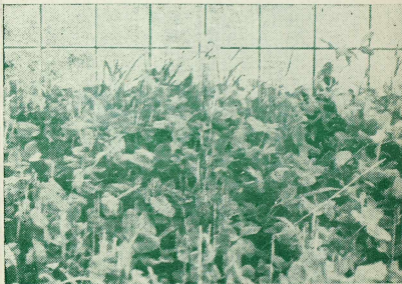


Circular 20

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"Circular (Alaska Agricultural Experiment  
Stations (U.S.))"

# Alaskland Red Clover



Alaskland red clover ready to go into the winter—Note clover  
is about same height as the 10-inch grain stubble.

University of Alaska

Alaska Agricultural Experiment Station

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DON L. IRWIN, DIRECTOR  
PALMER, ALASKA

COOPERATING WITH THE

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH ADMINISTRATION

# Alaskland Red Clover

by

H. J. Hodgson, William B. Wilder, and  
John E. Osguthorpe<sup>1</sup>

## INTRODUCTION

Since farming in Alaska first began and especially since dairy farming became the primary agricultural industry, there has existed a need for hardy legumes which would survive Alaska winters and produce satisfactory yields of high quality forage. To meet this need hundreds of legume species and strains have been introduced during the past 40 or more years. Almost all have lacked the necessary hardiness or have not been satisfactory agronomically. The release of Alaskland red clover in the spring of 1953 is the first time a hardy legume has been made available to growers in Alaska.

## HISTORY

Many introductions of red clover have been made since the establishment of the first experiment stations in Alaska. Most of these have failed because they lacked sufficient hardiness. In the spring of 1929 the Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, U. S. Department of Agriculture sent seed of 3 red clover strains to the Agricultural Experiment Station, Fairbanks, Alaska. They were mammoth (single cut<sup>2</sup>) types and their identification numbers and places of origin were as follows:

F. C. 15,757 Biisk, Siberia	Lat. 53N
F. C. 15,979 Bashkir Republic, Russia	Lat. 55N
F. C. 15,980 South Osinsk region, Kungursk District	Lat. 57N

These 3 introductions were planted on a south slope at Fairbanks. They survived the winter in excellent condition and made a vigorous growth the second year. Accurate records were not maintained in succeeding years, and it is not definitely known what disposition was made of these strains.

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<sup>2</sup> Mammoth or single cut red clover strains are those which produce only 1 cutting a year while medium or double cut red clover normally produces 2 cuttings a year.

The variety described in this circular traces to seed harvested in 1947 from plants which had survived for an unknown number of years in an old hay field at the Fairbanks Station. This seed was used for increase plantings in 1948 and since that time the strain has been referred to as Siberian or Russian red clover. Its remarkable similarity to descriptions of the 3 introductions listed above indicates that in all probability Alaskland red clover is a mixture of the germ-plasm contained therein. It also is probable that between 1929 and 1948 outcrossing occurred to other red clover varieties that have been tested in experimental plantings. In 1931 and 1942 seed of 12 additional single cut type Russian strains were sent to Alaska for testing. Some of these strains may have contributed characteristics required for adaptation. Alaskland red clover, therefore, probably has resulted from the combination of several strains followed by a period of natural selection in the environment prevailing at Fairbanks, Alaska.

## CHARACTERISTICS

Alaskland is a variety of the single cut type of red clover. Its outstanding attribute is winter-hardiness. Because of the diversity in parentage, Alaskland is extremely heterogeneous. No diseases have been indentified on this variety in Alaska, probably because of an absence of pathogens rather than resistance to the common red clover diseases. In the seedling year Alaskland usually makes a growth of 10 to 12 inches without producing flower heads and in the second year reaches a height of 24 to 30 inches when in the 1/4 to 1/2 bloom stage. It blooms profusely and possesses a reasonably good seed yielding potential. Stems are smooth and somewhat coarser than those of double cut types of red clover but finer than those of American single cut varieties.

## PERFORMANCE

In tests conducted at the Matanuska Station, Alaskland has been the only red clover variety to exhibit winter survival. At the Fairbanks Station it has been superior to all other varieties in this respect. Red clover varieties have been tested as annual silage crops, but they consistently have yielded less than sweetclover and should not be used for this purpose. Of the varieties tested, Alaskland has been among the lowest in first year yield (about 1.7 tons dry matter per

acre) primarily because it remains in a vegetative condition while most red clovers produce flower heads in the seedling year, supposedly in response to the long photoperiod prevailing in Alaska.

Utilized as a biennial, Alaskland produces a yield of about 2 tons of dry matter per acre either as hay or silage when cut at half bloom stage. This stage of growth usually is reached in early July. Silage of excellent quality can be made by harvesting at half bloom stage and wilting the forage to reduce the moisture content to between 60 and 70 percent before ensiling. Hay of good quality can be made providing weather conditions permit curing and storing the forage without it getting wet. Protein content is sufficiently high to enable the farmer to balance the dairy ration with a home-grown grain mixture.

