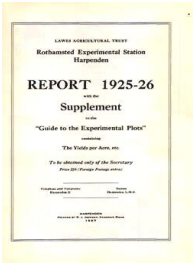
Report 1925-26 With the Supplement to the Guide to the Experimental Plots



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Partial Sterilisation

Rothamsted Research

Rothamsted Research (1926) *Partial Sterilisation ;* Report 1925-26 With The Supplement To The Guide To The Experimental Plots, pp 42 - 42 **- DOI: https://doi.org/10.23637/ERADOC-1-84**

guaranteed cultures issued under adequately controlled conditions without diverting the scientific staff from their proper function of carrying out research work.

Partial Sterilisation.

The practice of partially sterilising soil by steam or antiseptics, advocated as a result of investigations at Rothamsted some years ago, is now extensively used in the glasshouse tomato and cucumber growing industry, and has played an important part in raising yields to the levels commonly attained to-day. " Sick " soils, such as those previously dealt with, are now rare : before this stage is reached, the soil is steamed or treated with carbolic acid. They can still be found, however : one studied in 1925 by the Lea Valley Research Station, yielded only 28 tons per acre : a portion that was steamed, yielded 50 tons per acre, while a part treated with carbolic acid yielded 43 tons per acre. The practical problem has now shifted and sterilisation is adopted rather as a preventive than as a cure.

Unfortunately, steaming is costly and the carbolic acid treatment, while cheaper, is rarely as effective. Search has, therefore, been made for more potent chemicals. A heavy oil producd as a by-product from the Mond Gas process was better, giving 6.25 lb. per plant, when applied at only half the usual rate, as against only 5.5 lb. for the full carbolic treatment, and 5.25 on the untreated soil : Steam, however, raised the yield to 7 lb. per plant. This particular oil is not easy to apply, and persists long in the soil. In another nursery it was less effective : the untreated plots yielding 4.8 lb., while the oil gave 5.4 lb., and the carbolic acid 4.3 lb. per plant.

Two organic substances, possible intermediates in the dye industry, have been studied; chlor-di-nitrobenzene and 3.5 dinitro-o-cresol : the former was more effective than carbolic acid even when used in only one-seventh the amount (0.02 per cent. of the weight of the soil instead of 0.15 per cent.), giving an additional 2 tons of tomatoes per acre, as against 1 ton given by carbolic. In these trials the soil was initially good, the yields on the control plots being 44 tons per acre, beyond which it is difficult to go.

In view of the change in the nature of the practical problem, the scientific investigation has been reopened jointly by the Insecticides and Microbiological Departments.

Production of Manure from Waste Cellulose Materials, Straw, Etc.

This process was worked out at Rothamsted by Dr. H. B. Hutchinson and Mr. E. H. Richards in 1920, and has been steadily improved. The exploitation, being unsuitable for an experiment station, is carried out by the non-profit-making syndicate, Adco. The process is now at work in over 30 countries, and thousands of tons of material are treated each year.

The scientific work is being continued in these laboratories. The decomposition proceeds when sufficient moisture and nitrogenous and other nutrients are present, but different waste substances

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