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Weed Control

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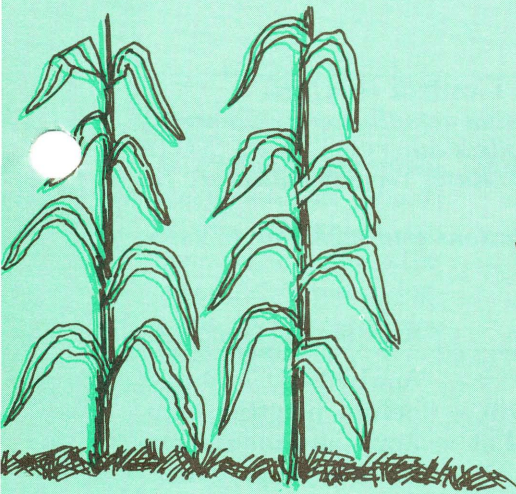
G. E. Schultz, R.W. Chase and W.F. Meggitt, Crop and Soil Science

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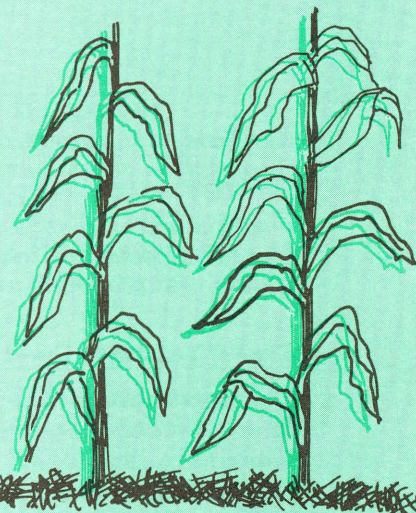
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No Till Corn: 4

Weed Control



EXTENSION BULLETIN E-907

March 1979, File 22.13

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Success with no-till depends on good control of existing vegetation cover and weeds throughout the growing season. Unlike conventional tillage, there is no option of cultivation if the chemical program proves inadequate. Vegetation control requires more skill in the no-till system.

No-till can be used on sod or meadow fields and on crop residue fields such as corn or wheat. Control of weeds may require different chemical tools for each situation.

Existing sods are the greatest challenge to good vegetation control. Previous management of the sod is important. If the sod crop has been clean har-

vested, vegetation control and corn establishment may be more successful than where the crop residue has been allowed to accumulate. Residues can interfere with the physical establishment of the corn plant. Excessive trash absorbs soil-applied herbicides, interferes with the desired operation of the fluted couler, prevents proper placement of the seed, and most importantly, results in poor closing of the soil over the seed and poor seed-soil contact.

Soil type, organic matter, sod density and moisture condition after treatment influence sod kill. On dense sods, increase the gallonage of water to 40-50 gal per acre to obtain thorough coverage and wetting. On a clean crop field, where the vegetation cover is not dense, 20-25 gal per acre is adequate.



Cultivation is not an option in the no-till system if the chemical program proves inadequate.

Suggested Herbicide Treatment for Specific Vegetation Control in Corn

Rates are expressed in pounds of active ingredient (a.i.) per acre for the area actually sprayed; rates in formulation column are expressed as pounds or liquid measure of product unless otherwise noted. (NOTE COMMERCIAL RATES ARE EXPRESSED IN PT OR QT OR GAL OR LB). Rates recommended are for medium textured soils with 3% or greater organic matter.

All agricultural chemicals should be applied in accordance with regulations and labels as to rates, timing and crops for which they may be used.

