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CRESTED WHEAT GRASS FOR DRYLAND PASTURES

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The growing interest in crested wheat grass and the many inquiries about it have suggested the compilation of a bulletin setting forth some of its characters and telling of the conditions under which it grows and its adaptability for dryland pasture in Colorado.

Figure 1.—Crested wheat grass showing mature heads and general growth of individual clumps.

Crested wheat grass **(Agropyron cristatum)**, is a perennial grass closely related to blue stem (western wheat grass) and slender wheat grass which are native to the state. It was introduced into the country by the plant explorers of the United States Department of Agriculture from the steppes of Russia. In that country it is a native, growing under conditions of extreme drought and low temperatures. It comes to us with a heritage which should make it very valuable.

In recent years its use has rapidly spread over the northern plains states, in Montana, North and South Dakota, Wyoming, Nebraska and Northern Colorado.

Acknowledgment is made to T. G. Stewart, extension agronomist, and the Extension Service for assistance in establishing test plots.

Characteristics

This grass, while closely related to our native wheat grasses, has many characteristics which readily distinguish it from them. The spike or head is the most noticeable feature. The even rows of flared spikelets or seed clusters give the head a crested appearance. (Figure 2). The plant has a bunch grass habit (Figure 1) but tillers readily and, when planted for pasture, will form an open sod. The leafage is greener and more abundant than native wheat grasses. (Figures 3 and 4).

The characteristics which make it most desirable for dryland pasture in this state are: Endurance to low temperatures, resistance to drouth, comparative ease of establishment, high palatability and vigorous seed production.

Adaptability

Planting trials with crested wheat grass have been made in various sections of the state by the Botany Section of the Experiment Station during the past 8 years, with the following considerations in mind: The need for securing grasses and pasture plants suitable for reseeding abandoned farmland, pasture for spring and fall grazing as well as forage improvement on over-grazed land.

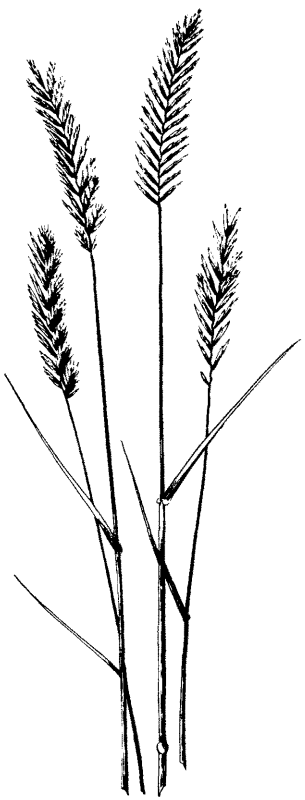

Figure 2.—Typical heads of crested wheat grass.

In Colorado, stands have been secured at Briggsdale, Calhan, Montrose, Craig and Fort Collins. Plantings at Wray and Hugo have been failures. Stands at the Dryland Station at Akron have been temporary. At present it seems to be best adapted to elevations over 5,000 feet and where the summer months are not too hot. In the eastern part of the state it may require more favorable years of moisture before it can be established.

The ability of the plant to grow and survive under low temperatures was demonstrated by stands at Virginia Dale (7,000 feet) and Briggsdale (5,000 feet), in the northern part of the state where stands were exposed to the full force of cold winds from the north.

The early growth in the spring and late growth in the fall

make it ideally suited for spring and fall pasture. It is from 2 to 4 weeks earlier than the native grasses and somewhat earlier than slender wheat grass and smooth brome. This feature is important because pastures of this grass can be utilized in order to protect native pasture in spring, reduce the amount of feed necessary for longer feedings, and can be used where normal spring bunch grass range is heavily infested with larkspur, and when summer forest range or short grass range is not ready.

The drought resistance of this grass is shown by a comparison with smooth brome grass. At Virginia Dale, stands of the two grasses were subject to the same grazing and treatment. Brome grass did not produce the amount of growth that crested wheat grass did. Some plots of smooth brome grass were entirely dead at the end of last summer. At Montrose, smooth brome remained brown and short while crested wheat grass leaves remained green and freshened up with each shower. Mr. Douglas Lytle writes that on a third-acre plot crested wheat grass planted in rows 2 feet apart produced 80 pounds of seed while smooth brome failed to produce any seed and was burned brown at harvest time.

Suitability for Pasture

The palatability of this grass is high and is relished by cattle for pasture and hay. When planted as pasture in close stand it should be more palatable for sheep. It is closely grazed by stock at all seasons and is preferred to many of the native grasses. Where plots were unfenced and adjacent to native pasture, cattle congregated on the greener forage provided by it. In Northern Weld County, where there are crested wheat grass pastures, stockmen claim that they have a higher carrying capacity than native plains pastures. This, however, does not mean that crested wheat grass should replace native sod but supplement it on land removed from crops.

Stand Establishment

In normal years it should not be particularly difficult to secure a stand of crested wheat grass. At Virginia Dale an ordinary grain drill was used and the seed placed in the hopper without a filler of grain. The outlets were set for the smallest opening. This grass seed feeds thru readily. The blades were set as shallow as possible and seed drilled into a soil that had not been worked since the last crop was planted. This gave a firm seedbed which is necessary to get a stand.