The aftermath, while not great, would produce limited grazing. At Fairbanks this variety has been observed to maintain stands for several years.

## RANGE OF ADAPTATION

Alaskland red clover is best adapted to the Tanana Valley and the Kenai Peninsula, primarily because winters are more favorable for its survival than in the Matanuska Valley. Snow cover usually is better in both areas and temperatures are milder on the Kenai Peninsula. However, it is sufficiently hardy for use in the Matanuska Valley if properly managed. In the former areas it probably will survive in fairly good stands for 2 to 3 years, but it is doubtful that it will survive more than one winter in the Matanuska Valley. Preliminary reports indicate that it probably will not be of value in the United States.

## MANAGEMENT

In the Matanuska Valley Alaskland red clover should be established by spring-seeding in a nurse crop of Edda barley. Seedings should be made as early in spring as possible when moisture conditions are favorable. The barley can be harvested when mature in mid-August after which the clover will become well established prior to killing frosts. When harvesting the grain crop, a stubble of 10 to 12 inches should be left, especially in areas subject to winter winds. The stubble helps hold snow cover and creates a microclimate at the soil surface which is much less severe than when no vegetative cover remains. This practice is not so

important in the Tanana Valley and on the Kenai Peninsula where stands which usually will overwinter can be obtained without use of a nurse crop. In the former area seedings should be made as early as possible, especially on uplands where the soil dries out very rapidly. If this is not possible, seeding should be delayed until late June or early July when summer rains occur. Seeding should be completed by mid-July in order to have seedlings well established before frost. If a nurse crop is not used, Alaskland may produce a heavy growth the first year which can be cut for hay or silage or it can be pastured. Winter-killing may follow such management in winters with poor snow cover and low temperature.

Regardless of whether a nurse crop is used, Alaskland red clover should be seeded on a well prepared, smooth, firm seedbed. Seed should be covered to a depth of 1/2 to 1 inch. The most satisfactory implement for seeding is the cultipacker-seeder. If a cultipacker-seeder is not available, the soil should be cultipacked followed by broadcasting of the seed and cultipacking at right angles to the first packing. This will insure good seed coverage, a firm seedbed, and good contact between soil and seed, thus providing very good conditions for rapid germination. Grasses sown in combination with the clover should be seeded in the same manner. Where seed size and weight permits, seed can be mixed and sown in a single operation.

Seeding mixtures for hay or pasture are given below. Short rotations are those in which the grass-legume stand is plowed up after 2 years while in long rotations the stand remains for 3 years or more.

#### Short Rotations

	Pounds per acre
Alaskland red clover	8
Timothy	4

#### Long Rotations

	Pounds per acre
Alaskland red clover	8
Timothy	2
Smooth brome grass	8

Fertilizers should be applied and worked into the soil prior to seeding the legume or legume-grass mixture. It should be drilled at the time the grain crop is seeded or broadcast and harrowed in. In succeeding years, as long as the stand per-

sists, fertilizers should be applied as a topdressing. Fertilizer recommendations are given in Alaska Agricultural Experiment Station Circular 13 (Revised).

Seed of Alaskland red clover should be inoculated with the appropriate bacterial culture just prior to seeding. Cultures for clover can be purchased from any seed house. Directions for use will be found on the container.

Weeds should be controlled to reduce competition for moisture, plant nutrients and light. This is especially true when clover is seeded without a nurse crop on areas where chickweed, spurry, or lambsquarters are prevalent. These weeds can be controlled by applying Premerge (a dinitro compound) at the rate of 4 to 8 quarts in about 80 gallons of water per acre after seeding but several days before seedlings emerge. This spray will not damage cereals, grasses, or red clover appreciably unless rates higher than 8 quarts are used. Another method of control is to spray when weed seedlings are 1/2 to 1 inch tall with 6 quarts of Dow Selective or 2 quarts of Premerge in about 80 gallons of water per acre. Rates in excess of those recommended may cause serious damage to the clover.

### SEED PRODUCTION

Preliminary seed increase of this variety was accomplished at the Fairbanks Station. In 1951 foundation seed was sent to the Washington State Crop Improvement Association for the production of certified seed. About 1,000 pounds of certified Alaskland seed are available for distribution to farmers in 1953.

It is not recommended that Alaska farmers attempt to grow seed of Alaskland red clover because adverse weather conditions often result in poor seed set and cause many difficulties in harvesting, drying, and cleaning of seed. The Fairbanks area is slightly more favorable for seed production than other areas in Alaska, but even in this area a profitable seed crop could not be produced in most years. However, if farmers desire to grow certified seed of this variety they may apply to the Alaska Certified Seed Growers Association for foundation seed stocks and field inspection and certification.

Plans are underway for a continuing supply of certified Alaskland red clover seed though supplies will be very small yet in 1954.