

Weed Management in Sunflower

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General Information

While options for weed management in sunflower production are limited, adequate weed control can be obtained with proper application timings. Sunflowers should be drilled or seeded so that all seed are covered with soil. Broadcast seeding may result in poor seed to soil contact and herbicide applications may increase sunflower injury. Reduced rates of preemergence herbicides may be necessary for sunflowers planted on sandy or lighter textured soils to reduce the potential for injury. Activating rainfall or irrigation is needed for optimum preemergence herbicide activity and weed control.

A successful weed management plan will use multiple production methods to keep weed populations low. Tillage and seedbed preparation or effective burndown herbicides should eliminate all emerged weeds prior to planting. Use of specific herbicides depends on the weed spectrum of your field, economic considerations and application system. Consider your situation and tailor a weed control program to your needs. The following sections will guide you in the decision making process. Always read and follow label directions, as labels frequently change.

Herbicides for Weed Management in Sunflowers

Burndown Herbicides for Weed Management in Sunflowers

Herbicide	Rate/Acre Broadcast		Remarks/Precautions ¹
	Formulation	Active Ingredient	
Gramoxone Max 3SL (paraquat) and other trade names	1.5-2.0 pt	0.5-0.75 lb	Apply prior to planting to effectively desiccate weeds for more efficient planting and reduced competition with sunflower seedlings. Always add non-ionic surfactant at 2 qt/100 gallons of spray solution. MOA=22
Glyphosate acid equivalent (ae)			Apply 1-2 weeks prior to planting date to control existing grass and broadleaf weeds and to reduce competition with sunflower seedlings. Addition of AMS at 8.5 lb/100 gallons of spray solution may improve weed control when mixed with some South Carolina water sources. MOA=9
3 lb ae/gal.	32-48 oz	0.75-1.1 lb ae	
4 lb ae/gal.	24-35 oz		
4.5 lb ae/gal.	22-32 oz		

¹ **Mode of Action (MOA)** identifies the site of action(s) of that particular product. This aids in rotating herbicide products to avoid resistance problems.

PrePlant Incorporated (PPI) and Preemergence (PRE) Herbicides for Weed Management in Sunflowers

Herbicide	Rate/Acre Broadcast		Remarks/Precautions ¹
	Formulation	Active Ingredient	
Dual Magnum 7.62SC (S-metolachlor)	1.0-1.33 pt	0.96-1.27 lb	Control of annual grasses and small seeded broadleaf weeds. Incorporate into the top 2 inches of soil. Can also be applied preemergence (after planting, prior to crop emergence). Provides nutsedge suppression. MOA=15
Prowl H ₂ O 3.8EC (pendimethalin)	1.5 pt	0.71 lb	Control of annual grasses and small seeded broadleaf weeds. Incorporate into the top 2 inches of soil within 7 days of application. Can also be applied preemergence (after planting, prior to crop emergence). MOA=3
Prowl 3.3 EC	1.7 pt		
Spartan 4F (sulfentrazone)	3.0-3.75 oz	0.094-0.118 lb	For broadleaf weed control. Incorporate to 2 inches. Tank mix with a grass herbicide for broader spectrum control. Spartan can cause sunflower injury at high rate on light soil. Does not control sicklepod. Can also be applied preemergence (after planting, prior to crop emergence). MOA=14
Sonalan HFP 3EC (ethalfluralin)	1.5-2.0 pt	0.6-0.75 lb	Controls annual grasses and small seeded broadleaf weeds. Incorporate into the top 2 inches of soil within 48 hours of application. MOA=3
Treflan 4EC (trifluralin)	1.0-1.5 pt	0.5-0.75 lb	

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Postemergence (POST) Herbicides for Weed Management in Sunflowers

Herbicide	Rate/Acre Broadcast		Remarks/Precautions ¹
	Formulation	Active Ingredient	
Beyond 1AS (imazamox)	4 oz	0.031 lb	USE ONLY ON CLEARFIELD SUNFLOWER VARIETIES. For best results use a soil applied herbicide at planting. Apply to sunflowers from the 2-8 leaf stage before broadleaf weeds exceed 3 inches in height. Apply with NIS at 2 qt/100 gal and liquid nitrogen at 1-2 qt/A or AMS at 1.5-3 lbs/A. MOA=2
Poast 1.5 EC (sethoxydim)	1.0-1.5 pt	0.188-0.3 lb	Controls annual and perennial grasses. Apply 1.0 pt/A when grass are small. Use the higher rate when large annual grasses or when johnsongrass is present. Add COC at 1 qt/A. Do not apply within 70 days of harvest. MOA=1
Select 2EC (clethodim)	6-16 oz	0.09-0.25 lb	Controls annual and perennial grasses. Add crop oil concentrate at 1 qt/A. Do not apply within 70 days of harvest. MOA=1

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Crop Replant and Rotation Restrictions for Sunflower Herbicides

	Corn	Cotton	Grain Sorghum	Peanuts	Soybeans	Sunflower	Tobacco	Wheat
Spartan	10 M*	18 M	10 M	None	None	None	None	4 M
Beyond	8.5 M	9 M	9 M	9 M	None	9 M	9 M	3 M

* M = months, D = days.

