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RESEARCH

Collection of Plans for the Woburn Organic Manuring Experiment

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W/RN/12 - Woburn Organic Manuring 1980 - 1984

Rothamsted Research

Rothamsted Research (1966-1988) *W/RN/12 - Woburn Organic Manuring 1980 - 1984* ; Collection Of Plans For The Woburn Organic Manuring Experiment, pp 15 - 19

WOBURN
80'W/RN/100'

ORGANIC MANURING EXPERIMENT 16th year
Sugar beet & Grass/Clover

STACKYARD B 1980
Sponsor: G.E. Mattingly

TREATMENTS per acre (hectare)
Residues of Organic Manures (applied annually 1965-71) & Ley (sown 1965)
(Dg) 4 tons (10 tonnes) (D.M.) FYM, (16 tons [40 tonnes] FYM)
(St) 3 tons (7.5 tonnes) (D.M.) Straw
(Pc) 3 tons (7.5 tonnes) (D.M.) Peat
(Gm) Green Manure
(Lc) Grass-clover ley { ploughed up 1971 Blocks I & III
(Ln) Grass ley with N { 1972 Blocks II & IV
Residues of Fertilisers (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)
Blocks I & III 1980
LC (P & Gm) Grass/clover (sown June 1979)
Remaining plots S. Barley - Variety - Georgie, dressed ethirimol
Nitrogen to S. Barley
Sown: 4 Mar @ 140 lb (57 kg)
0 - None, 1 - 0.24, 2 - 0.48, 3 - 0.72, 4 - 0.96, 5 - 1.20, 6 - 1.44, 7 - 1.68 cwt N
0 30 60 90 120 150 180 210 kg N
Blocks II & IV 1980
LC (P & Gm) Grass/clover (To be sown on whole plots - Spring 1980)
Remaining plots Sugar beet - Variety - Bush Monia sown: 11 Apr
Nitrogen to Sugar beet
0 - None, 1 - 0.32, 2 - 0.64, 3 - 0.96, 4 - 1.27, 5 - 1.59, 6 - 1.91, 7 - 2.23 cwt N
0 40 80 120 160 200 240 280 kg N
BASAL MANURING per acre (hectare)
Spring Barley - 0.9 cwt (114 kg) P₂O₅ as superphosphate
0.48 cwt (60 kg) K₂O as Muriate of potash
Sugar beet & 1st - 1080 lb (1210 kg) compound fertiliser (0:20:20)
year grass/clover in autumn. 540 lb (605 kg) compound fertiliser
(0:20:20) in the seedbed plus 357 lb (400 kg)
Kieserite. 73 lb (8.2 kg) B₂O₃ as Solubor in June
for Sugar beet only. 45 lb (50 kg) Na as Nitro-chalk in
the seedbed for 1st year ley only.
Blocks II & IV - 2 tons (5 tonnes) Ground chalk.
2nd year grass/ - None Autumn/Winter. 0.9 cwt (114 kg) Rosas Superphate
Clover ley 0.48 cwt (60 kg) K₂O as muriate of potash in Spring
No N fertiliser.
SUB - PLOT AREA 14' x 20' = 0.0064 acre (0.0026 ha)

Block	Treatment	09	10	11	12	13	14	15	16
I	(Lc)	0.7	3.5	1.4	2.6	1.6	3.7	7.0	
	(Dg)	0.5	0.6	0.6	3.7	2.0	0.6	4.1	
	(Fs)	4.3	7.2	4.5	3.4	4.1	3.6		
	(St)	7.6	5.3	1.0	2.0	4.2	3.2		
II	(Lc)	4.0	1.4	3.6	5.0	7.0	7.0	5.6	
	(Dg)	7.1	5.3	1.2	5.2	7.0	7.0	5.6	
	(Fs)	5.3	6.5	1.4	7.2	4.0	1.2	5.6	
	(St)	1.6	2.3	1.4	7.2	4.0	1.2	5.6	
III	(Lc)	2.0	1.4	2.0	1.3	2.7	3.7	1.3	
	(Dg)	5.7	3.0	2.5	1.4	1.0	2.5		
	(Fs)	4.6	7.6	4.7	0.3	6.4	0.6		
	(St)	1.3	5.2	6.0	5.6	5.2	4.7		
IV	(Lc)	4.0	1.4	2.0	1.3	2.7	3.7	1.3	
	(Dg)	5.7	3.0	2.5	1.4	1.0	2.5		
	(Fs)	4.6	7.6	4.7	0.3	6.4	0.6		
	(St)	1.3	5.2	6.0	5.6	5.2	4.7		

