



COMMON VETCH (*Vicia sativa* L.)

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Common vetch is a viny, succulent, annual legume attaining a height of 24 inches when planted alone. It grows taller when planted with a tall companion crop that provides structural support for climbing. Stems are thin, branched, and usually smooth. Leaves are composed of 4 to 10 paired leaflets, terminate with a tendril, and usually are smooth. Leaflets are broader and appear more succulent than those of hairy vetch. Common vetch has a taproot that can reach depths of 3 to 5 feet.

Common vetch flowers from April to May and ripens seed from mid- to late June. Flowers are violet-purple or sometimes white. Relatively large (approximately 7,000 seeds/lb), smooth, spherical seeds develop in small brown pods. Seeds are brownish, dull gray, or black. Unlike hairy vetch, common vetch is not hardseeded and therefore is less likely to become a weed problem if plants escape at field edges or go to seed before incorporation.

The winter growth rate of common vetch is intermediate and is greater than that of hairy vetch in western Oregon. In general, however, growth is slow during cool weather, and rapid in warm spring temperatures.

Environmental preferences and limitations

Common vetch is moderately resistant to cold. It usually overwinters in western Oregon where winters are mild and minimum annual temperatures are above 10°F. It is likely to winter-kill in eastern Oregon.

Common vetch grows on a wide range of soils. It does well on loams, sandy loams, or gravelly soils, as well as on fine-textured clay soils as long as there is good drainage. Although common vetch tolerates short periods of saturated soils, it does not tolerate extended flooding.

Common vetch tolerates pH of 5.5–8.2, but optimum pH is 6.5. Common vetch is somewhat shade-tolerant but does not do well when relay interplanted into tall-statured vegetable crops such as sweet corn.

Uses

Common vetch is used as a cover crop, green manure, pasture, silage, and hay. Its high dry matter and nitrogen accumulation, and the absence of hard seeds, make it an excellent winter leguminous cover crop in annual vegetable rotations. When planted alone, it can provide substantial amounts of N to the following crop.

Common vetch offers excellent spring weed suppression. It also grows well in mixtures with cereal grains that can provide both cool-weather weed suppression and fall N scavenging.

Common vetch has been used successfully as a cover crop in vineyards and orchards. In vineyards, common vetch is less likely to climb trellises than hairy vetch.

Dry matter and N accumulation

Fall planting date, weather, and choice of companion cereal crop, if any, can influence the quantity of vetch dry matter and N accumulation by spring. Since much of vetch's growth occurs in April and May, the longer the crop is allowed to grow before killing it in the spring, the more N is accumulated in plant tissues.

The N content of dry vetch residues varies from 2.5 to 3.2 percent. Nitrogen quantities in above-ground biomass of vetch grown in mixtures with cereal cover crops in the Willamette Valley range from approximately 50 lb/acre in mid-April to 120 lb/acre in mid-May.

Management

Suggested monoculture seeding rates are 60–75 lb/acre. When grown with cereals, reduce the rate to 40–50 lb/acre. Suggested seeding dates for maximum winter-hardiness range from mid-September to mid-October.

Quick facts: Common vetch

Common names	Common vetch, spring vetch
Hardiness zone	8 (see Figure 1)
pH tolerance	5.5–8.2; optimum is 6.5
Best soil type	Wide range with adequate drainage
Flood tolerance	Low
Drought tolerance	Low
Shade tolerance	Moderate
Mowing tolerance	Before flowering: high. During flowering: moderate if mown high, low if mown close
Dry matter accumulation	2–3 tons/acre
N accumulation	50–120 lb/acre
N to following crop	Approximately half of accumulated N
Uses	Use as winter cover crop in annual rotations and in orchards and vineyards to smother spring weeds, fix N, and improve tilth. Often grown with cereal grains.
Cautions	May climb trellises.

Best stand establishment is obtained when seed is drilled $\frac{1}{4}$ to 1 inch deep into a firm, well prepared seedbed. Alternative seeding methods that can reduce seedbed preparation but require higher seeding rates are: drill into a rough seedbed prepared by disking, or broadcast over a rough or smooth seedbed and then disk lightly to cover the seed. If the soil is dry, irrigate or plant before a fall rain.

Common 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, inoculation of seed is not necessary 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.

Common vetch tolerates close mowing before flowering and high mowing during flowering. Close mowing during peak flowering may kill common vetch.

Mowing before incorporation in spring prevents tillage implements from becoming entangled by the viny stems. Flailed vetch/cereal cover crops also have been used as a weed-suppressive, moisture-conserving mulch in strip-tillage systems.

Vetch residues are succulent and decompose quickly. The decomposition rate for residues from cereal/common vetch mixtures varies

depending on the relative percentage of each.

In western Oregon, planting common vetch in mixtures with a cereal greatly improves winter weed suppression compared to a monoculture of either. Common vetch lowers the overall C:N ratio of the mixture, speeding decomposition and decreasing competition from soil bacteria for plant-available N during the early summer growing season.

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 common vetch vines, preventing them from rotting by reducing their contact with the soil.

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, disease incidence may increase. Avoid this problem by waiting several weeks after residue incorporation to plant, and by ensuring that soil temperature and seedbed preparation are optimal for rapid summer crop seedling emergence.

In a study in southern Oregon, orchards with vetch cover crops were particularly prone to outbreaks of twospotted spider mite

(*Tetranychus urticae* Koch). Application of herbicides increased the movement of mites into trees.

Common vetch has extrafloral nectaries on its stipules, the leaf-like structures at the base of the leaf petioles. Extrafloral nectar is available to short-tongued insects that do not have access to the nectar of legume flowers. Both beneficial and pest insects (e.g., lygus bug) feed on extrafloral nectar.

Varieties/cultivars

Common vetch usually is available on a generic basis; however, the variety 'Willamette' has been reported as having special cold tolerance.

For more information

World Wide Web

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

OSU Extension Service publications—eesc.orst.edu

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

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Figure 1.—Oregon plant hardiness zone map. Common vetch normally will survive in Zone 8 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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