MEAT PRODUCTION OF STEERS IN RELATION TO RATE OF STOCKING AND SUPPLEMENTARY FEEDING

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Summary

There was little variation in carcase gain per acre, between 8 and 20 months of age, as rate of stocking increased from 0.88 to 1.52 steers per acre. On the other hand, both decline in individual carcase gain and decline in fat cover as rate of stocking increased, caused substantial variation in carcase quality. This variation would have influenced financial return per acre.

I. INTRODUCTION

Hull, Meyer, and Kromann (1961) found that when steers were grazed at 1.35, 2.25, 3.05, 3.93 and 4.68 animals per acre over a period of 126 days on an irrigated perennial pasture, individual carcase gain steadily declined. On the other hand carcase production per acre increased to a maximum at 4 animals per acre after which it fell rapidly. Conway (1964) observed a similar trend in individual carcase gain “over the grazing season” as the rate of stocking increased from 1.0 to 2.5 animals per acre. In his results, too, carcase gain per acre increased to a maximum at 1.75 animals per acre and then declined.

In the course of a long term experiment on the effects of rate of stocking and supplementary feeding on meat production of steers, it has become evident that the trends observed by these authors do not always apply when animals are retained on plots for a full year through periods of dormancy as well as growth of pasture. The pertinent results are described in this paper.

II. MATERIALS AND METHODS

The experiment was conducted at Glenormiston, 135 miles west of Melbourne, Victoria. The climate and seasonal growth of pasture is of the Mediterranean type with an average annual rainfall of 28 inches.

An area of 84 acres was resown to perennial ryegrass (Lolium perenne L.), cocksfoot (Dactylis glomerata L.) and white clover (Trifolium repens L.) in August 1962. In October 1963, the area was divided into three blocks each consisting of eight plots, two each of the following sizes-2.63, 3.13, 3.70 and 4.54 acres. Hay was conserved from one-third of the area of one of each pair of plots in November 1963. Otherwise, all plots were managed uniformly until the experimental animals were transferred to them.

From a herd of 110 steers seven to nine months old in January 1964, eight were allotted at random for slaughter and four were allotted at random to each of the 24 plots.

The eight steers allotted for slaughter were killed on February 17, 1964, to provide information on initial carcase weight.

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The animals allotted to the plots were transferred to them on January 14, 1964. During late summer, autumn and winter, hay was fed to those animals on the plots from which it had been cut; and from October to December 1964, the animals were excluded from part of each of these plots to allow conservation of hay in 1964.

The animals remained on the plots until January 5, 1965, and all were killed on January 8, 1965.

III. RESULTS

The initial carcase weight of each animal was calculated from the initial bodyweight and the mean dressing percentage of the animals killed on February 17, 1964. The final weight was recorded immediately after killing while the carcase was still warm. The difference between these two values was taken as the gain in weight of the carcase (Figure 1).

Where hay was conserved and fed back, the mean gain in carcase weight declined progressively as the rate of stocking increased. The relationship between mean gain in carcase weight and rate of stocking was irregular where hay was not conserved but mean gain was certainly greatest at the lowest rate of stocking.

In general, the increasing rate of stocking did more than offset the decrease in carcase gain per head and differences in gain in weight per acre were small and irregular.

There was marked variation between groups in the depth of fat over the eye muscle and the variations in this characteristic followed the variations in carcase weight.

IV. DISCUSSION

The information presented derives from the first year of a continuing series of observations. As such, the observations represent a situation that did and may occur, but they do not indicate how frequently they are to be expected.

The decline in gain in weight of the individual carcases as rate of stocking increased is in agreement with the observations of Hull, Meyer and Kroman (1961) and Conway (1964). On the other hand the small changes in carcase production per acre contrasts sharply with the results of these workers. The difference could be associated with the period of observations—a whole year in the present case and only 126 days in the experiment of Hull, Meyer and Kroman (1961) and the “growing season” in the experiment of Conway (1964). Alternatively, it could be associated with the rates of stocking studied and increases in carcase production per acre might have been observed had lower rates been included. Whatever the situation at lower rates, there was certainly little change in gain per acre over quite a wide range, 0.88 to 1.28 steers per acre, in this experiment and maximum production per acre was certainly exceeded at 1.52 steers to the acre.

Under such circumstances, little improvement in meat production per acre may be achieved by increasing the rate of stocking. At the same time, variation in carcase composition as reflected by fat cover may occur to substantially influence the financial return per acre. At the lightest rate of stocking the carcases carried an excessive amount of fat. At the heaviest rate, on the other hand, carcases were too light with too little fat to be acceptable.
V. ACKNOWLEDGMENTS

I wish to thank Mr. J. Fletcher and the staff at Glenormiston for assistance in conducting the experiment and Dr. R. H. Watson for assistance in the preparation of this paper.

Funds were provided by the Department of Agriculture, Victoria, and by the Commonwealth Cattle and Beef Research Fund.

VI. REFERENCES
