

Weed Control in Sweet Corn¹

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Weeds reduce yield and quality of sweet corn by direct competition for light, water and nutrients in the soil. Weeds may also harbor insect and disease pests that attack corn. Estimated average annual losses due to weeds in sweet corn in the United States, 1975 to 1979 was 1,460,000 cwt of fresh market sweet corn worth \$13,165,000 and 185,000 cwt of sweet corn for processing with a value of \$9,155,000.

Historically, the major reason for corn being grown in rows was weed control. Row width was dictated by the widths that horses needed to pass between the rows pulling a cultivator.

Today, in-row spacing has been refined for the greatest yield and quality. Between row spacings are still variable due to culture and tire widths.

Mechanical cultivation of sweet corn is still widespread. The initiation of the use of selective herbicides some forty years ago in corn has decreased the number of cultivations needed per season. This has substantially lowered the fossil fuel energy used in sweet corn production. Many sweet corn fields now receive one cultivation or no cultivations at all. Much of the cultivation used is to reduce surface crusting or to control weeds resistant or not

controlled by the herbicide combinations selected. There is at the present time a wide selection of herbicides to control most weeds.

The wide selection is, however, being reduced due to non-reregistration of older compounds, and suspensions due to leaching into the groundwater. Alachlor (Lasso) has been restricted from use in Florida due to confirmed groundwater contamination. Atrazine also is under suspicion.

Herbicide treatments are primarily categorized on the basis of the time of application, preplanting, preemergence, and postemergence. Preplanting treatments are applied before the corn is planted and either applied as a surface treatment or incorporated into the soil. Preemergence application is after the corn is seeded but before emergence of the corn or weeds. Preplant and preemergence herbicides, properly selected and applied, prevent weed competition during emergence and early seedling growth. Postemergence applications take place after the emergence of both the corn and weeds. These are most effective when weeds are small.

Many post-emergence labels will state specific ages or growth stages of the corn and weeds to be

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sprayed. These stages may be the spike stage, 5-leaf stage, or when corn is 30 inches tall. If the label specifies directing a spray to the bottom or side of a plant, care must be taken to follow these directions or severe damage may occur.

Herbicide performance depends on weather, irrigation method, soil type, as well as proper selection for weed species to be controlled and accurate application and timing. Obtain consistent results by reading the herbicide label and other information about proper application and timing of each herbicide.

Recent research has shown that there is a difference in tolerance to herbicides especially between the new sh2 (supersweet) cultivars. Because cultivars may have different tolerances, we suggest that growers test herbicides on a trial basis when changing cultivars.

The new sulfonyl urea herbicides labeled on field corn i.e. Accent and Beacon, will cause damage on a large number of sweet corn cultivars, and are not recommended for use. Use only labeled herbicides and those herbicides in the proper formulations. Check the labels of each herbicide for tank mix recommendations. To avoid confusion between formulations, suggested rates listed in Table 1 are stated in pounds active ingredient per acre (lb. ai./acre).

Several listed herbicides are also labeled for tank-mix combinations. Read the label of each formulation for tank-mix specifications and compatibilities. There are also several Pre-mix herbicides labeled for sweet corn. A few of them are listed in Table 2.

There are more Pre-mix herbicides that are labeled. Read the labels for specific rates recommended.

Table 1. Chemical weed controls: sweet corn.

Herbicide	Labeled crops	Time of application to crop	Rate (lbs. AI./Acre)	
			Mineral	Muck
Atrazine (AAtrex 4L) (AAtrex Nine-0)	Sweet corn	Pre-emergence	1.0-2.0	2.0-3.0
Remarks: Controls germinating annuals. Apply to moist soil. Note label precautions against planting non-registered sensitive crops for at least one growing season.				
Atrazine (AAtrex 4L) (AAtrex Nine-0)	Sweet corn	Postemergence	1.0-2.8	1.0-2.8
Remarks: Controls emerged weeds. Apply in a minimum of 10 gals. of water before weeds are 1.5 inches tall. Use lower rates when weeds are small. Note replanting precautions listed above.				
Atrazine + Oil	Sweet corn	Postemergence	1.0-2.0 + oil	1.0-2.0 + oil
Remarks: Controls emerged weeds. Apply to small test plots to evaluate tolerance of new hybrid corn varieties. Follow mixing instructions listed on the label and rates of emulsifiable oil or oil concentrate depending on ground or aerial application methods. Apply before annual grasses are 1.5 inches tall and broadleaf weeds are 4 inches tall. Note replanting precautions. Do not apply to breeding stock or inbred lines of sweet corn.				
Bentazon (Basagran)	Corn (all types)	Postemergence	0.75-1.0	0.75-1.0
Remarks: Controls actively growing young broadleaf weeds. Recommended for burn down of annual morning glory and yellow nutsedge in corn. Consult label for weeds controlled/weed size table. Corn is tolerant at all stages of growth. Do not apply over 2 lbs ai (4 pts.)/acre per season. Add a crop oil concentrate (coc) at 2 pts/acre maximum.				
Carfentrazone (Aim)	Corn (all)	Preplant, Pre-emergence, Postemergence	0.008 -0.016	0.008 - 0.016
Remarks: Controls young actively growing broadleaf weeds. May be applied 30 days before planting until corn reaches the 8 leaf collar growth stage. Rate is 0.5 -1 fl oz product per acre. Use a nonionic surfactant in the spray mix. Leaf burn or speckling has been seen on older plants when applied over the top. No yield reduction was seen in trials when leaf damage occurred. FMC states that the use is the responsibility of grower due to not being tested on all sweet corn varieties.				
Dimethanamid-P (Outlook)	Corn (all types)	Preplant, Preplant incorporated, Pre emergence, Post emergence	0.36-.66	0.98
Remarks: outlook may be applied preplant surface, preplant incorporated, pre-emergence or post emergence to corn up to 12 inches tall. Maximum rates for a sample application are 12-18 fl oz on sand and 21 fl oz on muck. There is a 50 day Phi for sweet corn.				
EPTC (Eradicana 6.7E)	Sweet corn	Preplant incorporate	4.0-6.0	
Remarks: Use lower rate in light textured soil (sands). Must be incorporated into soil to prevent loss of herbicide. Thorough mixing is necessary especially in the control of rhizomes of Bermuda grass and yellow and purple nutsedges.				
Glyphosate (Roundup)	Sweet corn	Prior to crop emergence or preplanting	0.5-1.0	0.5-1.0
Remarks: Apply as directed for "Cropping Systems" under conditions described on label. Does not provide residual weed control.				

