

(5) CONSERVATION OF SUPPLEMENTARY FODDER RESEARCH.

The objects are to study the methods of conserving pasture and the nutritive value and palatability of the products. Eight pits of silage (approximately 2 tons each) were made using the following methods:

- (a) Natural fermentation.
- (b) Molasses.
- (c) Whey.
- (d) Molasses unconsolidated.
- (e) Natural fermentation at high temperatures.

Preliminary chemical analyses on progressive samples have been carried out. Feeding trials to study relative palatability to dairy cows and sheep are being arranged.

(6) FACIAL-ECZEMA RESEARCH.

The following work has been assigned to this Division by the Facial Eczema Management Committee:

- (1) Study of growing grass in glasshouses or otherwise to obtain control of growth conditions, particularly in regard to control of temperature, soil moisture, and humidity, and having particular reference to alternate wilting and flush periods of growth. Swards of pure perennial rye-grass are being grown under the following conditions:—
 - (a) Normal outside conditions— non-irrigated.
 - (b) Outside conditions— irrigated.
 - (c) Outside conditions— soil temperature controlled by soil-heating element.
 - (d) In two small glasshouses control heated with soil cables and fitted with exhaust fan.
 - (e) Small lot in cold frames, unheated but covered with moveable glass frames.

The herbage produced is used by the Chemical Laboratory for their intensive studies into chemical changes that take place in plant growth according to changes in environmental conditions.

- (2) Assistance in field observation and in certain grazing and feeding trials. Mapping pastures and statistically sampling these. Twelve farms were under observation in the Waikato, and small grazing and feeding trials were conducted at Wairoa.
- (3) Observations on pasture growth conditions in the Manawatu, and collating growth conditions elsewhere.
- (4) Dissection of herbage for determination of botanical composition in connection with the Waikato stations and East Coast work. Approximately one thousand five hundred samples have been botanically analysed to date.

(7) FUNDAMENTAL TECHNIQUE RESEARCH ON NUTRITIVE VALUE OF HERBAGE.

The work envisages a very detailed programme of botanical and yield determinations on areas subjected to various environmental conditions with the object of determining the reliability of research technique in relation to pastures. The objectives in the work now designed are:

- (a) To measure the influence of the grazing animal on sward development—*i.e.*, effect of dung, urine, treading, and grazing.
- (b) To compare and devise plot technique trials with and without the influence of the animal.
- (c) To study the effect of mode and severity of defoliation on production and botanical composition of pasture swards.
- (d) To provide material for nutritive value of herbage studies being inaugurated in conjunction with the chemical laboratory and Massey Agricultural College. An area of 1½ acres has been sown to a complex pasture mixture, and steps are now being taken to fence this area into small enclosures and for the erection of a feeding shed for nutritional studies using sheep.
- (e) The elaboration and use of statistically sound methods in botanical analyses. Satisfactory progress has been made in standardizing the methods of sampling and analysing, and an efficient technical staff is being gradually trained.

(8) GREENKEEPING RESEARCH.

The present scheme has now been in operation for eight years, and this year it has been considerably modified and enlarged to incorporate information gained by prior experience. Approximately four hundred plots are receiving individual treatment. A series of certified brown-top lines has been laid down to study whether any type variations exists in the certified seed when grown and managed under actual lawn conditions. The annual Greenkeepers' Conference was again held, and a diploma course in greenkeeping was instituted during the year.

(9) LECTURES AND DEMONSTRATIONS.

Interest is still well maintained in the work of this Division, and frequent demonstrations to visitors have been given. The demand for lectures has continued, and requests have been acceded to whenever possible.