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Dr. N. L. Taylor, University of Kentucky
Dr. W. C. Young, III, Oregon State University

Prepared by:

Dr. Garry Lacefield and Dr. Don Ball,
both Extension Agronomist/Professors,
University of Kentucky and Auburn
University, respectively

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P.O. Box 2042 • Salem, OR 97308-2402
503-370-7019 • Fax: 503-587-8063
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Red Clover

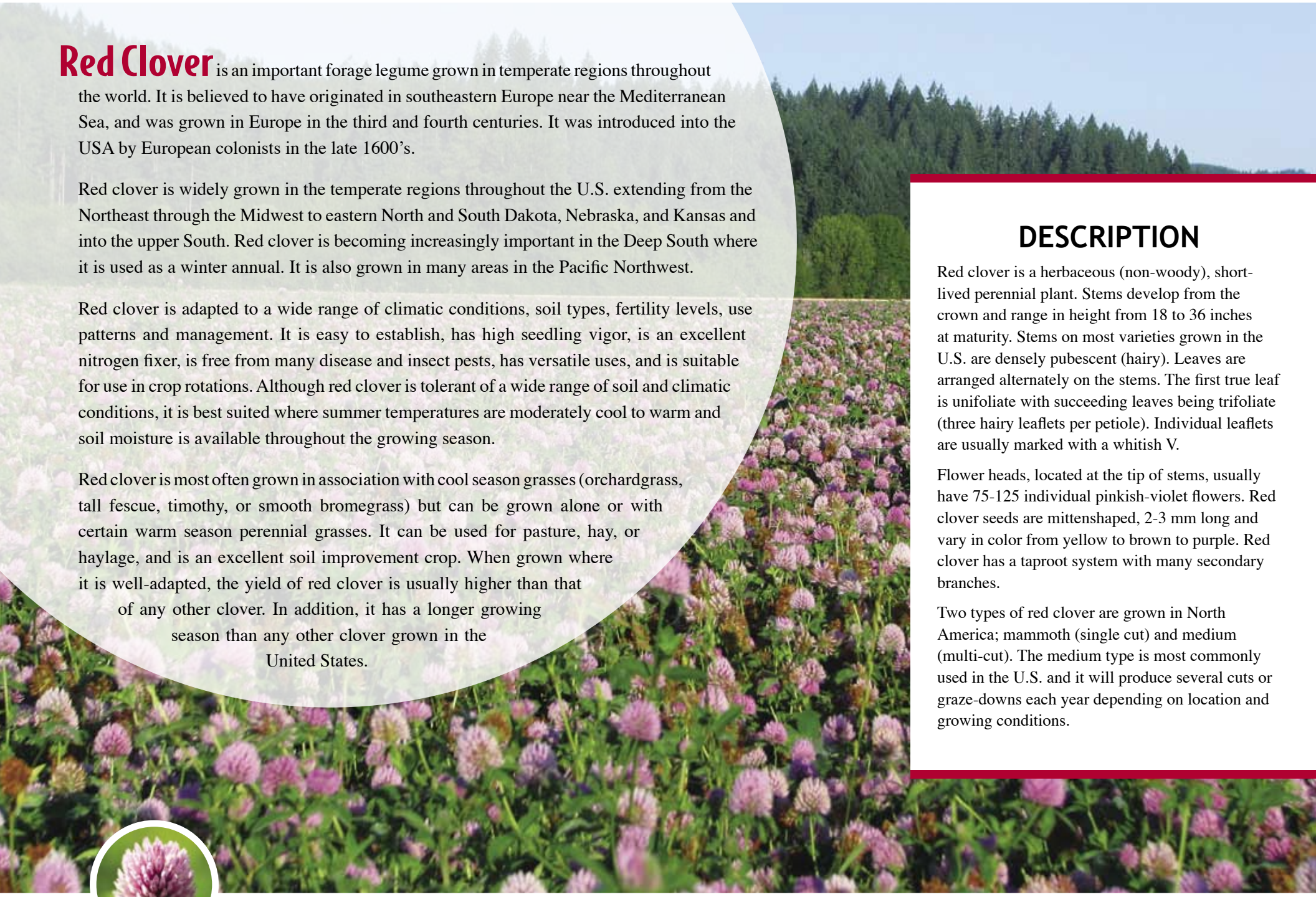
Quality Red Clover Seed From Oregon

Red Clover is an important forage legume grown in temperate regions throughout the world. It is believed to have originated in southeastern Europe near the Mediterranean Sea, and was grown in Europe in the third and fourth centuries. It was introduced into the USA by European colonists in the late 1600's.

