



HAIRY VETCH (*Vicia villosa*)

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Hairy vetch is a hardy, viny, annual or biennial legume, attaining a height of 24 inches when planted alone and higher when planted with a tall companion crop that provides structural support for climbing.

Thin, branched stems can reach more than 8 feet long. Compound leaves are made up of 8 to 24 paired, narrow leaflets. Leaves terminate with a tendril used for climbing. Despite its name, stems and leaves can be hairy or smooth. Hairy vetch has a taproot that extends 1 to 3 feet deep.

Fall-planted hairy vetch flowers in April and ripens seed in May–June.

Groups of 10 to 40 small, long, blue flowers hang from one side of a long flower stem. Spherical seeds (approximately 28,000/lb) are smaller than common vetch seeds. They develop in small pods and usually are grayish or black. Hairy vetch is hardseeded.

Environmental preferences and limitations

Hairy vetch tolerates cold well and is more winter-hardy than common vetch. If well-established in fall, it tolerates frozen soils, remaining dormant until spring. It grows slowly in the mild winters of western Oregon. Warm spring temperatures bring rapid growth.

Hairy vetch can be grown in soils with pH ranging from 4.9 to 8.2 but does best when pH is from 6.0 to 7.0. It can thrive in acid soils where clover and alfalfa do not grow well.

Hairy vetch does best on sandy or sandy loam soils but grows on most soil types if drainage is good. It tolerates some temporary flooding. In a mid-Willamette Valley trial, small hairy vetch plants survived after being completely covered with water

for 9 days in February 1996. However, stand quality and growth generally decline if there are long periods of flooding or saturated soils. Hairy vetch is somewhat shade-tolerant and more drought-resistant than the other vetches.

Uses

Hairy vetch is used as a cover crop, green manure, pasture, silage, and hay. It is capable of accumulating large amounts of dry matter and nitrogen. When planted alone as a winter cover crop in annual vegetable rotations, it can provide substantial amounts of nitrogen (N) to a following crop.

Hairy vetch offers excellent spring weed suppression and grows well in mixtures with cereal grains that can provide cool-weather weed suppression, erosion control, and fall N-scavenging.

Hairy vetch has been relay interplanted into vegetable crops successfully. However, when relay interplanted into sweet corn, intense shade and heavy harvest residue result in very thin stands.

Hairy vetch is used as a self-seeding cover in orchards, usually as part of a mix. It also has been used in vineyards, but is more likely to climb trellises than is common vetch.

Dry matter and N accumulation

In a mid-Willamette Valley replicated trial over 5 years, hairy vetch planted in mid-September accumulated a maximum of 3.9, minimum of 0.9, and average of 2.2 tons dry matter/acre, and a maximum of 252, minimum of 72, and average of 139 lb N/acre by mid-April.

Management

To increase winter hardiness, plant hairy vetch between mid-September and mid-October, about 4 to 6 weeks before the first frost.

Recommended seeding rates vary from 25–60 lb/acre. Use lower rates when drilling and higher rates when broadcasting, drilling into a rough seedbed, or relay interplanting.

Drill seed into a firm seedbed from 3/4 to 1 1/2 inches deep depending on soil moisture. If broadcasting, follow with a light disking to incorporate seed. If seed is relay planted, you can broadcast it before the final cultivation. If you plant

Quick facts: Hairy vetch

Common names	Hairy vetch, woolypod vetch, winter vetch
Hardiness zone	4 (see Figure 1)
pH tolerance	4.9–8.2; optimum is 6.0–7.0
Best soil type	Wide range if drainage is adequate
Flood tolerance	Moderate
Drought tolerance	Moderate
Shade tolerance	Moderate
Mowing tolerance	Before flowering: high. During flowering: moderate if mown high, low if mown close.
Dry matter accumulation	2.2 tons/acre
N accumulation	140 lb N/acre
N to following crop	Half of accumulated N
Uses	Winter cover crop in rotations or selfregenerating cover in orchards to smother spring weeds, fix N, and improve tillth. Often grown with cereal grains. Tolerates frozen soil.
Cautions	Can become a weed in annual rotations due to hard seed or when plants escape spring field operations and go to seed. Avoid in vineyards—may climb trellises.

before the fall rains begin, the crop will benefit from irrigation during germination and early growth.

