

Fig. 1.

### Lucerne and Silage Feeding Trial 1950

Fig. 1 shows the comparison between the mean lactation curve in pounds of butterfat per cow per week of a group of cows fed lucerne and that of a group of cows fed silage in the summer of 1950. A comparison between the liveweights of the two groups is also presented. In this and subsequent graphs the experimental feeding period is enclosed by the vertical lines.

Nine sets of identical twin cows were used for the experiment. The similar levels of fat production for the split twin groups indicate the uniformity of production before the start of the feeding trial during October, November, and December, 1949, when both groups were grazing on pasture. Supplementary feeding started on 4 January and continued for 13 weeks, terminating on 5 April, when both groups reverted to pasture alone.

The lucerne stand was cut daily, the material being carted off and fed on the grazing area. The stack silage was fed similarly. Both groups were offered as much supplement as they were able to eat without undue wastage occurring. Each group of cows grazed separate areas which initially appeared to have about the same amount of grass cover. The stocking rate was one cow per acre and the cows were shifted daily through a rotation of 14 paddocks.

Production had begun to fall during December and continued to decline during the first 5 weeks of supplementary feeding. Rain in mid-February revived pasture and the fall off in production was arrested over the next 5 weeks until mid-March, when production again began to fall off and continued to do so after the termination of supplementary feeding. From a pre-experimental level of 7lb. of fat per cow per day production declined to 4lb. of fat per cow per day.

The interesting point is that at practically no stage of the feeding experiment did the lucerne supplemented cows show any marked superiority in butterfat production over their silage supplemented twin mates. The slight

superiority of the lucerne during February coincided with the finish of the first cut of lucerne, which was then in full flower and more fibrous, and at the start of the second cutting the lucerne was at a much younger stage of growth.

Liveweight changes over an experimental feeding period provide useful additional information about feed-stuffs.

The feed consumed by milking cows is partitioned among three major physiological processes. First of all by far the biggest proportion of the feed eaten is used to maintain the animal body and the remainder is under competition between the lactation mechanism and the growth process. Whether milk production will have priority over the growth and fattening process depends on the dairying merit of individual animals, the stage of lactation, and the quality of the feed.

The normal weight graph for a good milking cow adequately fed throughout the season shows a progressive loss for 6 to 8 weeks after calving and then a progressive but marked gain in weight during the peak lactation

period; from January until next calving there is a steady gain. Most of the increase in weight from January represents foetal growth, so that true body-weight remains fairly steady during this period.

Marked gains in body-weight during summer may be the result of poor-quality dairy stock incapable of reasonable levels of milk production, so that food normally used for this process is used for the fattening process. In good-quality dairy stock marked gains in weight during summer would indicate that feeding is adequate in quantity but lacking in quality for milk production.

In the lucerne-silage comparison for the 1950 summer both groups not only maintained condition, but showed better than average gains, with only little difference in gains between the two different supplements.

Cows receiving lucerne ate 80lb. per cow per day, compared with 50lb. of silage, and if these figures are converted on a dry matter basis, the respective intakes were 17lb. from lucerne and 11lb. from silage. Despite the 50 per cent. higher consumption of lucerne, which is a good indication of its palatability, no advantage in terms of fat production or liveweight gain was achieved. As the amount of feed each group obtained from pasture is not known, it can be concluded only that the lucerne supplemented cows preferred to eat lucerne rather than summer pasture and that the total amounts of grass plus supplement eaten were the same for both groups. As grass cover was maintained throughout the trial, it was possible for the silage group to obtain a bigger proportion of their total feed from grass. If this occurred, it was not obvious on eye appraisal of the two separate grazing areas.

### Lucerne and Silage Feeding Trial 1951

In the following summer of 1951 the lucerne-silage comparison was repeated along very similar lines to that of the previous season with the use of two groups each of seven cows. The only major change in technique was that a considerably higher stocking rate was used—about three cows per acre during the supplementary

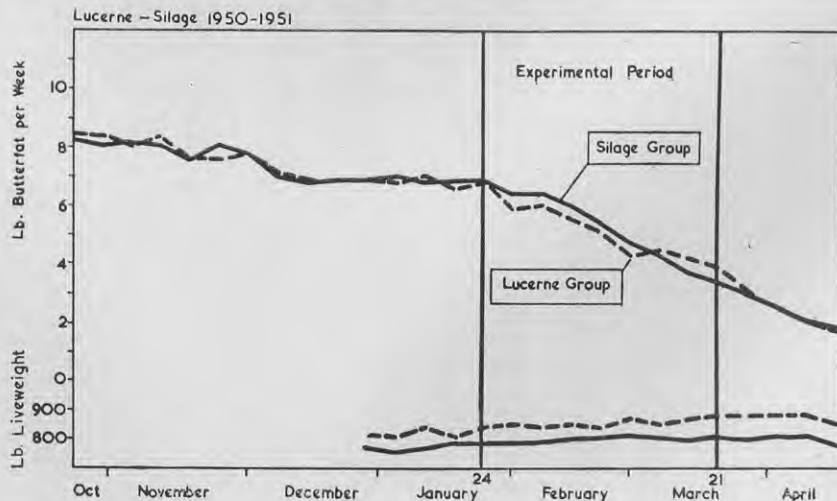


Fig. 2.