Red clover is widely grown in the temperate regions throughout the U.S. extending from the Northeast through the Midwest to eastern North and South Dakota, Nebraska, and Kansas and into the upper South. Red clover is becoming increasingly important in the Deep South where it is used as a winter annual. It is also grown in many areas in the Pacific Northwest.

Red clover is adapted to a wide range of climatic conditions, soil types, fertility levels, use patterns and management. It is easy to establish, has high seedling vigor, is an excellent nitrogen fixer, is free from many disease and insect pests, has versatile uses, and is suitable for use in crop rotations. Although red clover is tolerant of a wide range of soil and climatic conditions, it is best suited where summer temperatures are moderately cool to warm and soil moisture is available throughout the growing season.

Red clover is most often grown in association with cool season grasses (orchardgrass, tall fescue, timothy, or smooth bromegrass) but can be grown alone or with certain warm season perennial grasses. It can be used for pasture, hay, or haylage, and is an excellent soil improvement crop. When grown where it is well-adapted, the yield of red clover is usually higher than that of any other clover. In addition, it has a longer growing season than any other clover grown in the United States.



DESCRIPTION

Red clover is a herbaceous (non-woody), short-lived perennial plant. Stems develop from the crown and range in height from 18 to 36 inches at maturity. Stems on most varieties grown in the U.S. are densely pubescent (hairy). Leaves are arranged alternately on the stems. The first true leaf is unifoliate with succeeding leaves being trifoliate (three hairy leaflets per petiole). Individual leaflets are usually marked with a whitish V.

Flower heads, located at the tip of stems, usually have 75-125 individual pinkish-violet flowers. Red clover seeds are mittenshaped, 2-3 mm long and vary in color from yellow to brown to purple. Red clover has a taproot system with many secondary branches.

Two types of red clover are grown in North America; mammoth (single cut) and medium (multi-cut). The medium type is most commonly used in the U.S. and it will produce several cuts or graze-downs each year depending on location and growing conditions.

ESTABLISHING THE CROP

The wide adaptation and excellent seedling vigor of red clover makes it one of the easiest forage legumes to establish. Despite its ease of establishment, certain principles and practices are important for success. These will be discussed, but readers should refer to state and local sources for specific recommendations for their area.

SOILS & FERTILITY: Red clover grows best on medium to well drained soils with adequate levels of fertility. The most important agronomic and economic investment in the overall fertility program is a soil test, which will indicate needs with regard to pH, phosphorus and potassium. Red clover yields better and stands last longer when grown on soils with at least medium levels of phosphorus and potassium. A pH of 6.2-6.5 is usually recommended for excellent yields and stand persistence. In some states certain minor elements are recommended. Refer to state recommendations for specific elements and rates. Application of nitrogen is not recommended when seeding red clover into grass. Nitrogen will stimulate the grass, thus providing more competition for the red clover seedlings during establishment.

VARIETIES: Red clover varieties with higher yield, better persistence, and greater pest resistance have been developed and released in the last decade by private and public plant breeders. Careful selection of the best variety from among the large number of varieties available can be one of the most important factors affecting yield, stand persistence, and potential profit. Several universities test red clover varieties in replicated, unbiased field studies. Results of such trials have shown remarkable differences among varieties. In Kentucky, over five tons of dry matter per acre difference was observed within fifteen months after seeding. Since new varieties are being developed and released each year, it is important to get the most recent state university variety test results for information on variety performance in your area.

SEED QUALITY: It is important to use good quality red clover seed.

SEEDING RATES: Seeding rates vary with geographic location, seeding method, and seeding mixtures. In general, rates of 6-12 lbs. per acre are recommended. The higher rates are used in pure stands, while the lower rates are used in mixtures and for certain renovation seedings. Red clover seed weighs approximately 60 pounds per bushel and there are about 270,000 seeds per pound.

SEEDING DEPTH: Ideal seeding depth is approximately 1/4 inch. Good seed-soil contact helps ensure establishment.

SEEDING DATE: Most red clover is seeded in late winter to early spring in the northern and central parts of the red clover belt. Autumn seedings are preferred in the Lower South.

SEED INOCULATION: If not pre-inoculated, red clover seed should be inoculated properly with the correct strain of bacteria before seeding.

SEEDING METHODS

Conventional seedbeds – Red clover can be seeded alone or in mixtures with grasses in prepared seedbeds using drills, a cultipacker seeder, or broadcast seeding. Since seed-soil contact is so important, use of a cultipacker should follow broadcast seeding.

Companion crops – Red clover can be seeded with small a grain companion crop in autumn. In the northern portion of the red clover belt, it can also be seeded in spring into established small grains. If seeding with or into small grains such as wheat, oats, barley or triticale, reducing the small grain seeding rate by 1/2-2/3 is advised to reduce competition.

No-till seedings – Red clover is usually the forage legume of choice for no-till planting into killed or weakened sod or crop residue.

