

# SUNFLOWER

## SUNFLOWER INSECT CONTROL

David Buntin, Research/Extension Entomologist

PEST	INSECTICIDE (lbs per gallon)	FORMULATION AMOUNT PER ACRE	LB. ACTIVE INGREDIENT PER ACRE	REMARKS AND PRECAUTIONS
Sunflower moth	<u>esfenvalerate</u> Asana XL (0.66EC) Ad- jourm (0.66EC)	5.8 - 9.6 fl. oz. 5.8 - 9.6 fl. oz.	0.03 - 0.05 0.03 - 0.05	<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 3/4 inch long) and small larvae are present on the heads. Larvae are 5/8 to 3/4 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>
	beta-cyfluthrin Baythroid XL (1.0EC)	2.0 - 2.8 fl. oz.	0.0155 - 0.022	
	<u>cyfluthrin</u> Tombstone (2.0)	2.0 - 2.8 fl. oz.	0.031 - 0.044	
	<u>deltamethrin</u> Delta Gold 1.5EC	1.0 - 1.5 fl. oz.	0.012 - 0.018	
	<u>chlorpyrifos</u> Lorsban, Chlorpyrifos, other brands (4E)	1.0 - 1.5 pt.	0.5 - 0.75	
	methyl parathion Methyl 4EC	2 pt.	1.0	
	<u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0)	1.28 - 1.92 fl. oz. 2.56 - 3.84 fl. oz.	0.02 - 0.03 0.02 - 0.03	
	<u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5)	1.02 - 1.54 fl. oz. 2.56 - 3.84 fl. oz.	0.01 - 0.015 0.01 - 0.015	
	<u>zeta-cypermethrin</u> Mustang MAX (0.8) Re- spect (0.8)	2.24 - 4.0 fl. oz. 2.24 - 4.0 fl. oz.	0.014 - 0.025 0.014 - 0.025	
Sunflower seed weevil	The materials listed at the rates applied for sunflower moth will give helpful control.			Control directed at adults before eggs are laid in seed. Consider treatment if 15-20 adults occur per head at about 85% bloom.
Sunflower stem weevil	Esfenvalerate, beta-cyfluthrin, deltamethrin, chlorpyrifos, lambda / gamma cyhalothrin, and zeta-cypermethrin products at the rates applied for sunflower moth will give helpful control.			Adult weevils feed on leaves and lay eggs in stem. Larvae feed inside stem and sometimes kills stem above infestation. Direct sprays at weevils when there is 1 adult per plant. Check plants from seedling to 6-8 leaf stage.
Corn earworm	The materials listed for sunflower moth will give helpful control. Use highest labeled rate			<p>CORN EARWORM, FALL ARMYWORM, STINK BUGS, LEAFFOOTED BUGS: Control these at any time when more than one per head is found while seeds are small and developing. In late season when seeds are maturing, it probably takes two or more of these insects per head before control is needed.</p>
Fall armyworm	Chlorpyrifos as listed for sunflower moth will give helpful control.			
Stink bugs, leaffooted bugs	Methyl parathion, beta-cyfluthrin, lambda / gamma cyhalothrin and zeta-cypermethrin products as applied for sunflower moth will give helpful control.			
Carrot beetle, sugarcane beetle	No effective materials labeled for control on sunflower.			

See pesticide precautions for sunflowers next page.

SUNFLOWER INSECT CONTROL (continued)

**PESTICIDE USE PRECAUTIONS:**

**Asana XL, Adjourn 0.66EC (esfenvalerate):** Do not exceed 0.8 lb. AI per acre per season. Do not apply within 28 days of harvest. Do not apply more than 38 fl. oz. per acre per season. REI = 12 hours.

**Baythroid XL (beta-cyfluthrin):** Do not apply within 30 days of harvest. Do not apply more than 8.4 fl. oz. per acre in one season. Do not apply more than 2.8 fl. oz./acre per 7-day period. REI = 12 hours.

**Delta Gold 1.5EC (deltamethrin):** Do not apply within 21 days of grain harvest. Do not graze or feed treated foliage to livestock. Do not apply as an ultra low volume (ULV) spray. Do not apply more than 3.8 fl. oz. per acre in one season. REI = 12 hours.

**Lorsban, other brands (chlorpyrifos):** Do not apply more than 9 pints of Lorsban 4E per acre per season. Do not use within 42 days of harvest. Do not allow livestock to graze in treated areas. REI = 24 hours.

**Methyl 4EC (methyl parathion):** Do not apply more than 3 times per season. Do not apply in 30 days of harvest. Do not graze or feed treated crop. Do not feed treated seed to birds. Check labels of all formulations of this material; all are not labeled for use on sunflower. REI = 4 days

**Mustang MAX, Respect (0.8, zeta-cypermethrin):** Do not apply less than 7 days apart. Do not apply more than 0.125 lb a.i./acre per season. Do not graze livestock in treated areas or cut for livestock feed. Avoid application when honey bees are actively foraging. REI = 12 hours.

**Proaxis, Declare (gamma cyhalothrin):** Do not apply within 45 days of harvest. Do not apply more than 0.96 pt. per acre per season, and do not apply more than 0.72 pt per acre after bloom initiation. REI = 12 hours.

