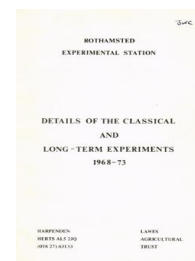


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Details of the Classical and Long-term Experiments 1968-73



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W/RN/13 Intensive Cereals - Wheat, Barley, Potatoes, Leys

Rothamsted Research

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INTENSIVE CEREALS WOBURN STACKYARD I

(W/RN/13)

This experiment, started in 1966, deals with the effects of intensive cropping with wheat or barley on yield, incidence of soil-borne diseases and organic matter in the soil. The wheat blocks are situated on part of the site of the Classical Wheat experiment and the barley on the Barley experiment (see Continuous Wheat and Barley, 1877 onwards *Details 1967*, pp 49-52). There are small errors in note (4) p. 49 and Table 19 p.50 and a correct statement is contained in papers I and II of the reference.

Design

For each crop: 2 blocks of 6 whole plots each split into 4 sub-plots (8 in certain seasons)

Treatments

Mustard was sown in the bare fallow in June 1965 and ploughed in during October.

Whole plots: Continuous wheat or barley and each phase of a five-course rotation of 1-year ley (1966 spring sown, 1967-70 autumn sown, 1971-73 spring sown), potatoes and three years of either wheat or barley.

Quarter plots: Nitrogen to the cereal:
Wheat 63 v. 126 v. 188 v. 251 kg N
Barley 50 v. 100 v. 150 v. 200 kg N

Eighth plots: 0 v. 182 kg MgO as Epsom salts on wheat blocks only, applied cumulatively 1968 and 1969.
0 v. 182 kg MgO as Epsom salts on barley block 1969.
Residuals compared with equivalent fresh dressings applied to previously untreated eighth plots on both wheat and barley blocks 1970. (Residuals v. 364 kg for wheat and 182 for barley).

NOTE: Eighth plots were not separately harvested after 1970.

Standard manuring

P and K For all crops including ley:
126 kg P₂O₅ and 251 kg K₂O half ploughed in and half on plough furrow as (0-14-28)

N For potatoes: 151 kg N applied to seedbed.
For leys: 1966 50 kg N applied to seedbed in spring.
1967-69 50 kg N top dressed in spring.
1970 126 kg N top dressed in spring and 95 kg N after each of first two cuts.
1971-73 63 kg N in seedbed and 63 kg N eight weeks after sowing: with additional 75 kg N in 1971 and 60 kg N in 1973 after the first cut (1972 only 1 cut taken in September).

Liming

1971 5 t magnesium limestone, three quarters ploughed in and one quarter on plough furrow in autumn 1970.

Varieties

Wheat:	1966-73	Cappelle
Barley:	1966-69	Maris Badger
	1970-73	Julia (dressed with ethirimol 1972 and 1973)
Potatoes:	1966	Pentland Dell
	1967-73	Majestic
Seeds mixtures:	1966-69	(Parts by weight) English Italian-ryegrass – 20%; Danish Italian-ryegrass – 40%; English Broad Red Clover – 30%; Canadian Alsike – 10%; sown at 32 kg.
	1970-72	S 22 Italian-ryegrass sown at 32 kg
	1973	S 22 Italian-ryegrass sown at 38 kg.

Weedkillers

Potatoes	1969-73	Linuron with paraquat (1971 linuron only)
Wheat and barley	1966-71 & 1973	Ioxynil with mecoprop
	1972	2,4-D with dichlorprop
	1970 and 1972	Paraquat applied previous autumn.

Other chemicals

Potatoes	1966-73	Mancozeb
	1968-73	Demeton-s-methyl
	1967, 1968, 1970 & 1973	B.O.V. (haulm mechanically destroyed other years)

Area harvested

Potatoes:	0.00138 – 0.00343
Wheat & Barley:	0.00134 – 0.00277
Ley:	0.00089 (Yields of leys not taken 1971 and 1972)

Soil series. Stackyard series.

References

1. Johnston, A.E. (1975)
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3. Mattingly, G.E.G., Chater, M., and Johnston, A.E. (1975)
III. Effects of NPK fertilisers and farmyard manure on soil carbon, nitrogen and organic phosphorous.
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