

The following types of herbage have been ensiled in this year's experimental programme: (a) Young high protein herbage; (b) medium protein herbage; (c) low protein herbage. These have been ensiled both with and without added sugars, and measurements are being made of pit losses with and without suitable coverings. Stacks of medium protein herbage have been made and a trial is being made of a proprietary paper stack mould.

Trials to determine the minimum size of the experimental silo have shown that a two-foot drainage-pipe and oversilo proves satisfactory. This will mean that a much better layout is possible than having to use full-size pits.

A digestion trial of silage fed to milking-cows has been carried out, and the results sent for publication.

A survey of stack silage was conducted over a large number of farms in the Manawatu, Taranaki, and Waikato districts. The survey showed very low-quality silage in the main, and it is worthy of note that the best by a long way of all stacks was that made on the Massey rotation area from young rye-white pasture. The results of the survey have been prepared for publication.

A large-scale mowing trial to determine the total yields of nutrients from high-fertility pasture shut at different times and cut at different stages has been completed. Results are not conclusive, however, due to the exceptional season experienced at Palmerston North. The trial will be extended this year to bring in the effect of late autumn and winter management.

#### *Hay.*

An experiment to determine losses in haymaking methods has been carried out. Due again to excellent haymaking weather, the results do not show much in the way of conclusive results. All the hays produced were of excellent quality.

#### *Herbage Dissection.*

The large numbers of samples submitted for analyses have been maintained and extended in the past year. Samples are now received from all parts of New Zealand from trials run in collaboration with the Department of Agriculture and other organizations.

Considerable data on technique, sample sizes, and paddock variation was lost in the fire.

Most of the samples from outside stations are from the Animal Research Division and the Marton Experimental Area. In all these trials this Division has access to the data secured and so this herbage analysis service performs the double function of both giving and receiving valuable information.

#### *Simple versus Complex Mixtures.*

Of recent years with more and more attention being directed towards balanced rations for stock the question of whether the trend towards simplicity of pasture swards in the use of simple mixtures, high fertility maintenance, and a full grazing utilization technique is in the best interests of animal thrift must be reviewed. The programme of pasture-plant improvement by this Division and the general observations over a wide field of study has tended rather to the impression that simple pastures, dominated by perennial rye-grass and white clover, represent the ideal to aim at from a production point of view at least. Against that claim a good deal of criticism has been levelled from the aspect of a balanced animal nutrition.

There is at the moment absolutely no experimental data on which to base criticism, nor is there any possibility for any one at the moment to refute such criticism.

The question of simple mixtures versus complex is not merely a matter of the seed-mixture sown. Question of soil fertility and pasture utilization are involved, and the whole gamut of plant competition within the association under varying degrees of soil fertility and methods of grazing have to be studied. Yields of the component species alone and in combination and under varying management need to be worked out, and in the ultimate the digestibility factor at their varying stages of growth must be determined before much light can be thrown on whether sward complexity is more to be desired than sward simplicity.

An approach to this study is being started on a 6-acre block of the Conway property.

#### *Facial Eczema.*

Close touch has been maintained with the main investigation under the direction of the Animal Research Division, Department of Agriculture. Some field assistance was given in pasture surveys in the Waikato and on the East Coast. A general pasture-growth survey has been made through the co-operation of the Fields Instruction service of the Department of Agriculture. Pasture analyses have been made of fields grazed and of feed fed to animals in stalls. Close collaboration with the Plant Chemistry Laboratory has been maintained in the growing and collection of herbage for this chemical work.

#### *Meteorological Data.*

This section has now taken over the meteorological observation station at Palmerston North, previously handled by the Dairy Research Institute of the Massey Agricultural College.

#### AERODROME-TURF PRODUCTION.

Mr. Madden, Senior Agrostologist has been seconded to the Public Works Department to advise, particularly on aerodrome-turf production and to carry out research work where particular difficulties in turf construction are met with. Most aerodromes have been visited on two occasions at least, and several have been visited three times. Reports on condition of turf and programme of work necessary