

SUNFLOWER INSECT CONTROL

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PEST	INSECTICIDE	MOA	FORMULATION AMOUNT PER ACRE	LB ACTIVE INGREDIENT PER ACRE	REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
Soil Insects: Wireworms, Seedcorn maggot, Sunflower beetle	<i>imidacloprid</i> Gaucho 600, Attendant 600, Acceleron, other brands	4A	0.25–0.50 mg ai/seed		12 H/ —	Available as commercial seed treatment with various fungicides. May also provide control of flea beetles on seedling plants.
	<i>thiamethoxam</i> Cruiser 5FS	4A	0.25 mg ai/seed	—	12 H/ 45 D	
Sunflower moth	<i>alpha-cypermethrin</i> Fastac CS, other brands 0.83	3A	2.2–3.8 fl oz	0.012–0.025	12 H/ 30 D	<p>WHEN TO TREAT FOR SUNFLOWER INSECTS</p> <p>Sunflower Moth: Treat when 20% of heads are blooming and moths (silver-gray, narrow bodied, about ¼" long) and small larvae are present on the heads. Larvae are ⅜–¾" long when mature, with yellowish green sides and have 5 brown to black longitudinal stripes down the back. Make 2 additional applications at 5-day intervals if moths and larvae continue to be found.</p> <p>NOTE—Bee Caution: Some products listed are toxic to pollinating bees. When applying insecticides during flowering, apply very early in the day or late in the day when bees are less active. Notify beekeepers with hives near the field(s) to be treated. Review the product label for any additional pollinator protection precautions</p>
	<i>beta-cyfluthrin</i> Baythroid XL 1EC	3A	2–2.8 fl oz	0.0155–0.022	12 H/ 30 D	
	<i>chlorantraniliprole</i> Prevathon 0.43 Vantacor	28	14–20 fl. oz 1.2–2.5 fl oz	0.047–0.067 0.047–0.098	4 H/ 21 D	
	<i>cyantraniliprole</i> Exirel		7–13.5 fl oz	0.045–0.088	12 H/ 7D	
	<i>cyfluthrin</i> Tombstone 2	3A	2–2.8 fl oz	0.031–0.044	12 H/ 30 D	
	<i>deltamethrin</i> Delta Gold 1.5EC	3A	1–1.5 fl oz	0.012–0.018	12 H/ 21 D	
	<i>esfenvalerate</i> Asana XL 0.66EC Adjourn 0.66EC		5.8–9.6 fl oz 5.8–9.6 fl oz	0.03–0.05	12 H/ 28 D	
	<i>gamma-cyhalothrin</i> Declare 1.25 Proaxis 0.5	3A	1.02–1.54 fl oz 2.56–3.84 fl oz	0.01–0.015	24 H/ 45 D	
	<i>lambda-cyhalothrin</i> Warrior II Zeon 2.08 Silencer, Lambda, others 1	3A	1.28–1.92 fl oz 2.56–3.84 fl oz	0.02–0.03	24 H/ 45 D	
	<i>zeta-cypermethrin</i> Mustang Maxx 0.8 Respect 0.8	3A	2.24–4 fl oz	0.014–0.025	12 H/ 30 D	

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Sunflower seed weevil (adult)	Apply <i>esfenvalerate</i> , <i>beta-cyfluthrin</i> , <i>cyfluthrin</i> , <i>deltamethrin</i> , <i>lambda/gamma-cyhalothrin</i> , or <i>zeta-cypermethrin</i> products at the rates listed for sunflower moth.	Control directed at adults before eggs are laid in seed. Consider treatment if 15–20 adults occur per head at about 85% bloom.
Sunflower headclipping weevil	Apply <i>beta-cyfluthrin</i> , <i>deltamethrin</i> , <i>lambda/gamma-cyhalothrin</i> , or <i>zeta-cypermethrin</i> products at the rates listed for sunflower moth.	Adults feed around stem below seed head and girdle stem. Head breaks and drops off where adults lay eggs on the seed head. Sample and treat if adult weevil is present.
Sunflower stem weevil (adult)	Apply <i>esfenvalerate</i> , <i>beta-cyfluthrin</i> , <i>deltamethrin</i> , <i>lambda/gamma-cyhalothrin</i> , or <i>zeta-cypermethrin</i> products at the rates listed for sunflower moth.	Adult weevils feed on leaves and lay eggs in stem. Larvae feed inside stem and sometimes kill stem above infestation. Direct sprays at adult weevils when there is 1 adult per plant. Check plants from seedling to 6-8 leaf stage. Larvae inside stems cannot be controlled.
Corn earworm	The materials listed for sunflower moth will give helpful control. Use highest labeled rate.	CORN EARWORM, FALL ARMYWORM: Control these at any time when more than 1/head is found while seeds are small and developing. In late season when seeds are maturing, it probably takes 2 or more of these insects per head before control is needed.
Fall armyworm	Prevathon, Vantaocr and Besiege and Prevathon as listed for sunflower moth will give helpful control.	
Grasshoppers	Apply <i>esfenvalerate</i> , <i>beta-cyfluthrin</i> , <i>deltamethrin</i> , <i>lambda/gamma-cyhalothrin</i> , or <i>zeta-cypermethrin</i> products at the rates listed for sunflower moth.	Treat if defoliation exceeds 15% and grasshoppers are numerous. May occur mostly on the field edge.
Stink bugs, Leaf-footed bugs	Apply <i>gamma-cyhalothrin</i> or <i>lambda-cyhalothrin</i> products as listed for sunflower moth.	STINK BUGS, LEAFOOTED BUGS: Control these at any time when more than 1/head is found while seeds are small and developing. In late season when seeds are maturing, it probably takes 2 or more of these insects per head before control is needed.

