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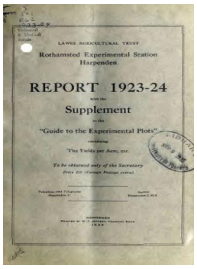
Report for 1923-1924 With the Supplement to the Guide to the Experimental Plots Containing the Yields per Acre Etc.



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Rothamsted Research

Rothamsted Research (1925) *Summary of Papers Published 1923, 1924 - II. Technical Papers : ;* Report For 1923-1924 With The Supplement To The Guide To The Experimental Plots Containing The Yields Per Acre Etc., pp 69 - 72 **- DOI: https://doi.org/10.23637/ERADOC-1-116**

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this paper hold out definite hope of the financial possibility of the treatment of small isolated areas and offer some hope even of the possibility of applying such treatment to large areas.

(*c*) PLANT PATHOLOGY.

LVIII. WM. B. BRIERLEY. "*The Relation of Plant Pathology to Genetics.*" Report of Imperial Conference of Botany, London, 1924. (Cambridge University Press.) pp. 111-119.

A critical discussion of the problem. Where disease is due to growth in unfavourable conditions the problem resolves itself into a study of the genetical qualities of the plant in relation to soil, climate, etc. Where disease is brought about by parasites a complete understanding of any particular case involves the genetic and physiological analysis of both host and parasites and the physical and chemical analysis of the conditions under which the host and parasites have developed and at present exist. Assumption of germinal stability by the plant breeder and of germinal instability by the microbiologist are antithetic and require deeper analysis. Immunity and susceptibility relationships are often confined to pure lines of host and physiological strains of parasites and alterations in external conditions may greatly modify the phenotypic expression of this relationship. The primary factors that determine the appearance of disease in any particular case are (1) the genetic qualities of host and parasite; (2) environmental conditions; (3) relative geographic distribution of host and parasite. An additional factor of importance is the relation of the hygiene of the host to the incidence of disease, the commonly held ideas on which are urgently in need of revision. Most of the past analytic work on the genetics of micro-organisms and the disease relationship needs revising in the light of the following: (*a*) the co-existence of distinct physiological strains in morphological units; (*b*) the possibility, and in certain cases probability, of very considerable genetic complexity and genetic segregation in micro-organisms. Genetic research on bacteria and fungi is incommensurable with that on the more evolved organisms which is the basis of present genetical theory and in the study of the former exact criteria and definite concepts are almost entirely lacking.

TECHNICAL PAPERS.

(*a*) SOILS AND FERTILISERS.

LIX. H. J. PAGE. "*The Chemistry of the Soil and of Crop Production,*" in "*Chemistry in the XXth Century.*" (Benn Bros., 1924.) pp. 225-242.

Following a foreword by Sir John Russell, the subject is discussed with special reference to the progress made since 1900, more particularly by British workers.

LX. B. A. KEEN. "*Soil Tilth in Relation to Mechanical Tillage.*" Agricultural Gazette, 1924. Vol. C., pp. 297-298.

An account of the work on soil cultivation being done in the Physical Department. (*See* p. 28.)

https://doi.org/10.23637/ERADOC-1-116

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LXI. E. M. Crowther and W. B. Haines. *"An Electrical Method for the Reduction of Draught in Ploughing."* The Implement and Machinery Review, 1924. Vol. L., pp. 1003-5.

An account of the practical aspects of the work described in paper XXVI.

LXII. E. M. Crowther. *"The Determination of Lime Requirements."* Read before Agricultural Education Association, July, 1924. Agricultural Progress, 1924. Vol. II., pp. 80-84.

The practical aspects of work discussed in papers XXVII.—XXX.

LXIII. E. M. Crowther. *"The Soils of Tropical Africa."* Empire Cotton Growing Review, 1925. Vol. II., pp. 35-39.

In response to enquiries from cotton growing centres, this article summarises the information on the nature of laterite soils, and the general question of the relation of soil type to climate and topography. Suggestions are made for the collection of simple data, essential for the preparation of soil maps.

LXIV. H. J. Page. *"The Utilisation of Waste Products in Agriculture."* Journal of the Ministry of Agriculture. 1924. Vol. XXX., pp. 910-918.

An article dealing with the utilisation of waste products such as sewage, town refuse, seaweed, straw, and various industrial wastes as fertilisers.

LXV. H. J. Page. *"Annual Report on Soils and Fertilisers for* 1923." Society of Chemical Industry. Annual Reports on Applied Chemistry. 1924. Vol. VIII.

LXVI. H. J. Page. *"Annual Report on Soils and Fertilisers for* 1924." Society of Chemical Industry. Annual Reports on Applied Chemistry. 1925. Vol. IX.

LXVII. H. J. Page. *"Agricultural Chemistry and Vegetable Physiology."* Annual Reports of the Chemical Society. Vol. XX. 1924.

LXVIII. H. J. Page. Sections on *"Soils"* and *"Chemistry of the Living Plant,"* in "Biochemistry," by H. J. Page and J. C. Drummond. Annual Reports of the Chemical Society. 1925. Vol. XXI.

