before planting on coarse soils. FALL in ND, SD, MT, MN, WY, CO, NE, or KS.	10-40	5		Y	NR	NR	NR
	PRE		Up to 3 days after planting.							
Spartan Charge	PP	SU	PP FALL or spring.	10	5		Y	NR	NR	NR
	PRE		Up to 3 days after planting, but before crop seedling is close to the soil surface.							
Spartan Elite			See BroadAxe XC.							
Targa	POST	SU	7-day application interval.	10-15	3-5	1	Y	NL	NL	60
Trust/Treflan HFP or Treflan TR-10	PP	SU, SA	PPI FALL or spring and incorporate 2-3" immediately. Spring- wait 5 days for a second pass; fall- wait til spring for second pass.	5-40	5-10		Y	NR	NR	NR
	PH	SU, SA	Apply to mature crop, <35% seed moisture. Apply after 10/15 in Region 2 and 11/15 in region 1 or when soil temperature falls below 50°F at 2".	15-30		1		NR	NR	5
Vida	PP	SU, SA	Apply up to 24 hours before planting.	10	5	1	Y	NL	NL	NL

*Application Timing and Intervals

PP - Preplant surface, unless otherwise specified

PPI - Preplant incorporated

PRE - Preemergence

POST - Postemergence

PH - Preharvest

PGR - Plant growth regulator

NA - Not applicable

NR - No Restrictions

NO - Not Permitted

Delay-M - Delay until maturity.

S - Heavy rainfall soon after application may require retreatment.

**SU - sunflower, SA - safflower

1 Includes labeled minimum or range.

SUNFLOWER/SAFFLOWER WEED CONTROL

Preplant or Preemergence Herbicides

Herbicide	Labeled Crops*	Rate/Acre			Comments/Restrictions
		Coarse**	Medium	Fine	
AIM EC	SU, SA	0.5-1 oz + 0.5 gal HSOC-MSO or HSOC-COC ¹ or 2 pt NIS/100 gal			PP or PRE. PRE within 24 hrs after planting. Apply to emerged weeds. Add to tank before other herbicides.
BROADAXE XC/ SPARTAN ELITE	SU	19-21 fl oz 19-25 fl oz 21-25 fl oz	<1.5% O.M. 19-25 fl oz 1.5-3% O.M. 21-32 fl oz >3% O.M. 25-32 fl oz	21-30 fl oz 25-32 fl oz 32-38.7 fl oz	Apply up to 3 days after planting if seedlings have not broken soil surface. Plant sunflowers 1.5" deep. PPI 2". Maximum 38.7 fl oz/A/crop year. For soils with pH > 7.2, use lowest rate for specified O.M. and texture. Do not use on soils with <1% O.M.
CHARGER BASIC/ DUAL MAGNUM	SU, SA	1-1.33 pt 1.33 pt	<3% O.M. 1.33-1.67 pt ≥3% O.M. 1.33-1.67 pt	1.33-1.67 pt 1.67-2 pt	PPI or PRE. PPI up to 2". Do not allow livestock to graze or feed in treated areas.
CHARGER MAX/ DUAL II MAGNUM	SA	1-1.33 pt 1.33 pt	<3% O.M. 1.33-1.67 pt ≥3% O.M. 1.33-1.67 pt	1.33-1.67 pt 1.67-2 pt	PPI or PRE.
CORNERSTONE PLUS/ TOMAHAWK 4 or CORNERSTONE 5 PLUS/ TOMAHAWK 5	SU	Up to 1 qt or Up to 24 fl oz + 8.5-17 lb AMS/100 gal ^a			PP or PRE prior to crop emergence to emerged weeds. ^a Include NIS or WC+NIS ² as needed.
DURANGO DMA/ DURAMAX	SU, SA	Up to 24 fl oz + 8.5-17 lb AMS/100 gal ^a			PP or PRE. Apply before crop emerges to emerged weeds. ^a Or WC+NIS ² .
ELEVORE	SU	1 fl oz			PP burndown to actively growing weeds up to 14 days before planting. Use with MSO.
EPTAM 7E or EPTAM 20G	SU, SA	2.5 pt 4.5 pt 20 lb	2.5-3.5 pt 5.25 pt 22.5 lb	3-3.5 pt 5.25 pt 22.5 lb	PPI in spring. Use 20G only in CO, KS, NE, MN, ND, SD. Apply and incorporate just before planting. Can tank mix Eptam 7-E with Trust/Treflan or Prowl H2O. PPI FALL APPLICATION. Use 20G only in MN, ND. Incorporate in late fall before the ground freezes. Can tank mix Eptam 7E in all states with Prowl or Trust/Treflan. Safflower: Use 3.5 pt/A 7E in northern, PNW, and western regions or 15 lb/A 20G PPI just before planting in all states.
EXPRESS	SU	0.25-0.5 oz + 0.5 gal HSOC-MSO ¹ /100 gal			PP burndown prior to Express Sun sunflowers.
FRAMEWORK or PROWL H2O	SU	PPI Spring or PRE Conv. Tillage-Northern 2.4 pt 3-3.6 pt ^c 3.6 pt 2 pt 2.5-3 pt ^a 3 pt PPI Spring or PRE Conv. Tillage-Southern 1.8 pt 2.4 pt 3.6 pt 1.5 pt 2 pt 3 pt PPI FALL 3 pt 3.6-4.2 pt ^b 4.2 pt 2.5 pt 3-3.5 pt ^d 3.5 pt			PPI. Apply in spring 0-60 days prior to planting and incorporate within 7 days unless adequate rain or irrigation is received. PRE up to 2 days after planting (except CA). Note 1. PP or PRE NO-TILL. Apply up to 30 days prior to planting. Apply up to 3 pt H2O or 3.6 pt Framework. Rainfall or irrigation within 7 days required for activation. Use a burndown herbicide for existing weeds. Note 1. PPI FALL in MN, ND, SD. Apply in late fall when soil temperature is below 45°F. Incorporate once in fall and again in spring. Note 1. ^a 2.5 pt < 3% O.M., 3 pt > 3% O.M. ^b 3.6 pt < 3% O.M., 4.2 pt > 3% O.M. ^c 3 pt < 3% O.M., 3.6 pt > 3% O.M. ^d 3 pt < 3% O.M., 3.5 pt > 3% O.M.
GRAMOXONE SL/SL 2.0	SU, SA	2.5-4 pt + 1 pt NIS/100 gal			PP or PRE. Apply before, during or after planting but before crop emerges for control of emerged weeds.

