TECHNICAL NOTES

FIGURE 2. Clipping of the forage is done as the arm is rotated. The center area is clipped before the base plate is placed down.

Forage is clipped close to the ground and then weighed on a scale in grams.

Since natural patterns are irregular in shape, sometimes a circular plot can be used to a better advantage. This is especially true when clipping single species colonies. For the circular plot, another method being used is to mark the plot with two stakes fastened on a chain 1.75 feet long. One stake is driven into the ground, and the other is used to mark a circle with an area of approximately 9.61 square feet.

Though the square-plot method is simple, considerable time is involved in measuring the plot, marking and staking the corners, and marking the sides. The chain and stake method is faster, but the chain is difficult to keep untangled, and in tall grass it is difficult to mark the sides evenly.

A simple measuring rod that can be made out of scrap metal, such as iron rods or reinforcing steel, can be used to mark a plot easily and rapidly, at a saving of time over the square plot or chain methods. Such a rod will take the place of four stakes, or chain and stakes, is easily and simply constructed and set up, and easy to carry.

A single ½-inch rod, with a 1.75-foot arm is all that is needed, as illustrated in Figure 1. The length of the legs varies with the height of the grass or vegetation to be clipped, but one leg is about 4 to 6 inches longer than the other. This leg is pressed into the ground and serves as the pivot. The other leg is sharpened to a knife edge and is used to mark the outer rim of the circle. The arm should be high enough to clear most of the grass. A base plate may be used as illustrated in Figure 1 to help stabilize the arm while marking the circle.

The arm will scribe a circle that contains approximately 9.61 square feet. Thus, the forage clipped from the circle weighed in grams and multiplied by 10 will then give the approximate weight in pounds per acre. The clipping can be done along the arm as the measuring arm is moved around the circle (Figure 2).

Plots larger than the 9.61-square-foot plot could be used, but a factor other than 10 would have to be used in converting the forage to pounds per acre. The 9.61-square-foot plots are preferred because the forage can be converted easily and quickly to pounds per acre, a measurement which most field men and ranchers can readily understand.

LITERATURE CITED


THE EFFECT OF BURNING ON THE CHEMICAL COMPOSITION OF LITTLE BLUESTEM

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The bluestem pasture region of Kansas lies in the eastern part of the state. In many years an apparent surplus of grass remains on many of the pastures at the close of summer. This surplus has generally been removed by burning each spring. The pastures usually are not grazed during the winter. One reason given for burning by the users of the pastures is that it increases animal gains.

The purpose of this study was to collect additional information on how burning affects the nutritive value of the grass as measured by chemical analysis. Other studies have shown that some chemical constituents may be affected by burning. Ash and protein were increased by burning, according to Neal and Becker (1933) and Greene (1935). Phosphorus was increased in forage samples from burned areas as reported by Hart and others

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(1932) and Greene (1935). Greene (1935) found that crude fiber and nitrogen free extract were lowered by burning. Aldous (1934) reported more moisture in grass from burned plots.

Methods

The study was conducted at Kansas State College, Manhattan, Kansas, on two native bluestem pastures which are part of the 1,135 acre Grass Utilization Project located 6 miles northwest of Manhattan, Kansas.

The botanical composition of the experimental pastures has been described by Anderson (1951) as typical true prairie. Big bluestem (Andropogon gerardii), little bluestem (Andropogon scoparius), and indiangrass (Sorghastrum nutans) make up between 50 and 60 percent of the total vegetation on the better sites. Since little bluestem made up between 20 and 30 percent of the total vegetation, it was chosen to work with in this study.

The little bluestem samples were taken from two pastures; a non-burned pasture and a mid-spring burned pasture, which had been burned each year about April 10. The two pastures had been subjected to their respective non-burning and burning treatments for the previous 4 years. The samples were taken during the period July 6 to July 16, 1955, from an ordinary upland range site as described by Anderson and Fly (1955). Eight samples were obtained from each pasture.

Each sample was obtained by stretching out two 10-meter wire cable lines 10 inches apart and clipping at ground level all of the ungrazed little bluestem plants which were within this boundary until a quart jar was filled. Sometimes the line had to be extended to obtain enough grass. Only the current season's growth was included in the samples.

The ordinary upland range sites in each pasture were divided into four areas on the basis of topography, and two lines were located at random within each area for the total of eight lines or samples per pasture.

Equal numbers of samples were taken in each pasture at each sampling period. The samples were collected from 6 A.M. to 10 A.M. They were placed in a forced-draft oven immediately after collection and dried with the fan on at 60-70 °C. for about 2 hours, then at 50-60 °C. for about 20 hours.

The samples were analyzed according to standard methods of the Association of Official Agricultural Chemists (1950) for crude protein, ether extract, crude fiber, ash, nitrogen-free extract, calcium, and phosphorus content. The data collected were analyzed statistically by analysis of variance as outlined by Snedecor (1946).

Results and Discussion

The results are reported in Table 1. Each percentage figure in the table is an average of eight samples. The little bluestem grass samples collected from the burned pasture were higher in crude protein and ash, and ranked somewhat higher in calcium than similar samples from the non-burned pasture. The samples from the burned pasture were lower in ether extract. No difference was found between the two treatments with respect to crude fiber, nitrogen-free extract, and phosphorus.

The differences reported here in regard to crude protein and ash agree with the results of Neal and Becker (1933) and Greene (1935).

### LITERATURE CITED


