

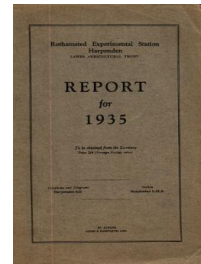
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ROTHAMSTED
RESEARCH

Report for 1935

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The Dissemination of the Results

Rothamsted Research

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2. The Production of Lamb. A breeding flock of 200 "Half-bred" ewes is maintained for ordinary farm use, and on this experiments are made :

- (a) to test the effects of flushing ;
- (b) to compare four-teated ewes with two-teated ewes as mothers ;
- (c) to discover whether it is really necessary to import continuously new stock from the North or whether the breeding ewes can be produced here ;
- (d) to study the advantages and disadvantages of breeding from ewes in their first year.

3. The Production of bacon. Some 20 breeding sows are kept and the progeny sold mostly for bacon.

Among the problems studied have been :

- (a) the relative values of wet and dry feeding ; of restricted and unlimited feeding ;
- (b) the value of green food ;
- (c) the effect of the state of division of the food ;
- (d) the effect of exercising the animals on the quality of bacon they yield.

THE DISSEMINATION OF THE RESULTS

This is one of the most difficult problems in connection with research work and it has no simple solution.

Several methods are adopted at Rothamsted :

1. The scientific papers are published in the appropriate journals and periodically collected as Volumes of Memoirs. At suitable times a monograph is published in which the various scattered papers dealing with a particular subject are combined and the necessary connecting and rounding-off experiments are made so as to give a coherent account of its present position. Seven of these have already been published dealing with Soil Fertility (the Director) ; Physical Properties of the Soil (Dr. Keen) ; Soil Micro-organisms (a joint production) ; Experiments on Grassland (Dr. Brenchley) ; British Aphides (Dr. Davidson) ; Soil Microbiology (Mr. Cutler and Miss Crump) ; the Woburn Field Experiments (the Director, Dr. J. A. Voelcker, with a Statistical Report by W. G. Cochran). The Director's Monograph on Soil Conditions and Plant Growth has passed through six editions and a seventh is in preparation ; it has been translated into French, German, Spanish, Russian and Ukrainian and pirated in China by photographic reproduction, omitting the name of the publisher but inadvertently including that of the printer. Other of the Director's books have been translated into Portuguese, Italian and Armenian and negotiations have been made for translation into Japanese, Hungarian and other languages. Dr. Keen's monograph on the Physical Properties of the Soil has been translated into Russian and Dr. Brenchley's monograph on grassland into German.

2. The practical and technical information is disseminated in three ways :

- (a) by Conferences at Rothamsted at which practical men are

invited to give their experiences and the Rothamsted staff and other experts also read papers. The proceedings are then published cheaply as booklets.

(b) by lectures to farmers' organisations This falls largely on Mr Garner, but the senior members of the staff including the Director regularly give a certain number. Field demonstrations are arranged at outside centres wherever the experimental results are suitable: this is usually done by Mr. Garner or Dr. Crowther, in association wherever practicable, with the County Organiser. Articles for the technical press are frequently written.

(c) by demonstrations at the Rothamsted Farm, usually by Mr. Garner, Captain Gregory and Mr. Moffatt. The numerous visitors to the laboratories are dealt with by Messrs. Garner and Gregory and a group of rota guides, which includes selected voluntary workers and all members of the scientific staff other than Heads of Departments. The number of visitors increases every year.

In addition there is a fair amount of visiting of farms when the owner not infrequently brings together a little group of neighbours for discussion.

THIRTY YEARS' WORK IN THE BOTANICAL DEPARTMENT. 1906-1936.

WINIFRED E. BRENCHLEY, D.Sc.

During the early years of Rothamsted the laboratory work was entirely concerned with matters arising from the field plots, chiefly chemical in nature, and this was carried on by a chemist and a few laboratory assistants under Sir Henry Gilbert. No regular botanist was needed, but when occasion arose a trained man was engaged temporarily to supervise the botanical separation of Park-grass Hay, this work being carried on later by Mr. J. J. Willis. By 1906 the scientific work of the institution was widened, and sub-division into departments gradually became necessary. The James Mason laboratory, erected in that year, served to house the various young biological departments until the general extension of the laboratories began about 1912. During that period the foundations of a botanical department were laid down, and the work was ready for fuller development when increased accommodation and working facilities became available.

In the early days of this century the question of the "strength" of wheat was receiving much attention, and the first problem dealt with in the new department was the possibility of associating the varying strength of wheat with cytological differences in the developing grain, but no such differences could be detected ⁽¹⁾. Analyses made at three day intervals from flowering to maturity showed that at each stage the endosperm is filled by uniform material, possessing always the same ratio of nitrogenous to non-nitrogenous material and ash, this ratio being determined by such factors as variety, soil and season ⁽²⁾. With barley, as with wheat,

(1) W. E. Brenchley—"On the Strength and Development of the Grain of Wheat (*Triticum vulgare*). *Ann. Bot.*, 1909. Vol. XXIII, pp. 117-39.

(2) W. E. Brenchley and A. D. Hall—"The Development of the Grain of Wheat." *J. Agric. Sci.*, 1909. Vol. III, pp. 195-217.