

# HAIRY VETCH COVER CROP

*Vicia villosa*



Natural Resources Conservation Service

**Marionswcd.org**

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# HAIRY VETCH COVER CROP

COVER CROP	
Cover Crop Type	Legume
Life Cycle	Winter Annual or Cool Season Annual
Growth Habit	Climbing
Winter Survival	Expected
Inoculation Type*	Pea/Vetch
Organic Termination	Tillage, Cut, Mow, Roller Crimper
*Inoculate legume seed before seeding with the proper rhizobia bacteria specific to the species.	

Seeding Rate	
(Broadcast with Incorporation)	
1.3	Ounces/100 Sq. Ft.
When mixing with a non-legume cover crop, reduce the rate of the companion species to avoid outcompeting the legume. Mixtures should contain no more than 1 ounce/100 sq. ft. of oats or cereal rye	
Planting Depth	
½" – 1 ½"	

Location	Season	Seeding Window	Additional Freeze Risk
Southern Indiana	Fall	July 1 – Sept. 30	
Northern Indiana	Fall	July 1 – Sept. 15	Sept. 15 – Sept. 30

Source: NRCS FOTG, MCCC Indiana Vegetable Crop Tool

# HAIRY VETCH COVER CROP

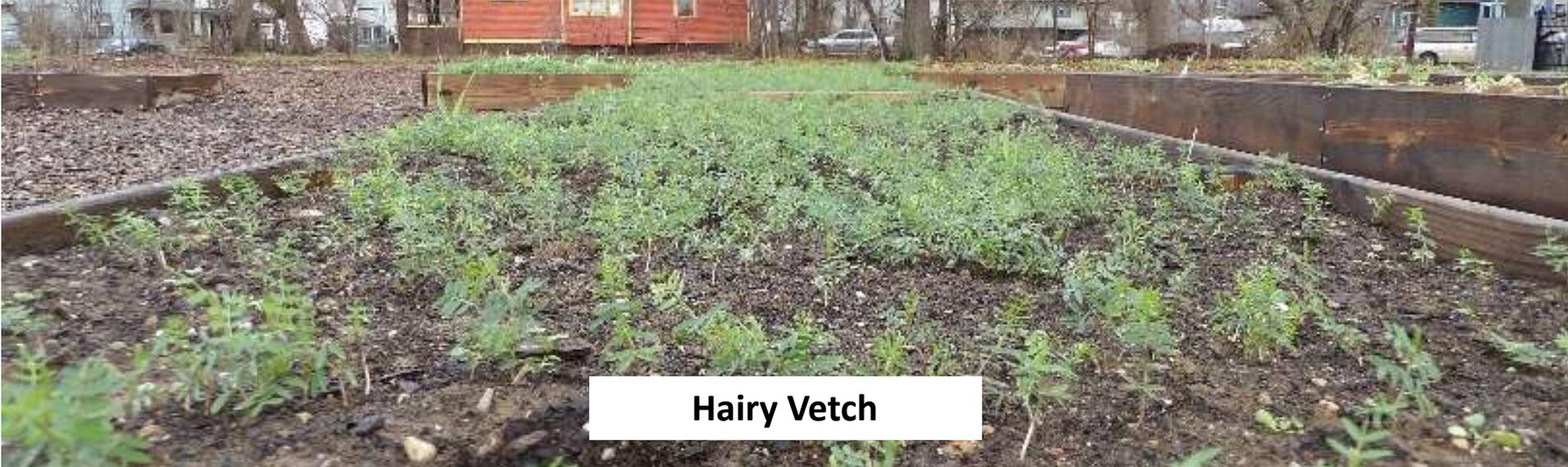
MIXES AND STRATEGIES					
Species Common Name	Type	Winter Survival	Optimum Depth (inches)	Surface Broadcast Potential	Rate (Ounces / 100 Sq. Ft.)
HAIRY VETCH AND OATS			Fall Planted <ul style="list-style-type: none"> <li>• Spring Chop/Drop &gt; Strip Furrow &gt; May Direct Seed</li> <li>• Spring Chop/Drop &gt; May Transplants</li> </ul>		
Vetch, Hairy	Legumes	Expected	½-1½	+	1.1
Oats	Nonlegumes	Seldom	½-1	+	1.0
HAIRY VETCH AND CEREAL RYE			Fall Planted <ul style="list-style-type: none"> <li>• Spring Chop/Drop or Crimp &gt; May Transplants</li> <li>• Spring Crimp &gt; Strip Furrow or Make Spaces &gt; May Direct Seeding</li> <li>• Direct seeding of some crops can be difficult with cereal rye biomass</li> </ul>		
Vetch, Hairy	Legumes	Expected	½-1½	+	1.0
Rye, Winter Cereal	Nonlegumes	Expected	¾-1½	+	0.9