PREMIXED OR CO-PACKED INSECTICIDES

Products listed are available as premixes or co-packages of 2 insecticide active ingredients. User should check mixture labels for active ingredient, specific use rates, target pests, and precautions.

BRAND NAME (ACTIVE INGREDIENTS)	RANGE OF FORMULATION RATES
Besiege (<i>lambda-cyhalothrin</i> , <i>chlorantraniliprole</i>)	5–10 fl oz/A

HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	LBS ACTIVE INGREDIENT		
PREPLANT SOIL INCORPORATED					
<i>ethalfluralin</i> Sonalan 3EC	3	32 oz	0.75	24 H/ NL	For annual grass and small seeded broadleaf weed control. Soil incorporate 2–3" deep within 48 hours of application.
<i>pendimethalin</i> Prowl/Pendimax 3.3EC Prowl H ₂ O 3.8ACS	3	19–38 oz 24 oz	0.5–1.0 0.71	24 H/ NL	For annual grass and small seeded broadleaf weed control. Soil incorporate 2" deep within 7 days of application. Can also be applied preemergence after planting but before crop/weed emergence.
<i>s-metolachlor</i> Dual Magnum, Brawl 7.62EC (various trade names)	15	16 oz	0.96	24 H/ NL	For annual grass and small seeded broadleaf control. Soil incorporate into top 2" of soil. Can also be applied preemergence after planting but before crop/weed emergence.
<i>trifluralin</i> Treflan, Trilin, etc. 4EC	3	16–24 oz	0.5–0.75	—	For annual grass and small seeded broadleaf weed control. Soil incorporate 2–3" deep within 24 hours of application.
PREEMERGENCE					
<i>pyroxasulfone</i> Zidua 4.17SC	14	2.5 oz	0.081	12 H/ 0 D	For residual control of annual grasses and Palmer amaranth. Do not apply to sunflower at cracking or cotyledon stage. Can also be applied POST from V1–V8 stage (60 D PHI). Do not tank-mix Zidua and Beyond on Clearfield sunflowers.
<i>sulfentrazone</i> Spartan 4F	14	3–3.75 oz	0.094–0.117	12H/NL	Apply preplant or preemergence up to 3 days after planting. If applying Spartan 4F to coarse textured soils with <1.5% organic matter (OM), wait a minimum of 7 days after application before planting. Plant at least 1" deep. DO NOT use on soils classified as sand and have <1% OM. Crop rotations restrictions: barley/wheat/rye = 4 months; canola = 24 months; field corn = 10 months; cotton = 18 months; peanut = 4 months; soybean/tobacco = anytime; sorghum = 10 months; onions = 24 months;
<i>sulfentrazone</i> + <i>carfentrazone</i> Spartan Charge 3.5L	14 + 4	3.75–5 oz	0.092–0.123 + 0.010–0.014	12 H/ NL	Will provide control of pigweed, morningglory, prickly sida, and several other small-seeded broadleaf weeds. Can be tank-mixed with Prowl or Dual. Can be applied until 3 days after planting. However, do not apply after sunflower emergence, at cracking, or if emerging seedling is close to the soil surface. Do not use on soils classified as sand, which have less than 1% OM. Rotation Restrictions: canola—24 months; cotton—18 months; sorghum—10 months; field corn—4 months; small grains—4 months; peanuts, soybeans, tobacco—anytime.
<i>sulfentrazone</i> + <i>s-metolachlor</i> BroadAxe 7EC Spartan Elite 7EC	14 + 15	19–21 oz	0.104–0.115 + 0.94–1.03	24 H/ NL	Apply preemergence until 3 days after planting. Plant sunflowers at least 1.5" deep. On coarse soils with less than 1.5% OM, delay planting for 7 days. Do not use on soils classified as sand which have less than 1% OM. Can also be applied PPI. Crop rotation restrictions: cotton, sweet corn—18 months; field corn, sorghum, tobacco—10 months; rye, wheat—4.5 months; peanuts, tomato—4 months; soybean, sunflowers—anytime.
POSTEMERGENCE					
<i>clethodim</i> Select, Arrow, others 2EC Select Max/TapOut 0.97EC	1	6–16 oz 12–32 oz	0.09–0.25	24 H/ 70 D	For annual and perennial grass control. Include crop oil concentrate at 1% v/v (Select/ Arrow). A NIS (0.25% v/v) can be used with Select Max/TapOut. Rain-free period is 1 hour.
<i>sethoxydim</i> Poast 1.5EC	1	16–24 oz	0.2–0.3	12 H/ 70 D	For annual grass control, apply at 1 pt/A when grasses are small. For johnsongrass, apply at 1.5 pt/A when grass is 12–20" tall. Include crop oil concentrate at 1% v/v with all applications. Do not use on sunflower inbred lines grown for seed. Poast Plus is not registered for use on sunflowers. Rain-free period is 1 hour.