12.2.81. NOTE CHANGE TO SPRING BEANS
WOBURN
 81/W/RN/12

ORGANIC MANURING EXPERIMENT 17th year
 Barley & Grass/Clover

Stackyard B, 1981
 Sponsor: G.E.G. Mattingly

TREATMENTS per hectare (acre)

Organic Manures 1981 Blocks I & II
 Dg 50 tonnes (20 tons) FYM (No P, K, Mg as fertiliser)
 St 75 tonnes (30 tons) Straw
 Lc (Pt & Gm) Grass/clover ley (sown June 1979)
 Lc (Lc & Ln) Grass/clover ley (to be sown Spring 1981)
 Fertilisers
 Fd 2000 kg (1784 lb) of (0:14:28), 400 kg (357 lb) Kieserite.
 approximately equivalent to PKMg in Dg.
 St 700 kg (624 lb) of (0:20:20), 200 kg (178 lb) Kieserite.
 Fs 1000 kg (892 lb) of (0:14:28), 200 kg (178 lb) Kieserite, $\frac{1}{2}$ rate
 of Fd plots * One half before ploughing & one half after ploughing
 Plots not in Ley Spring Beans BE Variety: Minden-Sown at 1952b
 Blocks II & IV Date: 6 April (219 kg)

LC (Pt & Gm) Grass/Clover ley (sown Spring 1980)
 Remaining plots s. Barley - Variety: George sown at 140 lb (157 kg)
 Nitrogen to s. Barley Date: 27 Feb

0 - None, 1 - 0.24, 2 - 0.48, 3 - 0.72, 4 - 0.96, 5 - 1.20, 6 - 1.44, 7 - 1.68 cwt N/acre
 0 30 60 90 120 150 180 210 kg N/ha

Residues of Organic Manures (applied annually 1965-71) & Ley (sown 1965)
 (Dg) 40 tonnes (16 tons) FYM, (St) 75 tonnes (30 tons) DM, (Lc) Green Manure
 (Pt) 75 tonnes (30 tons) DM Peat, (Gm) Green Manure
 (Lc) Grass/clover ley { Ploughed up 1971 Blocks I & II
 (Ln) Grass ley with N { 1972 Blocks II & IV
 Residues of Fertilisers (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 1000 kg (892 lb) of (0:14:28), 200 kg (178 lb) Kieserite to be
 applied in autumn/winter
 50 kg (45 lb) N as Nitro-chalk in the seedbed for 1st year Lays ONLY
 Spring Barley Block II & IV
 114 kg (102 lb) P₂O₅ as Superphosphate, 60 kg (54 lb) as Muriate
 of potash applied in autumn.
 PLOT AREA 28 x 100 = 0.0643 acre (0.0260 ha)
 Sub-plot area 14' x 20' = 0.0064 acre (0.0026 ha)

III Spring Beans & Grass/Clover

01	02	03	04	05	06	07	08
BE	BE	BE	BE	BE	BE	BE	BE
Lc1 (Lc)	Lc1 (Lc)	Lc3 (Gm)	Dg (Dg)	Fd (Fd)	Fs (Fs)	Fs (Fs)	Fs (Fs)
2	2	1	3	4			

IV Barley & Grass/Clover

09	10	11	12	13	14	15	16
6.7	3.5	1.0	7.5	5.2	2.5	5	5
1.2	1.4	2.6	1.6	3.7	7.0		
(Fd) (Gm)	(Dg) (Gm)	Lc2 (Lc)	(Fs) (Pt)	(Sb) (Ln)			
0.5	0.6	3.7	2.0	0.6	4.1		
4.3	7.2	4.5	3.4	4.1	3.6		

