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ROTHAMSTED
RESEARCH

Collection of Plans for the Woburn Organic Manuring Experiment

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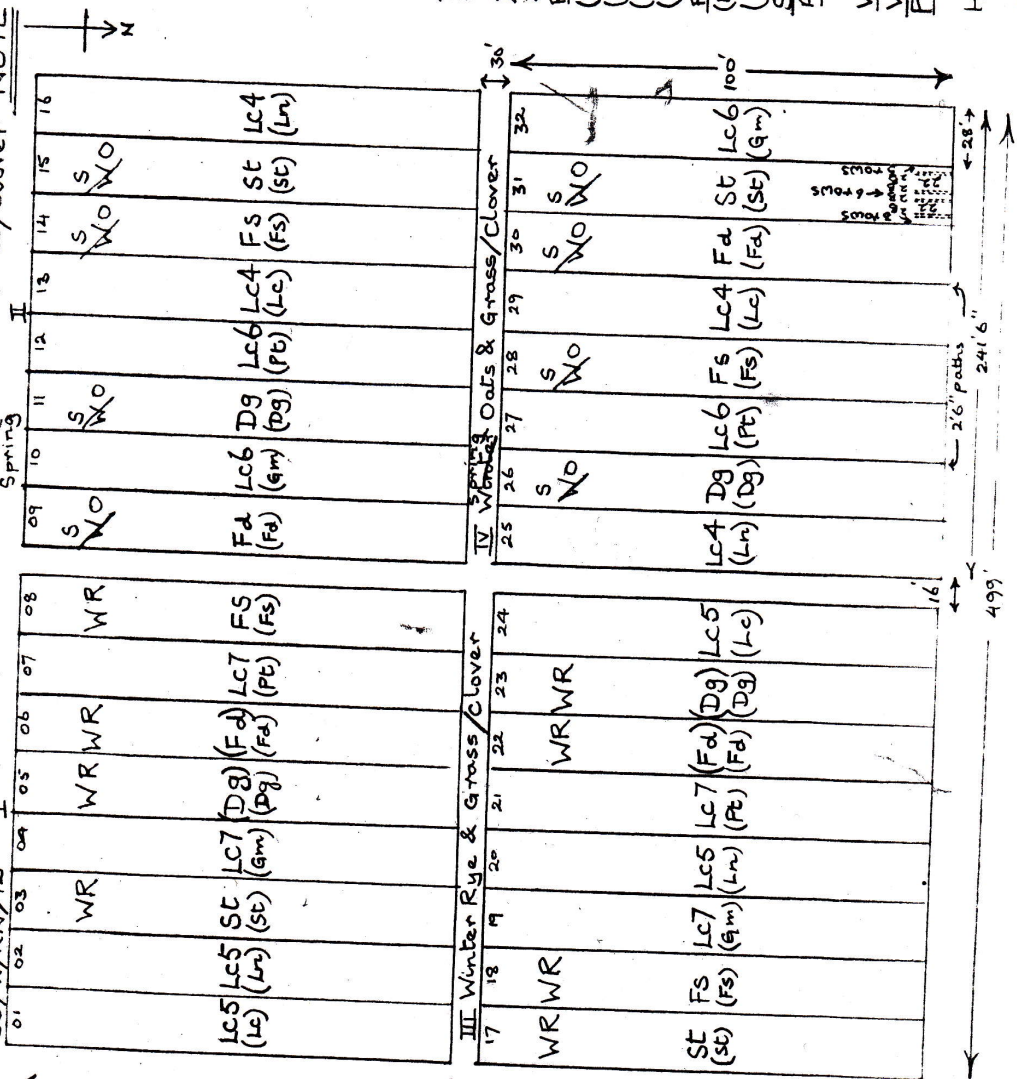
W/RN/12 - Woburn Organic Manuring 1985 - 1989

Rothamsted Research

Rothamsted Research (1966-1988) *W/RN/12 - Woburn Organic Manuring 1985 - 1989* ; Collection Of Plans For The Woburn Organic Manuring Experiment, pp 20 - 24

WOBURN
 Winter Rye & Grass/Clover
 85/W/KN/12
 I

ORGANIC MANURING EXPERIMENT
 Winter Oats & Grass/Clover
 Spring
 II



21st year
 * S.Oats replaced failed W.Oats 18.485.