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**Hairy vetch is an annual legume cover crop capable of contributing nitrogen to the crops planted after it. When planted in the fall, it is expected to survive the winter and grow rapidly in the spring. The vines and vegetative growth smother weeds, and its biomass can be used as mulch for no-till or low-till vegetable plantings.**



**When planted in the fall, hairy vetch can grow slowly. Planting the legume with another cover crop like oats or cereal rye increases fall weed suppression and increases plant diversity.**



**Hairy Vetch**



**Oats and Hairy Vetch**

**Planting the cover crop earlier in its seeding window can result in more vigorous fall growth and increase weed suppression.**



**In the spring, hairy vetch must be terminated in order to transition to the next crop. Methods include cutting, crimping, and mowing. The plant is cut when flowering to ensure a clean kill.**



**May 8, 2017: Cutting hairy vetch with hand sickle**

**Hairy vetch progresses towards flower and its flowers become seed pods (not shown here). With its energy focused on flower production rather than vegetative growth, the plant can be cut, mowed, or crimped to kill it.**



**Timing of flowering depends on climate and seed variety. A good estimate for Indiana is mid-May.**

Tools used for cutting include flail mowers, sickles, weedeaters, and shears. Cut the hairy vetch just above the soil surface. This no-till approach leaves the roots and soil ecosystem intact to improve soil health.



May 22, 2017: Cutting hairy vetch with weedeater

**The versatile mulch from hairy vetch cuttings can be spread evenly over the growing beds for vegetable transplants.**



**It can also be placed in strips to allow for direct seeding of vegetables in furrows.**



## A CLOSER LOOK AT TERMINATION

This figure shows hairy vetch growth stages based on the upper five nodes of the vine. Growth stages depends on the number of buds that have begun to bloom or produce pods.

Consistent control can be achieved by cutting or crimping the hairy vetch at early pod set (7), after flowering and when 1 or 2 seed pods are visible.

Cutting before seed pod set ensures the hairy vetch will not produce seed. Cutting before flower may promote plant regrowth.

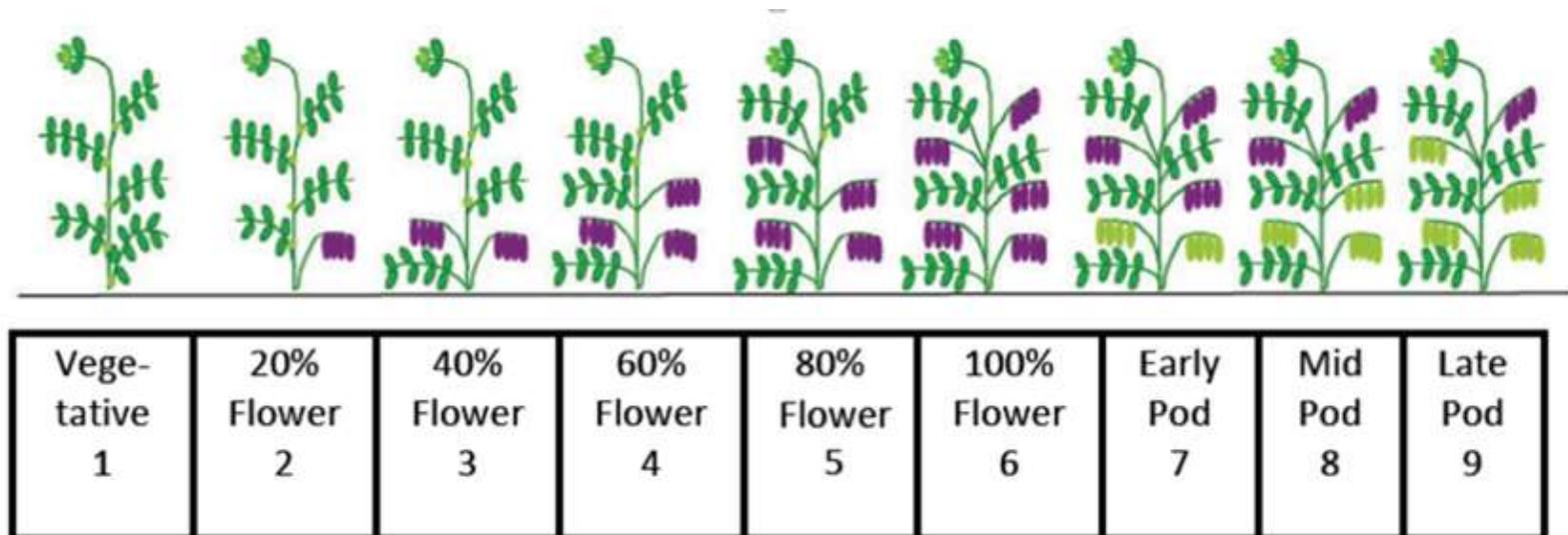


Figure: Curran, W. & Ryan, M., Penn State University and Mirsky, S., USDA-ARS. 2010. Cover Crop Rollers for Northeastern Grain Production.