Weed Response to Herbicides for Sunflower Weed Management¹

	PPI		PPI or PRE			POST		
	Sonalan	Treflan	Dual Magnum	Prowl	Spartan	Beyond	Poast	Select
Broadleaf weeds								
amaranth, Palmer ²	8*	8*	8	8	8	3*	0	0
anoda, spurred	0	0	0	2	3	---	0	0
cocklebur, common	0	0	0	0	8	8	0	0
croton, tropic	0	0	0	0	8	---	0	0
morningglory spp.	0	0	2	2	8	7	0	0
pusley, Florida	0	0	0	0	7	---	0	0
senna, coffee	0	0	0	0	8	0	0	0
sida, prickly	0	0	0	3	8	6	0	0
ragweed, common	0	0	0	3	4	6	0	0
sesbania, hemp	0	0	0	0	3	---	0	0
sicklepod	0	0	2	2	2	0	0	0
Grasses								
Bermudagrass	3	3	0	0	5	4	5	8
crabgrass	9	9	9	9	5	7	8	9
crowfootgrass	9	9	9	9	5	7	8	9
goosegrass	9	9	9	9	5	7	8	9
johnsongrass, rhizome	4	4	0	0	5	4	7	8
panicum, Texas	8	8	5	8	5	5	8	8
Sedges								
nutsedge, purple	0	0	5	0	7	0	0	0
nutsedge, yellow	0	0	7	0	8	0	0	0

¹ **Key to Response Ratings:** 0 = no control; 10 = 100% control; --- = Insufficient Data.

² Will not control biotypes resistant to this class of chemistry.



Trade Name and Ingredient Index for Sunflower Herbicides

Trade Name	Active Ingredient(s)	Formulation ¹	MOA ²	Manufacturer
Beyond	imazamox	1 AS	2	BASF
Dual Magnum	s-metolachlor	7.62 EC	15	Syngenta
Glyphosate	glyphosate	various	9	various
Gramoxone Inteon	paraquat	3 SL	22	Syngenta
Poast	sethoxydim	1.5 EC	1	Micro-Flo
Prowl 3.3 EC	pendimethalin	3.3 EC	3	BASF
Prowl H2O	pendimethalin	3.8 CS	3	BASF
Treflan	trifluralin	4 HFP	3	UAP Loveland
Select	clethodim	2 EC	1	Valent
Sonalan HFP	ethalfuralin	4 HFP	3	Dow AgroSciences
Spartan	sulfentrazone	4 F	14	FMC

¹ Abbreviations: DF=dry flowable; E or EC=emulsifiable concentrate; F=flowable; L=liquid; AS or S=water solution; ME or CS = micro-encapsulated; SC=soluble concentrate; EW=oil-in-water emulsion; HFP = high flash point; WDG=water dispersible granule; WDL=water dispersible liquid.

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Sunflower Insect Control

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Insect	Product	Rate /acre	Comments
Sunflower moth	Asana XL Baythroid XL Decis 1.5 EC Lorsban 4E Methyl 4EC Warrior 1 CS Proaxis 0.5	5.8-9.6 fl oz 2.0-2.8 fl oz 1.0-1.5 fl oz 1-1.5 pt 2 pt 2.6-3.8 fl oz 2.6-3.8 fl oz	Treat for sunflower moth when 20% of heads are blooming and moths or small larvae are present. Make 1-2 additional applications at 5-day intervals.
Sunflower weevil	Materials listed above for sunflower moth will suppress sunflower weevil.		Treat if 15 adults per head are found during blooming.
Sunflower stem weevil	For stem weevil suppression use Asana, Baythroid, Decis, Lorsban, Warrior, or Proaxis at the rates listed above for sunflower moth.		Stem weevil adults feed on leaves and lay eggs in stems. Spray adult weevils when one per plant is found. Check up to 8 leaf stage.
Corn earworm	Asana, Baythroid, Decis, Warrior, and Proaxis at the rates listed for sunflower moth will suppress corn earworm.		Once corn earworm or fall armyworm tunnel into the heads they are difficult to control. When heads are in bloom, treat if moths are laying eggs on heads or if one larva per head is found. Repeat in 5 days.
Fall armyworm	Lorsban and other products listed above for sunflower moth will suppress fall armyworm.		See comments above for corn earworm.
Stink bug, leaftooted bug	Methyl parathion and other products listed above for sunflower moth will suppress stink bugs.		Treat if one bug per head is found.
Carrot beetle	--		There is no effective chemical control of carrot beetle on sunflower. Early planting (April) makes the plant more tolerant of feeding injury.

The label is the law. Always read and follow all pesticide label restrictions.

Sunflower Insecticide Use Precautions

Active Ingredient	Brand Name	Pre-Harvest (Days)	Comments
beta-cyfluthrin	Baythroid 2	30	Do not exceed 8.4 fl oz/ac per season.
chlorpyrifos	Lorsban 15G	42	Do not exceed 9 pt/ac per season. Do not graze.
deltamethrin	Decis 1.5 EC	21	Do not exceed 3.8 fl oz/ac per season. Do not graze.
esfenvalerate	Asana XL	28	Do not exceed 38 fl oz/ac per season.
gamma cyhalothrin	Proaxis 0.5	45	Do not exceed 15 fl oz/ac per season or 11.5 fl oz/ac after bloom.
lambda-cyhalothrin	Warrior	45	Do not feed or graze.
methyl parathion	Methyl 4 EC	30	Do not exceed 3 appl. per season. Do not feed or graze. Do not feed treated seed to birds.
<i>The label is the law. Always read and follow all pesticide label restrictions.</i>			