**Karate Zeon (lambda cyhalothrin):** Do not apply within 45 days of harvest. Do not apply more than 0.48 pt. per acre per season or more than 0.36 pt. per acre after bloom initiation. REI = 24 hours.

**Tombstone 2.0 (cyfluthrin):** Do not apply within 30 days of grain harvest of forage / grazing. Do not apply more than 6 applications per season; do not apply more than 8.4 fl. oz. per acre per season. REI = 12 hours.

# SUNFLOWER WEED CONTROL

Eric P. Prostko, Extension Agronomist – Weed Science

USE STAGE AND HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	LBS ACTIVE INGREDIENT	
<b>PREPLANT SOIL INCORPORATED</b>			
ethalfluralin (Sonalan) 3EC	1.5 to 2.0 pt	0.6 to 0.75	For annual grass and small seeded broadleaf weed control. Soil incorporate 2-3 inches deep within 48 hours of application. MOA = 3.
pendimethalin (Prowl/Pendimax) 3.3EC  (Prowl H <sub>2</sub> O 3.8ACS)	1.2 to 2.4 pt  1.5 pt	0.5 to 1.0  0.71	For annual grass and small seeded broadleaf weed control. Soil incorporate 2 inches deep within 7 days of application. Can also be applied preemergence. MOA = 3.
S-metolachlor (Dual Magnum, Brawl)	1.0 - 1.33 pt	0.96 to 1.27	For annual grass and small seeded broadleaf control. Soil incorporate into top 2 inches of soil. Can also be applied preemergence after planting but before crop/weed emergence. MOA = 15.
trifluralin (Treflan, Trilin, etc.) 4EC	1.0 to 1.5 pt.	0.5 to 0.75	For annual grass and small seeded broadleaf weed control. Soil incorporate 2-3 inches deep within 24 hours of application. MOA = 3.
<b>PREEMERGENCE</b>			
sulfentrazone + carfentrazone (Spartan Charge) 3.5L	3.75 – 5.0 oz	0.092-0.123 + 0.010-0.014	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 up until 3 days after planting. <b>However, do not apply after sunflower emergence, at cracking, or if seedling is close to the soil surface. Do not use on soils classified as sand, which have less than 1% OM.</b> Rotation Restrictions: canola = 24 months; field corn = 4 months; cotton = 12 months*; peanuts = anytime; small grains = 4 months; sorghum = 10 months; soybeans = anytime; tobacco = anytime. <i>*Some UGA research suggests that the cotton rotation restriction should be 18 months.</i> MOA = 14 + 4.
<b>POSTEMERGENCE</b>			
clethodim (Select, Arrow, others) 2EC  (Select Max / TapOut) 0.97EC	6 - 16 oz  12 - 32 oz	0.09 to 0.25	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. Do not apply within 70 days of harvest. MOA = 1.
sethoxydim (Poast) 1.5EC	1.0 to 1.5 pt	0.2 to 0.3	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 to 20 inches tall. Include crop oil concentrate at 1 qt/A with all applications. Do not apply within 70 days of harvest. Do not use on sunflower inbred lines grown for seed. Poast Plus is not registered for use on sunflowers. MOA = 1.
quizalofop (Assure II) 0.88EC	5 to 12 oz	0.03 to 0.08	For annual and perennial grass control. May be slightly less effective on Texas panicum than other POST grass herbicides. Include a NIS @ 0.25% v/v (1 qt/100 gals). Do not apply Assure II within 60 days of harvest. 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. MOA = 1.

**SUNFLOWER WEED CONTROL (continued)**

USE STAGE AND HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	LBS ACTIVE INGREDIENT	
<b>POSTEMERGENCE (continued)</b>			
imazamox (Beyond 1AS)	4 oz	0.031	<b>ONLY FOR USE ON CLEARFIELD TOLERANT SUNFLOWER HYBRIDS. Do not use Beyond on conventional hybrids or severe crop injury will occur!</b> 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 lbs/100 gallons). 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 = 1 hour. MOA = 2.
<b>HOODED SPRAYER</b>			
carfentrazone (Aim 2EC)	1.0 – 2.0 oz	0.156 – 0.031	Apply in a <u>hooded sprayer</u> 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, and tropical spiderwort control. Rain-free period = 6-8 hours. MOA = 14.
<b>HARVEST-AID/DESICCATION</b>			
paraquat (Gramoxone Inteon / Gramoxone SL) 2.0 lb/gal  (Firestorm/Parazone) 3.0 lb/gal	1.2 - 2.0 pt  0.8 to 1.3 pt	0.30 to 0.50	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.). 7 day PHI. Do not graze treated areas or feed treated forage to livestock. MOA = 22.
sodium chlorate 3.0 lb/gal 5.0 lb/gal 6.0 lb/gal 7.5 lb/gal	2 gal 4.8 qt 1 gal 3.2 qt	6.0	Apply when sunflowers are mature and at least 7 days prior to harvest for desiccation of weeds. Ground or air application permitted. Do not graze treated fields or forage until 14 days after application. Apply on warm, sunny day with high temperatures and humidity. Do not apply if rainfall is expected within 24 hours. More effective on grass weeds than broadleaf weeds. Dessiccation of morningglory and other vines may be erratic. MOA = NC.

\*Weed Response — Refer to weed response table for soybeans.