STACKYARD 'B' 1985
 Sponsor: A.E. Johnston

TREATMENTS per hectare (acre)

- Organic Manures
 - Dg 50 tonnes (20 tons) FYM (No P, K or Mg as fertilizer)
 - St 7.5 tonnes (3 tons) Straw to all series
 - Lc7, Lc6 (Pt & Gm) Grass/Clover ley
- Blocks I & III sown June 1979
- Blocks II & IV sown April 1980
- Blocks I & III sown May 1981
- Blocks II & IV sown April 1982

Fertilizer (F)
 Fd * 1556 kg (1388 lb) of (0:18:36) 400 kg (557 lb) Kieserite approximately equivalent to PKMg in Dg
 St 700 kg (694 lb) of (0:20:20), 200 kg (178 lb) Kieserite
 Fs 778 kg (694 lb) of (0:18:36), 200 kg (178 lb) Kieserite, 1/2 rate of 100 plots

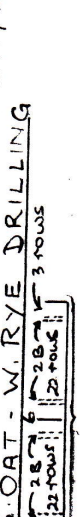
* One half before ploughing & one half after ploughing
 Blocks I & III (plots not in ley)
 WR Winter Rye Variety: Animo Sown at: 200lb/2aok
 Blocks II & IV (plots not in ley)

SO Spring Oats Variety: Trafalgar Sown at: 175lb (196 kg) Date: 24 Oct
 Residues of Organic Manures applied annually 1965-71 & ley (sown 1965)

(Dg) 40 tonnes (16 tons) FYM, (St) 7.5 tonnes (3 tons) (Dm) Straw
 (Pt) 7.5 tonnes (3 tons) (Dm) Peat. (Gm) Green Manure
 (Lc) Grass/clover ley
 (Ln) Grass ley with N
 Ploughed up 1971 Blocks I & III
 1972 Blocks II & IV
 Residues of Fertilizers (applied annually 1965-71)

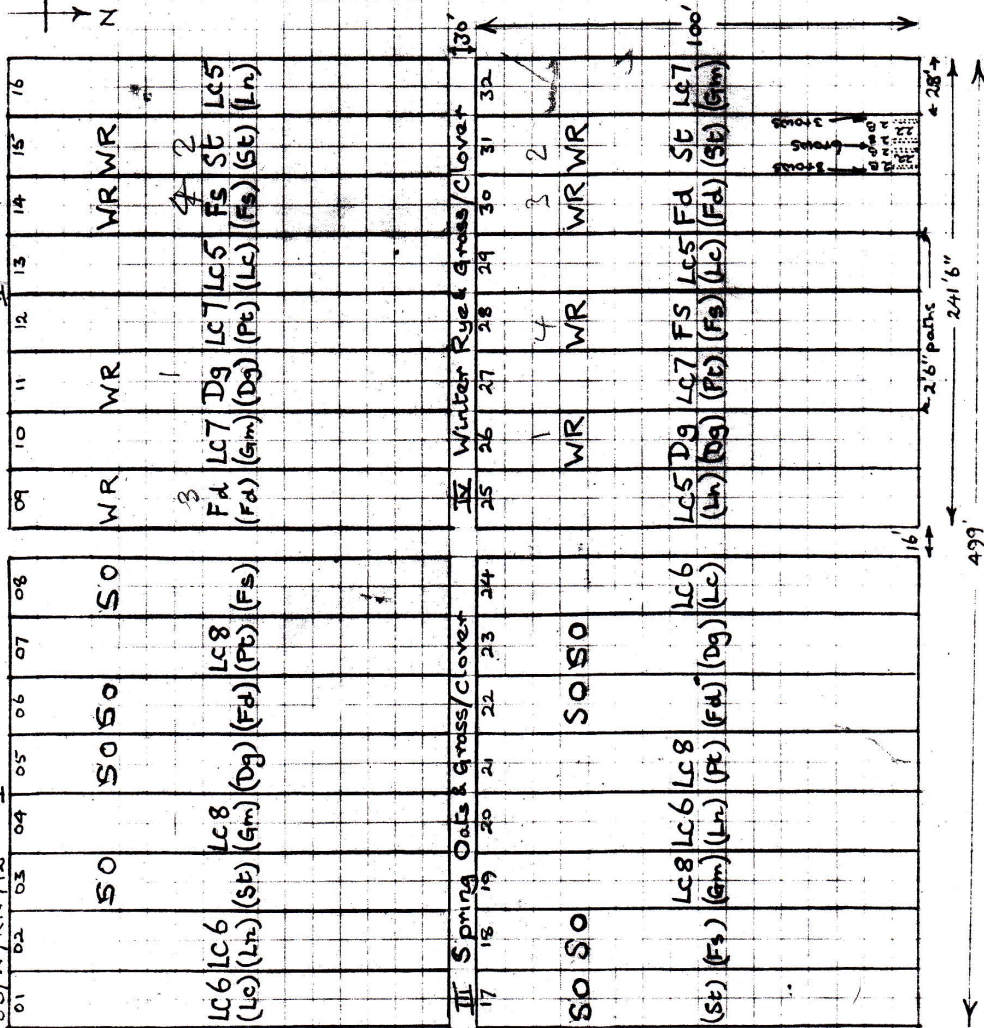
(Fd) P, K, Mg equivalent to Dg (High P, K, Mg)
 (Fs) K, Mg equivalent to Straw with P (Low P, K, Mg)
STANDARD MANURING per hectare (acre)
 ALL blocks Lc 778 kg (694 lb) of (0:18:36), 200 kg (178 lb) Kieserite
 Do be applied in autumn/winter

