DETERIORATION OF CLIPPED CAGED AREAS IN PERMANENT PASTURES
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For many obvious reasons, mechanical methods have been substituted for grazing animals in numerous experiments designed to measure the production of pastures. In spite of the recognized facts that animals, by selective grazing, may cause important botanical differences between grazed and mechanically harvested areas (9) and that different kinds of vegetation do not affect animals alike (8), the results from mowed plots are now generally accepted as being closely correlated with those obtained by actual grazing. Considerable evidence in substantiation of this view has been published (1, 4, 6, 8).

The purpose of this paper is to summarize the botanical and chemical characteristics and the yields of the herbage clipped from caged areas in three differently fertilized, quantitatively grazed permanent pasture plots of the long-time grazing experiment at Storrs.

EXPERIMENTAL

Two series of eight cages each were distributed in each of three differently fertilized grazed plots. The first series of cages was placed in 1931 and was kept on the same spots until 1942, when this phase of the experiment was terminated. These will be designated as the fixed cages. The second series was placed on the pastures in 1932 and these cages were changed to different locations every spring, except 1942, before grazing began. They will be called the moved cages. A site which appeared representative of the local section of a plot was chosen for each cage. A fixed and a moved cage were placed within 30 feet of each other.

The cages were 3 feet square and 1 foot high. They were made of soft wood frames covered with ordinary poultry wire fencing, 1-inch mesh on the sides, 2-inch mesh on the tops. The cages were wired to stakes driven in the ground to prevent them from being moved by the heifers which grazed the pastures.

The pastures were grazed rotationally, a grazing period starting whenever the grasses were 4 to 5 inches high. Stocking was such that the pasturage was consumed in about two weeks. Before each period ended, the vegetation in the cages was cut 1 inch above the soil with grass shears. The crop from each cage was placed in a paper bag, air-dried at room temperatures, and finally oven-dried to obtain yields of dry matter. The average number of cuttings per season for the differently fertilized plots were no treatment, 3.8; LPK, 4.3; LPKN, 4.8.

In 6 of the 10 years, the herbage from one cutting of the eight replicate cages of a series was composited after oven-drying, sub-sampled, and analyzed for some of the common feed and fertilizer constituents.

The areas occupied by grasses, weeds, and bare ground in each cage were estimated several times during the 10-year period. On plots receiving superphosphate, the predominating grasses were Kentucky bluegrass, Poa pratensis L., and Rhode Island bent grass, Agrostis tenuis Sibth. Without superphosphate, there was little bluegrass, but much poverty grass, Danthonia spicata (L.) Beauv.

The caged areas were fertilized the same as the plots in which they were located. Because of the numerous rocks on these pastures, fertilizers were applied by hand, the amount for each 1/20 acre being weighed separately and spread carefully on each section. The cages were on plots treated as follows:

Plot 5, no fertilizer.
Plot 8N, limestone, superphosphate and muriate of potash. The limestone was

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1 Contribution from the Department of Agronomy, Storrs (Connecticut) Agricultural Experiment Station. Received for publication February 23, 1945.
2 Associate Agronomist and Assistant Agronomist, respectively.
3 Figures in parenthesis refer to "Literature Cited", p. 547.