ROTHAMSTED RESEARCH

Yields of the Field Experiments 1963

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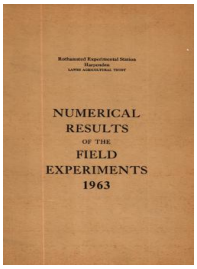

63/R/B/2 and 63/W/B/2 Reference Plots (Ra, Rg, Wra)

Rothamsted Research

Rothamsted Research (1964) *63/R/B/2 and 63/W/B/2 Reference Plots (Ra, Rg, Wra) ;* Yields Of The Field Experiments 1963, pp 53 - 60 **- DOI: https://doi.org/10.23637/ERADOC-1-183**

63/B/2.1

REFERENCE PLOTS

ROTHAMSTED (R) GREAT FIELD IV

and

WOBURN (W) STACKYARD SERIES C, 1963

(RA, RG and WRA)

Cultivations, etc.:

Great Field IV (R):-

Winter wheat: Dug by hand: Sept 19, 1962. P,K,Mg,Ca and S applied and seed drilled: Oct 5. First N dressings applied: Apr 8, 1963. Second N dressings applied: May 2. Trace element spray applied: May 9. Harvested: Aug 23. Variety: Cappelle.

Kale: Dung applied, all plots dug by hand: Oct 31, 1962. P,K,Mg,Ca and S and first dressings of N applied, all plots rotary cultivated, seed sown: Apr 22, 1963. Second dressing of N applied: June 5. Trace element spray applied: June 10. Harvested: Nov 4. Variety: Thousand Head.

Barley: Dug by hand: Nov 6 - 26, 1962. N,P,K,Ca and S applied, all plots rotary cultivated, seed sown: Apr 20, 1963. Trace element spray applied: June 10. Harvested: Aug 30. Variety: Proctor.

Grass - clover ley: Undersown in barley: Mar 20, 1962. N,P,K,Ca and S applied: Apr 9, 1963. Trace element spray applied: May 9. Cut four times: Oct 10, 1962, June 5, July 22 and Oct 3, 1963. Varieties: S22 Italian Ryegrass and Dorset Marl Red Clover.

Potatoes: Dung applied, all plots dug by hand: Oct 30, 1962. P,K,Mg, Ca and S and first dressing of N applied, all plots rotary cultivated setts planted: Apr 30, 1963. Second dressing of N applied: June 5. Trace element spray applied: June 10. Harvested: Plots receiving neither dung nor K (where haulm died early) - Aug 9, remainder - Aug 28. Variety: King Edward.

Permanent grass: Dung, P, K and first N dressing applied: Mar 6, 1963. Second N dressing applied: June 5. Cut twice: June 5 and Oct 10.

Stackyard Series C (W):-

Oats: P,K and first dressing of N applied, seed drilled: Mar 21, 1963. Second N dressing applied: May 23. Harvested: Aug 19. Variety: Condor.

Sugar beet: Dung applied: Mar 8, 1963. Plots dug by hand: Mar 13. P,K and first N dressing applied all plots rotary cultivated, seed drilled: Apr 22. Second N dressing applied: June 6. Harvested: Oct 22. Variety: Klein E.

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Barley: P, K and first N dressing applied, seed drilled: Apr 22, 1963. Second N dressing applied: May 23. Harvested: Aug 19. Variety: Proctor.

Grass - clover ley: Undersown in barley: Mar 5, 1962. N,P and K applied: Mar 21, 1963. Cut four times: Sept 22, 1962, June 7, July 25 and Oct 11, 1963. Varieties: Italian Ryegrass and Dorset Marl Red Clover.

Potatoes: Dung applied: Mar 8, 1963. Plots dug by hand: Mar 13. P, K and first N dressing applied and rotary cultivated in, setts planted: Apr 26. Second N dressing applied: June 6. Harvested: Plots receiving neither dung nor K (where haulm died early) - Aug 9, remainder - Aug 28. Variety: King Edward.

