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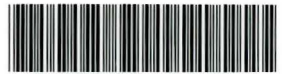
Red Clover

Nebraska



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Red Clover In Nebraska

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Growing interest in red clover culture in Nebraska, is due largely to three causes--(1) increasing acidity of the soil in southeastern Nebraska, (2) increased interest in soil conservation, and (3) damaging effects of sweetclover weevil. Red clover is somewhat more tolerant of acid soils than is sweetclover and can be established more easily on such soils. In the soil conservation program, red clover is thought to be superior because of its more fibrous root system which may give the soil more resistance to erosion. Heavy losses of sweetclover seedlings from damage by sweetclover weevil has renewed interest in red clover. Though good materials are available for sweetclover weevil control, some farmers are reluctant to lay out the cash or to take the time to apply the chemicals.

Adaptation of Red Clover.

Red Clover is not as drouth resistant as sweetclover and alfalfa. It does fairly well in Nebraska on the acid soils of the southeast, high lime soils of the northeast, and on irrigated land farther west; however, it makes its best growth on fertile, well drained soils containing an abundance of lime. The addition of phosphorus is necessary on most soils. So-called clover failure, the partial or complete loss of stands either in the seeding year or second year, may be caused by an unfavorable soil condition. Soil samples should be tested to find out whether the addition of lime, phosphate, and potash, alone or in combination, will solve the soil difficulty and insure a good stand. Well-fed clover will yield high quality forage and result in better soil improvement; crops which follow well-fed clover in the rotation will also benefit.

Red clover is an important constituent of hay produced in the wet meadow lands in the sandhills. In this area the red clover, along with Alsike clover, adds greatly to the nutrient value of the native hays by increasing their protein content.

Value for Soil Improvement

The growing of red clover, like other legumes, adds, nitrogen to the soil. This is accomplished by a special type of bacteria which live on the roots of the clover and convert the nitrogen of the air into a form usable by plants. The nitrogen is stored in "nodules" attached to the roots of the clover. This function of legumes is extremely important since nitrogen is required in large quantities by all crop plants. It is also the primary constituent of protein feeds which are essential to live-stock production. Without an abundance of soil nitrogen, crop yields are low, and the nutritional value of feeds, including grass, is low.

Red clover adds less nitrogen to the soil in its two year's growth than does biennial sweetclover. Likewise first-year red clover adds much less nitrogen to the soil than does first-year biennial sweetclover under comparable conditions. The amount added by two years of red clover under favorable growing conditions, however, is sufficient to permit satisfactory yields of following grain crops with a limited carry-over to the succeeding crop.

Choice of Varieties or Strains

Not all red clover strains are adapted to Nebraska conditions. Some strains lack winter hardiness, others are susceptible to diseases. European strains in general, are not sufficiently winter hardy for safe planting in the cornbelt area. This is true also of most South American strains, and of strains produced in the southern or west coast states. Canadian strains, although winter hardy, are not adapted to Nebraska because of their low yields in this area. The Canadian strains were developed under the long days of that region. Thus, they make a less vigorous growth in shorter day regions such as the cornbelt.

Federal legislation requires that red clover seed imported into the United States must be stained. Seed from all foreign countries except South America and

Canada must be stained 10% red. Seed from South America must be colored 10% orange-red and seed from Canada 1% violet. Seed of mixed or unestablished origin must also be stained 10% red. This requirement helps to protect the seed purchaser against the danger of using unadapted seed.

Midland and Kenland are two newer varieties which have been slightly superior in yield to common red clover. Both are eligible for certification in Nebraska. Midland is a composite of four old strains from Illinois, Ohio, Indiana, and Iowa and was originally called Central Corn Belt Blend. Kenland is of Kentucky origin. Midland and Kenland are winter hardy and have improved disease resistance over common red clover. In recent Nebraska tests hay yields of Midland have exceeded Kenland by 6% and Common by 7%.

Common red clover is the standard clover grown throughout the cornbelt. Its characteristics vary and sometimes it yields less than the new, recently developed strains. It is more susceptible to red clover diseases such as anthracnose. In each state a common strain is generally available which has been used with good success in the crop rotation.

When non-certified seed is used, it is important to make certain that the seed is of an established strain. It should be one that has given a good performance over a period of years in a territory similar to that in which the seed is to be planted.

Seeding Practices.

