

Grass Management Tops Needs in Holt

**Program Not Spectacular
But Is Important,
Expert Says**

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Range conservation is one of the most important but least spectacular practices in the conservation program of the Holt Soil Conservation District.

It is important because it deals with the management, improvement and conservation of native grasses. These grasses are the basis on which the agriculture, and in turn the business, has been built in the cities and towns of the county.

It is said that beef cattle lead all classes of livestock in the utilization of grass and grassland crops. In the United States, they utilize about one-third of the permanent pastures, three-fourths of the range areas and a high percentage of the harvested crops. Beef cattle are the principal product of the agriculture in the Holt District and grass is their principal and cheapest feed.

Range conservation is not spectacular for several reasons. The conservation practices employed in such a program are not of the mechanical type. When they are used they blend in so smoothly with the ordinary pattern, they do not make a sharp contrast. Only in cases of extremities are the range conservation practices noted by the casual observer. Generally, we notice a piece of range land if it is severely over-grazed or otherwise abused. If it is good we take it for granted with little thought as to the reason. Nature with its carpet of grass is able to cover up many of our abuses and misuses of the land. Range conservation is principally a program of management of the native grasses and the effects are gradual and seldom recognized by those not directly concerned.

Vegetation Behavior—
The plants of the land surface of the earth may be grouped into 4 great plant formations. These are forest, grassland, desert shrub and tundra. Grasslands are believed to include about a fourth of the area occupied by all plants and about a fifth of the land surface of the globe. The above 4 formations or groups are products of climate and controlled by it. Generally speaking, the humid climate gives rise to woodlands and the dry or arid climate has the desert shrub or waste.

The grasslands lie between these extremes in zones of intermediate moisture, from subhumid to semiarid climate.

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Naturally in such a broad classification there are important exceptions which are the result of other factors in the plants' environment or habitat.

Those factors which affect the plants directly are water content, humidity, light, plant food elements in soil moisture and soil air. Others which exert an indirect effect are temperature, precipitation, soil composition, wind and pressure. Such factors as altitude, slope, exposure and surface have a remote effect on plants. An appreciation and understanding of these factors on all vegetation is an important item to the range conservationist.

Where these factors are the same and are permitted to function without interruption by outside forces, the result is a certain combination or community of plants. As time goes on a point is reached where there is a combination or balance of vegetation, soil and climate which will produce more pounds of foliage over a long period of years than any other combination of vegetation that would survive naturally during that time. This combination of plants is called climax vegetation.

Development—
Vegetation arises from the coming together of individual plants and their interactions upon each other. Our meadow and rangeland vegetation is the product of such a process. A recapitulation of the development process which evolves when we destroy the vegetation in one of our fields in Holt county would help to illustrate the development of vegetation.

During the time when many of the old cropland fields were farmed all the original vegetation had been destroyed and the seeds, root stalks or other propagating parts were killed or buried too deep to develop new plants. Then the owner decided to quit farming the field and allowed it to go back to grass. The first vegetation to appear is usually a sparse stand of weedy annuals. In time the stand becomes thicker and gradually more weedy grasses appear along with biennial plants.

Next perennials come in and increase in abundance. Among these may be some of the species of grasses found in small numbers in the original vegetation before it was plowed. As these pioneer plants stabilize the soil, create a mulch of residue and alter the soil nutrients, moisture, humidity, light, temperature, air, etc., the environment for plant growth changes. As this advances the species of grasses that made up the original vegetation begin to appear in increasing abundance. Eventually there evolves a community of grasses that remains fairly constant over a long period of years. It is then that the climax in vegetative development is reached and it is this climax that plays an important part in range management.

The range conservationist must know what combination

of grasses make up the climax vegetation for each set of plant environmental conditions with which he is dealing. In addition he must be well grounded in the process of plant succession, having a knowledge of the combination of grasses that makes up the vegetation in various stages of succession.

Response to Grazing—
Further study of grasses and their behavior in their natural environment reveals that under certain conditions some plants increase in abundance while certain others decrease. Under certain adverse conditions other grasses and some forbes (non grasslike herbaceous plants) will invade and become a part of the plant community.

It is a common occurrence to find an ungrazed roadside where the vegetation consists mostly of tall and mid grasses as big and sand bluestem, switchgrass, little bluestem, with possibly some prairie sandreed, June grass, needle grass and sand dropseed, and an understory of a very small amount of blue grama. There are many conditions in Holt county where this combination of grasses would be the one that would produce the most forage on that site. Hence this combination of vegetation would be considered climax.

