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Fungus Diseases in Crops at Rothamsted and Woburn. Observations on Fungous Diseases in Crops on Experimental Plots at Rothamsted and Woburn May-september 1930

Rothamsted Research

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More elaborate experiments are made at some of the centres under the direct supervision of the Rothamsted staff, and in 1929 the new sampling technique for cereal crops was successfully used on barley at Wellingore. In 1930 still higher replication was adopted. The new phosphatic series of the Basic Slag Committee has five by five instead of four by four Latin squares; experiments of 32 plots or 36 plots were put down at several centres on potatoes and sugar beet, and two barley experiments of 64 plots each were carried through by the sampling method. The following table summarises the number of outside centres and plots.

Replicated Trials at Outside Centres, 1926-30.

	Conducted by Rothamsted Staff.		Conducted by Other Workers.		Total.	
	No. of Centres.	No. of Plots.	No. of Centres.	No. of Plots.	Centres.	Plots.
1926	4	73	—	—	4	73
1927	5	85	—	—	5	85
1928	7	186	3	41	10	227
1929	5	112	5	76	10	188
1930	7	234	10	160	17	394

OBSERVATIONS ON FUNGOUS DISEASES IN CROPS ON EXPERIMENTAL PLOTS AT ROTHAMSTED AND WOBURN MAY—SEPTEMBER, 1930

By MARY D. GLYNNE

WHEAT

TAKE-ALL OR WHITEHEADS. (*Ophiobolus graminis* Sacc.) was prevalent on Broadbalk particularly on the unfallowed plots. It appeared to cause serious damage on Great Knott; on Fosters it was only occasional and on Long Hoos Dicyanamide Grazing Experiment, 1929-30, none was found.

LEAF SPOT. (*Septoria tritici*, Desm.) was common on Broadbalk, Fosters and Long Hoos Dicyanamide Grazing Experiment, and was present on Great Knott.

YELLOW RUST. (*Puccinia glumarum* (Schm.) Erikss. and Henn.) was slight on Broadbalk and Long Hoos, moderate on Fosters and common on Great Knott.

BARLEY

LEAF STRIPE. (*Helminthosporium gramineum* Rabenh.) was very common both at Rothamsted and Woburn. The distribution of the disease appeared to vary little from plot to plot of the same experiment, but showed very striking differences in intensity in different fields. At Rothamsted in Great Harpenden Forage Experiment it was very prevalent, but in Hoos Permanent Barley the infection was slight; at Woburn in Stackyard Permanent Barley almost every plant was affected to some extent; in the Rotation Barley on the same field fewer plants were affected, but actually more were killed. There was some evidence to suggest two kinds of attack in one of which most plants were affected slightly,

and in the other fewer plants were affected, but scattered plants were killed.

NET BLOTCH. [*Pyrenophora teres* (Died) Drechsler. (*Helminthosporium teres*. Sacc.)] was present in varying amount on the barley fields at Rothamsted and Woburn.

LEAF BLOTCH. (*Rhynchosporium secalis* (Oud) Davis) varied very much in intensity from field to field. At Rothamsted on Long Hoos Rotation II, none was found, but on the Commercial Barley in the same field it was very common. On Hoos Permanent Barley it was very common, and on the Rotation Barley uncommon. At Woburn none was found on the Permanent Barley in Stackyard, but in Butt Furlong field it appeared to be present on nearly every plant.

YELLOW RUST. (*Puccinia glumarum*, (Schm.) Erikss. and Henn) varied in intensity from field to field, and was on the whole fairly common.

MILDEW. (*Erysiphe graminis*, DC.) was observed at Rothamsted, but was more common at Woburn, especially on the Rotation Barley in Stackyard.

RYE—ROTATION II

LEAF BLOTCH. (*Rhynchosporium secalis* (Oud) Davis) was very common on every plot.

BROWN RUST. (*Puccinia secalina*, Grove) was present but slight on every plot.

GRASS PLOTS

CHOKER. (*Epichloe typhina*) (Fr.) Tul. was very prevalent. It was found generally on *Agrostis*, but was also found on two plants only of *Dactylis glomerata*. The fungus was much more abundant on the unlimed than on the limed half of the plots, but this may be connected with the more frequent occurrence of *Agrostis* on the unlimed parts. The distribution of *Epichloe*, however, is not entirely dependent on the presence of *Agrostis* because on Plot 2 (unmanured after dung for the first eight years) *Agrostis* was plentiful and no *Epichloe* was found.

The fungus was most abundant on Plot 10 where potash is deficient, and on Plot 1, which receives ammonium salts alone.

OBSERVATIONS ON INSECTS ATTACKING THE FARM CROPS

MAY—SEPTEMBER, 1930

By H. C. F. NEWTON

WHEAT

THE WHEAT BULB FLY (*Hylemyia coarctata*, Fall*). Present on all plots on Broadbalk—worse after fallow, but damage estimated as small. Generally present on Fosters, Great Knott, Hoos Field alternate wheat and spring wheat plots, Long Hoos, variety trials, and at Woburn on Stackyard.

* (Note. Field inspections began after attack had been in progress 2 or 3 months.)