

## **Utilizing cover crops for weed suppression: Be sure to consider all aspects of the cover crops**

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Cover crops may be able to suppress weeds, but this is just one of many considerations that producers should take into account when selecting cover crops. The following are some questions to guide you when considering cover crops for your field, with weed management as a goal.

### **What are the potential benefits and costs of cover crops?**

You'll need to match the choice of a cover crop with your specific goal(s).

### **How will you plant the cover crop, and when?**

Consider the crop rotation that you have planned and determine the best time to seed and establish the cover crop.

What weed(s) are you targeting, and when do they germinate and emerge? Establish the cover crop prior to that key point in the lifecycle of the weed for most impact.

Classification of weeds based on emergence timing:

Sept – Nov (winter annuals) – mare's tail, mustard species, cheat, downy brome

Very early spring (April) - kochia

Mid-spring (May) – common sunflower, giant ragweed, common lambsquarters

May – June (summer annuals) – Palmer amaranth, waterhemp, velvetleaf, foxtails, large crabgrass, barnyardgrass, shattercane

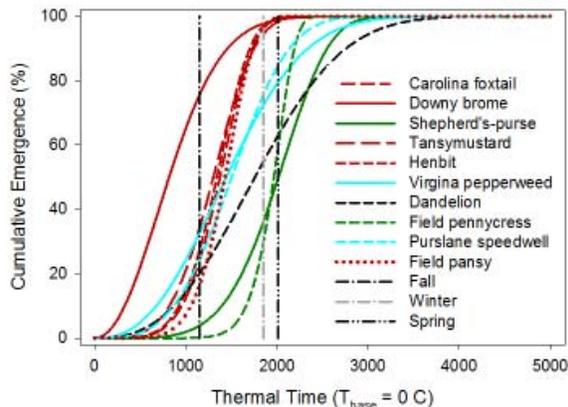
### **How can cover crops suppress weeds?**

- Layer of living cover crops or residues will reduce sunlight reaching the soil surface; smother and outcompete weeds for light, water, and nutrients
- Change the moisture and temperature conditions at the soil surface layer during weed seed germination and emergence
- Some cover crops release chemicals from roots or decaying residue, inhibiting weed seed germination
- Need lots of cover crop biomass!!

### **What will precede and what will follow the cover crop in your rotation?**

- Carbon-to-nitrogen ratio; need for or release of N
- Establishing cover crops after soil-applied herbicides (length of residual, susceptibility of cover crop species), grazing restrictions.

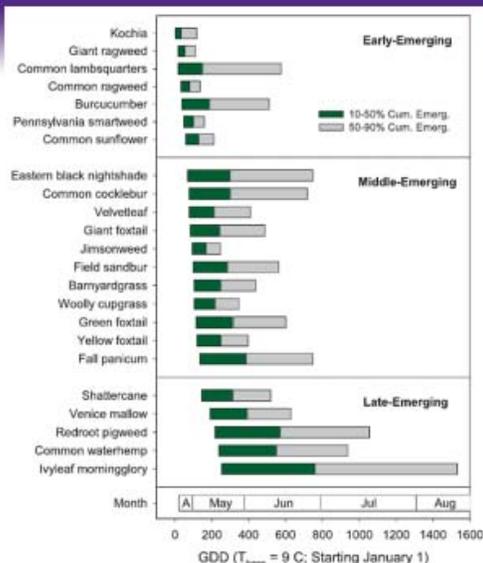
## Observations of winter annual weed emergence in Nebraska, 2010 and 2011



Werle et al. 2014  
Weed Sci. 62:83-96.

Werle et al., 2014.  
Weed Science  
62(2):267-279.

**Figure 3.**  
Emergence  
sequence and  
duration (10 to  
90% of total  
emergence) of 23  
summer annual  
weeds in Iowa.



Knowledge  
Life

Table 2. Seeding timing of various cover crops.

	April	May	June	July	Aug	Sept	Oct	Nov
Red clover	←							→
Crimson clover	←							→
Spring barley	←							→
Oats	←							→
Hairy vetch	←							→
Chickling vetch	←							→
Sweet clover	←							→
Cowpeas								→
Field peas <sup>1</sup>	←							→
Turnips/Forage rape	←							→
Oriental mustard	←							→
Oilseed radish	←							→
Buckwheat								→
Cereal rye								→
Winter wheat								→
Winter barley								→
Triticale								→
Annual ryegrass	←							→
White clover	←							→
Sorghum-sudangrass								→

<sup>1</sup>Also known as Austrian winter peas (black peas), Canadian field peas (spring peas).

### Which cover crop will you plant?

Depending on your geographic location, many options available. Resources:

- ✓ Midwest Cover Crops Councils' [Cover Crop Decision Tool](#); data available for Kansas
- ✓ *Managing Cover Crops Profitably*, 3<sup>rd</sup> Edition, SARE publication
- ✓ [Integrating Cover Crops in Soybean Rotations, Challenges and Recommendations for the North Central Region](#). Published by Midwest Cover Crops Council.

### How will you terminate your cover crop?

Consider both how to terminate the cover crop and what weed species might need to be controlled at the same time. A residual herbicide may need to be included with the burndown application in some cases. Some cover crops will die out over the winter and leave residue on the soil surface (e.g., mustards, peas, spring cereals). Others may require some active methods to terminate, with proper timing being important. For example, to terminate overwintering cereal rye or wheat, apply glyphosate and a residual herbicide at 9 to 12" cover crop height, or use a roller/crimper at the soft dough stage. For perennial clover, treat with herbicide tank mixes (2,4-D, glyphosate, and a residual herbicide) 2 to 4 weeks before planting the following cash crop. A roller/crimper is not effective on clovers.

The standard recommendation is to spray / terminate the cover crops at least 2 weeks before planting corn or soybean crops. Check with crop insurance providers, USDA-FSA, or NRCS offices for local rules on termination timing.

Table 3. Cover crop management strategies.				
Cover crop	Winter kill	Tillage – timing or size of cover crop	Herbicide	Roller/crimper
Red clover	No	2 to 4 weeks before planting	2,4-D ester + Glyphosate	Not recommended
Crimson clover	No	2 to 4 weeks before planting	2,4-D ester + Glyphosate	Not recommended
Alfalfa	No	2 to 4 weeks before planting	2,4-D ester + Glyphosate	Not recommended
Hairy vetch	No	2 to 4 weeks before planting	2,4-D ester + Glyphosate	Not recommended
Oilseed radish	Yes	—	—	—
Oriental mustard	Yes	—	—	—
Buckwheat	Yes	—	—	—
Field pea (Austrian pea)	Yes	—	—	—
Cereal rye	No	9 to 12 inches	Glyphosate	Soft dough stage
Wheat	No	9 to 12 inches	Glyphosate	Soft dough stage
Oats	Yes	—	—	—

Sources:

Tables 2 and 3 – Taylor E, Renner K, Sprague C (2008) *Integrated Weed Management: Fine Tuning the System*. Extension Bulletin E-3065. East Lansing, Mich.: Michigan State University.