2.6' Spring Beans & Grass/Clover

17	18	19	20	21	22	23	24
BE	BE	BE	BE	BE	BE	BE	BE
2	4	FS (Fs)	Lc1 (Ln)	Lc3 (Pt)	Fd (Fd)	Dg (Dg)	Lc1 (Lc)
4.6	7.6	4.7	0.3	6.4	0.6		
1.3	5.2	6.0	5.6	5.2	4.7		

WOBURN 82/W/RN/12
 WINTER WHEAT & GRASS/CLOVER
 WINTER BEANS & GRASS/CLOVER

ORGANIC MANURING EXPERIMENT 18th year
 STACKYARD B 1982 204
 Sponsor: ~~George~~ Mattingly A. E. JOHNS

TREATMENTS per hectare (acre)

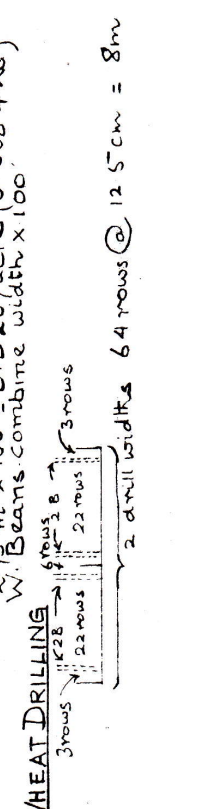
Year	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
III Winter Wheat & Grass/Clover	W	W	W	W	W	W	W	W	BE	BE	BE	BE	BE	BE	BE	BE
IV Winter Beans & Grass/Clover	St (Ln)	Lc2 (Ln)	St (Ln)	Lc4 (gm)	Dg (gm)	Fd (gm)	Lc4 (Pt)	Fs (gm)	Fd (gm)	Lc3 (gm)	Dg (gm)	Lc3 (Pt)	Lc1 (Lc)	Fs (Pt)	St (Pt)	Lc1 (Ln)
III Winter Wheat & Grass/Clover	W	W	W	W	W	W	W	W	Lc1 (Ln)	Dg (Ln)	Lc3 (Pt)	Fs (Pt)	Lc1 (Lc)	Fd (Pt)	St (Pt)	Lc3 (gm)

Organic Manures
 Dg 50 tonnes (20 tons) FYM (No P, K, or Mg as fertilizer)
 St 7.5 tonnes (3 tons) Straw
 Lc4, Lc3 (Pt & gm) Grass/Clover ley { Blocks I & III sown June 1979
 { Blocks II & IV sown April 1980
 Lc2, Lc1 (Lc & Ln) grass/clover ley { Blocks I & III sown Spring 1981
 { Blocks II & IV to be sown Spring 1982

Fertilisers
 Fd * 2000kg (1784lb) of (0:14:28), 400kg (357lb) Kieserite
 approximately equivalent to P K Mg in Dg
 St 700kg (624lb) of (0:20:20), 200kg (178lb) Kieserite
 Fs 1000kg (892lb) of (0:14:28), 200kg (178lb) Kieserite, 1/2 rate of Fd P lots
 * One half before ploughing & one half after ploughing.

Blocks I & III (Plots not in ley)
 W Winter wheat Variety: Avalon sown at 170lb (190kg) Date 10 Nov
 Blocks II & IV (Plots not in ley)
 BE Winter beans Variety: Throws MS sown at 220lb (247kg) Date 10 Nov
 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) 75 tonnes (3 tons) (DM) Peat (gm) Green Manure
 (Lc) Grass/Clover ley { Ploughed up 1971 Blocks I & III,
 (Ln) Grass ley with N 1972 Block II & IV
 Residues of Fertilisers (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 1000kg (892lb) of (0:14:28), 200kg (178lb) Kieserite
 to be applied in autumn/winter
 1st year ley only - 50kg (45lb) N as 'Nitro-chalk' in the seedbed
 W. Wheat - Blocks I & III 150kg (134lb) N as 'Nitro-chalk' in spring