Hairy vetch roots need to be colonized by an *appropriate* strain of rhizobia bacteria to be able to convert atmospheric nitrogen into plant-available forms. Generally, it's not necessary to inoculate seed in Oregon because the bacteria are present in the soil. If you choose to inoculate, you might plant a small section of the field with raw (non-inoculated) seed and watch for differences in growth.

Usually, hairy vetch is incorporated when it begins to flower. Due to its rapid spring growth, delaying incorporation just 1 or 2 weeks can increase dry matter and N accumulation considerably.

Mowing before incorporation prevents tillage implements from becoming entangled by the viny stems. In general, flail and rotary mowers work well. Incorporation without mowing can be done with rotovators, heavy disk harrows, or power spaders. Vetch residues are succulent and decompose quickly.

Hairy vetch tolerates close mowing before flowering and high mowing during flowering. Close mowing during peak flowering may kill it.

In western Oregon, planting hairy vetch in mixtures with a cereal improves winter weed suppression.

Some spring cereal varieties are likely to winter-kill if planted in early September, allowing the vetch to grow without competition in spring. Winter-kill susceptibility varies greatly

among varieties. Cereals or grasses that do not winter-kill provide structural support for hairy vetch vines, preventing them from rotting by reducing contact with the soil.

Hairy vetch lowers the overall C:N ratio of vetch/cereal mixtures, speeding decomposition and decreasing competition from soil bacteria for plant-available N during the early summer growing season.

Because of hairy vetch's hard seeds and ability to reseed, it can become a serious weed problem in annual vegetable rotations. Many growers prefer to use common vetch because it has fewer hard seeds.

On the other hand, the tendency to reseed is beneficial when hairy vetch is used as part of a permanent cover in orchards. When mowing in spring, let some strips go to seed.

Pest interactions

Incorporation of succulent common vetch residues often causes a sharp increase in soil-borne pathogen populations, especially damping-off fungi (e.g., *pythium*). If susceptible seed is planted shortly after incorporation, you may have more problems with this disease. Avoid this problem by waiting several weeks between residue incorporation and planting. Also, be sure that soil temperature and seedbed preparation are optimal for rapid crop seedling emergence.

Hairy vetch sustains relatively high densities of seven-spotted lady beetle and bigeyed bugs, which prey on agricultural pests. However, the mowing that typically is needed before incorporation is likely to kill or disperse most of these insects. Using conservation-tillage methods or

leaving remnant strips of hairy vetch may help protect beneficial insects.

Hairy vetch can harbor aphids and tarnished plant bug. The tarnished plant bug probably causes little damage to the cover crop but may disperse to become an orchard pest.

Hairy vetch is susceptible to root-knot nematodes (*Meloidogyne* spp.) and soybean cyst nematodes (*Heterodera glycines*). Its use may result in a buildup of these nematodes, resulting in losses to subsequent susceptible summer row crops such as potatoes.

Varieties/cultivars

'Madison' was developed in Nebraska and is very cold-tolerant. The cultivars 'Auburn,' 'Oregon,' and 'Lana,' formerly classified as *Vicia dasycarpa*, are more heat-tolerant and do well in areas with mild winters, such as western Oregon.

For more information

World Wide Web

Orchard floor management information—<http://www.orst.edu/dept/hort/weeds/floormgt.htm>

OSU Extension Service publications—ees.orst.edu

The University of California, Davis cover crop information—<http://www.sarep.ucdavis.edu/sarep/ccrop/>

Oregon Cover Crop Handbook

This publication also is part of *Using Cover Crops in Oregon*, EM 8704, which contains an overview of cover crop usage and descriptions of 13 individual cover crops. To order copies of EM 8704, send your request and \$5.50 per copy to:

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Figure 1.—Oregon plant hardiness zone map. Hairy vetch normally will survive in **Zone 4** or any warmer zone. (Extracted from the USDA's national plant hardiness zone map, based on average annual minimum temperature in °F.)
Zone 4 = -30 to -20; Zone 5 = -20 to -10
Zone 6 = -10 to 0; Zone 7 = 0 to 10
Zone 8 = 10 to 20; Zone 9 = 20 to 30

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