Other plantings made on loose open soils were failures. The soil dried out too rapidly and prevented seeds from germinating or the seedlings from becoming established.

Figure 3.—Three-year-old stand northwest of Craig, Colorado, August 10, 1934, following continued drouth.

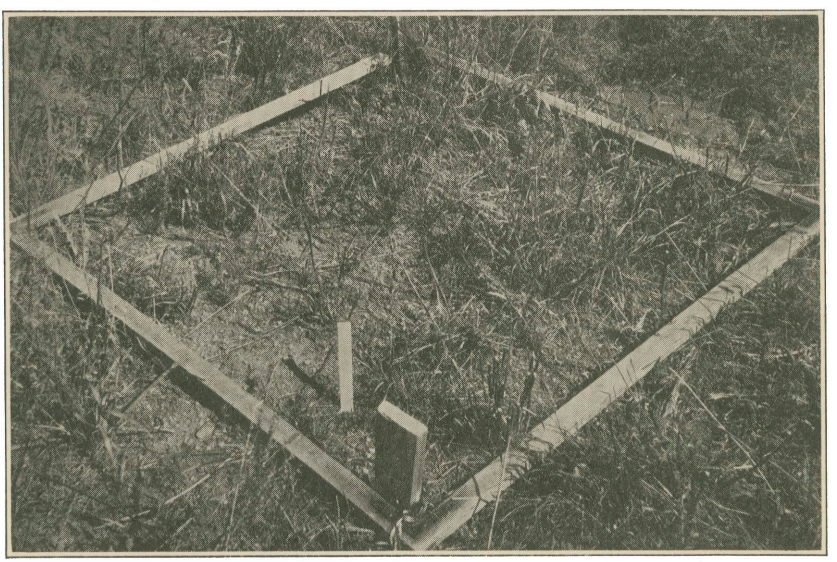

Figure 4.—Section of 2-year-old pasture containing crested wheat grass, smooth brome grass, and yellow-blossom sweet clover. Note comparative freedom from weeds.

The most ideal seedbed is one on which an intertilled crop has grown the previous year and no further preparation of the soil is made. Where soil blowing is troublesome, stubble should be left to reduce blowing.

In addition to a firm seedbed, it is important that planting be made at that time of the year when there will be sufficient moisture for the seed to germinate and allow the seedlings to become established. In Northern Colorado, early spring (March 15 to April 1) seems to be the best time for planting.

Reseeding depleted ranges with this grass is unsuccessful under most conditions and particularly on areas now supporting a partial stand of native grasses or on dry slopes where broadcast planting would be necessary. Several trials were made in North Park in cooperation with the U. S. Forest Service, others in the Laramie River Valley and in Moffat County.

They were made in native cover of varying degrees of depletion. In each case, with the exception of the Laramie River, the plantings failed. At the Laramie River the plantings were made on burned-over sagebrush land and on unburned land. There was some establishment in the burned area by crested wheat grass, smooth brome grass and orchard grass. Smooth brome grass and orchard grass soon disappeared with increase in native grasses. Crested wheat grass maintained itself and produced some seed but made up a very small proportion of the total forage. Plants that established themselves in the sage were very few but showed good growth.

Seed Production

The small supply of crested wheat grass seed, the increasing demands for it and the high price indicate a favorable market for this seed. Plantings on good soil with normal rainfall produce about 200 to 300 pounds of seed per acre. When planting for a seed crop it is important that the ground be free from noxious weeds and the seedbed clean. As previously stated, Mr. Douglas Lytle on a small planting, produced a stand which would amount to about 240 pounds of seed per acre. He planted the seed in rows, 2 feet apart. In North Dakota, many of the plantings are made in double drilled rows about 36 inches apart. Cultivation may be necessary one or more times during the first season. A small amount of seed may be produced the first year but 2 years are usually required for the first crop.

The following steps are suggested in securing stands of crested wheat grass:

1. Secure clean, firm seedbed, preferably following a clean cultivated crop.

2. Plant as early in the spring as possible, at the time of maximum moisture. March 15 to April 1 has been the best period in Northern Colorado.

3. Plant as shallow as possible—not deeper than 1 inch. Sandy loam soils appear to be best but it may be grown on all soils.

4. In areas where soil drifting is a problem, a high stubble may aid in preventing blowing.

5. For pasture, plant a mixture consisting of crested wheat grass 7 pounds, smooth brome grass 8 pounds, and yellow-blossom sweet clover 2 pounds—totaling 17 pounds per acre. Cross drill to secure uniform distribution of seed.

6. In the management of pasture an early mowing may be necessary the first year to reduce weeds. It should not be grazed until late summer of the first year, and then only a light grazing to get the plants to stool out.

7. Where seed production is desired, plant in double drilled rows, 30 to 36 inches apart at the rate of about 5 pounds of seed per acre. One or more cultivations may be necessary. A seed crop cannot be expected until the second year.

Other Bulletins On Crested Wheat Grass

Hanson, H. C. 1930. Pastures for Spring and Fall Grazing in Mountains of Colorado. Colo. Agr. Exp. Sta. Bul. 360. (Out of print).

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