* SU - sunflower, SA - safflower

SEE NOTES AT END OF SECTION.

** Coarse - Sand, loamy sand, sandy loam.

Medium - Loam, silt, silt loam.

Fine - Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay.

O.M. - Soils with low organic matter - use lower rate, with high organic matter - use higher rate within the range.

*** May use other glyphosate herbicides: Roundup brands, Durango DMA/Duramax, or others at labeled rates.

¹ Between and Superb HC (COC) and Succeed/Ultra and Destiny HC (MSO) are HSOC adjuvants, generally used at half standard COC or MSO rates.

² Class Act NG or Flex, Alliance, or Ultra-Lite may be used where herbicides require NIS and AMS or a water conditioner.

SUNFLOWER/SAFFLOWER WEED CONTROL

Preplant or Preemergence Herbicides (continued)

Herbicide	Labeled Crops*	Rate/Acre			Comments/Restrictions
		Coarse**	Medium	Fine	
OPTIFY		5-12 fl oz			Plant Growth Regulator. At planting: 5 fl oz/A with liquid fertilizer. Broadcast, side or top dress: 8-12 fl oz/A. Best results when applied with nutrients. Repeat application ≥7 days. Do not apply >24 oz/A/season.
PROWL H2O		SEE FRAMEWORK			
ROUNDUP POWERMAX/ WEATHERMAX***	SU, SA	Up to 2 qt: SA 22 fl oz: SU + 8.5-17 lb AMS/100 gal ^a			PP or PRE. Apply prior to crop emergence to emerged weeds. Apply in 3-10 gal of water/A. Do not apply more than 26 oz as a single application. ³ Or WC+NIS ² .
RT 3	SU, SA	11-44 fl oz + 8.5-17 lb AMS/100 gal ^a			PP or PRE prior to crop emergence for emerged weeds. Maximum 22 fl oz/A/season in sunflower. For use in CO, ID, KS*, MN*, MT, NE*, NM*, NV, ND, OK*, OR, SD, TX, UT, WA, WY. *See label for county restrictions. ³ Or WC+NIS ² .
SONALAN HFP or 10G	SU, SA	1.5-2 pt 5.5-7.5 lb	2-2.5 pt 7.5-9.5 lb	2.5-3 pt 9.5-11.5 lb	PPI FALL or spring or minimum-till, granules are preferred. Incorporate 2-3" as soon as possible within 2 days. Note 1. PPI FALL. Apply from Oct. 1 - Dec. 31 and incorporate as above. A second incorporation should be delayed 3-5 days. HFP may be applied with dry fertilizer only for sunflower. Note 1.
SPARTAN 4F	SU	3-6 fl oz	3-6.75 fl oz	3.75-8 fl oz	PP, PPI or PRE. May be applied in FALL in ND, SD, MT, MN, WY, CO, NE, or KS. Apply PRE up to 3 days after planting. Rates vary by O.M. and pH. Crop injury can occur, particularly on coarse soils with <1.5% O.M. or high pH. On coarse soils, apply PPI at least 7-14 days prior to planting. Do not incorporate >2" deep.
SPARTAN CHARGE	SU	3.75-5 fl oz	<1.5% O.M. 3.75-5.75 fl oz 1.5-3% O.M. 3.75-5.75 fl oz >3% O.M. 5-7.75 fl oz	5-6.5 fl oz 5.75-8.5 fl oz 7.75-10.2 fl oz	PP or PRE. See label for pH and rate. Use lower rates within the range, for pH over 7.0. Apply in FALL, spring or PRE up to 3 days after planting. Spartan Charge has burndown activity on small susceptible broadleaf weeds as well as PRE control of kochia. Spartan Charge contains Aim herbicide for additional burndown of small broadleaf weeds and can be mixed with glyphosate.
SPARTAN ELITE		See BroadAxe XC.			
TOMAHAWK		See Cornerstone.			
TRUST/TREFLAN HFP or TREFLAN TR-10	SU, SA	Sunflower 1 pt 1.25-1.5 pt 1.5-2 pt 5 lb 6.25-7.5 lb 7.5-10 lb Safflower Spring 1 pt 1.25-1.5 pt 1.5-2 pt 5 lb 6.25-7.5 lb 7.5-10 lb Safflower Fall 1.5 pt 2 pt 2.5 pt 7.5 lb 10 lb 12.5 lb Safflower and Sunflower 5 lb 7.5 lb 10 lb			PPI SPRING or FALL. Incorporate at once. A second incorporation improves performance. Wait 5 days before second pass. With fall treatment, do the second incorporation in spring. Apply FALL treatment (Sept 15 for TR-10) Sept 1 - Dec. 31 in CA, MN, ND, SD; Oct. 15 - Dec. 31 in all other states. Granules preferred for heavy crop residue or for fall application. See label for effect of O.M., soil texture and rainfall on rates.
VIDA	SU, SA	0.5-2 fl oz + 0.5 gal HSOC-MSO or HSOC-COC ¹ or before other herbicides. 2 pt NIS/100 gal			PP. Apply up to 24 hours before planting. Minimum of 30 days between applications. Do not apply >3 applications/year or 5.5 fl oz/A/year.

