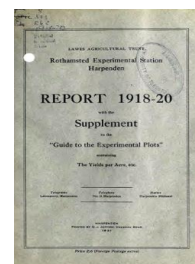


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Report 1918-20 With the Supplement to the Guide to the Experimental Plots Containing the Yields per Acre Etc.



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Weed Flora

Rothamsted Research

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The distribution at the various depths is shown in the following table of percentages of the total in each group:—

	0-1"	1"-3"	3"-5"	5"-7"	7"-9"
INSECTS :					
Manured Plot . . .	51.5	27.2	10.9	6.4	3.8
Untreated Plot . . .	25.3	25.0	33.0	11.1	5.5
ACARI :					
Manured Plot . . .	48.3	25.3	20.2	5.0	1.2
Untreated Plot . . .	59.3	23.4	14.0	3.1	—
EARTHWORMS :					
Manured Plot . . .	23.3	37.0	22.0	10.6	7.0
Untreated Plot . . .	23.5	41.0	18.3	11.0	5.8

The vast majority of soil organisms were found at a depth not exceeding 3 inches. Wireworms are exceptional in that they attain their maximum numbers at a depth of 5 inches to 7 inches. Manuring increases the total number of soil organisms to the extent of about 200%, but exercises no very appreciable influence upon the number of wireworms present.

THE POSSIBILITY OF THE CONTROL OF THE SOIL POPULATION.

Previous investigations have shown that heating the soil or treatment with certain poisons not only rids it of pests but actually improves its productiveness, increasing the amount of bacterial activity. This has been applied in glasshouse practice in the Lea Valley. Steaming has proved effective and so have certain chemicals, but their action is complicated by the fact that some poisons such as phenol, cresol, naphthalene, etc., are destroyed in the soil before they have been able to kill those organisms to which they are fatal. It is found that certain soil bacteria have the power of attacking or feeding on these particular poisons: they are being further studied in the bacteriological laboratory. The introduction of a chlorine atom stabilises the poison and the further introduction of a nitro-group adds considerably to its toxicity (p. 58). Much work has been done to find a suitable agent for the control of wireworms (p. 43).

INVESTIGATIONS ON THE WEED FLORA.

The accumulated data on the weed flora of arable and grass land has been worked up by Dr. Breckley and published in book form. Connections have been traced between various groups of weeds on the one hand and soils and crops on the other, and in some cases slight changes in manurial or cultural treatment may prove efficacious in the reduction of bad weed pests. Arrangements are being made for gathering together more information from different parts of the country in order to extend the practical application of the work.

THE PHYSICAL CONDITIONS OF THE SOIL.

Much of the agricultural value of the soil depends on physical conditions, such as the ease of cultivation, the supply of air and moisture, temperature, etc. These factors, which largely determine its suitability for the growth of crops and micro-organisms,