Red clover may be seeded anytime during the spring, summer or early fall months. It is usually seeded as early in the spring as weather and soil conditions permit. Red clover is generally planted with oats or barley in the spring on disced corn stalk land. In southeastern Nebraska, red clover is sometimes seeded in the spring on winter wheat established the previous fall. Red clover should be seeded at the rate of 10 to 12 pounds per acre, and the nurse crop at 1 to 2 bushels per acre. The most uniform rate of seeding of the clover is obtained if a regular grass and legume seeder is used.

Five pounds of brome per acre seeded with red clover helps build up soil organic matter, decreases erosion, and will furnish excellent pasture, hay, or seed crops during the third and fourth year following seeding.

Red clover seed should be inoculated before planting. Nitrogen-fixing bacteria cannot tolerate soil acidity; consequently, it is advisable to inoculate red clover each time seedings are made on acid soil. Proper inoculation material, together with instructions for its use, can be obtained from most hardware, feed, or seed stores.

Red clover has somewhat less seedling vigor than sweetclover. For this reason, stands of red clover are more difficult to establish in dry seasons.

Handling the First-Year's Growth.

When red clover is seeded with oats, some farmers use the combination seeding for pasture. This seems to improve the chances for getting a good stand of clover if close grazing is avoided. Usually no great amount of hay, pasture or seed can be expected from the first-year's growth of red clover. Where the clover seedlings are likely to be smothered by the nurse crop, it may be advisable to harvest the nurse crop before it is fully ripe. Leaving a high stubble will afford some protection to the clover seedlings from the sun and drying winds.

Occasionally red clover will produce a fair seed crop the same year it is sown. This will be worth harvesting if as many as 25 to 30 seeds per head can be counted.

Handling the Second-Year Crop.

Second-year red clover starts early in the spring and blossoms in June. Highest yields of hay are obtained when the clover is cut at the full bloom stage. A better quality of hay is obtained if the clover is harvested considerably in advance of maturity. However, cutting the clover at a very immature stage seriously reduces

yields. Late cutting results in a hay of poor quality, deficient in protein and low in palatability. A high percentage of such hay is wasted when offered to livestock. Good quality red clover hay has a feeding value nearly equal to alfalfa. Early cut clover hay may contain as much as 10 to 12% protein, whereas late cut hay may be as low as 6% in protein.

Late cutting of red clover also results in a reduced seed yield from the following crop. Considering tonnage, quality of hay, and yield of seed, it is best to cut the hay crop at the one-third to one-half bloom stage. This permits better development of the second growth and usually a better seed yield. Where injurious insects are prevalent, early cutting of the hay crop tends to control such insects as the chalcid fly and the clover midge.

Conditions Suitable for a Good Set of Seed.

Weather and soil conditions which favor a luxuriant second growth, are usually not suitable for the best set of seed. On the other hand, extreme drouthy conditions also result in poor seed yields. A good recovery of the second growth, and an abundance of sunshine without too much heat at the time seed is setting, are favorable to a good set of seed.

Bees are Needed for Good Seed Yield

Since the red clover flower is nearly self-sterile, seed production depends greatly upon insects for pollination. Honey bees and bumble bees are both of great importance in this respect. The presence of these and other types of bees is essential to a good seed set. Hives of honey bees placed near the red clover fields will aid in the set of the seed.

Harvesting and Processing the Seed Crop.

Clover is ready to harvest for seed when the heads have turned brown, and the seed is beginning to turn purple. The stem of the seed head turns yellow at this time. There should be as little handling of the crop as

possible in order to avoid shattering of the seed. Raking into windrows should be done as soon as possible after mowing. A "curler" attached to the mower is more satisfactory than a rake for windrowing for seed production. After the seed is thoroughly cured in the windrow, harvesting is commonly done with combines equipped with pickup attachments. This avoids moving the clover with forks and hay racks as was formerly done when the clover was threshed with hullers or grain threshers.

A good fanning mill is necessary for a thorough job of cleaning. Where such mills are not available on the farm, the job may be done by a custom cleaner. Very accurate and careful cleaning is necessary where noxious weed seeds are mixed with the clover seed.

Dodder, one of the most serious weeds in red clover, cannot be removed by ordinary cleaning equipment. Where any appreciable amount of dodder is present it may be advisable to dispose of the clover seed to an individual or firm that has the special equipment necessary for the separation of these seeds.

Weed Seeds Found in Red Clover.

When purchasing red clover seed, it should be made certain that it is free of noxious weed seed such as dodder, dock, red sorrel, hoary cress, Russian knapweed, and field bindweed. Common weed seeds often found in red clover are green, yellow and giant foxtail, barnyard grass, plantain, pigweed, Russian thistle, ragweed, crabgrass, and fireweed. Planting clean seed is an important weed control measure