* SU - sunflower, SA - safflower

SEE NOTES AT END OF SECTION.

** Coarse - Sand, loamy sand, sandy loam.

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*** May use other glyphosate herbicides: Roundup brands, Durango DMA/Duramax, or others at labeled rates.

¹ Between and Superb HC (COC) and Succeed/Ultra and Destiny HC (MSO) are HSOC adjuvants, generally used at half standard COC or MSO rates.

² Class Act NG or Flex, Alliance, or Ultra-Lite may be used where herbicides require NIS and AMS or a water conditioner.

SUNFLOWER/SAFFLOWER WEED CONTROL

Postemergence Herbicides

Herbicide	Labeled Crops*	Rate/Acre	Comments/Restrictions
ASSURE II	SU	8-10 fl oz + 1 qt NIS ¹ /100 gal	Apply 4-8 oz for control of volunteer corn. Maximum of 18 fl oz/A/season. Apply at > 7 day intervals. Do not apply to crop under stress. PHI 60 days.
BEYOND	SU	4-6 fl oz + 1 qt NIS/100 gal + 2.5 gal 28%N or 12-15 lb AMS/100 gal	Apply 4 fl oz/A to Clearfield sunflowers, 4-6 fl oz/A to Clearfield Plus sunflowers; when broadleaves are <3" and grasses <4-5 leaf. Sunflower should be 2-8 leaf. Does not control ALS resistant weeds. See label for resistance management. Can use HSOC-MSO or HSOC-COC ¹ in place of NIS.
CLEANSE		See Select 2 EC.	
DURANGO DMA/ DURAMAX	SU, SA	Up to 24 fl oz + 8.5-17 lb AMS/100 gal ^a	Postemergence with a hooded sprayer or wiper application. ^a Or WC+NIS ² . Note 1.
EXPRESS	SU ^A	0.25-0.5 oz + 0.5 gal HSOC-MSO ¹ /100 gal	^A DuPont ExpressSun trait sunflowers only. Do not apply Express to sunflowers that are not ExpressSun - severe crop injury or death will occur. Apply from V1 to pre-bud (prior to beginning of bud formation) sunflower. Does not control ALS resistant weeds. Maximum use is 1 oz/A/ season. PHI 70 days.
HARMONY SG	SA	0.45-0.6 oz + 1-2 qt NIS/100 gal or 0.5-1 gal HSOC-COC ¹ /100 gal	Supplemental label ND, SD, NE, MT (east of Rt. 87 or east of I-15) and WY, (exp. date not given): Apply up to 81 days PHI UAN or AMS may be included.
OPTIFY		8-12 fl oz	Plant Growth Regulator. Broadcast, side or top dress. Via irrigation: Apply at 8 fl oz/A. Best results when applied with nutrients. Foliar: Apply directly to foliage of actively growing plants ≥6 fl oz/A in minimum 5 GPA. Repeat application ≥7 days. Do not apply >24 oz/A/season.
POAST	SU	1-1.5 pt + 1 pt HSOC-COC ¹	Rates vary from 0.5 to 2.5 pt depending on species and region. Add 2-4 pt 28% N or 2.5 lb of AMS for volunteer cereals, crabgrass and quackgrass. 70 days PHI. Apply to spring germinating volunteer cereals before tillering.
ROUNDUP POWERMAX/ WEATHERMAX	SU, SA	Up to 2 qt: SA Up to 22 oz: SU + 8.5-17 lb AMS/100 gal ^a	Postemergence with a hooded sprayer or wiper application. ^a Or WC+NIS ² . Note 1.
SECTION THREE	SU, SA	4-10.67 fl oz: SU/ 4-5.33 fl oz: SA	70 day PHI. Maintain 14 day interval for repeat applications. Use 1 pt/A of HSOC-COC or HSOC-MSO ¹ , WC+NIS ² or 8.5-17 lb/100 gallons of AMS.
SELECT 2 EC/CLEANSE	SU, SA	6-16 fl oz: SU 6-8 fl oz: SA + 0.5-1 pt HSOC-COC ¹ + 2.5 lb AMS	Apply to actively growing grasses. Rate is dependent on grass species and size. PHI 70 days. May be tank mixed with some insecticides. See label. Note 1.
SELECT MAX	SU, SA	9-32 fl oz + 1 qt NIS/100 gal	AMS may be added. Safflower at 9-16 fl oz/A. PHI 70 days.
TARGA	SU	4-18 fl oz + 1 qt NIS/100 gal	Maximum of 18 fl oz/A/season. Apply at > 7 day intervals. Do not apply to crop under stress. PHI 60 days.
Preharvest			
DEFOL 6 or DEFOL 750	SU, SA	1 gal or 3.2 qt + 1 qt NIS/100 gal	HARVEST AID (sodium chlorate): Apply 7 or more days before harvest when seedheads are fully mature. Apply in 5-10 GPA by air or 20-30 GPA by ground. PHI 7 days. Feeding and grazing 14 days for sunflower. Do not feed or graze safflower.
DURANGO DMA/ DURAMAX	SU, SA	Up to 72 fl oz: SA Up to 24 fl oz: SU + 8.5-17 lb AMS/100 gal ^a	PREHARVEST. Apply to safflower when seed has lost opaque color, approximately 20-30 days after the end of flowering of secondary branches. Sunflower, when backsides of heads are yellow and bracts are turning brown and seed moisture is < 35%. PHI 7 days. ^a Or WC+NIS ² .
GRAMOXONE SL/SL 2.0	SU	1.2-2 pt + 1 pt NIS/100 gal	PREHARVEST. Apply when back of heads are yellow and bracts turning brown; seed moisture under 35%. Do not graze or feed forage to livestock. Apply in 5-10 GPA by air or 20-30 GPA by ground. PHI 7 days. HSOC-COC ¹ can be substituted for NIS. Use 2 pt NIS by air. Note 1.

