A USEFUL DEVICE FOR LAYING OUT FORAGE PRODUCTION PLOTS

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Field men of the Soil Conservation Service have found it desirable to make a quick determination of forage production on a site. Such information is valuable in determining differences in sites, and in estimating the amount of forage that has been grazed off, or still remaining on a site.

A quick easy method of making this determination is particularly useful in working with ranchers in order to better illustrate the differences in sites and forage utilization. The method necessarily has to be simple and rapid, because few ranchers and field men have the time to make long and laborious studies.

Campbell and Cassady (1949) found that 9.6 square feet was a convenient and ample size sample area for determining forage weights on southern forest ranges. The amount of clipped forage from this size plot was large enough for an adequate sample, and the quantity produced could be harvested and weighed conveniently. The forage harvested from this 9.6square-foot area can be weighed with gram scales in the field and the following calculations made:

(1)

Weight of forage in grams (W) Number of grams in pound (453.592)

Sq. Ft. per Acre (43,560)

Square Ft. in sample area (9.61)

= Pounds per acre or:

(2)

Weight in grams \times 10 equals pounds per acre

A dry weight factor may be applied to the weight of forage for approximate yields. The clipped forage would first have to be properly dried and then weighed. Technicians of the Soil Conservation Service have found the 9.6-square-foot sample area useful to their needs for quickly showing ranchers volumes of forage produced. A square plot 3.1 feet on a side has generally been used. In making this forage determination the plot is measured, each corner is staked, and then heavy twine or metal rods are used to mark the sides. The



FIGURE 1. The simple measuring arm provides a good tool for use in estimating pounds of forage per acre.



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 ³/₈-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 9.61square-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

CAMPBELL, R. S. AND JOHN T. CAS-SADY. 1949. Determining forage weights on southern forest ranges. Jour. Range Mangt. 2: 30-32.

THE EFFECT OF BURNING ON THE CHEMICAL COMPOSITION OF LITTLE BLUESTEM¹

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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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