PREVENTING COVER CROPS FROM BECOMING YOUR NEXT WEED PROBLEM

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Introduction

Wisconsin growers are increasingly interested in utilizing cover crops. Prior to cover crop establishment a plan to terminate the cover crop is necessary. Proper and timely termination should prevent competition to the following grain or forage crop. Proper and timely termination is dependent on the species of cover crop and the following crop to be grown. The species of the cover crop impacts ease of control, seed production potential, and growth rate. Termination can occur through environmental conditions such as frost or through a cultural, mechanical, or chemical method, such as tillage or herbicide application. The termination plan should meet the grower's goals for the cover crop, crop rotation, and to prevent the cover crop from becoming a future weed problem.

Table 1. Termination guidelines for successful termination of commonly used cover crop species.

		Winterkill	Crimping	Mowing	Tillage	Herbicide
Nonlegumes	Annual Ryegrass	Maybe	No	No	Yes[1]	Glyphosate[2] 16 -32 fl oz ac^{-1}
	Buckwheat	Yes	Yes	Maybe	Yes	
	Oats	Yes	Yes	Yes	Yes	
	Sorghum-sudangrass	Yes	No	No	Yes[1]	
	Spring Barley	Yes	No	Yes	Yes	
	Winter Wheat	No	Yes	Yes	Yes[1]	
	Winter Rye	No	Yes	Yes	Yes[1]	
Brassica	Mustards	Yes	No	No	Yes	Glyphosate[2] 16-32 fl oz ac^{-1}
	Radish	Yes	No	No	Yes	
	Rapeseed	Maybe	No	No	Yes	
	Turnips	Yes	No	No	Yes	
Legumes	Berseem Clover	Yes	No	No	Yes[1]	Glyphosate[2] 16-32 fl oz ac^{-1} + Growth Regulator 8-16 fl oz ac^{-1}
	Cowpeas	Yes	No	Maybe	Yes	
	Crimson Clover	Maybe	No	No	Yes[1]	
	Field Pea	Yes	No	Yes	Yes[1]	
	Hairy Vetch	No	Yes	No	Yes[1]	
	Red Clover	No	No	No	Yes[1]	
	Sunn Hemp	Yes	Yes	Yes	Yes	
	Sweet Clover	Maybe	No	No	Yes[1]	
	White Clover	No	No	No	Yes[1]	

[1]Tillage Note- Tillage may require multiple passes and should fully incorporate the cover crop.
[2] Glyphosate formulation- 4.5 lb acid equivalent per gallon.

Cover Crop Species

The species of cover crops greatly influences the ease of termination and seed production potential. Cover crops that may not always overwinter in Wisconsin like crimson clover and annual ryegrass should be used only when a plan is in place to control overwintering plants. Annual ryegrass, also known as Italian Ryegrass has shown herbicide resistance in the U.S and this should be considered in the management plan. When cover crops are allowed to produce seed, future weed problems can arise. A good example of a quick seed producer is buckwheat, which should be closely monitored

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and terminated prior to seed production. Vetch species should be used with caution in no-till production to prevent planting difficulties.

Herbicides Considerations

The cover crop species and weed species present at termination timing should be used as a guide for determining the herbicide product. The size of the cover crop and weed species should be considered to insure both will be controlled by the herbicide application. The following crop should be compatible with any plant back restrictions. Weather conditions may alter the efficacy of the herbicide.

Herbicides and Weather

Weather conditions prior to, during, and following herbicide application can impact the efficacy of the herbicide. When terminating cover crops with a herbicide, and in particular glyphosate, the cover crop should be actively growing. The day time minimum temperature should be 55°F and a minimum night time low temperature of 40°F. Applications should occur during daylight hours and at least four hours prior to sunset. Always read and follow pesticide label instructions.

Cover Crop Vs. Forage Crop

A crop is classified as a cover crop when no biomass is harvested. A cover crop becomes a forage crop when biomass is harvested for forage value. A cover crop can be used for forage value, however most pesticide labels do not provide the plant back restriction time required from pesticide application to grazing or harvest for cover crops, only forage crops. These restrictions may make harvesting a cover crop for forage value illegal. Crop rotation restrictions will vary in length and should be examined for all pesticides and crops in the rotation. A cover crop that will not be harvested for any value can be legally established following any herbicide application, however the grower takes all responsibility for cover crop injury or failure that may result.

Winter rye is often harvested for forage value and questions arise when termination treatments should be applied. Pre-harvest herbicide treatments are often illegal. Harvesting winter rye without another termination treatment is effective, however after Feekes 9 a second termination method is needed. Post-harvest glyphosate treatments are effective and legal methods of terminating winter rye and these applications can occur immediately following harvest with no reduction in efficacy.

Termination and Crop Insurance

Current cover crop termination rules for crop insurance in Wisconsin follow USDA NRCS guidelines. For non-irrigated fields, these rules require that cover crops be terminated within 5 days of planting the insured crop. For irrigated fields, these rules require that cover crops be terminated based on the cropping system and conservation purpose, but prior to crop emergence. Also, if the cover crop is part of a no-till system, termination can be delayed up to 7 days from the above requirement, but still must be terminated prior to crop emergence. Thus a no-till field has up to 12 days after planting to terminate a cover crop, or until the crop emerges, whichever comes first. In drier than normal years, farmers are encouraged to terminate earlier than required to conserve soil moisture and to consider later termination in wetter than normal years.

Further Information

Cover Crops in Wisconsin

http://fyi.uwex.edu/covercrop/

Termination of Winter Rye and Annual Ryegrass using Glyphosate

http://ipcm.wisc.edu/download/pubsPM/AnnualRye_WinterRye_Glyphosate.pdf

Cover Crops and Crop Insurance in Wisconsin

http://www.aae.wisc.edu/pdmitchell/CropInsurance/CCandInsurance2016.pdf