Permanent grass: Dung applied: Mar 8, 1963. P, K and first N dressing applied: Mar 13. Second N dressing applied: June 6. Cut three times: June 6, Aug 14 and Oct 25.

Soft fruit: New strawberries planted: Oct 22, 1962. Dung, N, P and K applied: Mar 8, 1963. Varieties: Blackcurrants - Wellington XXX, Gooseberry - Careless, Strawberry - Cambridge Vigour.

Note : For details of the previous years' results, and for rates of fertilisers etc., see 'Results of the Field Experiments' 58/Bc/1, 59/Bc/1, 60/B/3, 61/B/2, 62/B/2.

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Summary of Results

Great Field IV (R): Original plots

Treatment	cwt per acre Winter wheat Grain (at 85% D.M.)	Straw (at 85% D.M.)	tons per acre Kale: Total weight	cwt per acre Barley Grain (at 85% D.M.)	Straw (at 85% D.M.)	cwt per acre Ley: dry matter 1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts	tons per acre Potatoes Total tubers	cwt per acre Permanent grass: dry matter 1st cut	2nd cut	Total of 2 cuts
None	29.6	33.6	9.20	20.5	16.4	2.6	21.7	17.1	12.5	53.9	5.18	9.5	32.3	41.8
N1	30.0	34.7	9.38	19.6	19.1	1.8	24.5	22.6	18.0	66.9	5.78	13.2	26.9	40.1
P	28.7	36.4	14.41	22.6	19.8	6.0	28.8	19.5	13.2	67.5	3.68	8.9	25.0	33.9
N1P	28.1	43.3	21.18	22.5	22.8	2.0	26.8	16.2	11.9	56.9	4.28	26.7	32.1	58.8
K	32.7	37.2	10.42	19.5	18.4	6.4	29.5	27.3	19.0	82.2	9.12	8.9	20.1	29.0
N1K	41.1	50.4	14.58	24.4	23.4	3.6	29.8	27.0	21.3	81.7	9.94	22.8	42.0	64.8
PK	33.9	41.1	10.42	21.4	17.9	9.0	32.1	32.4	20.2	93.7	11.04	11.6	29.5	41.1
N1PK	45.1	55.5	21.36	37.1	45.6	8.1	37.9	30.3	21.8	98.1	13.18	36.2	33.6	69.8
N2PK	56.5	60.5	29.17	44.0	41.9	4.3	40.5	28.0	22.5	95.3	16.26	40.6	47.5	88.1
D	39.2	46.2	17.36	27.5	25.1	5.9	32.8	33.2	24.1	96.0	13.28	34.7	33.4	68.1
N1PKD	51.2	66.5	27.96	42.1	43.1	8.0	45.0	32.7	26.1	111.8	16.60	46.6	37.4	84.0
N2PKD	54.9	73.9	34.03	38.5	61.9	6.1	46.0	34.2	26.5	112.8	20.99	52.0	46.5	98.5
Mean dry matter % as harvested	74.3	60.4		68.8	50.4	16.1	18.2	19.4	17.4	17.8		21.4	22.6	22.0

63/E/2.3

Great Field IV (R): Additional plots

Treatment	cwt per acre Winter wheat Grain (at 85% D.M.)	Straw (at 85% D.M.)	tons per acre Kale: total weight	Barley Grain (at 85% D.M.)	Straw (at 85% D.M.)	cwt per acre Ley: dry matter 1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts	tons per acre Potatoes: total tubers
None	34.0	41.1	14.06	23.9	21.4	2.9	19.8	19.1	15.9	57.7	8.12
N2PK	53.5	67.2	37.16	36.6	34.7	4.3	35.8	23.4	21.2	84.7	15.93
N2PK Mg Ca	52.5	72.9	36.12	38.7	48.6	2.7	37.1	30.4	20.7	90.9	14.65
N2PK Mg S	53.9	71.3	35.07	37.6	42.1	3.2	36.4	24.2	20.8	84.6	14.37
N2PK Ca S	51.5	71.8	31.25	36.0	49.8	3.3	38.4	29.1	22.8	93.6	14.84
N2PK Mg Ca S	50.9	66.7	38.20	41.8	48.1	2.7	37.0	27.3	20.8	87.8	14.58
N2PK Mg Ca S TE	55.1	70.2	35.76	36.4	43.2	3.0	36.9	25.4	20.3	85.6	14.30
Mean dry matter % as harvested	75.6	67.6		73.7	52.8	16.4	19.8	18.2	16.2	17.6	