Table 1. Chemical weed controls: sweet corn.

Herbicide	Labeled crops	Time of application to crop	Rate (lbs. AI/Acre)	
			Mineral	Muck
Halosulfuron (Sanda)	Sweet corn	Postemergence	0.032	0.032
<p>Remarks: Sempra may be applied over-the-top or with drop nozzles from the spike to the layby stage of corn. Applications of 3/4 oz by weight (.032 lb ai) per acre broadcast may be made with a sequential treatment of 3/4 oz by wt directed or semi-directed to avoid application into the whorl may be made. Avoid cultivation for 7 days after application. Excellent control of nutsedges and active on cocklebur, pigweeds, ragweed and smartweed. Will not control emerged grasses. Consult label for plantback restrictions.</p>				
Mesotrione (Callisto)	Sweet corn	Pre-emergence Postemergence	0.188-0.24 0.094	--- 0.094
<p>Remarks: Apply Callisto pre-emergence at 6.0 to 7.7 fl oz/A. May be tank mixed with a grass herbicide for grass control. Apply at 3 fl oz/A postemergence. It may be tank mixed with herbicides such as atrazine, metolachlor, bentazone, etc. Check the label. Do not apply with a crop oil concentrate (coc), UAN, or AMS postemergence. Corn may be treated up to 30 inches tall. Do not harvest within 45 days after application. In some cultivars, transitory bleaching may occur. In trials, yield has not been affected.</p>				
S-Metolachlor (Dual Magnum) (Dual II Magnum)	Sweet corn	Pre emergence	1.0-1.5	----
<p>Remarks: Provides good control of annual grasses and certain broadleaf weeds. Use the lower rate on light sandy soils. Use higher rate on soils with organic matter 3% and greater. May be used as pre-emergence up to 4 pints (lbs/ai) on soils with 6 to 20% organic matter. May be used as directed spray to the base of corn plants 5 inches tall until corn plants reach 40 inches in height. See Special Local Needs (24c) label for muck soils.</p>				
Paraquat (Gramoxone Inteon) (Firestorm)	Sweet corn	Pre-emergence	0.56-0.94	0.56-0.94
<p>Remarks: Controls emerged weeds. Apply prior, during, or after planting, but before corn emerges. Use a spreader.</p>				
Paraquat (Gramoxone Inteon)	Sweet corn	Directed spray including shielded	0.25	0.25
<p>Remarks: Apply when corn is at least 10 inches tall. Arrange nozzles to spray no higher than the lower 3 inches of the corn plant. Corn plants shorter than 10 inches may be injured and not recover. (Corn height measured from soil surface to top of whorl.)</p>				
Pendimethalin (Prowl) + Atrazine (Several)	Sweet corn	Early Postemergence	0.75-1.0 1.0-2.0	1.0-1.5 1.0-2.0
<p>Remarks: In Alabama, Florida and Georgia, Prowl 3.3 EC can be applied with atrazine early postemergence. Apply from spike through 4 leaf stage but before weeds exceed 1 inch in height, except for Texas panicum which must be no larger than the 2 leaf stage. Prowl alone will not control emerged weeds. Wait at least 7-10 days before beginning cultivation after early postemergence treatments.</p>				
Tropramezone (Impact)	Sweet corn	Post emergence	0.016	0.016
<p>Remarks: Apply to emerged actively growing weeds. Impact is a systemic postemergence herbicide. The addition of 0.25 to 1.0lb ai of atrazine will enhance control. Not all sweet corn hybrids have been tested. Test each new hybrid before applying to the whole field.</p>				

Table 2. Examples of Pre-mix herbicides.

Trade Name	Common Names
Bicep	atrazine + metolachlor
Laddok	atrazine + bentazon
G-max	atrazine+ dimethenamid