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Weed Control in Sunflowers

Cultural Methods of Weed Control

Harrowing and cultivation are important methods of weed control in sunflowers. Sunflowers normally do not emerge for 10 days to 2 weeks after planting, so weeds frequently emerge before the sunflowers do. Many weeds can be killed by shallow tillage by a spike tooth or coil spring harrow about one week after planting. Because sunflower seedlings are strongly rooted, these implements and others such as the weeder and rotary hoe can be used to kill weeds after the sunflowers emerge. However, the tillage implements must be properly adjusted, and tillage after sunflower emergence should be delayed until the sunflower seedlings have two or more leaves. Harrowing may normally be done several times if weeds continue to emerge and if field conditions are suitable. Weeds missed by early tillage may be controlled by cultivation between the rows. However, for adequate weed control, chemical weed control is usually necessary in addition to tillage (table 1).

Chemical Weed Control in Sunflowers

This fact sheet summarizes chemicals for weed control in sunflowers. For additional information, refer to the product label.

Proper herbicide application and favorable soil and weather conditions are necessary for optimum herbicide performance. The soil should be dry enough to be easily worked, not wet or cloddy, to ensure maximum mixing with soil particles during preplant herbicide incorporation. Adequate soil moisture is needed to ensure good herbicide activity. Dry conditions at the point where the germinating weed seedlings contacts the herbicide will reduce effectiveness.

All the herbicides registered for use in sunflowers, with the exception of chloramben (Amiben), which may be applied preplant incorporated or preemergence, and barban (Carbyne), which must be applied postemergence, must be applied preplant incorporated. EPTC (Eptam), trifluralin (Treflan), and fluchloralin (Basalin) are primarily grass control herbicides. In addition, they control some broadleaf weeds under conditions favorable for herbicide activity. EPTC must be incorporated immediately after application. The other preplanting herbicides should be incorporated as soon as possible, but soil incorporation may be delayed for up to eight hours for fluchloralin, up to 24 hours for trifluralin, and up to seven days for pendimethalin. Good incorporation thoroughly mixes the herbicide with the soil to a depth of 2-3 inches and is best accomplished by incorporating the herbicide twice with a disk, field cultivator, or similar implement at a minimum speed of 4-6 mph. The second incorporation should be carried out at a right angle (90 degrees) to the direction of the first incorporation to ensure thorough mixing of the herbicide with the soil, which is essential for good weed control and crop safety. (See herbicide label for specific instructions.)

Chloramben is primarily a broadleaf herbicide, but it also has activity on many annual grasses. Application may be preplant incorporated or preemergence. Favorable soil moisture conditions are needed to obtain good weed control.

Rainfall is needed to move the chloramben into the soil for good herbicide activity when it is applied preemergence, but excessive rainfall can move it below the zone of weed seed germination. This is particularly true in coarse textured (sandy) soils. Preplant incorporated applications of chloramben are more effective during dry years, but preemergence applications are more effective when followed by a moderate rainfall. If a preemergence application of chloramaben is followed by a dry period and weed seedlings begin to emerge, then an early shallow cultivaton will result in more weed consistent weed control.

Weed identification should be the first step in effective weed control. After weeds are identified, select the best herbicide for control (table 3). If sunflower fields have several weed species or hard-to-control weeds, a combination of two herbicides is often more effective than one (table 1).

Wild Oat Control in Sunflowers

Tillage effectively controls many early germinating wild oat seedlings, both before and after sunflower emergence. Wild oat not controlled by tillage may be controlled with barban (table 2).

CAUTION

Avoid repeated and prolonged contact with all herbicides, especially direct contact with skin and eyes. Check label directions and restrictions carefully. Avoid wind drift of herbicides to susceptible crops and ornamentals.

Table 1. Suggestions for chemical weed control in sunflowers

Chemicals	Pounds per acre of active ingredient or acid equivalent broadcast	Time of application	Environmental Protection Agency limitations on use
EPTC (Eptam)	2-3	Preplanting incorporation	None
trifluralin (Treflan)	1/2-1	Preplanting incorporation	None
pendimethalin (Prowl)	1/2-1 1/2	Preplanting incorporation	Do not feed treated forage to livestock.
fluchloralin (Basalin)	1/2-1 1/2	Preplanting incorporation	Do not feed treated forage to livestock.
trifluralin	1/2-1	Preplanting incorporation	Do not graze or feed forage.
+ chloramben (Amiben)	+ 2-3		
pendimethalin + chloramben	3/4-1 1/4 + 2	Preplanting incorporation	Do not feed treated forage to livestock.
trifluralin + EPTC	1/2-1 + 2	Preplanting incorporation	None
EPTC + chloramben	2-3 + 1-2	Preplanting incorporation	Do not graze or feed forage.
chloramben (Amiben)	2-3	Preemergence	Do not graze or feed forage.

[1]Use the low rate for coarse textures soils, intermediate rates for medium textured soils, and high rates for fine textured soils.

Table 2. Wild oat control in sunflowers

Chemical	Pounds per acre of active ingredient broadcast	Time of application	Environmental Protection Agency limitations on use.
barban (Carbyne)	3/8	When wild oat is in the two-leaf stage but within 30 days after sunflower emergence	Do not allow livestock to graze treated fields until after harvest.

Table 3. Effectiveness of herbicides for weed control in sunflowers[1]

	Preplanting Incorporation				Preemergence	Postemergence
	EPTC (Eptam)	Trifluralin (Treflan)	Fluchloralin (Basalin)	Pendimethalin (Prowl)	Chloramben (Amiben)	Barban (Carbyne)
Sunflower tolerance	G	G	G	G	G	G
Grasses---						
Green and yellow foxtail	G	G	G	G	G	N
Giant foxtail	G	G	G	G	G	N
Wild oat	F	P	P	P	P	G
Broadleafs---						
Pigweed sp.	F	G	G	G	G	N
Common lambsquarters	F	G	G	G	G	N
Wild mustard	P	N	N	F	F	N
Common ragweed	F	N	N	P	G	N
Smartweed sp.	P	P	P	F	G	N
Kochia	F	G	G	G	G	N
Cocklebur	P	N	N	N	P	N

[1]G=Good, F=Fair, P=Poor, N=No control.

Table 4. Herbicide names and formulations used in sunflowers

Common name	Trade name	Concentration and commercial formulations[1]
EPTC	Eptam	7 lb/gal L, 10% G
Barban	Carbyne	1,2 lb/gal L
Chloramben	Amiben	1.8 lb/gal L, 10% G, 75% DS
Trifluralin	Treflan	4 lb/gal L, 5% G
Pendimethalin	Prowl	4 lb/gal L
Fluchloralin	Basalin	4 lb/gal L

[1]L=Liquid, G=Granular, DS= Dry soluble

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