Across the fence from this vegetation are many pastures with different combinations of grasses. In those pastures that are grazed moderately, grass and June grass have almost disappeared, the big and sand bluestem, switchgrass and little bluestem have decreased in abundance, while the blue grama, prairie sandreed and sand dropseed have increased.

There generally are a few weeds as ragweed, maretail, six weeks fescue and others.

In those pastures that are grazed heavily the combination of grasses is entirely different. There is no needle grass and June grass, the big and sand bluestem, switchgrass and little bluestem have almost been eliminated, the prairie sandreed has decreased, the sand dropseed remained about the same, the blue grama increased to the point where it is the predominating grass, the weeds increased in both number and kind.

Range Condition—
In judging such pastures on their vegetative composition for ability to produce, the ungrazed roadside would be called excellent, the moderately grazed pasture would score good and the heavily grazed one would be fair and bordering on nearly being poor.

It is recognized that many may take exception to this scoring. Those who do base their contention primarily on palatability and likes and dislikes for certain grasses. This classification is based on the total possible forage production for the particular conditions for plant growth. However, it should be pointed out that the range conservationists of the

Soil Conservation Service doubt if it is economically feasible or desirable to strive to get the vegetation in most ranges to excellent condition.

Problems—
There are many complex and inter-related problems involved in the management of native range land. Heavy grazing removes the leaves which is the food manufacturing plant of the grass.

A larger percentage of the leaves are removed from the tall grasses than from the short, with the result that the tall or heaviest producing grasses are eliminated. Another problem pertains to utilizing the grasses when they are most nutritious.

This is when they are young and would be the best time for the best quality of feed but the poorest time for the good of the grass plant and its vigor and production in future years. Most grasses make about two-thirds of their total growth during the first half of the growing season. Also the rate of growth is slow at the beginning of the season and increases to a maximum just preceding the heading stage with a tapering off toward the end of the season.

It is recognized that grazing cannot be regulated to coordinate with these fluctuating habits of the grass. The difference in the growth of grass from one year to another necessitates stocking rates which take this into consideration.

Conservation Practices—

Proper utilization of a range is attained when half of the current year's growth is utilized by the livestock. The stocking rate for a given pasture may be based on securing proper utilization in all but the most severe drought years, or it may be based on the average growth of all years, both good and bad, and utilizing half of that. Another basis for stocking would be to adjust every year to utilize only half of the growth.

Stocking rate is not the only means of accomplishing range conservation. The time or season of grazing may be changed thereby making it possible to defer grazing on some pastures and permit the grasses to make a better growth. Deferment may vary greatly and should be such that will be most effective in solving the problem. Rotation grazing has a place in range conservation and it is desirable to employ it when it will aid in accomplishing the objective.

Ample watering places properly distributed are essential to attain proper utilization. Strategic location of salt is often an aid to get more uniform distribution of grazing in a pasture. Fences are also an important tool in range conservation.

Seeding for Grazing—

Seeding of native grasses in go-back and cropland fields are important in range management. The Soil Conservation Service personnel assisting the Holt District have been working with cooperators in seeding a considerable amount of native grass. In recommending a seeding mixture consideration is given to the principals of plant growth and vegetation development. The mixtures include the pioneer grasses as well as those which should eventually make up the community of grasses.

There is no set method of seed bed preparation. Generally it is advisable to reduce the competition from weeds and existing vegetation in the area to be seeded. At the same time it is desirable to maintain a mulch of plant residue on the surface of the soil. It not only helps reduce the obvious erosion but creates better conditions in the soil for the new grass seedlings.

Hayland Management—

In Holt county any program of range management is incomplete if it does not take into consideration the meadow or hay land. The Soil Conservation Service devotes considerable effort to the problems on meadows. A photograph elsewhere shows a conservationist discussing such problems with a co-operator.

Interseeding of legumes is a common and desirable practice. Many district cooperators report good results from drilling clovers into meadows. In some counties where the meadow lands are drier, considerable improvement is made by water spreading and retarding water runoff for sub-irrigation. A system for grazing the after-grass on meadows should be employed in such a way that it will not appreciably reduce the hay yield. This grazing of after-grass can often be worked in such a way that grass in the pastures will be considerably improved by deferred grazing or shorter seasons of use.

