Herbicide Options for Cover Crops Interseeded in Corn

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www.MSUweeds.com
November 2019

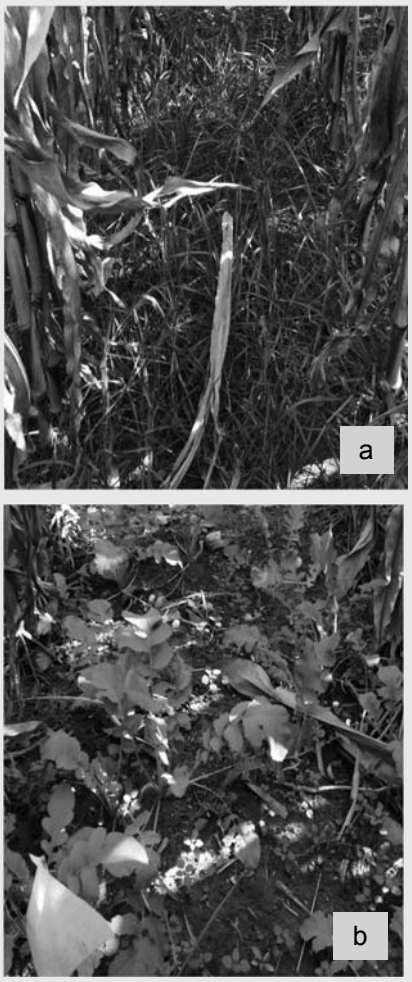
MICHIGAN STATE UNIVERSITY WEED SCIENCE

MSUWS09-2019

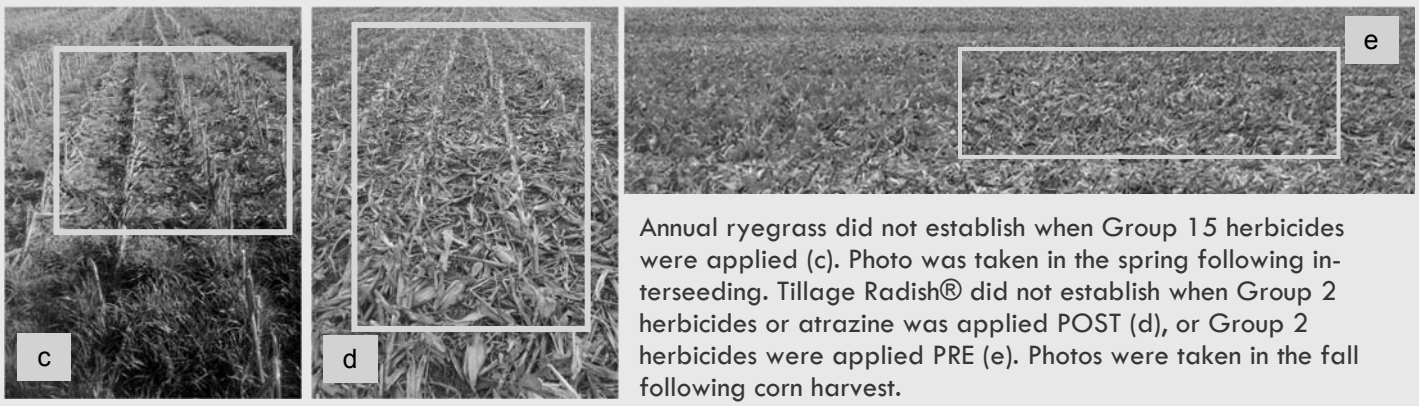
Interseeding cover crops at the V3-V7 vegetative growth stages in corn provides farmers the opportunity to seed cover crops in their grain corn rotation in June. Cover crops interseeded at these growth stages have successfully established and are not competitive with corn; however, interseeding in June requires farmers to use herbicides that control weeds, but do not kill the seeded cover crop. Weeds must be controlled in interseeded systems to prevent corn yield loss and weed seed production.

MSU Research on Cover Crop Tolerance to Herbicides

We conducted research from 2016-2018 to determine soil-applied (PRE) and postemergence (POST) herbicides that could be used when interseeding cover crops in corn in June. PRE herbicides were applied immediately following corn planting and POST herbicides were applied at V2-V3 corn. Twelve PRE and 14 POST herbicides were evaluated. Annual ryegrass, Tillage Radish®, crimson clover and red clover were interseeded at the V3 and V6 growth stages of corn. Cover crop establishment and growth were evaluated in the fall following corn harvest. Annual ryegrass and Tillage Radish® emerged well; clover species did not establish well in any year. PRE and POST herbicides that were safe to apply **PRIOR TO INTERSEEDING** annual ryegrass and Tillage Radish® at V3 and V6 are shown in Table 1.



Annual ryegrass (a) and Tillage Radish® (b) interseeded in corn in June. Photos taken in October.



Annual ryegrass did not establish when Group 15 herbicides were applied (c). Photo was taken in the spring following interseeding. Tillage Radish® did not establish when Group 2 herbicides or atrazine was applied POST (d), or Group 2 herbicides were applied PRE (e). Photos were taken in the fall following corn harvest.

Herbicide Options for Cover Crops

Interseeded Cover Crop Tolerance to Herbicides

Table 1. PRE and POST herbicides that are **safe** to apply **PRIOR TO INTERSEEDING** cover crops at the specified interseeding timing.*

Cover Crop	Interseeding Timing (corn growth stage)**	PRE Herbicides	POST Herbicides
Annual ryegrass	V3 or V6 	*atrazine* *Balance Flexx* *bicyclopyrone**** *Callisto* *Sharpen* *Stinger*	*atrazine* *Buctril (bromoxynil)* *Cadet* *Callisto* *glyphosate (Roundup)* *glufosinate (Liberty)*
Tillage Radish®	V3 or V6	*atrazine* *Balance Flexx* *bicyclopyrone**** *Dual II Magnum* *Stinger*	*Armezon/Impact* *Armezon Pro* *atrazine (0.5 lb ai/A)* *Buctril (bromoxynil)* *Cadet* *Callisto* *Status* *Warrant* *glyphosate (Roundup)* *glufosinate (Liberty)*
	V6 only	*Callisto* *Outlook* *Harness* *Acuron* *Acuron Flexi* *Bicep II Magnum* *Degree Xtra* *Harness MAX* *Harness Xtra* *Lexar EZ* *Lumax EZ*	
Annual ryegrass + Tillage Radish®	V3 or V6	*atrazine* *Balance Flexx* *bicyclopyrone**** *Stinger*	*atrazine (0.5 lb ai/A)* *Buctril (bromoxynil)* *Cadet* *Callisto* *glyphosate (Roundup)* *glufosinate (Liberty)*
	V6 only	*Callisto*	

*Remember to always follow herbicide label restrictions. Herbicide treated cover crops should not be used as a forage unless specified on the label.

**Corn growth stages: V3 = lowermost three leaves with visible leaf collars
V6 = six fully visible leaf collars

***Bicyclopyrone (component of Acuron) can be safely applied PRE but is not currently sold as an individual active ingredient.

Financial support for this research was provided by the Corn Marketing Program of Michigan and Project GREEEN.