Type of Vegetation Cover	Herbicide	Rate lb/acre a.i.	Formulation	Remarks and Limitations
1) Predominantly alfalfa or considerable perennial broadleaf weeds plus some grasses, such as timothy, bromegrass and annual weeds.	2,4-D ester	1¼	1¼ qt	Apply 2,4-D 7-10 days before planting corn.
	+	+	+	
	atrazine (commercial product)*	2	2½ lbs or 2 qt	Apply atrazine and paraquat at planting time.
	+	+	+	
	paraquat**	½	1 qt.	
2) Predominantly grasses, such as bluegrass, timothy, bromegrass, and annual weeds.	atrazine (commercial product)*	2½	3⅞ lb or 2½ qt	Apply treatment at planting time. Use 3 lbs atrazine where harder-to-kill species, such as smooth brome, predominate.
	+	+	+	
	paraquat**	½	1 qt	
3) Predominantly quackgrass plus annual broadleaf weeds.	atrazine (commercial product)*	2	2½ lb or 2 qt	Apply atrazine plus crop oil when quackgrass has started growing in the spring, 7-10 days before planting. At planting time, make second application of atrazine and paraquat.
	+	+	+	
	crop oil concentrate	--	1 qt (1 gal if crop oil)	
	FOLLOWED BY:			
	atrazine (commercial product)*	2	2½ lb or 2 qt	
	+	+	+	
	paraquat**	½	1 qt	
	2,4-D ester	1	1 qt	
	+	+	+	
	atrazine (commercial product)*	2	2½ lb or 2 qt	
	+	+	+	
	crop oil concentrate	--	1 qt (1 gal of crop oil)	
FOLLOWED BY:				
atrazine (commercial product)*	2	2½ lb or 2 qt		
+	+	+		
paraquat**	½	1 qt		
atrazine (commercial product)*	4	5 lb or 4 qt	When 4 lbs of atrazine are used, corn must be grown for 2 consecutive years. Apply at planting time.	
+	+	+		
paraquat**	½	1 qt		

*Commercial atrazine is available under several trademarks. Most formulations are 80W (80% wettable powder)—1¼ lb of product equals 1 lb of active ingredient—or 4L (flowable)—1 qt of product equals 1 lb of active ingredient. Princep and Bladex are also available as an 80W or 4L. Volume of 2, 4-D based on 4 lb/gal formulation.

**When paraquat is used, include in tank mix X-77 or a similar non-ionic surfactant according to manufacturer's suggestions.

Note: Roundup at 1½ lb/A a.i. may be substituted for paraquat especially if weed growth is dense and/or perennial weeds have reached labeled growth stages for control.

Type of Vegetation Cover	Herbicide	Rate lb/acre a.i.	Formulation	Remarks and Limitations
4) A grain stubble or row crop residue, such as corn and soybeans, where annual grasses and broadleaves predominate. (These treatments applied at planting time).	atrazine (commercial product)*	1½	1⅞ lb or 1½ qt	
	+	+	+	
	alachlor (Lasso)	2½	2½ qt	
	+	+	+	
	paraquat**	½	1 qt	
	atrazine (commercial product)*	1½	1⅞ lb or 1½ qt	CLEARED FOR GRAIN CORN ONLY. Maximum label rate for <i>Dual</i> is two pounds.
	+	+	+	
	metolachlor (<i>Dual</i>)	2	1 1/3 qt	
	+	+	+	
	paraquat**	½	1 qt	
atrazine (commercial product)*	1½	1⅞ lb or 1½ qt	DO NOT APPLY PRE-PLANT. Do not use on soils with less than 1.5% organic matter.	
+	+	+		
pendimethalin (<i>Prowl</i>)	1½	1½ qt		
+	+	+		
paraquat**	½	1 qt		
atrazine (commercial product)*	1	1¼ lb or 1 qt	Can be used to reduce possibility of atrazine carry-over. Note specific remarks above for <i>Lasso</i> , <i>Dual</i> and <i>Prowl</i> .	
+	+	+		
cyanazine (<i>Bladex</i>)	2	2½ lb or 2 qt		
+	+	+		
Lasso	2	2 qt		
or	or	or		
Dual	2	1 1/3 qt		
or	or	or		
Prowl	1½	1½ qt		
+	+	+		
paraquat**	½	1 qt		
alachlor (Lasso)	2½	2½ qt	Increased fall panicum control with <i>Princep</i> .	
+	+	+		
simazine (<i>Princep</i>)	1½	1⅞ lb or 1½ qt		
+	+	+		
paraquat**	½	1 qt		
metolachlor (<i>Dual</i>)	2½	1 2/3 qt	CLEARED FOR GRAIN CORN ONLY. Increased fall panicum control with <i>Princep</i> .	
+	+	+		
simazine (<i>Princep</i>)	2	2½ lb or 2 qt		
+	+	+		
paraquat**	½	1 qt		