Range conservation is an interesting program. It is a complicated program that challenges the ingenuity of the rancher and the Soil Conservation Service technician. It necessitates a free and open discussion and exchange of ideas between the rancher and the technician.

"My countrymen have too little knowledge of the profits of grasslands."—George Washington.

Brome Alfalfa Pays Dividends

At the North Platte experiment station, a herd of dairy cows was grazed on 22 acres of brome-grass-alfalfa. In addition, they were given other feeds evaluated at \$1.643. The milk from these animals sold for \$7.693.

It is evident the greater portion of this return can be attributed to the 22 acres of brome alfalfa pasture, even though the other feeds may have contributed more than their actual cost. If brome-grass is planted alone for pasture, it soon becomes "sod bound." The grass becomes low in nutritional value and unpalatable. This is because grazing removes much nitrogen from the soil. When the nitrogen is gone, the grass becomes stunted in growth.

When alfalfa is planted with brome-grass, the alfalfa adds nitrogen to the soil, thus maintaining the vigor of the grass and making it more palatable and of higher nutritional value.

Grass controls weeds.

Steers Gain on Sweetclover —

At the Nebraska experiment station, white sweetclover seeded with oats in April and grazed with yearling steers gave 232 steer days of grazing and a gain in weight of 1.37 pounds daily. The total gain per acre was 308 pounds. At 20-cents per pound, the return per acre would be slightly more than \$60 per acre. Considering cost of production, this is probably a greater return per acre than one could expect from a 60-bushel corn crop. In addition, the sweetclover and the manure from the steers tend to improve the productivity of the soil, while corn depletes the soil.

2-TO-1 FOR FERTILIZER!

At the Nebraska experiment station, a brome-grass pasture low in nitrogen was treated with nitrogen fertilizer. For every dollar spent for fertilizer supplied, a return of \$2 was obtained in terms of increased gains of yearling steers grazed on the pasture.

"Voice of The Frontier," Mon.-Wed.-Sat., 9:45 a.m., WJAG.

Mrs. Alice Hill Is Club Hostess

CELIA — Thursday, February 9, Mrs. O. A. Hammerberg attended the Atkinson Country Women's club meeting at the new home of Mrs. Alice Hill. Twenty members and one guest responded to roll call with an answer to "How I Met My Husband."

This was a Valentine party meeting and members received gifts from "mystery sisters" and the grab bag.

Hostesses for the meeting were: Doris Sloan, Marjorie Genung, Ann Crippen, Marjorie Meyer, Minnie Anson and Elaine Siebert.

Next meeting will be with Mrs. Myrtle Beck on March 9.

All flesh is grass.—Isaiah.

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2 WELL-LOCATED HAY & PASTURE QUARTER SECTIONS To Sell at PUBLIC AUCTION

Wed., March 1st, 1950
— 2:00 O'Clock P.M. —

Sale Will Be Held at the O'Neill Livestock Market Pavilion
Regardless of Weather

The Northeast 1/4 of Section 21-28-11
160 ACRES

Located 4 miles south and 2 1/2 miles east of O'Neill, Nebraska
and 3 1/2 miles west of Inman, Nebraska.

This quarter is fenced with a three wire fence, has a good well and windmill and about 7 acres of fine trees. Cut 140 tons of hay in 1949.

The Northeast 1/4 of Section 22-18-11
160 ACRES

Located 4 miles south and 3 1/2 miles east of O'Neill, Nebraska
and 2 1/2 miles west of Inman, Nebraska.

The entire quarter is newly fenced with 3-wire galvanized fencing and creosoted white cedar posts. Has a good well and new windmill. An excellent piece of grass land that carries 75 cows and calves each summer season.

TERMS

Each tract will be sold separately. A payment of 25% of the sale price day of auction, balance March 14th, 1950, when possession will be given. Title will be conveyed by warranty deed and merchantable abstract. Interested parties should examine these properties before the hour of sale—2 o'clock p.m. Wednesday, March 1st—at the O'Neill Livestock Market Pavilion, O'Neill, Nebraska.

Mrs. Jens (Marianne) Hansen
OWNER — O'Neill, Nebr.
ERNIE WELLER, Auctioneer
Phone 5141 — Atkinson, Nebr.

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