PLOT AREA
 28 x 100' = 0.0643 acre (0.0260 ha)
 Harvested W. Wheat - Eastern strip of each plot 1982
 2.75m x 100' = 0.0207 acre (0.0084 ha)
 W. Beans combine width x 100



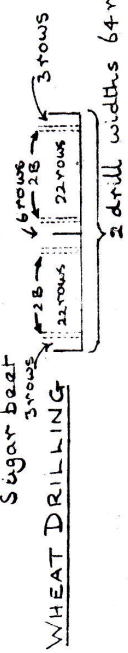
WOBURN 83/W/RN/12 I SUGAR BEET & GRASS/CLOVER
 II WINTER WHEAT & GRASS/CLOVER
 III SUGAR BEET & GRASS/CLOVER

ORGANIC MANURING EXPERIMENT 19th year STACKYARD 'B' 1983
 Sponsor: A. E. Johnston

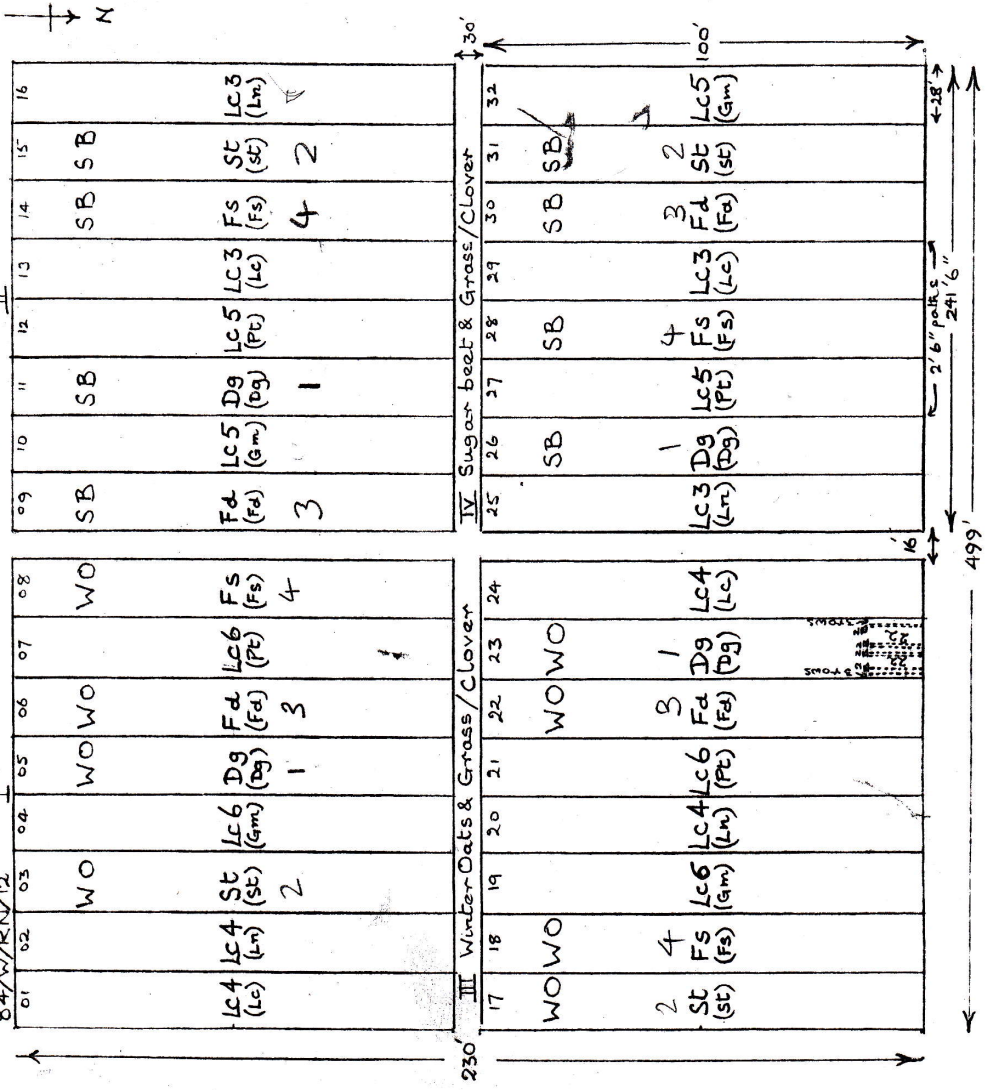
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
SB	SB	SB	SB	SB	SB	SB	SB	W	W	W	W	W	W	W	W
LC3 (Lc)	LC5 (Lc)	LC5 (Lc)	LC5 (Lc)	LC5 (Lc)	LC5 (Lc)	LC5 (Lc)	LC5 (Lc)	Fd (Fd)	Lc4 (Lc)	Dg (Dg)	Lc4 (Lc)	Lc4 (Lc)	Fs (Fs)	St (St)	Lc2 (Lc)
(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
SB	SB	SB	SB	SB	SB	SB	SB	W	W	W	W	W	W	W	W
St (St)	Fs (Fs)	Lc5 (Lc)	Lc3 (Lc)	Lc5 (Lc)	Fd (Fd)	Dg (Dg)	Lc3 (Lc)	Lc2 (Lc)	Dg (Dg)	Lc4 (Lc)	Fs (Fs)	Lc2 (Lc)	Fd (Fd)	St (St)	Lc4 (Lc)
(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)	(Lc)

