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Yields of the Field Experiments 1974

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74/W/RN/5 Arable Reference Plots - Barley, Potatoes, Wheat, Kale, Permanent Grass

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74/W/RN/4

MARKET GARDEN

Object: To study the residual effects of fertilisers and organic manures applied in the period 1942-67 - Woburn Lansome I.

Sponsor: A.E. Johnston.

The 33rd year, fallow.

For previous years see 'Details' 1967, 68/B/4(t), 69/W/RN/4, 70/W/RN/4(t), 71/W/RN/4(t), 72/W/RN/4(t) and 73/W/RN/4.

Design: 2 series each of 40 plots divided into 4 blocks of 10 plots. Series B has the plots split into 2.

Whole plot dimensions: 8.53 x 5.18.

NOTE: Series B only: Balancing applications of peat at 94 tonnes d.m. were made to the opposite half plots to those that received peat 1965-67, and FYM at 75 tonnes and 150 tonnes to half plots opposite those that received FYM 1965-67.

Cultivations, etc.: - Both Series.

Paraquat at 0.56 kg ion in 370 l applied: 12 Sept, 1973. Subsoiled, tines 140 cm apart, 50 cm deep: 18 Sept. Peat applied (Series B only): 21 Nov. FYM applied (Series B only), ploughed: 22 Nov. Spring-tine cultivated: 2 Apr, 1974. Power harrowed: 7 May. Spring-tine cultivated: 20 June. Deep-tine cultivated: 18 July. Spring-tine cultivated: 22 Aug.

74/R/RN/5

F: N2PK
N2: rates as above, applied as urea
P: 126 kg P2O5 as potassium dihydrogen phosphate
K: 83 kg K2O as potassium sulphate to S plots: 93 kg K2O as potassium chloride to the remainder
Mg: 126 kg MgO as magnesium chloride
Ca: 126 kg CaO as calcium carbonate
S: 30 kg S applied by potassium sulphate
TE: Trace element mixture including Mn, Cu, Zn, B, Mo, Co, Fe. Test varies with crop

Whole plot dimensions: 2.13 x 2.44.

Standard applications:

Winter wheat and barley: Weedkillers: Ioxynil with mecoprop ('Actril C' at 5.6 l in 340 l). Fungicide: Tridemorph at 0.53 kg in 340 l.
Potatoes: Insecticide: Menazon at 0.28 kg in 340 l on two occasions. Fungicide: Mancozeb at 1.3 kg in 340 l on three occasions.

Seed:

Winter wheat: Maris Nimrod, sown at 270 kg.
Barley: Deba Abed sown at 200 kg (Midas on additional plots, seed dressed with ethirimol).
Kale: Thousand Headed.
Potatoes: King Edward.
Grass-clover ley: RVP Italian Ryegrass and Hungaropoly Red Clover.

Cultivations, etc.:-

Winter wheat: Balancing Mg applied to half plots: 4 Sept, 1973. Dug by hand: 6 Sept. P, K, Mg, Ca and S applied and seed sown: 10 Oct. First half N dressing applied: 21 Mar, 1974. Weedkiller applied: 8 Apr. Second half N and all N to additional plots applied: 22 Apr. Trace element spray applied: 10 May. Fungicide applied: 20 May. Harvested: 15 Sept.
Barley: Dug by hand: 26 Oct, 1973. P, K, Mg, Ca and S applied: 12 Mar, 1974. Rotary cultivated and seed sown: 27 Mar. N applied: 22 Apr. Weedkiller applied: 10 May. Fungicide applied: 20 May. Trace element spray applied: 23 May. Harvested: 15 Aug.
Kale: FYM applied and dug by hand: 25 Oct, 1973. P, K, Mg, Ca and S applied: 12 Mar, 1974. Rotary cultivated and seed sown: 29 Mar. First half N applied to additional plots: 29 Mar. All N applied to original plots: 9 May. Second half of N applied to additional plots: 23 May. Trace element spray applied: 10 June. Harvested: 4 Nov.

74/R/RN/5

Potatoes: FYM applied and dug by hand: 26 Oct, 1973. P, K, Mg, Ca and S applied: 12 Mar, 1974. All N applied to original plots, half N to additional plots: 8 Apr. Rotary cultivated twice, Mg applied to half plots of main experiment and potatoes planted: 9 Apr. Second half N dressing applied to additional plots: 23 May. Trace element spray applied: 10 June. Insecticide applied: 25 June. Fungicide alone applied: 5 July and 15 Aug. Fungicide with insecticide: 18 July. Plots of the main experiment with neither K nor FYM and no fertiliser plot of additional plots lifted: 7 Aug. Remaining plots lifted: 9 Sept.

Grass-clover ley: Seed sown: 3 Sept, 1973. P, K, Mg, Ca and S applied: 14 Dec. N applied: 12 Mar, 1974. Trace element spray applied: 23 May. Cut five times: 12 Oct, 1973, 9 May, 1974, 1 July, 15 Aug, 11 Oct.