* SU - sunflower, SA - safflower

¹ Between and Superb HC (COC) and Succeed/Ultra and Destiny HC (MSO) are HSOC adjuvants, generally used at half standard COC or MSO rates.

² Class Act NG or Flex, Alliance, or Ultra-Lite may be used where herbicides require NIS and AMS or a water conditioner.

Note 1: Do not graze or feed treated forage.

SUNFLOWER/SAFFLOWER WEED CONTROL

Postemergence Herbicides (continued)			
Herbicide	Labeled Crops*	Rate/Acre	Comments/Restrictions
Preharvest (continued)			
ROUNDUP POWERMAX or WEATHERMAX	SU, SA	Up to 64 fl oz: SA Up to 22 fl oz: SU + 8.5-17 lb AMS/100 gal ^a	PREHARVEST. Apply to safflower when seed has lost opaque color, approximately 20-30 days after the end of flowering of secondary branches. Sunflower, when backsides of heads are yellow and bracts are turning brown and seed moisture is < 35%. PHI 7 days. ^a Or WC+NIS ² .
RT 3	SU, SA	Up to 64 fl oz: SA Up to 22 fl oz: SU + 8.5-17 lb AMS/100 gal ^a	PREHARVEST. See Roundup PowerMAX and Roundup WeatherMAX comments. PHI 7 days. ^a Or WC+NIS ² .
SHARPEN	SU	1-2 fl oz + 0.75 pt HSOC-MSO ¹ + 8.5-17 lb AMS or 1.25-2.5 gal UAN/100 gal	PREHARVEST. Apply when backs of the heads are yellow and bracts are turning brown; (≤35% seed moisture). PHI 7 days. Do not use on crops grown for seed production. May tank mix with glyphosate. Use ≥ 5 GPA water by air or ≥ 10 GPA by ground.
VALOR	SU, SA	1.5-3 oz + 0.5 qt HSOC-MSO ¹ + 2-2.5 lb AMS or 1-2 qt 28% UAN	HARVEST AID. Apply when crop is mature when backs of heads are turning yellow and bracts are turning brown and seed are <35% moisture. PHI 5 days. Add Cornerstone 5 Plus/ Tomahawk 5 for additional weed control.

* SU - sunflower, SA - safflower

¹ Between and Superb HC (COC) and Succeed/Ultra and Destiny HC (MSO) are HSOC adjuvants, generally used at half standard COC or MSO rates.

² Class Act NG or Flex, Alliance, or Ultra-Lite may be used where herbicides require NIS and AMS or a water conditioner.


Note 1: Do not graze or feed treated forage.

SUNFLOWER/SAFFLOWER INSECT CONTROL

Labeled Insecticides

SUNFLOWER/ SAFFLOWER	INSECTICIDE	Asana XL	Baythroid XL	Besiege	Cobalt Advanced	Cruiser SFS	Declare	Delta Gold	Dimate-4E/Dimethoate 4E ⁷	Grizzly Too	Karate Z/Warrior II	Lorsban Advanced	Mustang Maxx	Paradigm/Lambda-Cy Ag	Prevathon	Sevin XLR Plus	Stallion Brand	Xentari/Dipel DF	Yuma	
		Sunflower	Safflower																	
INSECT*	Sunflower	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Safflower					✓		✓					✓					✓		
Cutworm		●	●	●	●		●	●		●	●	●	●	1	●		●	●		●
Flea Beetle			4			●	●	●					4					●		
Grasshopper		●	●	●	●		●	●		●	●	●	●	●	●			●		●
Head-Clipper Weevil			●	●	●		●			3	3		3	3				●		
Lygus Bug					●			●												●
Seed Weevil		●	●	●	●		●	●		3	3	●	3	3				●		●
Stem Weevil		●	3	●	●		●	●		3	3	●	3	3				●		●
Sunflower Beetle		●	●	●	●	●	●	●		●	●	●	●	●				●		●
Sunflower Moth		●	●	●	●	●	●	●		●	●	●	●	●	5	●	●	●	●	●
Thistle Caterpillar				●	●					●	●		●	●				●		
Wireworm						●							●							