LXIX. E. J. Russell. *"Monthly Notes on Manures."* Journal of the Ministry of Agriculture. 1923. Vol. XXIX., pp. 944-948, 1043-1047, 1138-1141. 1923. Vol. XXX., pp. 554-557, 660-663, 756-758. 1924. Vol. XXXI., pp. 873-875.

LXX. H. V. Garner. *"Monthly Notes on Manures."* Journal of the Ministry of Agriculture. 1923. Vol. XXX., pp. 861-864. 1924. Vol. XXX., pp. 953-959, 1057-1061, 1160-1164. 1924. Vol. XXXI., pp. 79-85, 190-195, 672-677, 774-779.

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LXXI. E. J. Russell. "*Soil Improvements.*" Journal of the Ministry of Agriculture. 1924. Vol. XXXI., pp. 120-127.
"*Soil Improvement: Fertilisers and their Use.*" Journal of the Ministry of Agriculture. 1924. Vol. XXXI., pp. 217-223.

(*b*) BIOLOGICAL.

LXXII. A. D. Imms. "*The Gout Fly of Barley.*" Journal of the Ministry of Agriculture. 1925. Vol. XXXI., pp. 1137-1140.

A review of present knowledge of the life-history of the Gout Fly based primarily upon researches carried out at Rothamsted by J. G. H. Frew (papers XLVIII., XLIX). It is pointed out that possible control measures lie in early sowing and suitable manuring of the crop and that no remedial measures are available.

LXXIII. P. H. H. Gray. "*Bacteria of the Soil, and the Utilisation of Organic Antiseptics.*" Discovery. 1923. Vol. IV., pp. 153-156.

An account of the isolation and distribution of soil bacteria that can decompose phenol, cresol, toluene and naphthalene.

LXXIV. P. H. H. Gray. "*Bacteria of the Soil, and the Decomposition of Cellulose.*" Discovery. 1925. Vol. VI., pp. 56-59.

Promising methods of preventing losses that follow the incorporation of cellulosic materials into the soil are discussed in relation to recent knowledge of cellulose decomposition.

LXXV. F. Tattersfield and C. T. Gimingham. "*Experiments with* Sodium Fluosilicate *as an Insecticide.*" Journal of Industrial and Engineering Chemistry. Vol. XVII., p. 323.

Preliminary experiments with Sodium and Potassium Fluosilicate as stomach poisons to caterpillars indicate that these compounds have interesting possibilities as insecticides.

(*c*) GENERAL.

LXXVI. E. J. Russell. *British Association for the Advancement of Science.* 1924. Presidential address, Section M.

LXXVII. E. J. Russell. "La relation entre les organismes du sol et sa fertilité." 1923. Troisième Congrès de Chimie Industrielle, Paris.

LXXVIII. B. A. Keen. "*Experiments Upon the Wheat Crop at Rothamsted.*" Essex Farmers' Journal. 1923. Vol. II., pp. 140-142.

LXXIX. B. A. Keen. "*Recent Work at the Rothamsted Experimental Station.*" Essex County Farmers' Union Year Book. 1924.

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BOOKS PUBLISHED DURING 1923-4.

J. Davidson. "*A List of British Aphides*" (including notes on their synonymy, their recorded distriution and food-plants in Britain, and a food-plant index). Longmans, Green & Co. (in the press).

This work has been prepared owing to the great economic importance of aphides in relation to farm, garden and orchard crops, and their possible association with so-called mosaic diseases. Buckton's *Monograph on British Aphides* was published about 45 years ago, and since that time many more species have been recorded and the nomenclature has undergone drastic changes.

In the present work the species are placed in accordance with the more recent nomenclature. It is divided into four sections. Section 1 deals with the species in alphabetical order together with their food-plants and distribution in Britain. Section 2 deals with the genera, including critical notes. Section 3 is a food-plant index, forming a key to Section 1, and Section 4 a bibliography of 360 titles.

The work is intended to be a reference list and to serve as a general guide to the identification of the species of aphides.

R. A. Fisher. "*Statistical Methods for Research Workers.*" Oliver and Boyd, Edinburgh (in the press).

The wide increase in the employment of statistical methods, especially in scientific research, has been accompanied by exceptionally rapid progress in recent years in the solution of the mathematical problems which confront the statistician. Most of the mathetical problems which confront the statistician. Most of the mathematical researches of the author have been undertaken in direct response to the needs of the laboratory worker, and with a view to the development of statistical methods adequate to the practical requirements of biological and agricultural research.

The aim of the book is to provide the non-mathematical scientific worker with the detailed application of precise statistical methods, which have been available hitherto only in specialised mathematical publications. The methods are illustrated throughout with numerical examples, drawn from recent scientific literature, giving the methods of computation in detail. New mathematical tables have been specially calculated for rendering the crucial tests simple and exact.

THE CROP RESULTS.
OCTOBER, 1922, TO SEPTEMBER, 1923.

The outstanding features of the season October 1922 to September 1923, were the sunless spring and the earliness and severity of the autumn frosts of 1923.

The year commenced favourably; October was unusually dry; it had the lowest rainfall figures for this month (0.787in. against an average of 3.06in.) since our records began, so the ploughing and drilling were got well forward. The dry weather continued into November, and with the help of night frosts which