63/B/2.4

Stackyard Series C (W)

Treatment	cwt per acre Oats Grain (at 85% D.M.)	Oats Straw (at 85% D.M.)	tons per acre Sugar beet roots (washed)	cwt per acre Barley Grain (at 85% D.M.)	Barley Straw (at 85% D.M.)	Ley: dry matter 1st cut	Ley: dry matter 2nd cut	Ley: dry matter 3rd cut	Ley: dry matter 4th cut	Total of 4 cuts	tons per acre Potatoes Total tubers	cwt per acre Permanent grass: dry matter 1st cut	Permanent grass: dry matter 2nd cut	Permanent grass: dry matter 3rd cut	Total of 3 cuts
None	21.3	17.4	8.36	11.9	10.1	10.2	26.0	21.9	12.1	70.2	5.68	22.7	13.2	3.7	39.6
N1	35.4	28.0	10.62	23.9	20.2	7.0	32.1	19.7	12.1	70.9	5.50	32.0	21.2	8.6	61.8
P	16.2	14.8	9.20	14.5	11.4	11.6	28.7	18.8	11.4	70.5	5.38	20.5	11.9	3.2	35.6
N1P	34.4	26.8	9.36	23.2	18.1	6.9	33.1	18.6	11.7	70.3	5.65	31.3	20.1	8.5	59.9
K	17.9	16.7	10.44	15.6	13.2	12.6	31.9	26.1	18.6	89.2	9.49	26.1	21.8	7.9	55.8
N1K	36.7	31.1	14.27	22.8	19.4	7.8	31.1	25.6	18.7	83.2	12.42	43.0	27.4	8.0	78.4
PK	21.6	18.5	9.58	14.9	12.1	14.9	35.4	26.5	17.5	94.3	11.04	26.3	18.1	6.8	51.2
N1PK	39.5	35.6	13.67	30.9	23.4	9.4	31.1	23.1	15.9	79.5	13.04	41.9	28.4	8.5	78.8
N2PK	39.9	38.5	14.26	35.3	34.6	7.1	38.2	24.2	16.8	86.3	13.96	45.8	32.4	17.6	95.8
D	20.2	17.2	13.22	16.9	13.2	14.6	36.2	25.0	15.1	90.9	14.82	29.2	16.6	9.1	54.9
N1PKD	36.6	32.8	16.82	34.7	31.3	10.5	32.5	25.6	18.5	87.1	18.06	46.0	33.3	10.3	89.6
N2PKD	44.7	41.2	17.08	39.2	40.1	7.2	37.3	27.9	18.4	90.8	21.22	48.4	32.7	22.5	103.6
Mean dry matter % as harvested:	74.2	43.0		68.7	50.7	14.9	27.9	23.5	18.3	21.2		32.3	23.7	20.2	25.4

63/B/2.5

63/B/2.6

WOBURN STACKYARD SERIES C

Sitka spruce seedbeds 1961 - 63

N, P, K, Mg, Compost, Norway spruce litter and formalin applied to one year seedbeds of Sitka spruce (Picea sitchensis).

The site, which adjoins those under arable crops and soft fruit, has had a similar history, except that it did not receive a dressing of lime. The experiment was started a year later than the agricultural crops.

