member of each pair was begun at daylight (5:00 A.M.) and completed at about 6:30 A.M. The plant of each pair to be clipped first was chosen by the toss of a coin. All plants were clipped to a two-inch stubble height.

Average initial plant weights for the morning and afternoon clippings are shown in Table 1.

Table 1. Average initial plant weight, weight of regrowth, and number of seedstalks of little bluestem as influenced by afternoon and morning clipping.

Time of Clipping	Initial weight[1]	Weight of regrowth[1]	No. of seedstalks[2]
Afternoon	69.65	2.61	1.85
Morning	66.99	2.52	2.42

[1] Oven-dry weights in grams of plant material clipped to a 2 inch height.
[2] Based on 79 of the original 100 pairs.

As might be expected from previous work the average weight from afternoon clipping was greater than the morning average. However, when the individual plant data were subjected to analysis of variance (Table 2) this trend was not significant. There was still a large amount of variation between plants even within the selected pairs. If the time-of-day effect is real then a great many more plants would have to be included in the clipping test in order to show significant differences.

It should be noted that selection of plants on a paired basis accounted for a great deal of the total variation. This indicates the importance of careful pairing rather than random selection before imposing any kind of clipping treatment.

Nine days after treatment all plants were reclipped to two inches and the clippings dried and weighed as before. This was done to determine if there was any effect on regrowth due to previous clipping at different times of the day. At this clipping both members of each pair were clipped at the same time. The average amount of regrowth is shown in Table 1. Analysis of variance again indicated that time-of-day was not an important consideration in influencing plant regrowth. The results do not support the assumption that the greater amount of plant material removed by the afternoon clippings weakened the plants.

On August 5, 54 days after the second clipping, the number of seed stalks on each plant were counted. Only 79 of the original 100 pairs were identified and examined at this time. The average number of seed stalks per plant (Table 1) was slightly, but not significantly, greater for those plants clipped in the morning.

Table 2. Analysis of variance of initial clipping weights of little bluestem.

Source of variation	Degrees of Freedom	Sums of Squares	Mean Square
Total	199	206049.77	
Between treatments	1	352.98	352.98
Between pairs	99	183325.26	1851.77**
Error	99	22371.53	225.98

**Indicates significant difference between pairs on the .01 level.

In summary, data from this experiment with little bluestem show a large amount of variation in production among plants independent of clipping treatment. Some of this variation can be accounted for by careful selection of plants on a paired basis before treatment is applied. In this study an attempt was made to determine if some of the remaining variation could be attributed to clipping time-of-day. These data indicate that time-of-day was not an important cause of variation in clipping results under field conditions.

LITERATURE CITED

BONNER, JAMES AND A. W. GALSTON. 1952. Principles of plant physiology. W. H. Freeman & Co., San Francisco. 499 pp.

GOODALL, D. W. 1946. The distribution of weight change in the young tomato plant. II. Changes in dry weight of separated organs and translocation rates. Ann. Bot. 10: 305-338.

LOOMIS, W. E. 1935. The translocation of carbohydrates in maize. Iowa State Coll. Jour. Science 9: 509-520.

SACHS, JULIUS. 1892. Gesammelte Abhandlungen uber Pflanzen-Physiologie. Vol. I. Wilhelm Engelmann, Leipzig. 674 pp.

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PROGRAM FOR THE 1957 MEETING AT GREAT FALLS, MONTANA

The Program Committee solicits your suggestions for the Tenth Annual Meeting at Great Falls, Montana, in 1957. Should the program have a theme? What subject matter areas should be emphasized? How can we get greater participation and attendance by ranchers?

If you wish to present a paper, send a title and short abstract indicating the general nature of its contents to the Program Committee Chairman. Technical papers will be limited to 15 minutes.—MELVIN S. MORRIS, Program Committee, A. S. R. M., Montana State University, Missoula, Montana.