feeding period. This was to ensure a high intake of supplement and to reduce the possibility of one group balancing up its intake by eating less supplement and more grass as was believed to have occurred in the previous season's experiment.

Fig. 2 shows the lactation curve in pounds of butterfat per cow per week and the liveweight changes for each group. Before the start of supplementary feeding both groups were producing at similar levels. Supplementary feeding started on 24 January and continued for 8 weeks. Both supplemented groups showed a fairly rapid decline in production from about 7lb. to 3½lb. of fat per cow per week. In the first 5 weeks the silage fed cows were ahead in production by less than ½lb. of fat per cow per week. For the following 3 weeks the lucerne fed cows were ahead in production by a similar amount. The net effect was a gain of 1lb. of butterfat per cow over the 8 weeks in favour of silage. The small advantage that the lucerne cows had in production at the end of the feeding period was largely lost a week after the end of the experiment.

There was an initial difference in liveweight of about 50lb. between groups. The silage fed cows showed a slight but normal gain of 13lb. and the lucerne fed cows showed a marked gain of 50lb. per cow.

The amount of silage eaten was similar to that of the previous summer at a level of 11lb. of dry matter per day; lucerne consumption at 15lb. was slightly less than the previous season's figure of 17lb. With the higher stocking rate used in the 1951 summer there was no differential intake of grass by the two groups. Measurement of individual intakes confirmed that both groups obtained similar amounts of pasture, so that the higher intake of lucerne was diverted toward body-weight gains and not milk production.

Turnip and Silage Feeding Trial 1951

In the 1951 summer a feeding trial was also undertaken to compare turnips with silage as a milk-producing feed. Nine sets of identical twins were split into two groups and the experiment was conducted along similar lines to the previous ones; that is, separate but similar grazing areas and the adoption of a rotational grazing system involving a move each day into a new paddock. Silage and turnips were fed to provide an intake level of about 10lb. of dry matter per cow per day over the 8-week experimental period. In general it was noted that, in comparison with silage, the turnips had a laxative effect, but this did not seem to affect the health of the cows adversely, except one which scoured very badly and had a relatively low production. Her production record, however, was not excluded from the results, as it was likely that the turnip diet was directly responsible for her digestive upset.

Fig. 3 indicates the production trends and liveweight changes for each group. The turnip fed cows produced more butterfat than their silage fed twins in 7 of the 8 weeks of the experimental period. The increase in production from the turnips was about ¾lb. of fat per cow per week for the first 4 of the 8 experimental weeks and then tended to increase to almost 1lb. in the last week, giving an average difference of ½lb. of fat per cow per week.

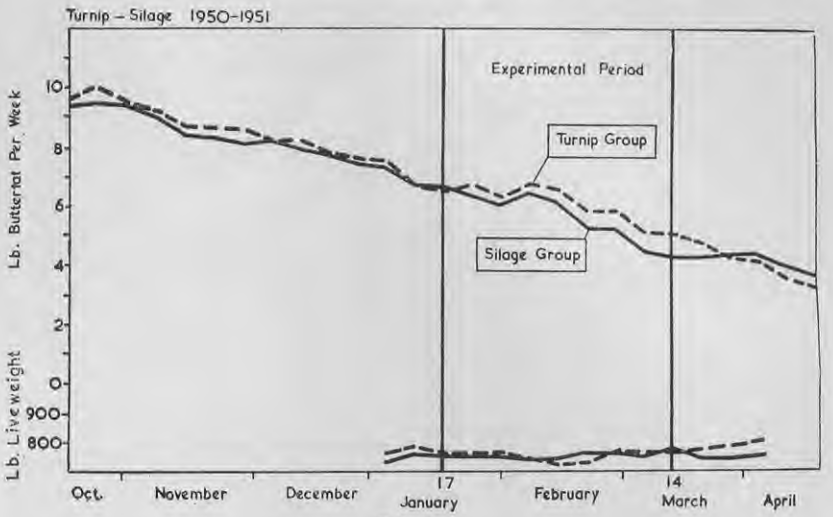

Fig. 3.

This advantage was equivalent to practically a 10 per cent. increase in butterfat yield.

The pasture growth during the first 4 weeks of the trial was relatively good, but slowed down appreciably toward the end of the trial owing to lack of rain.

After the experimental period the two groups were treated similarly by being pastured together and allowed as supplementary feeding approximately equal amounts of turnips and silage. The beneficial effect of feeding turnips was very transient. At the end of the first week after the cessation of the trial the productions of the two groups were practically equal. Thereafter the group previously fed on turnips produced less butterfat than the other group.

The different members of twin sets reacted differently, though under similar treatment. For instance, at one end of the scale one set showed an average weekly difference of 1¼lb. of fat in favour of the turnip fed twin, and at the other end a turnip fed twin averaged nearly ¼lb. of fat less than her twin.

This is recognition of the simple fact that cows of different breeding will react differently to the same treatment. It also means that though all the twins had equal opportunities to eat their respective supplements, some of the twins may have relished turnips and their mates may have hated silage. Others may not have eaten their fair share of turnips and their mates may have eaten more than their fair share of silage.

The graphical representation of the liveweights in Fig. 3 shows that the twins of the turnip group were heavier than their twins before the experiment. They lost weight to such an extent that they averaged at the end of the fourth week nearly 30lb. lighter than the silage fed cows. After this they began to regain condition, but were still slightly lighter at the end of the experiment. However, immediately after the conclusion of the experiment the weight relationship between the groups returned to the original position. This rapid change suggests that the true body-weights of both groups of twins remained practically unaffected and that the apparent loss of body-weight caused by turnip feeding was due to its scouring effect.

Good and Poor Silage Feeding Trial 1953-54

In the next aspect of this work the results of a comparison between good silage and poor silage as summer supplements are described.

A commonly held belief is that the earlier cuts of grass produce a silage that is higher in feeding value than later cuts and consequently it is considered good dairy farm management to use these early cuts for summer supplementation and to use the later cuts for winter feeding.

There is a very great depreciation in pasture quality or feed value between the leafy and the flowering stages for most pasture plants, and at the flowering stage grass has lost its high feed value. The further deterioration in feed value between the flowering and the seeding stage is relatively not so marked.

Practically no silage, even the so-called early cuts, is made before some of the pasture plants, principally Yorkshire fog, are well into the flowering stage. Consequently it is argued that the resultant silages from early and late cuts of grass probably differ very little in feed value. It seems somewhat odd that though cows are not expected to milk to capacity on a paddock of grass that is at the stage of growth for cutting for silage, good feeding value is expected when the same grass is fed back as silage.

In an attempt to make a high-class silage grass was cut in the leafy stage, when it was equivalent to good cow grazing fodder. Because of the early cutting, yield measurements approximated 1¼ tons of dry matter per acre or only slightly more than half the yield from a normal crop yielding 2 tons of dry matter. The material was wilted in the paddock for about 24 hours and ensiled in a pit with a