PLOT AREA
 W. Rye - Blocks I & III 30 kg N as 'Nitro-Chalk' in Spring
 W. Oats - Blocks II & IV 50 kg N as 'Nitro-Chalk' in Spring
 28' x 100' = 0.0643 acre (0.0260 ha)
 Harvested S. Oats - W. Rye Eastern strip of each plot 1985
 27.5 m x 100 m = 0.0207 acre (0.0084 ha)



2 drill widths 64 rows @ 12.5cm = 8m

WOBURN ORGANIC MANDRIVING EXPERIMENT
 86/H/RN/12 I Winter Rye & Grass/Clover II



22nd year
 STACKYARI B 1986
 Sponsor: A.E. Johnston

TREATMENTS per hectare (acre)
 Organic Manures Dg & ST to be applied for W. Rye Series II & IV only
 Dg 50 tonnes (20 tons) FYM
 St 7.5 tonnes (3 tons) Straw
 LC8, LC7 (F0 & Gm) Grass/Clover ley
 LC6, LC5 (Lc & Ln) grass/clover ley
 Fertilizer to be applied for W. Rye Series II & IV only
 Fd* 1556 kg (1388 lb) of (0:18:36) 400kg (357 lb) Kieserite
 approximately equivalent to PKMg in Dg
 St 585 kg (522 lb) of (0:24:24) 200kg (178 lb) Kieserite
 Fs 718 kg (694 lb) of (0:18:36) 200kg (178 lb) Kieserite, 1/2 rate of Fd
 * One half before ploughing & one half after ploughing
 Blocks I & III (plots not in ley) 120 kg
 SO Spring Oats Variety: Dula Sown at: 6th Date: 10 Apr 1971
 Blocks II & IV (plots not in ley) 284 kg
 W.R. Winter Rye Variety: Animo Sown at: 6th Date: 13 Nov 1965
 Residues of Organic Manures (applied annually 1965-71) & Ley (sown 1965)
 (Dg) 40 tonnes (16 tons) FYM (St) 7.5 tonnes (3 tons) (DM) Straw
 (F0) 7.5 tonnes (3 tons) (DM) Peat (Gm) Green Manure
 (Lc) Grass/clover ley Ploughed Blocks I & III 1971
 (Ln) Grass ley with N up Blocks II & IV 1972
 Residues of Fertilizers (applied annually 1965-71)
 (F0) PKMg equivalent to Dg (High PK Mg)
 (F0) KMg equivalent to Straw with P (Low PK Mg)
 STANDARD MANDRIVING per hectare (acre)
 All blocks: Lc 778kg (694 lb) of (0:18:36), 200kg (178 lb) Kieserite
 to be applied in autumn/winter
 S.Oats Blocks I & III: 90kg N as Nitram in Spring
 W.Rye Blocks II & IV: 30kg N as Nitram in Spring
 PLOT AREA 28x100' = 0.0643 acre (0.0260 ha)
 Harvested S.Oats - W.Rye 2.75m x 100 = 0.0207 acre (0.0084 ha)
 S.OATS - W.RYE DRILLING
 6 rows 2 drill widths 64 rows @ 12.5cm = 8m

