UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
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AGRONOMY #30 (Rev.)

CROWNVETCH AS A FORAGE CROP

The information in this technical note will be useful when planning forage systems. Crownvetch does not replace other legumes in the forage system, but compliments them.

This technical note replaces Agronomy Technical Note #30, "Crownvetch for Forage" dated January 18, 1967. Discard all copies of it.

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Attachment

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TECHNICAL NOTES

CROWNVETCH AS A FORAGE CROP

The greatest use of crownvetch as forage will probably be for pasture on shallow, low fertility soils. It may also be a useful forage plant on other soils, especially well drained sites that are not well suited for alfalfa. Crownvetch is tolerant to both moderately acid and low fertility soils, but it responds to both lime and fertilizer where soil tests indicate a need.

As a non-bloating legume, the number one forage use for crownvetch appears to be pasture for beef and dairy cows and heifers. Research in Ohio, North Carolina, and Pennsylvania and at the USDA station in Beltsville indicates that beef cows, dairy heifers, and sheep all do well on crownvetch pasture.

North Carolina grazing studies, for example, show dairy heifers consumed more forage and gained more weight per day on crownvetch pasture than on alfalfa. In other North Carolina trials beef cows and calves readily grazed mature growth of crownvetch and made good gains.

Steer gains on crownvetch pasture have been even better in Ohio and Pennsylvania studies. In a Penn State University study medium weight steers stocked at one animal unit per acre gained an average of 2.4 pounds per day over a 54 day period, grazing aftermath crownvetch pasture.

Crownvetch is more difficult to cure as hay than other forage crops. It wilts slowly even under ideal weather conditions for drying. Since drying is a problem, if it is to be preserved as hay, artificial drying methods will likely be necessary. If used as silage, haylage, or pasture, the drying problem will be bypassed.

Crownvetch looks good for silage. In a Penn State University study conducted by Animal Science researchers low moisture silage made from first cutting crownvetch compared favorably with alfalfa in terms of nutritive value, daily gain and animal acceptance. Other studies also indicate that crownvetch and alfalfa harvested at similar stages of maturity are similar in feed value whether preserved as wilted or low moisture silage or as hay.

Voluntary intake of crownvetch by cattle and sheep is comparable to other legumes after the animals become accustomed to grazing it.

Most studies suggest rotational grazing for managing crownvetch pasture. Pennsylvania and Ohio studies reveal cases where the stands thinned out after three to five years of grazing. Further study is needed to determine yield and persistence under grazing conditions.

Crownvetch yields are comparable to birdsfoot trefoil and red clover and about 80 to 90 percent of the better alfalfa varieties under similar conditions of fertility and management. Yields of Chemung, Emerald and Penngift, the three commercial varieties of crownvetch, are similar.

Comparisons between species such as crownvetch, Trefoil and alfalfa are sometimes misleading. We should learn to use various forage crops to compliment each other and not have them compete in a forage system. Crownvetch does not start growth as early in the spring or grow as late in the fall as some forage legumes do. It is later in maturing than alfalfa or red clover.

Successful establishment of crownvetch requires careful attention to seedbed preparation, weed control, and proper inoculant, as do other legumes. At least 10 pounds of crownvetch seed should be applied per acre. Germination and initial seedling growth are slower than that of other legumes such as alfalfa and red clover. Severe competition from weeds, grasses, or companion crops is detrimental in the seedling stage. Seed must be inoculated with inoculant specific for crownvetch for satisfactory growth.

For best results, where no grass is included, use EPTC (Eptam) for controlling annual grass and weeds and nutsedge. Follow the directions and comply with all precautions shown on the container label by the manufacturer.

Reasonably good stands of crownvetch have been obtained on soils rather low in pH (5.0 to 5.5). However, for best growth, especially where the crop is to be harvested as forage, the application of sufficient lime to raise the pH to at least 6.0 to 6.5 prior to seeding is desirable. A soil test in the best guide.

Crownvetch does not appear as responsive as other legumes to direct applications of fertilizer. Nevertheless, when crownvetch is grown for forage a high phosphorus complete fertilizer such as 200 pounds of a 10-30-10 at seeding time is essential. In absence of a soil test, 400 to 600 pounds of 0-20-20 or its equivalent worked in prior to seeding is suggested. Annual applications of 400 pounds of 0-10-30 fertilizer or its equivalent on stands that are being harvested or grazed is suggested.

Introducing crownvetch into old grass sod or sod seeding is a new idea that has promise. Excellent results have been experienced from seeding both crownvetch and birdsfoot trefoil in old bluegrass sod in Maryland. Other states have also reported encouraging results. Suppressing the existing vegetation is of critical importance if sod seeding is to be successful. The chemical Paraquat applied prior to or at seeding has looked good; however, use of other chemicals is being studied. It appears that for most conditions a special sod seeding equipment should be used.

Harvest schedules that maintain a stand and maximize forage production are being tried. Removing first harvest about 10 to 14 days after first flower appearance, with a second harvest eight to nine weeks later, appears to be one of the most promising harvest schedules. In a single trial evaluation over a three year period, harvesting crownvetch three and four time during the season resulted in severe stand reduction.

The digestibility of crownvetch at late bud growth stage was 64 percent and decreased at a rate of about one-half percent per day until full bloom. No consistent digestibility differences among varieties has been observed. Crude protein percentages averaged about 21 percent at late bud stage of growth and 18 percent at full bloom. In second harvest crude protein averaged about 22 percent.