<http://extension.psu.edu/pests/weeds/cover-crop-rollers-for-northeastern-grain-production>

**As flowering is anticipated in May in Indiana, the mulch from hairy vetch cuttings prepares the bed for transplants of crops like tomatoes and peppers or direct seeded sweet corn in furrows.**



**The hairy vetch mulch residue provides soil armor, weed suppression, and nutrients.**



**The vegetative mulch produced by the hairy vetch can suppress weeds as well as regrowth from the hairy vetch itself.**



**Temperature, rainfall, and biological activity can affect the rate of mulch decomposition during the growing season.**



If striving for three to six inches of weed suppressing mulch, additional mulch like straw or alfalfa hay can be placed on top, keeping in mind the balancing of carbon and nitrogen.



**Hairy vetch chop and drop**

- Lower C:N
- Lower material input

**Hairy vetch chop and drop with supplemental straw mulch**

- Higher C:N
- Increased weed suppression

# **ADDITIONAL CONSIDERATIONS**

**Hairy vetch provides nitrogen through its relationship with a nitrogen fixing bacteria that creates nodes on its roots. To ensure these bacteria are available, the legume seed can be inoculated when planting. Pink nodes indicate nitrogen production.**



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**After the cover crop is killed and its mulch and roots begin to decompose, nitrogen and nutrients will become available in the soil for crops to take up and utilize. These nutrients are often slowly released and become available to the vegetable crop over the course of the season. Growers can supplement the vegetable transplants with upfront compost or fertilizer according to soil tests.**



The more the legume progresses towards its flowering state, the more plant available nitrogen (PAN) it is expected to contribute.