Permanent grass: P and K applied: 14 Dec, 1973. FYM applied: 12 Mar, 1974. N applied: 12 Mar, 9 May, 16 July. Cut three times: 9 May, 16 July, 11 Oct.

74/R/RN/5

TABLES OF MEANS

GREAT FIELD IV (R): ORIGINAL PLOTS

TONNES/HECTARE

	WINTER GRAIN	WHEAT: STRAW	KALE: FRESH WEIGHT	BARLEY:		LEY: DRY MATTER					Total of 5 cuts
				GRAIN	STRAW	1st cut	2nd cut	3rd cut	4th cut	5th cut	
MANURE											
O	4.64	4.89	14.0	2.49	2.29	0.05	1.20	2.34	1.78	1.08	6.45
N1	3.34	4.92	24.8	3.74	3.48	0.13	1.63	2.43	1.60	0.80	6.59
P	2.87	3.69	17.4	3.95	2.89	0.07	1.08	2.28	1.69	0.76	5.88
N1P	1.59	3.31	38.4	3.64	3.65	0.06	2.25	2.05	1.32	0.68	6.36
K	4.21	4.66	9.6	3.35	2.78	0.33	1.22	2.83	1.63	0.48	6.49
N1K	6.04	6.22	12.6	3.99	4.00	0.37	1.64	3.06	2.03	0.65	7.75
PK	5.04	5.64	17.9	2.64	2.80	0.98	2.88	4.98	3.67	1.97	14.48
N1PK	7.38	8.48	34.4	5.00	4.31	0.81	2.87	4.42	3.91	2.08	14.09
N2PK	9.12	10.02	58.0	7.06	5.98	0.53	2.68	4.31	3.02	1.88	12.42
D	5.86	6.99	28.3	5.01	3.66	0.78	2.41	4.92	3.50	2.05	13.66
N1PKD	6.64	11.00	50.1	5.20	6.86	1.02	3.43	5.28	4.32	2.22	16.27
N2PKD	7.05	10.61	73.2	7.46	6.47	1.02	2.34	5.78	4.17	2.27	15.58
Mean											
D.M. %	76.9	63.5	-	74.0	49.7	19.9	21.2	22.6	17.8	15.0	19.3

74/R/RN/5

GREAT FIELD IV (R): ORIGINAL PLOTS

TONNES/HECTARE

	POTATOES: TOTAL TUBERS			PERMANENT GRASS: DRY MATTER			
	O	Mg	Mean	1st cut	2nd cut	3rd cut	Total of 3 cuts
MANURE							
O	7.7	7.6	7.6	1.02	1.30	1.06	3.38
N1	19.1	9.9	14.5	0.62	1.59	1.64	3.85
P	30.4	13.6	22.0	0.12	1.40	0.99	2.51
N1P	16.9	9.6	13.3	1.16	1.80	2.50	5.46
K	35.4	34.2	34.8	0.24	1.38	1.52	3.14
N1K	49.2	48.4	48.8	1.23	2.41	2.47	6.11
PK	43.8	39.2	41.5	1.60	1.42	1.50	4.52
N1PK	57.7	55.7	56.7	1.12	2.14	2.31	5.57
N2PK	68.8	56.5	62.7	2.79	2.96	3.55	9.30
D	49.2	53.8	51.5	1.69	2.08	2.07	5.84
N1PKD	60.7	65.0	62.8	3.30	2.40	2.89	8.59
N2PKD	65.0	80.7	72.8	4.24	3.59	4.70	12.53
Mean D.M. %	-	-	-	29.1	28.5	20.8	26.1

74/R/RN/5

GREAT FIELD IV (R): ADDITIONAL PLOTS

TONNES/HECTARE

MANURE	WINTER WHEAT:		KALE:		BARLEY:		LEY: DRY MATTER					POTATOES:	
	GRAIN	STRAW	FRESH WEIGHT	GRAIN	STRAW	1st cut	2nd cut	3rd cut	4th cut	5th cut	Total of 5 cuts	TOTAL TUBERS	
0	5.14	5.26	23.5	2.42	2.64	0.11	1.51	2.96	2.01	0.91	7.50	11.6	
F	8.25	9.31	68.4	6.89	5.72	0.44	3.48	4.13	3.12	1.54	12.71	52.7	
FMgCa	8.79	10.24	54.1	7.61	6.13	0.75	3.49	4.29	3.53	1.78	13.84	45.8	
FMgS	8.07	7.76	60.2	6.93	5.95	0.89	3.34	4.86	3.60	1.72	14.41	46.1	
FCaS	8.35	9.00	60.6	6.66	6.35	0.66	3.89	4.92	3.68	1.68	14.83	47.3	
FMgCaS	8.15	9.79	62.3	7.40	6.87	0.75	3.70	4.95	3.70	1.95	15.05	44.2	
FMgCaSTE	8.64	9.54	59.7	7.47	5.82	0.72	3.70	4.60	3.94	1.71	14.67	42.9	
Mean	77.1	67.2	-	74.0	57.4	17.9	21.4	22.4	16.5	14.4	18.5	-	
D.M. %													