BEE ALERT

 See Insecticide Classification in the Technical Section for information on insecticide toxicity to bees.

 See Insecticide Resistance Management in the TECHNICAL INFORMATION section.

* Many other insects may be controlled, see label.

¹ Also labeled for safflower.

³ Adult.

⁵ Larva



⁷ For use in CA and AZ only.

² Larva and adult.

⁴ Pale striped.

⁸ At plant.

Insect Treatment Guidelines





Insecticide	Rate/Acre	PHI	Comments/Restrictions
CUTWORM, DINGY, DARK-SIDED, SANDHILL 			Check field early. ET: control if 20% or more of plants are cut or damaged and cutworms are less than 3/4" in length.
ASANA XL	5.8-9.6 fl oz	28	Note 1.
BAYTHROID XL	0.8-1.6 fl oz	30	30 day PHI, grazing and feeding forage. Notes 2,4.
BESIEGE	5-8 fl oz	45	Do not use an adjuvant. Notes 1,6.
COBALT ADVANCED	16-38 fl oz	45	No more than 3 applications/season. Do not graze.
DECLARE	0.77-1.28 fl oz	45	Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.
DELTA GOLD	1-1.5 fl oz	21	Apply in 10 GPA by ground or 2 GPA by air. Note 5.
GRIZZLY TOO	0.96-1.6 fl oz	45	Notes 1,3.
KARATE Z/WARRIOR II	0.96-1.60 fl oz	45	Notes 1,3.
LORSBAN ADVANCED	2 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season. Use 4 pt PPI.
MUSTANG MAXX	1.28-4 fl oz	14,30	Apply 4 fl oz at-plant control of early season cutworm in sunflower applied in a 5-7" band or broadcast at planting. Use 4 fl oz for cutworm in safflower. PHI 14 days safflower, 30 days sunflower. Do not graze or feed treated crop. Note 1.
PARADIGM/LAMBDA-CY AG	1.92-3.2 fl oz	45	Notes 1,3.
SEVIN XLR PLUS	1.5 qt	60	Note 1.
STALLION BRAND	3.75-11.75 fl oz	42	Do not graze treated areas.
YUMA	2 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.
FLEA BEETLE 			
CRUISER SFS	0.25 mg a.i./seed	–	Seed treatment. Provides early season protection of seedlings. Recommended with Apron XL and Maxim 4FS. Request from seed company. Also controls wireworm and flea beetle.
DECLARE	1.02-1.54 fl oz	45	Only in CO, KS, MN, MT, NE, ND, OK, SD, WY. Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.
DELTA GOLD	1-1.5 fl oz	21	Apply in 10 GPA by ground or 2 GPA by air. For potato flea beetle. Note 5.
MUSTANG MAXX	3.2-4 fl oz	30	Pale striped only. Do not graze or feed treated crop. Note 1.

PHI – preharvest interval days.

SEE NOTES AT END OF SECTION.

SUNFLOWER/SAFFLOWER INSECT CONTROL

Insect Treatment Guidelines (continued)



