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Annual Report for 1914 With the Supplements to the Guide to the Experimental Plots Containing the Yields per Acre, Etc.



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Short Technical Papers ; Monographs

Rothamsted Research

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SHORT TECHNICAL PAPERS.

During the year a series of short papers has been published, dealing with technical problems in the light of investigations going on in the field, the pot culture house and the laboratory.

- I. "*On the Loss in a Stack of Unthreshed Corn.*" E. J. RUSSELL. Journal of the Board of Agriculture, 1914. 21, 300—304.

This paper records the history of two stacks which, instead of being threshed soon after harvest, were left till the following October. In both cases the loss was found to be serious—in one there was a considerable loss of grain, in the other the total grain did not greatly decrease, but much was damaged and came out as tail corn. It is shown that a man who kept his wheat unthreshed till May has in normal years a chance of obtaining 10 per cent. higher price for it, but he runs the risk of incurring a far greater loss. The conclusion is that under ordinary circumstances wheat should be threshed out as soon after harvest as possible.

- II. "*Ashes of Hedge Clippings and Trimmings as a Source of Potash.*" E. J. RUSSELL. Journal of the Board of Agriculture, 1914. 21, 694—697.

Hedge trimmings were found to contain some 10 per cent. of potash (K_2O) and thus to be nearly as rich as kainit; the trimmings of a 20-acre field yielded ash equivalent to nearly 2 cwt. of kainit. Since the potash occurs as the highly soluble carbonate, serious loss arises when the bonfire ash is exposed to rain; in these experiments it amounted to one half. It was not found difficult, however, to improvise temporary shelters. The ash mixes well with super-phosphate and can be applied in this way.

- III. "*The Prevention of Loss from Manure Heaps in Winter and Early Spring.*" E. J. RUSSELL and E. H. RICHARDS. Journal of the Board of Agriculture, 1914. 21, 800—807.

Manure heaps were set up under various conditions of storage indicated by the laboratory experiments, and it was found that serious loss was occasioned when rain washed into the heap, even though no visible drainage took place. The cause is discussed on p. 8. The old view that loss is due to volatilisation of ammonia cannot be regarded as complete, and it thus becomes possible to explain the failure of some of the conservation methods that have been suggested on this hypothesis. Rain now appears to be the great enemy, causing loss even when nothing is draining from the heap and, of course, more serious losses when visible leaching occurs. Considerable saving was effected by sheltering the heap, and the loss was reduced to very small proportions by a combination of sheltering and compacting.

- IV. "*Third Report on the Partial Sterilisation of Soils for Glasshouse Work.*" E. J. RUSSELL. Journal of the Board of Agriculture, 1914. 21, 97—116.

This paper contains an account of the large scale trials that

have been made in glasshouses in the Lea Valley district. High pressure steam, low pressure steam, and baking were all tried, and each found to possess some advantages. One of the low pressure steam methods was found to work very easily for heating soils *in situ*; a high pressure steam method was found to work well in combination with trenching.

Methods are described for dealing with rankness of growth, perhaps the chief danger arising out of the partial sterilisation of soils.

This work is now being transferred to the new Experiment Station which has been opened in the Lea Valley.

- V. "*The Work of the Rothamsted Experiment Station.*"
E. J. Russell. Journal of the Board of Agriculture,
1914. 21.

A description of some of the recent work of the Station in its bearings on technical problems of present-day interest.

- VI. "*The Effect of One Growing Crop on Another.*" E. J. RUSSELL. Fourteenth Report of the Woburn Experimental Fruit Farm.

- VII. "*Results of Experiments with Chrysanthemums on Partially Sterilised Soils during 1913.*" W. BUDDIN. Transactions of the National Chrysanthemum Society, 1913. 21—24.

A continuation on a larger scale of the experiments dealt with last year. The earlier results were in the main confirmed. When equal numbers of blooms were carried per plant those obtained from the steamed compost were larger and firmer than those from the untreated compost. When, however, the plants on untreated carried fewer blooms they were of as good quality as those on the steamed compost. The earlier blooming on the steamed compost was less marked than in last year's experiments.

MONOGRAPHS.

It is proposed to bring out a series of monographs in which the members of the Staff will discuss the particular problems they have been investigating, as soon as sufficient material has accumulated to render such a course desirable. Two have already been written:—

- "*Soil Conditions and Plant Growth.*" 2nd Edition, revised and enlarged. E. J. RUSSELL. Longmans & Co., 5/- net.

- "*Inorganic Plant Poisons.*" WINIFRED E. BRENCHLEY. Cambridge University Press, 5/- net.