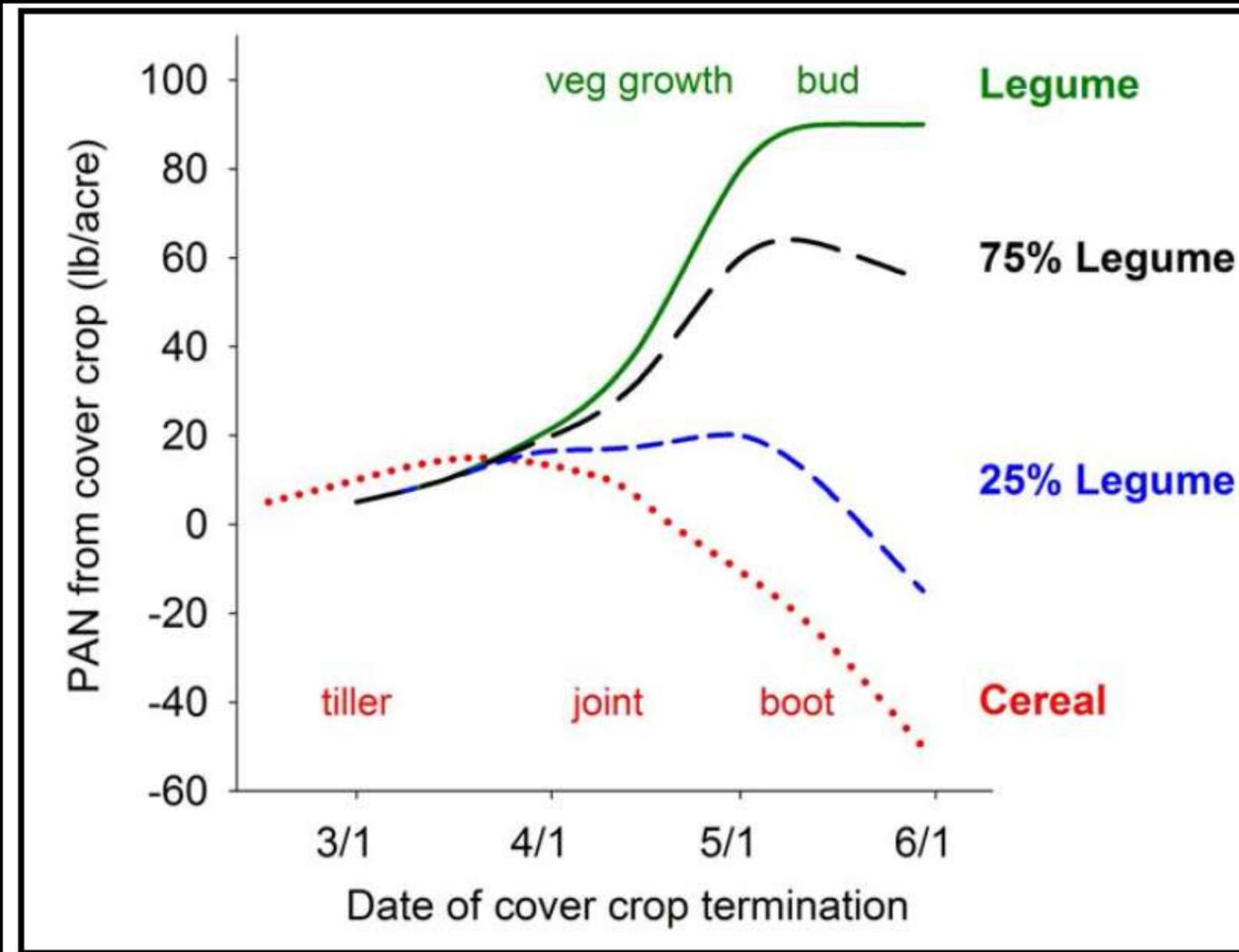


Figure from PNW 636, Estimating Plant-available Nitrogen Release from Cover Crops (Sullivan and Andrews, 2012), ©Oregon State University

**Hairy vetch that is cut before flowering can regrow. In this trial, hairy vetch was cut early near the end of April and spread on the growing bed for no-till vegetable transplants. The biomass produced by the cover crop was sufficient enough to suppress almost all regrowth, but growers should be cognizant that regrowth can occur. Cutting early and layering up with supplement mulch like newspaper, straw or alfalfa hay has also been successful.**





**When growing hairy vetch for a spring chop and drop and reduced till planting, it is beneficial to eliminate weeds prior to planting the cover crop in the fall. If weeds are not suppressed and scale and time permits, weeds should be removed when possible. In this raised bed, weeds were pulled in spring and the bare areas were patched with straw. Soon after, the hairy vetch vegetation grew to cover the entire growing bed.**

**This hairy vetch was cut on a damp morning and placed in a windrow to dry before returning it to the growing beds. Terminated hairy vetch turns brown within days, and the brittle leaves and stems are easy to handle.**



**Hairy vetch provides habitat for beneficial organisms both above and below the ground.**



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**Alternative termination method:**

**Minimizing soil disturbance is a priority. However, tillage is a method that can be utilized to kill the cover crop. If incorporating hairy vetch into the soil as a green manure, multiple passes may be needed. Chopping up the vegetation first may make it easier to incorporate.**



**May 4, 2017: Incorporating hairy vetch with a garden fork**

**This cover crop mix contained cereal rye, hairy vetch, and crimson clover. Due to the potential differences in flowering stages, cutting or crimping this mix may be difficult, though growers can do it successfully. If the intent is to incorporate or till the cover crop into the soil, this biodiverse mix is a good option.**



**Mulch from a mix of oats (winterkilled) and hairy vetch is easy to place in rows for direct seeding. Mulch from a mix of cereal rye (overwintered) and hairy vetch provides longer lasting residue for transplants but is bulkier and less adapted for direct vegetable seeding.**



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## Hairy Vetch Disclaimer

- **The Marion County SWCD encourages responsible management of hairy vetch. Hairy vetch can outcompete other plants and should be contained in crop production areas.**
- **Hairy vetch can contain hard seed, which means that a some seed might germinate in subsequent years.**
- **Seed stored properly for a few years might decrease the amount of hard seed.**



# ADDITIONAL RESOURCES

MCCC Indiana Vegetable Crop Tool: Hairy Vetch

<http://mccc.msu.edu/selector-tool/>

<http://www.sare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition/Text-Version/Legume-Cover-Crops/Hairy-Vetch>

<http://articles.extension.org/pages/18570/hairy-vetch-for-cover-cropping-in-organic-farming>

<http://articles.extension.org/pages/71822/rotational-no-till-and-mulching-systems-for-organic-vegetable-farms-webinar>

<http://extension.psu.edu/pests/weeds/cover-crop-rollers-for-northeastern-grain-production>

<http://articles.extension.org/pages/72973/making-the-most-of-mixtures:-considerations-for-winter-cover-crops-in-temperate-climates#how>

NRCS Indiana Agronomy Homepage:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/in/technical/ecoscience/agronomy/>