Insecticide	Rate/Acre	PHI	Comments/Restrictions				
GRASSHOPPER			ET: treat if there are 8 per square yard, or before 25% defoliation.				
ASANA XL	5.8-9.6 fl oz	28	Note 1.				
BAYTHROID XL	2-2.8 fl oz	30	30 day PHI, grazing and feeding forage. Notes 2,4.				
BESIEGE	6-10 fl oz	45	Do not use an adjuvant. Notes 1, 6.				
COBALT ADVANCED	6-13 fl oz	45	No more than 3 applications/season. Do not graze.				
DECLARE	1.02-1.54 fl oz	45	Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.				
DELTA GOLD	1-1.5 fl oz	21	Apply in 10 GPA by ground or 2 GPA by air. Note 5.				
GRIZZLY TOO	1.28-1.92 fl oz	45	Notes 1, 3.				
KARATE Z/WARRIOR II	1.28-1.92 fl oz	45	Notes 1, 3.				
LORSBAN ADVANCED	1 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.				
MUSTANG MAXX	2.6-4 fl oz	30	Do not graze or feed treated crop. Note 1.				
PARADIGM/LAMBDA-CY AG	2.56-3.84 fl oz	45	Notes 1, 3.				
PREVATHON	8-20 fl oz	21	Add MSO at 1 gal/100 gal or Destiny HC/Succeed Ultra at 0.5 gal/100 gal. No more than 4 applications/year.				
STALLION BRAND	5-11.75 fl oz	42	Do not graze treated areas.				
YUMA	1 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.				
HEAD-CLIPPER WEEVIL			Metallic, black weevils 1/4" long. Females girdle the stem just below developing head. Severe damage usually limited to field borders.				
BAYTHROID XL	2-2.8 fl oz	30	30 day PHI, grazing and feeding forage. Do not apply as ULV. Notes 2,4.				
BESIEGE	6-10 fl oz	45	Do not use an adjuvant. Notes 1, 6.				
COBALT ADVANCED	22-38 fl oz	45	No more than 3 applications/season. Do not graze.				
DECLARE	1.02-1.54 fl oz	45	Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.				
GRIZZLY TOO	1.28-1.92 fl oz	45	Adults only. Notes 1,3.				
KARATE Z/WARRIOR II/	1.28-1.92 fl oz	45	Adults only. Notes 1, 3.				
MUSTANG MAXX	2.6-4 fl oz	30	Adults only. Do not graze or feed treated crop. Note 1.				
PARADIGM/LAMBDA-CY AG	2.56-3.84 fl oz	45	Adults only. Notes 1, 3.				
STALLION BRAND	9.25-11.75 fl oz	42	Do not graze treated areas.				
LYGUS BUG			ET: confection sunflowers - 1 per 9 heads. Oilseed - not generally a significant problem.				
BESIEGE	6-10 fl oz	45	Do not use an adjuvant. Notes 1, 6.				
COBALT ADVANCED	22-38 fl oz	45	No more than 3 applications/season. Do not graze.				
DIMATE 4E/DIMETHOATE 4E	0.5-1 pt	14	For use in CA and AZ only.				
YUMA	1-2 pt	42	Apply at 10% bloom (R5 growth stage). For best protection, apply a second treatment 10 days later.				
SEED WEEVIL			These snout beetles may be 1/8-1/4" long and reddish brown or gray. Eggs are laid in seeds in the head and larvae feed internally. Thus controls must be directed against the adults. ET: Treatment should be made when 30-40% of plants have a ring of flowers in bloom. Treatment levels are 9-10 adults per plant (oil) and 1 per plant (confectionary). Estimate absolute red sunflower seed weevil adults when sampling using a commercial formulation of mosquito repellent.				
No. counted in the field	Absolute number	No. counted in the field	Absolute number	No. counted in the field	Absolute number	No. counted in the field	Absolute number
1	1.4	6	10.7	11	19.5	16	29.3
2	2.9	7	12.4	12	21.3	17	31.1
3	4.4	8	14.2	13	23.1	18	32.9
4	5.8	9	16.0	14	24.9		
5	7.3	10	17.8	15	26.6		
Threshold: Oiled Sunflower - The threshold can be calculated using the following formula:							
$ET = \frac{\text{Treatment Cost}(\$)}{\text{Market Price}(\$) \times 21.5 (0.000022 \times \text{Plant Population} + 0.18)}$							
Confection Sunflower - Red sunflower seed weevil control on confection sunflower is based on a need to keep seed damage below 3 or 4% due to industry standards. Treatment is recommended when 1-2 weevils are found per plant. Insecticide should be applied before egg laying occurs.							
ASANA XL	5.8-9.6 fl oz	28	Note 1.				

PHI – preharvest interval days.

SEE NOTES AT END OF SECTION.

SUNFLOWER/SAFFLOWER INSECT CONTROL

Insect Treatment Guidelines (continued)