Design: 2 blocks of 12 plots each.

Area of each plot: 0.00021 acres (1 square yard)

Treatments (spruce litter applied in 1961 and 1962 only, all other treatments applied annually)

None (2 plots per block)
PK Mg
NK Mg
NP Mg
NPK
NPK Mg (2 plots per block)
NPK Mg F
C
C NPK Mg
L NPK Mg

Symbols, rates and forms of materials applied (per sq. yd.)
N: 'Nitro-Chalk' applied in three summer top dressings at 4.5 g.N per occasion
P: superphosphate at 9 g.P
K: potassium chloride at 9 g.K
Mg: kieserite at 3 g.Mg
C: compost made from bracken and hop waste
4.5 kg. in 1961 and 1962
7 kg. in 1963
L: Norway spruce litter, 10 kg. in 1961 and 1962, 5 kg. in 1963
F: formalin drench, 250 ml. of commercial formalin (38% formaldehyde) applied in 5 l. water

Note: 1 g. per square yard = 0.0953 cwt per acre

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Cultivations etc.	1961	1962	1963
formalin applied:	Feb 9 1961	Dec 14 1961	Dec 12 1962
all manures (other than N) dug in:	March 6	Mar 9 1962	Mar 22 1963
seed sown:	March 14	March 16	April 9
T.V.O. pre-emergent spray*:	April 7	April 6	April 30
N top dressed:	June 16	July 5	July 1
	July 21	August 1	August 8
	August 23	August 22	August 30

*Subsequently weed removed by hand.

Notes: (1) In 1963 on plots without Mg, seedlings showed the yellowing characteristics of Mg deficiency.
(2) In 1961, 1962 and 1963 samples were taken for the determinations of dry matter of tops and roots separately, and for N, P, K, Ca, Mg in total crop.

Standard errors per plot.

1961	Mean height:	0.332 inches	or 28.4%	(13 d.f.)
	Plant number:	93.6 per sq yard	or 11.5%	(13 d.f.)
1962	Mean height:	0.179 inches	or 15.0%	(13 d.f.)
	Plant number:	82.9 per sq yard	or 12.3%	(13 d.f.)
1963	Mean height:	0.128 inches	or 7.7%	(13 d.f.)
	Plant number:	164.3 per sq yard	or 11.9%	(13 d.f.)

Summary of Results

Treatment	1961 Mean height: inches	1961 Plant number: per sq yard
	(±0.235)	(±66.2)
None	0.33(1)	998(2)
PK Mg	0.98	738
NK Mg	0.34	882
NP Mg	1.36	747
NPK	1.34	876
NPK Mg	1.33(1)	834(2)
NPK Mg F	2.11	588
C	1.02	885
C NPK Mg	1.81	687
L NPK Mg	1.77	702
Mean	1.17	814
(1) (±0.166)	(2) (±46.8)	

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1962

Treatment	Mean height: inches	Plant number: per sq yard
	(±0.127)	(±58.6)
None	0.56(3)	832(4)
PK Mg	0.88	741
NK Mg	0.64	693
NP Mg	1.72	606
NPK	1.40	702
NPK Mg	1.34(3)	696(4)
NPK Mg F	1.68	696
C	0.92	567
C NPK Mg	1.55	606
L NPK Mg	1.78	444
Mean	1.19	676

1963

Treatment	Mean height: inches	Plant number: per sq yard
	(±0.091)	(±116.2)
None	0.89(5)	1368(6)
PK Mg	1.03	1302
NK Mg	1.52	1407
NP Mg	2.01	1416
NPK	1.82	1413
NPK Mg	2.03(5)	1377(6)
NPK Mg F	2.19	1572
C	1.42	1269
C NPK Mg	1.95	1425
L NPK Mg	2.24	1323
Mean	1.67	1385

(3) (± 0.090) (4) (±41.4) (5) (±0.064) (6) (±82.2)

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