WOBURN 23rd year STACKYARD B 1987

Sponsor: A.E. Johnston

ORGANIC MANURING EXPERIMENT

Block I 87M/RN/12 Winter Wheat 1st Test Crop
Block II Winter Oats & Grass/clover ley

01	02	03	04	05	06	07	08
N	N	N	N	N	N	N	N
1.5	4.3	4.4	3.4	3.3	4	5.4	5.4
(Lc)	(Lc)	(St)	(Gm)	(Dg)	(Fd)	(Pt)	(Fs)
4	5.2	3.1	3.5	1.5	4.1	5.2	1.2
5.6							
N	N	N	N	N	N	N	N
2.3	1	5.2	1.2	2	2	1.3	3

Block III Winter Wheat 1st Test Crop

17	18	19	20	21	22	23	24
N	N	N	N	N	N	N	N
3	2.3	1	3	4.3	1.5	3.4	4
(St)	(Fs)	(Gm)	(Lc)	(Lc)	(Dg)	(Dg)	(Lc)
2.5	1.5	4.2	1.5	1	2.4	5.2	3.2
5.6							
N	N	N	N	N	N	N	N
1.4	4.3	5	2.4	2.5	3	1	5

Block IV Winter Oats & Grass/clover ley

25	26	27	28	29	30	31	32
Lc6	WO	WO	Lc8	Lc6	WO	WO	Lc8
(Ln)			(Pt)	(Lc)	(Fa)	(St)	(Gm)

TREATMENTS per hectare (acre)
BLOCKS I & III - 1st Test Crop Winter Wheat
Residues of Organic Manures (Applied in two pl)
(Dg) FYM (250t.) } Applied in (Dg)
(St) Straw } (St) 1981-
(Gm) Green Manure } annually (Gm) (Lc8) Ley (c
(Pt) Peat } 1965-71 (Pt) (Lc8) 1979 -
Residues of Fertilizer

(Fd) P, K, Mg equivalent to Dg rate Applied annually
(Fs) K, Mg equivalent to straw with P and 1981 -
(late period 1/2 Dg rate)

Leys
(Lc) Clover/grass ley } 1965-71 (Lc6) } Both clov
(Ln) Grass ley with N (Lc6) } 1981 -

Sub Plots N treatments in spring kg ha.
- N1, N2, N3, N4, N5 = 0, 50, 100, 150, 200, 25
STANDARD APPLICATIONS to Winter Wheat only
Carbofuran at 7.5 kg/ha broadcast in the seedbed.
(standard rate) must be applied 7-14 days before sowing, repi
Date:

VARIETY: Mercia Sown at
BASAL MANURING per hectare
(0:18:36) at 556 kg. Manganese, foliar applic
BLOCKS II & IV - Winter Oats

Residues of Organic Manures (applied annually)
(Dg) FYM (St) Straw
(Lc) clover/grass ley, (Ln) Grass Ley with N pl
Residues of Fertilizer
(Fd) P, K, Mg equivalent to Dg Applied annua
(Fs) P, K, Mg equivalent to 1/2 Dg and 1982 -

STANDARD MANURING per hectare
Lc8 (Gm), Lc6 (Lc) } 778 kg (0:18:36)
Lc8 (Pt), Lc6 (Ln) } 200 kg (Kasevite) of
WO Winter Oats } kg N as N from in spri
VARIETY: Penarth Sown at