Continued on page 4

Type of Vegetation Cover	Herbicide	Rate lb/acre a.i.	Formulation	Remarks and Limitations
4. A grain stubble or row crop residue, continued from page 3.				
	atrazine (commercial product)* +	1 +	1¼ lb or 1 qt +	Corn must be grown a second year as residue will result.
	simazine (Princep) +	2 +	2½ lb or 2 qt +	
	paraquat**	½	1 qt	Rainfall necessary for effective early control.
	cyanazine (Bladex) +	1½ +	1⅞ lb or 1½ qt +	No residue carryover.
	alachlor (Lasso) +	2 +	2 qt +	
	paraquat**	½	1 qt	
	cyanazine (Bladex) +	1½ +	1⅞ lb or 1½ qt +	CLEARED FOR GRAIN CORN ONLY. No residue carryover.
	metolachlor (Dual) +	2 +	1 1/3 qt +	
	paraquat**	½	1 qt	
	atrazine (commercial product)* +	1 +	1¼ lb or 1 qt +	Less effective on fall panicum, witch grass, and crabgrass. Reduced residue carryover.
	cyanazine (Bladex) +	2 +	2½ lb or 2 qt +	
	paraquat**	½	1 qt	

Appreciation is expressed to Mr. Gary Powell for his efforts in revision of this bulletin.



Proper control of the existing vegetation is essential to a no-till crop management program.



The gallonage of water needed on a crop residue field is less than required for a dense sod.

Type of Vegetation Cover	Herbicide	Rate lb/acre a.i.	Formulation	Remarks and Limitations
5) Problem perennial weeds such as Canada thistle, brambles, sumac, poison ivy, milkweed, and hempdogbane (post-emergence treatments).	2,4-D amine	½	1 pt	For corn over 6-8 inches use drop nozzles. For suppression of perennial weeds only.
	dicamba (Banvel)	¼	½ pt	USE EXTREME CAUTION. DRIFT TO NEARBY SENSITIVE CROPS IS A HAZARD. For suppression of perennial weeds only. Use pressure less than 20 psi. Do not apply if soybeans in the vicinity are over 10 in. tall or have begun to bloom.
	glyphosate (Roundup)	label rate		CORN ALSO KILLED. Spot treatment for total vegetation control <i>including corn</i> . Apply prior to silking stage of corn.
6) A grain stubble or the residue of a row crop, such as corn or soybeans, with annual grass problems, <i>plus</i> specific weed problems, such as nutsedge, jimsonweed, or smartweed.				Refer to Extension Bulletin E-434 "Weed Control in Field Crops".

USE HERBICIDES SAFELY

All chemicals should be regarded as hazardous.

- 1) Follow directions! Read the instructions and follow all precautions printed on the container label—IT'S THE LAW!
- 2) Store chemicals under lock and key—out of reach of children, pets, livestock, and away from food and feed.
- 3) Keep chemicals in their original container with labels intact.
- 4) Do not eat or smoke when working with chemicals.
- 5) Wear protective clothing and masks as directed

on the label.

- 6) Protect your eyes and avoid inhaling chemicals. If spilled on skin, wash off immediately.
- 7) Do not dispose of any herbicide or its container except as the label directs.

Applicator Certification

Private as well as commercial applicators of restricted-use pesticides must now be certified by The State of Michigan. Certification exams are now being given throughout the state; consult your Cooperative Extension Agent or the Michigan Department of Agriculture if you have any questions concerning certification.

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