SUNFLOWER WEED CONTROL

HERBICIDE	MOA	BROADCAST RATE/ACRE		REI/PHI (Hours or Days)	REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	LBS ACTIVE INGREDIENT		
POSTEMERGENCE					
<i>quizalofop</i> Assure II 0.88EC	1	5–12 oz	0.03–0.08	12 H/ 60 D	For annual and perennial grass control. May be slightly less effective on Texas panicum than other POST grass herbicides. Include a NIS at 0.25% v/v or COC at 1% v/v. The maximum total use rate of Assure II is 18 oz/A/season. Unacceptable crop injury may occur if Assure II is applied under stress conditions (drought, abnormal weather patterns, water saturated soils, etc.). Delay applications until the stress passes and sunflowers have resumed growth. Rain-free period is 1 hour.
<i>imazamox</i> Beyond 1AS	2	4 oz	0.031	4 H/ NL	ONLY FOR USE ON CLEARFIELD TOLERANT SUNFLOWER HYBRIDS. Do not use Beyond on conventional hybrids or severe crop injury will occur. Apply to sunflowers in the 2–8 leaf stage but before broadleaf weeds exceed 3" in height and grasses exceed 4–5 leaves. Refer to label for a list of specific weeds controlled. Beyond is not effective on sicklepod. Use a NIS (0.25%v/v) and nitrogen fertilizer such as 28% UAN (2.5% v/v) or AMS (12–15 lb/100 gals). Do not use a COC. Weed control will be improved if Beyond is used following a soil-applied herbicide. Crop rotations restrictions for Beyond are as follows: wheat—3 months; barley, rye—4 months; field corn—8.5 months; cabbage, cantaloupe, carrot, cotton, cucumber, grain sorghum, oats, onion, peanut, pepper, tobacco, tomato, turnip, watermelon—9 months. Rain-free period is 1 hour.
HOODED SPRAYER					
<i>carfentrazone</i> Aim 2EC	14	c	0.016–0.031	12 H/ NL	Apply in a hooded-sprayer to control certain broadleaf weeds in sunflower row middles. Severe crop injury will occur if Aim is allowed to come into contact with green stems, blooms, or fruit. Hooded sprayer should not be operated at speeds in excess of 5 mph. Use in combination with a NIS (0.25% v/v) or COC (1% v/v). Applications should be made before weeds exceed 4" in height. May be very useful for pigweed, annual morningglory (except smallflower), and tropical spiderwort control. Rain-free period is 6-8 hours.
HARVEST-AID/WEED DESICCATION					
<i>saflufenacil</i> Sharpen 2.85SC	14	1–2 oz	0.022-0.044	12H/7D	Apply to sunflower plants that have reached physiological maturity (seed <35% moisture). Apply with MSO (1% v/v) and either ammonium sulfate (8.5–17 lb/100 gals or liquid equivalent) or UAN (1.25% v/v). Allow up to 10 days for optimum desiccation effects. Do not apply to sunflowers grown for seed. Rain-free period = 1 hour.
<i>sodium chlorate</i> Defol 5	NC	154 oz	6.0	12H/7D	Apply in 20 GPA. Make application 7 or more days before normal harvest when sunflower heads are mature (< 35% seed moisture). Only 1 application/A/year is permitted. Do not graze treated fields or feed treated forage within 14 days after application. Sodium chlorate works better when temperatures are above 60F.
<i>paraquat</i> 3SL	22	13–21 oz	0.30–0.50	24 H/ 7 D	Apply when sunflowers are mature (35% moisture or less) for desiccation of weeds. Ground or air application permitted. Include nonionic surfactant at 0.25% v/v (1 qt/100 gal). Do not graze treated areas or feed treated forage to livestock. Rain-free period is 30 minutes.
<i>glyphosate</i> 4.0 lb ai/gal 5.5 lb ai/gal 5.88 lb ai/gal	9	30 oz 22 oz 21 oz	0.95	4H/ 7D	Apply when backsides of sunflower heads are yellow and bracts are turning brown, and seed moisture is less than 35%. If hard water is used as the carrier (i.e. Ca+, K+, Na+, etc.), use in combination with AMS (8.5–17 lb/100 gals or liquid equivalent). Not all formulations of glyphosate are labeled for this use.

(Weed Response — Refer to weed response table for soybeans.)