PLOT AREA
Blocks I & III 8m x 30.48m = 0.0244ha
Blocks II & IV 9.8' x 100' = 0.0643 acre (c
Sowing date of W. wheat to be the same as for RN/13 Inter
Plots drilled without paths between sub-plots, paths
just before. No application to allow for maximum sampling

Potatoes

wheat

WOUBURN ORGANIC MANURING EXPERIMENT 24TH YEAR STACKYARD 'B' 1988 204

Sponsor: A.E. Johnston
TREATMENTS to Potatoes (P) and Winter Wheat (W/W)
Residues of Organic Manures

(Dg) FYM annually 1965-71 and 1981-85
(SE) Straw annually 1965-71 and 1981-85
(Gm) Green Manure annually 1965-71 then (Lc8) Ley (clover/grass) 1979-86 (P) 1980-87 (W/W)
(Pt) Peat annually 1965-71 then (Lc8) 1979-86 (P) 1980-87 (W/W)
Residues of Fertilizers
(Fd) P, K, Mg equivalent to (Dg) rate, annually 1965-71 and 1981-87 (W/W)
(Fs) K, Mg equivalent to straw with P, annually 1965-71 then 1/2 Dg rate 1981-87 (W/W)
Leys
(Lc) Clover/grass ley 1965-71 then (Lc6) 1981-86 (P) 7 (W/W) - clover grass ley
(Lc) Grass ley with N

SUB PLOTS N Treatments Kg ha
0, 70, 140, 210, 280, 350 (P)
-, 1, 2, 3, 4, 5 (W/W)

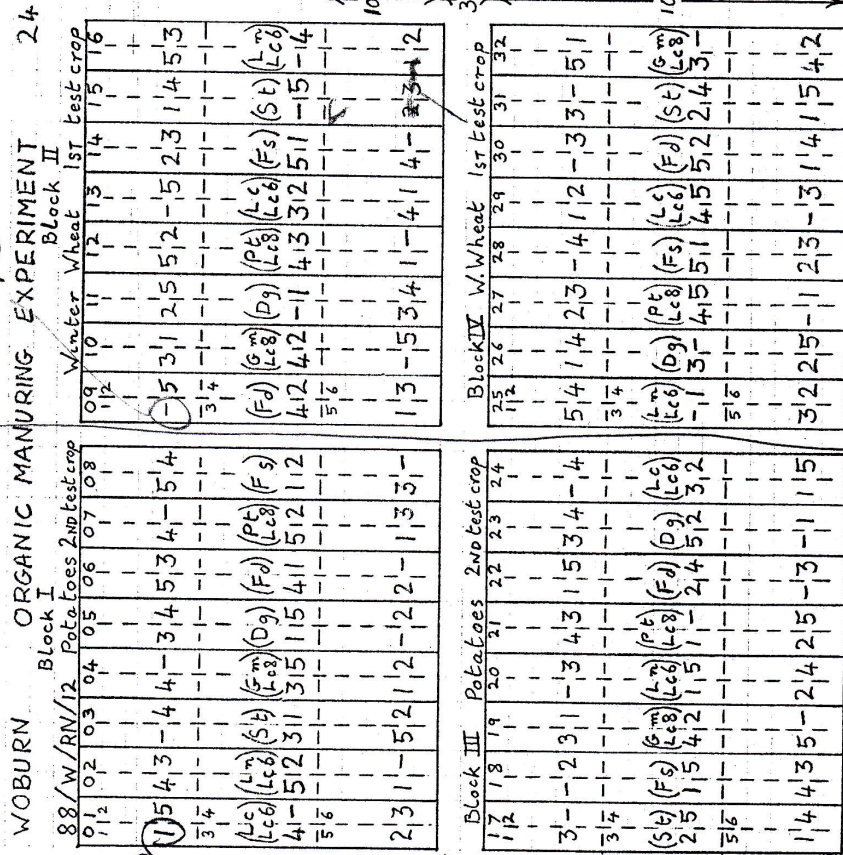
STANDARD APPLICATIONS per hectare
Manures: 250 Kg P2O5 500 Kg K2O (P)
(0:18:36) @ 556 Kg (W/W)

Nematicides to seed beds: Osecamyl @ 50 Kg (P)
Carbofuran @ 7.5 Kg, Drazel pellets (standard rate) must be applied 7-14 days before sowing, repeated with seed (W/W)

VARIETIES: Pentland Crown (P)
Mercia (W/W) Sown @ 190kg/ha on 23rd 87

SUB PLOT AREA: 14' x 30' = 0.0039ha (Dimensions sown depend on crop)

Sowing date of Potatoes to be the same for RN/13
Plots drilled without paths between sub-plots. Cross paths to be cut just before N application to allow for maximum sampling area before then.