Insecticide	Rate/Acre	PHI	Comments/Restrictions
SEED WEEVIL (continued)			
BAYTHROID XL	2-2.8 fl oz	30	30 day PHI, grazing and feeding forage. Notes 2,4.
BESIEGE	6-10 fl oz	45	Do not use an adjuvant. Notes 1,6.
COBALT ADVANCED	16-38 fl oz	45	No more than 3 applications/season. Do not graze.
DECLARE	0.77-1.54 fl oz	45	Red sunflower seed weevil - ND,SD only. Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.
DELTA GOLD	1-1.5 fl oz	21	Apply in 10 GPA by ground or 2 GPA by air. Note 5.
GRIZZLY TOO	1.28-1.92 fl oz	45	Adult only. Notes 1,3.
KARATE Z/WARRIOR II	1.28-1.92 fl oz	45	Adult only. Notes 1,3.
LORSBAN ADVANCED	1-1.5 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.
MUSTANG MAXX	2.6-4 fl oz	30	Adult only. Do not graze or feed treated crop. Note 1.
PARADIGM/LAMBDA-CY AG	2.56-3.84 fl oz	45	Adult only. Notes 1,3.
STALLION BRAND	5-11.75 fl oz	42	Do not graze treated areas.
YUMA	1-1.5 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.
STEM WEEVIL			Prevent egg laying and subsequent larval damage by controlling the adult. While systemic planting time treatments are registered, yields have not improved enough to justify this type of treatment. ET: if 1 or more adults are found per 3 plants from the 14-leaf to early bud stage, foliar treatment is probably justified. Adults are difficult to find due to size, color and habit of playing dead.
ASANA XL	5.8-9.6 fl oz	28	Note 1.
BAYTHROID XL	1.6-2.4 fl oz	30	30 day PHI, grazing and feeding forage. Notes 2,4.
BESIEGE	6-10 fl oz	45	Do not use an adjuvant. Notes 1,6.
COBALT ADVANCED	16-38 fl oz	45	No more than 3 applications/season. Do not graze.
DECLARE	1.02-1.54 fl oz	45	Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.
DELTA GOLD	1-1.5 fl oz	21	Apply in 10 GPA by ground or 2 GPA by air. Note 5.
GRIZZLY TOO	1.28-1.92 fl oz	45	Adult only. Notes 1,3.
KARATE Z/WARRIOR II	1.28-1.92 fl oz	45	Adult only. Notes 1,3.
LORSBAN ADVANCED	1-1.5 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.
MUSTANG MAXX	2.6-4 fl oz	30	Adult only. Do not graze or feed treated crop. Note 1.
PARADIGM/LAMBDA-CY AG	2.56-3.84 fl oz	45	Adult only. Notes 1,3.
SEVIN XLR PLUS	1-1.5 qt	60	Note 1.
STALLION BRAND	5-11.75 fl oz	42	Do not graze treated areas.
YUMA	1-1.5 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.
SUNFLOWER HEAD MOTH, BANDED SUNFLOWER MOTH			Adult head moths are buff to gray colored, about 3/8" long. When at rest, the wings are rolled tightly against the body. Banded Sunflower Moths have straw-colored forewings marked with dark brown. 4-5 days after hatching, larvae enter the heads where they cannot be effectively controlled. Controls should be directed against the adult moth to prevent egg-laying. Controls must be applied at early bloom (yellow ray petals visible). ET: treat when there are 1-2 head moths per 5 plants, or 1 banded moth per 2 plants, or in field margins.
ASANA XL	5.8-9.6 fl oz	28	Repeat as necessary to maintain control. Note 1.
BAYTHROID XL	2-2.8 fl oz	30	30 day PHI, grazing and feeding forage. Notes 2,4.
BESIEGE	6-10 fl oz	45	Do not use an adjuvant. Notes 1,6.
COBALT ADVANCED	16-38 fl oz	45	No more than 3 applications/season. Do not graze.
DECLARE	1.02-1.54 fl oz	45	Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.
DELTA GOLD	1-1.5 fl oz	21	Apply in 10 GPA by ground or 2 GPA by air. Note 5.
GRIZZLY TOO	1.28-1.92 fl oz	45	Notes 1,3.
KARATE Z/WARRIOR II	1.28-1.92 fl oz	45	Notes 1,3.
LORSBAN ADVANCED	1-1.5 pt	42	Two treatments are permitted at 10-day intervals, if needed. Do not graze treated areas. Do not apply more than 6 pt/A/season.
MUSTANG MAXX	2.6-4 fl oz	30	Do not graze or feed treated crop. Note 1.
PARADIGM/LAMBDA-CY AG	2.56-3.84 fl oz	45	Notes 1,3.
PREVATHON	14-20 fl oz	21	Add NIS. Note 1.

PHI – preharvest interval days.

SEE NOTES AT END OF SECTION.

SUNFLOWER/SAFFLOWER INSECT CONTROL

Insect Treatment Guidelines (continued)

Insecticide	Rate/Acre	PHI	Comments/Restrictions
SUNFLOWER HEAD MOTH, BANDED SUNFLOWER MOTH (continued)			
SEVIN XLR PLUS	1.5 qt	60	Note 1.
STALLION BRAND	5-11.75 fl oz	42	Do not graze treated areas.
XENTARI/DIPEL DF	0.5-2 lb/0.5-1 lb	0	Bt. Also labeled on safflower.
YUMA	1-1.5 pt	42	Two treatments are permitted at 10-day intervals, if needed. Do not graze treated areas. Do not apply more than 6 pt/A/season.
SUNFLOWER BEETLE			Yellowish, brown-striped beetles begin defoliation early in the season. ET: treat if there are 2 adults per 4-leaf plant or 10-15 larvae per plant. Do not allow defoliation to exceed 25%.
ASANA XL	1.45-5.8 fl oz	28	Note 1.
BAYTHROID XL	0.8-1.6 fl oz	30	30 day PHI, grazing and feeding forage. Notes 2,4.
BESIEGE	5-8 fl oz	45	Do not use an adjuvant. Notes 1, 6.
COBALT ADVANCED	16-38 fl oz	45	No more than 3 applications/season. Do not graze.
CRUISER 5FS	0.25 mg a.i./seed	–	Seed treatment. Provides early season protection of seedlings. Recommended with Apron XL and Maxim 4FS. Request from seed company.
DECLARE	0.77-1.28 fl oz	45	Do not apply >0.045 lb a.i. after bloom initiation. Do not apply as ULV spray.
DELTA GOLD	1-1.5 fl oz	21	Apply in 10 GPA by ground or 2 GPA by air. Note 5.
GRIZZLY TOO	0.96-1.6 fl oz	45	Notes 1, 3.
KARATE Z/WARRIOR II	0.96-1.6 fl oz	45	Notes 1, 3.
LORSBAN ADVANCED	1-1.5 pt	42	Do not graze treated areas. Do not apply more than 6 pt/A/season.
MUSTANG MAXX	2.6-4 fl oz	30	Do not graze or feed treated crop. Note 1.
PARADIGM/LAMBDA-CY AG	1.92-3.2 fl oz	45	Notes 1, 3.
SEVIN XLR PLUS	1-1.5 qt	60	Note 1.
STALLION BRAND	5-11.75 fl oz	42	Do not graze treated areas.
YUMA	1-1.5 pt	42	Larva and adult. Do not graze treated areas. Do not apply more than 6 pt/A/season.
THISTLE CATERPILLAR			ET: control measures generally warranted only for spot treating when defoliation reaches 25% during bloom and larvae are less than 1.25" long.
BESIEGE	6-10 fl oz	45	Do not use an adjuvant. Notes 1, 6.
COBALT ADVANCED	16-38 fl oz	45	No more than 3 applications/season. Do not graze. Labeled as painted lady.
GRIZZLY TOO	1.28-1.92 fl oz	45	Notes 1, 3.
KARATE Z/WARRIOR II	1.28-1.92 fl oz	45	Notes 1, 2.
MUSTANG MAXX	1.28-4 fl oz	30	Do not graze or feed treated crop. Note 1.
PARADIGM/LAMBDA-CY AG	2.56-3.84 fl oz	45	Notes 1, 2.
STALLION BRAND	3.75-11.75 fl oz	42	Do not graze treated areas.
WIREWORM			
CRUISER 5FS	0.25 mg a.i./seed	–	Seed treatment. Provides early season protection of seedlings. Recommended with Apron XL and Maxim 4FS. Request from seed company.
MUSTANG MAXX	4 fl oz	30	Apply in-furrow with the seed or as a 3-4" T-band at planting for wireworm in sunflower.

