



# Cover Crops for the Columbia Basin

## Hairy vetch

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Hairy vetch cover crops can supply most or all of the nitrogen needed by many crops. Winter hardy and fast growing in the spring, hairy vetch can be used as a weed-suppressing mulch or as a green manure. Described below are recommended practices for growing hairy vetch in the Columbia Basin.

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### Uses

- *Nitrogen source for main crops:* A green manure crop of hairy vetch can provide from 80-250 lbs nitrogen per acre. Approximately half of this will be available to the following crop. To maximize N fixation, wait as long as possible in the spring before killing the vetch.
- *Mulch for main crop:* When left on the surface, a hairy vetch mulch can conserve moisture, suppress weeds, and supply some nitrogen to the following direct seeded crop. The nitrogen benefits may not be as great as with a green manure in arid climates like the Columbia Basin. In this type of a system, the soil stays cooler under the mulch, which may require later plantings of heat-loving crops.
- *Soil quality improvements:* Hairy vetch green manure will not increase the long-term organic matter levels because it decomposes so rapidly. However, in mixtures with a cereal grain, hairy vetch will prevent nitrogen immobilization while the cereal residues will improve the soil organic matter and related soil quality characteristics.

### Crop Characteristics and Requirements

Hairy vetch (*Vicia villosa*), also called winter or wooly pod vetch, is an annual legume.

#### Growth

Hairy vetch grows slowly in the fall and winter, but rapidly in the spring. Each plant produces from 3-10 weak stems, up to 8 ft. long. It will not exceed 3 ft. in height unless supported by another crop.

*Biomass* 2300-5000 lbs per acre

*Soil pH* 5.5-7.5, optimum 6.0-7.0

### Temperature

Hairy vetch is winter hardy in the Columbia Basin, especially in mixtures with cereal grains, and if Madison types are planted.

### Herbicide Sensitivity

Glyphosate is only somewhat effective against hairy vetch, while paraquat, 2,4-D, dicamba, and triazines will kill it.

### Management

#### Seeding Method and Rate

*Broadcast:* 30-40 lbs per acre

*Drilled:* 20-30 lbs per acre.

Use higher seeding rates to compensate for later seedings.

#### Seeding Depth

Drill or incorporate ½-1 ½" deep

#### Seeding Dates

From August 15 to September 15 with earlier seedings giving better results.

#### Innoculation

Requires pea/vetch inoculant or previous vetch production for maximum N fixation.

#### Varieties and Sources

Use Madison or winter hardy types, not those grown for W. Oregon or California use. Commonly contains from 15-30% hard seed. About 28,000 seeds/lb. Remains viable for 5 years or more.

#### Mixtures

Hairy vetch is often grown with wheat, oat, or rye. These combinations provide the early season growth and cover of the cereal grains and the nitrogen contribution of the vetch. The upright grains also provide support for the vetch stems and protection in the winter. For mixtures, reduce the vetch seeding rate by 25% and the grain seeding rate by 50% from those used for pure stands.

### *Fertilization*

Hairy vetch cover crops do not usually require fertilization unless the field has a severe P or K deficiency.

### *Weed control*

Hairy vetch, fall planted into a weed free seedbed, will not normally require any weed control.

### *Incorporation*

A heavy disk harrow or moldboard plow can incorporate a hairy vetch crop. Lighter implements may be used if the crop is first flail mowed or sprayed out with an herbicide. It is usually incorporated at early bloom. Cutting hairy vetch close to the ground at bloom stage will usually kill it.

### *Mulch*

Hairy vetch can be used as a mulch for no-till plantings. Mechanical kill options include rotary mowing, flailing, cutting, undercutting, or chopping/flattening with a rolling stalk chopper. Herbicide options include spraying out strips or the whole crop, before or after direct seeding.

### **Possible Problems**

*With insects:* Hairy vetch can harbor aphids, tarnished plant bugs, armyworms, and cutworms. These can be pests in following or nearby crops.

*With nematodes:* Hairy vetch is a host for the following nematodes: Root-knot (*Meloidogyne* spp.), Alfalfa stem (*Ditylenchus dipsaci*), Beet cyst (*Heterodera* spp.), Root-lesion (*Pratylenchus* spp.), Stubby-root (*Trichodorus christiei*), and Dagger (*Xiphinema americanum*).

*With diseases:* *Pythium* (damping-off fungi) growth may be stimulated by incorporation of succulent vetch residues. To avoid this, wait several weeks after incorporation before planting a subsequent crop.

*With weeds:* Hairy vetch can become a weed in following cereal grains because of its hard seed.

*With livestock:* Hairy vetch can be grazed but there are better choices for forage. The seeds of hairy vetch can be poisonous to livestock.

### **Comments**

- Hairy vetch provides a good habitat for Seven-spotted lady beetles and big-eyed bugs, both beneficial insects. However, if the vetch crop is incorporated, the insects will be killed or dispersed. Leaving some or all of the vetch cover on the surface will protect the beneficials so that they can prey on pests.
- You can reduce your seed costs by harvesting your own seed. Harvest the seed when the lower seeds begin to shatter out of the pods. After harvest the seeds need to be dried well. Yields range from 300-700 lbs/acre. When planted with a small grain, the crops can be harvested together and then separated using a spiral cleaner.

### **Sources**

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**This publication and other cover crop information is available online at <http://grant-adams.wsu.edu>**

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