Crownvetch

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Crownvetch (Coronilla varia L.) is a long-lived, winter hardy, perennial, herbaceous legume with an underground spreading root system. It has long been used in perennial flower gardens because of its beautiful profuse summer bloom. It has gained wide recognition as a conservation plant for slope stabilization. In recent years it has shown promise as a forage plant.

Crownvetch is native to middle and southern Europe, the Middle East and North Africa. It is believed to have been introduced into North America as a perennial flower plant. Plants and seed were distributed by commercial nurseries between 1890 and 1930. Thus, crownvetch is frequently found throughout the central and northern states where it escaped from home plantings.

Uses and Areas of Adaptation

Crownvetch has been used extensively for slope stabilization and beautification along highways, on farm pond fill slopes, and for spoil bank reclamation. Recent research results show crownvetch to be promising on many soils for hay and pasture to complement other forage grasses and legumes. It responds best on soils with good surface and internal drainage. However, it has also shown considerable heaving and drought tolerance on fragipan soils. Crownvetch appears quite free of disease and insects.

Cultivars (Varieties) Recommended

The cultivars (varieties) are now certified -- Penngift, Chemung, and Emerald. Penngift was registered in Pennsylvania and released in 1954. It has finer stems and leaves, is shorter and less erect than the other two. It has been used widely for slope stabilization. Chemung is a New York cultivar. Iowa released Emerald in 1961. The latter two have more seedling vigor and are taller growing than Penngift.

All three cultivars are recommended for pasture, slope stabilization and beautification. Emerald and Chemung are recommended for hay and pasture.

Seed Sources

Seed has been difficult to obtain in quantity at a reasonable price. Scarcity of seed is probably the main reason for the delay in evaluating crownvetch for forage usage. Even though more seed is produced each year, the price of seed remains high. Certified seed of Emerald is being grown in Indiana. For seed sources, write to the Indiana Crop Improvement Association, RR 6, Box 25, Lafayette, Indiana 47905.

Getting a Stand

Since crownvetch does not possess the seedling vigor of alfalfa or red...
Figure 1. Crownvetch roadside slope stabilization on the Southern Indiana Rorage Farm. A 10 ft. width plot was seeded in 1954. Ten years later it had spread a distance of 75 feet through a heavy stand of tall fescue.

clover, special care should be taken during the seeding year to obtain stands.

Fertilization -- Obtain soil test samples before seeding crownvetch and follow soil test recommendations for lime, P and K. Lime to a pH range of 6.5 to 7.0. Lime and fertilizer, except that used when band seeding, should be applied well ahead of seedbed preparation and disced in. Do not apply nitrogen, because it increases the competition from weeds and grass.

Cultural and seeding methods -- If using a sod field, fall plow to gain a better kill. Band seed on a firm seedbed using 100 pounds per acre of 0-20-20 in the band. Do not let seed contact the fertilizer band. Equip drill with press wheels to firm soil in the immediate vicinity of the seed. If crusting is not a hazard, a cultipacker may be used successfully in establishment. Within two years, as few as two plants per square yard will usually develop into a full stand.

Seed and mixtures -- Crownvetch contains about 110,000 seeds per pound. This amount will average 2.5 seed per square foot when seeded over an acre. Seed may range from 60 to 90 percent viable, with as much as 10 to 70 percent of the seed hard. Scarification greatly reduces the amount of hard seed. Crownvetch requires special inoculum. Poorly inoculated seed may result in very pale green, non-vigorous plants the first year.

On southern Indiana fragipan soils, crownvetch is very competitive with tall fescue, orchardgrass, bluegrass and reed canarygrass when managed for hay.

Seeding rate and time -- Seed 5 to 10 pounds per acre of crownvetch alone or in combination with either tall fescue (7 pounds), orchardgrass (5 pounds), or reed canarygrass (5 pounds) for hay or pasture. A light seeding rate of the grass favors crownvetch establishment. Use 10 pounds per acre or more of crownvetch seed for slope control with two tons per acre of straw mulch. Seed in spring or early summer without a companion crop.

Herbicides -- For information write to Botany and Plant Pathology Department, Purdue University, Lafayette, Indiana 47907.

Management for:

Hay -- Rank growth and high moisture content make crownvetch somewhat more difficult to cure than other crops, especially the spring growth. Because crownvetch recovers more slowly than alfalfa and starts dormancy earlier in the fall, use a two cut hay system. Hay yields of 3 1/2 to 4 tons per acre have been obtained at the Southern Indiana Forage Farm. Somewhat greater yields should be possible on well drained soils. The tall heavy crownvetch growth greatly thins tall fescue and orchardgrass stands. However, reed canarygrass competes very well since the upper leaves extend above the crownvetch canopy.

Pasture -- Crownvetch appears to have pasture potential on well drained soils. It has shown excellent vigor,
persistance and spreading ability on such soils as Fairmount and Frederick silt loams. It is best not to graze closer than three inches and allow a rest period for regrowth after each defoliation. However, on fragipan soils, crownvetch stands thinned and tended to disappear under grazing.

Slope stabilization -- Once established on a slope crownvetch requires little maintenance since it is strongly perennial. It competes with and dominates practically all other types of vegetation. Stands of 15 years or more are still very vigorous and beautiful during the growing season.

Spoil bank reclamation -- Crownvetch is highly recommended for this purpose especially where the spoils include natural lime formations. Acid spoils may require several years of weathering before crownvetch establishment is attempted.

Forage Quality

No bloat or animal losses have been reported from the use of crownvetch. Beef cows consume crownvetch hay as readily as other hays. Protein content equals alfalfa depending on stage of growth. Some animal feeding trials show crownvetch equal to alfalfa. However, in general, animal performance from crownvetch is somewhat less than that from alfalfa.

For Crownvetch Seed Production see AY - 178.