Block	Year	Treatment	Yield (t/ha)	Yield (t/ha)	Yield (t/ha)	Yield (t/ha)
Block I (Potatoes)	88	(Lc6)	1.5	4.3	3.4	5.4
	87	(Lc6)	3.4	1.5	4.1	5.2
	86	(Lc6)	3.1	3.1	3.1	3.1
	85	(Lc6)	2.3	1.1	2.2	1.3
Block II (Potatoes)	88	(Lc6)	1.2	2.0	2.1	2.2
	87	(Lc6)	3.1	3.1	3.1	3.1
	86	(Lc6)	3.1	3.1	3.1	3.1
	85	(Lc6)	1.4	3.5	2.5	1.5
Block III (Potatoes)	88	(Lc6)	1.2	1.8	1.9	2.0
	87	(Lc6)	3.1	3.1	3.1	3.1
	86	(Lc6)	3.1	3.1	3.1	3.1
	85	(Lc6)	1.4	4.3	3.4	1.4
Block IV (W. Wheat)	88	(Lc6)	1.2	2.6	2.7	2.8
	87	(Lc6)	3.1	3.1	3.1	3.1
	86	(Lc6)	3.1	3.1	3.1	3.1
	85	(Lc6)	1.3	2.5	1.1	2.1

WOUBURN

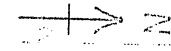
ORGANIC MANURING EXPERIMENT

25TH YEAR

204

STACKYARD 'B' 1989

Sponsors: A.L. Johnson, P.R. Poulton
TREATMENTS to Potatoes (P) and Winter Wheat (W)
Residues of Organic Manures



Block I			Block II				
Winter Wheat 3rd test crop			Potatoes 2nd test crop				
01	02	03	04	05	06	07	08
15	43	4	4	314	53	41	514
314							
(Lc)	(Lc)	(St)	(Fm)	(Dg)	(Fd)	(Pt)	(Fs)
41	512	31	315	411	512	112	
516							
23	1	52	12	2	13	31	

Block III			Block IV				
Winter Wheat 3rd test crop			Potatoes 2nd test crop				
17	18	19	20	21	22	23	24
3	1	31	3	43	15	34	4
314							
(St)	(Fm)	(Lc)	(Pt)	(Lc)	(Dg)	(Fd)	(Lc)
25	15	42	15	1	24	512	32
516							
14	43	5	24	25	3	11	15

Leys
(Lc) Clover/grass ley 1965-71 then (Lc6) 1981-6 (W) 7 (P) - clover grass ley
(Ln) Grass ley with N

Sub Plots N Treatments Kg ha⁻¹
-1, 2, 3, 4, 5. 0, 70, 140, 210, 280, 350. (P)
-1, 2, 3, 4, 5. 0, 50, 100, 150, 200, 250. (W)

STANDARD APPLICATIONS per hectare
Manures: (O:18:36) @ 1390 kg and Mg as kieserite @ 667 kg (P)
(O:18:36) @ 556 kg (W)

Nematicides to potato seedbed: Oxamyl @ 5.0 kg (P)
Carbofuran @ 7.5 kg, Draxa pellets (standard rate) must be applied 7-14 days before sowing, repeated with seed (W)

VARIETIES: Pentland Crown (P)
Merica (W) Sown @ 165 kg/ha on 31 Oct 1988

SUB PLOT AREA: 14' x 30' = 0.0039 ha (Dimensions sown depend on crop)

Sowing date of Potatoes to be the same for RN/13
Plots drilled without paths between sub-plots. Crosspaths to be cut just before N application to allow for maximum sampling area before then.

