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# Yields of the Field Experiments 1972

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## 72/W/RN/6 Arable Reference Plots - Oats, Sugar Beet, Barley, Ley, Potatoes, Old Grass

### Rothamsted Research

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72/W/RN/6

ARABLE REFERENCE PLOTS

Object: To study the long term effects of FYM and N, P and K fertilisers on the yield and mineral content of crops - Woburn Stackyard C.

Sponsor: F.V. Widdowson.

The 13th year, oats, sugar beet, barley, ley, potatoes and old grass.

For previous years see 60/B/3(t), 61-65/B/2, 66/B/2(t), 67/B/2(t), 68/B/3(t), 69/W/RN/6, 70/W/RN/6(t) and 71/W/RN/6.

Whole plot dimensions: 2.74 x 2.13.

Seed: Winter oats: Peniarth sown at 260 kg.

Sugar beet: Klein E sown at 5.6 kg.

Barley: Julia (dressed with ethirimol) sown at 180 kg.

Grass-clover ley: R.V.P. Italian Ryegrass, and  
Dorset Marl Clover.

Potatoes: Desiree.

Cultivations, etc.:-

Winter oats: Balancing Mg applied: 3 Sept, 1971. Plots dug by hand: 17 Sept. P and K applied, seed drilled: 15 Oct. First N applied: 2 Mar, 1972. Sprayed ioxynil at 0.5 kg with mecoprop at 1.6 kg in 450 l: 13 Apr. Second N applied: 20 Apr. Harvested: 8 Aug.

Sugar beet: FYM applied, plots dug by hand: 1 Dec, 1971. P and K applied: 2 Mar, 1972. First N applied, rotary cultivated, Mg applied to half plots, seed drilled: 29 Mar. Second N applied, singled: 19 May. Sprayed menazon at 0.28 kg in 450 l on one occasion: 27 June. Sprayed menazon at 0.28 kg in 340 l on two occasions: 14 July, 3 Aug. Lifted: 17 Oct.

Barley: Balancing Mg applied: 1 Dec, 1971. Plots dug by hand: 2 Dec. P and K applied, first N applied, seed drilled: 2 Mar, 1972. Second N applied: 26 Apr. Sprayed dichlorprop plus MCPA ('Mephetol Plus' at 5.6 l) in 340 l: 17 May. Harvested: 16 Aug.

Grass-clover ley: Seed drilled in barley stubble: 6 Aug, 1971. P and K applied: 1 Dec. N applied: 2 Mar, 1972. Cut four times: 28 Oct, 1971, 2 June, 1972, 25 July, 2 Oct.

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Potatoes: FYM applied, plots dug by hand: 1 Dec, 1971. P and K applied: 2 Mar, 1972. First N applied, Mg applied to half plots, rotary cultivated, potatoes planted, earthed up: 26 Apr. Second N applied: 4 June. Sprayed menazon at 0.28 kg in 450 l: 27 June. Sprayed mancozeb at 1.3 kg plus menazon at 0.28 kg in 340 l: 14 July. Sprayed mancozeb at 1.3 kg in 340 l: 3 Aug. Lifted plots without K: 8 Aug. Remaining plots lifted: 4 Sept. Permanent grass: P and K applied: 1 Dec, 1971. FYM and first N applied: 2 Mar, 1972. N applied: 19 May, 25 July. Cut three times: 19 May, 25 July, 18 Oct.

- NOTES: (1) Samples were taken for determination of dry matter for each crop, and the percentage of N, P and K.  
(2) The percentage of Mg in sugar beet tops, potato tubers and leaves was determined.  
(3) The percentage of K in potato leaves was determined.

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TABLES OF MEANS

TONNES/HECTARE

Treatment	OATS		SUGAR BEET		BARLEY	
	GRAIN	STRAW	ROOTS	TOPS	GRAIN	STRAW
None	1.87	2.19	15.0	7.8	2.01	1.69
N1	3.72	4.65	21.5	17.4	2.76	2.96
P	1.65	1.84	20.0	11.0	2.16	1.74
N1P	4.49	5.79	15.4	14.7	1.58	2.49
K	2.05	2.78	18.4	8.7	2.29	1.99
N1K	4.06	5.40	32.8	18.6	4.59	4.28
PK	1.80	2.22	18.1	9.5	2.27	1.95
N1PK	4.15	6.08	29.0	18.8	5.09	5.26
N2PK	4.33	6.89	31.4	24.8	5.44	7.22
D	2.65	3.53	28.7	14.9	3.75	3.35
N1PKD	4.25	6.68	39.3	27.3	6.18	6.34
N2PKD	4.92	7.85	43.7	37.4	6.46	6.73
Mean D.M. %:	79.5	46.7			83.1	72.8

72/4/19/6

TONNES/HECTARE

Treatment	LEY: DRY MATTER				Total of 4 cuts	Total POTATOES: TUBERS	OLD GRASS: DRY MATTER			Total of 3 cuts
	1st cut	2nd cut	3rd cut	4th cut			1st cut	2nd cut	3rd cut	
None	0.42	2.30	0.58	0.87	4.17	9.6	1.06	0.46	0.28	1.80
N1	0.32	3.74	0.55	0.50	5.11	10.3	2.80	1.61	1.46	5.87
P	0.40	2.48	0.60	0.83	4.31	11.2	0.79	0.41	0.19	1.39
N1P	0.38	4.21	0.57	0.31	5.47	12.9	2.74	1.58	1.42	5.74
K	0.73	4.12	1.61	1.85	8.31	9.8	1.48	1.12	0.44	3.04
N1K	0.80	5.57	1.07	1.58	9.02	22.6	3.76	1.52	1.56	6.84
PK	0.87	4.76	1.52	1.62	8.77	13.3	1.31	0.94	0.43	2.68
N1PK	0.84	5.31	0.99	1.46	8.60	23.4	3.83	1.30	1.52	6.65
N2PK	0.67	6.26	1.14	0.96	9.03	23.4	4.78	1.38	1.77	7.93
D	0.84	4.67	1.19	1.64	8.34	26.8	2.43	0.77	0.42	3.69
N1PKD	1.26	5.84	1.11	1.55	9.76	27.7	4.83	1.28	1.83	7.94
N2PKD	0.85	6.15	1.12	0.83	8.95	40.6	4.64	1.23	1.96	7.83
Mean D.M. %:	23.3	27.3	29.5	24.3	26.1		23.6	34.8	30.1	29.5