Renovation seedings – Throughout much of the eastern U.S., red clover is mainly seeded into existing pasture (especially tall fescue) and/or hay fields. Research and farmer experience have shown that establishing red clover into a grass-dominant pasture or hay field can increase yields, improve quality, lower nitrogen fertilizer costs, improve summer production of cool season grass-dominant pastures and extend the grazing season. Keys to success with renovation seedings are similar to other establishment methods and include fertilizing as needed, suppressing existing vegetation (by grazing, close clipping, and/or use of herbicides), using high quality seed, inoculation of seed, planting at an appropriate time with the correct amount of seed, ensuring good seed-soil contact, and controlling pests.

PEST CONTROL: Fields should be monitored for pests (insects, diseases, weeds) during establishment. If problems arise, rapid identification of the problem and implementation of a control strategy is critical. Control strategies may include cultural practices such as mowing to suppress weeds or use of pesticides to control insects. Whenever pesticides are used, it is important to read and follow all label instructions.

The goal of establishment is to have rapid germination and emergence, quick ground cover and erosion control, and ultimately a dense stand of red clover with the desired amount of grass. High yields and high quality will not be achieved if a good stand is not obtained during establishment. The establishment principles mentioned will not guarantee success, but will increase the chances of success.

MANAGEMENT

Once established, a red clover/grass stand needs to be managed properly in order to obtain high yields, high quality and adequate stand persistence. Some important considerations are as follows:

FERTILITY: Adequate amounts of lime, nitrogen, phosphorus, potash and minor elements are needed to produce high yields of red clover and to maintain desirable stands. Nitrogen is supplied by nitrogen-fixing bacteria in nodules of properly inoculated red clover. Except for seed production and in certain geographic locations, minor elements are usually supplied in adequate quantities by the soil. In general, lime, phosphorus, and potassium are the critical elements for red clover-grass production. Red clover requires a higher pH, as well as more phosphorus and potassium than most grasses. With a 4 ton per acre yield of red clover-grass hay, about 140 pounds of nitrogen, 50 pounds of phosphorus and 200 pounds of potassium are removed. A soil test should be used as a guide in determining the amounts of fertilizer and lime needed.

PEST CONTROL: Pests including diseases, insects and weeds can reduce yield and quality, weaken stands, and kill plants. Various strategies can be used to combat various types of pests.

Diseases – PREVENTION is the first line of defense. Selecting varieties with disease resistance is the best disease control strategy. Good cultural practices and management can also keep disease presence low. Certain diseases such as powdery mildew can often be found on red clover and may weaken plants, but rarely will kill them. Timely harvest will reduce most foliar diseases.

Insects – Many insects can feed on red clover reducing yield and quality, weakening stands, and killing plants. Although many different insects may occasionally attack red clover, it is unusual for producers to have to spray an insecticide. If insect problems occur, early identification of the insect will permit cultural/chemical control on a timely basis.

Weeds – The best weed control is a vigorous red clover or red clover-grass stand. If necessary, red clover-grass stands can be mowed to remove grass seedheads and to suppress broadleaf weeds and woody vegetation.

HARVESTING:

Grazing – Red clover-grass pastures can provide high yielding, high quality grazing. Red clover will not tolerate continuous close grazing. Ideally, it should be grazed rotationally. Regardless of the rotation schedule, overgrazing should be avoided and pastures should not be grazed closer than 3 inches.

Hay/haylage – Red clover is a short-lived perennial crop. Production during the second year is usually higher than the first or third year. For the best compromise of yield-quality-persistence, the first cutting should be made at the early bloom stage. Additional cuttings should be made at early bloom with the last cutting coming off at least early enough to allow approximately 45 days before freeze-down. An additional harvest or grazing may be made after freeze-down.

ANIMAL DISORDERS

Red clover, especially when it is grown with a grass, is one of the safest of our forage legumes. Although bloat can occur, it is highly unlikely when animals are grazing a red clover-grass mixture. Occurrence of bloat is possible with a pure stand of red clover, when the pasture is lush and rapidly growing, or when extremely hungry animals are first turned on to a pasture.

There have been reports of reproductive problems in livestock (especially sheep) caused by high estrogen levels in red clover. However, this occurs only infrequently and is especially rare with red clover/ grass mixtures.

Hay made from the second or later cuttings may be unpalatable or cause slobbering by livestock. The specific cause is not known, but the slobbering appears to be associated with a plant disease called Black Patch caused by a fungus, Rhizoctonia leguminicola. Since the fungus is present in most red clover fields and no resistance is available, it is difficult to prevent infection. Historically this was more of a problem when red clover was cut only twice per year. Slobbers is usually not a problem with properly managed stands and is more of an inconvenience than a danger.