PHI – preharvest interval days.

Note 1: May be applied through sprinkler irrigation systems. (See label.)

Note 2: Apply no more than 8.4 fl oz/acre/season. Allow 7 days between applications.

Note 3: Do not apply more than 0.96 pt/A/season of Grizzly Top or 0.48 pt/A/season Warrior II or Karate Z or 1.92 pt/A/season of Lambda-Cy Ag.

Note 4: Apply a minimum of 2 GPA by air or 10 GPA by ground. When pest populations are high or foliage is dense, use a minimum of 5 GPA by air.

Note 5: Do not graze or feed foliage. Do not exceed 3.8 fl oz per season.

Note 6: Apply before pests reach damaging levels.

Sunflowers are highly attractive to bees, and honey bee pollination significantly increases yield and oil content of many varieties. If treatment is needed, warn owners of bee hives within 2 miles of the intent to spray and allow time for hives to be covered or moved. Treat fields after 8 p.m. since bees have usually left the field by that time.

SUNFLOWER/SAFFLOWER DISEASE CONTROL

Disease Treatment Guidelines

Fungicide	Labeled Crops*	Rate/Acre	PHI	G/F	Comments/Restrictions
BIO-TAM	SU	2.5-5 lb	–	–	Can be applied in-furrow (1.5-3 oz/1000' row) and banded (2.5-3 lb/A). Broadcast apply at sowing, restart of vegetative growth, and before the infection risk period. Note 2.
CONFINE EXTRA	SU, SA	1-4 qt	0	–	Apply 1-3 qt/A foliar in minimum 20 GPA by ground and in minimum 10 GPA by air. Apply 2-4 qt/A through irrigation.
CONTANS WG	SU, SA	1-4 lb	0	NR	Apply prior to planting, at planting, or after crop emergence. Incorporate into soil to 2". Make 2 applications, but no more than 8, for maximum efficacy. Note 2.
HEADLINE SC	SU, SA	6-12 fl oz	21	Yes	Apply prior to disease development and continue on a 7- to 14-day schedule. Adjuvants may be included. Maximum of 2 applications.
ONSET 3.6L	SU	4-6 fl oz	50	NR	Apply at 4-6 fl oz/A at the first sign of disease or when weather conditions favor rust development. Apply higher rate to highly susceptible varieties, and/or under severe disease conditions. Apply in 20 GPA by ground and 5 GPA by air. Include NIS.
PRIAXOR XEMIU	SU	4-8 fl oz	21	NR	Apply prior to disease development on 7- to 14-day interval. Use higher rate and shorter interval when disease pressure is high. Maximum 16 fl oz/A/season. Maximum 2 applications before rotating to another mode of action.
SERENADE ASO	SU, SA	2-6 qt	–	–	Bacillus subtilis is a biological fungicide. Suppression of White Mold: Begin application soon after emergence and when conditions are conducive to disease development. Repeat on 7- to 10-day interval or as needed.
TETRABAN	SU, SA	6-15.5 fl oz	30	–	Apply by ground, air or irrigation 6 fl oz/A at early bud, followed by 14 fl oz/A about 45 days before harvest (a 3rd application of 7 fl oz/A may be made 30 days before harvest).
VERTISAN	SU	10-30 fl oz	14	–	Begin applications prior to disease development and continue on 7- to 14-day interval. Maximum 61 fl oz/A/year.
XANTHION		0.6-2.4 fl oz Component A; 3-12 fl oz Component B			Supplemental label (exp. 7/2019): Rate based on row spacing (see label); apply in-furrow.

PHI – preharvest interval days. G/F – grazing and feeding interval days.
* Other diseases may be controlled, see label.

 See Fungicide Resistance Management in the TECHNICAL INFORMATION section.