TREATMENTS per hectare (acre)
Organic Manures
 Dg 50 tonnes (20 tons) FYM (No P, K, or Mg as fert)
 St 7.5 tonnes (3 tons) Straw
 Lc5, Lc4 (Pt & Gm) Grass/Clover ley { Blocks I & II sown Jul 1979
 { Blocks II & IV sown Apr 1980
 { Blocks I & III sown Spr 1981
 { Blocks II & IV sown Spr 1982
Fertiliser
 Fd* 1556 kg (1388 lb) of (0:18:36), 400 kg (357 lb) Kieserite
 approximately equivalent to P K Mg in Dg
 St 700 kg (624 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 rd
 * One half before ploughing & one half after ploughing
 Blocks I & III (plots not in ley) sown at Dc
 SB Sugar beet Variety: sown at Dc
 Blocks II & IV (plots not in ley)
 W Winter wheat Variety: Avalon sown at 170 lb (190 kg) Dc
 Residues of Organic Manures (applied annually 1965-71) & Ley (S
 (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 { Ploughed up 1971 Blocks I & III,
 (Lc) Grass ley with N { 1972 Block II & IV
 Residues of Fertilisers (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)
 to be applied in autumn/winter
 W Wheat - Blocks II & IV 150 kg (134 lb) N as Nitro-Chalk in spr
 Sugar beet - Blocks I & III 150 kg (134 lb) N as Nitro-Chalk
 PLOT AREA
 28 x 100 = 0.0643 acre (0.0260 ha)
 Harvested W. Wheat - Eastern strip of each plot 1983
 275m x 100 = 0.0207 acre (0.0084 ha)
 Sugar beet



WOBURN 84A/RN/12
 WINTER OATS & GRASS/CLOVER
 SUGAR BEET & GRASS/CLOVER
 ORGANIC MANURING EXPERIMENT
 20th year
 STACKYARD B' 1984
 Sponser: A E Johnston



TREATMENTS per hectare (acre)

Organic Manures
 Dg 50 tonnes (30 tons) FYM (No P, K, or Mg as fertilizer)
 SB 7.5 tonnes (3 tons) Straw
 Lc6/Lc5 (Pt & Gm) Grass/Clover ley { Blocks I & III sown June 1979
 { Blocks II & IV sown April 1980
 { Blocks I & III sown Spring 1981
 { Blocks II & IV sown Spring 1982

Lc4, Lc3 (Lc & Ln) Grass/Clover
 Fertilizer
 Fd* 1556 kg (1388 lb) of (0:18:36), 400 kg (357 lb) Kieserite
 approximately equivalent to PK Mg in Dg
 St 700 kg (624 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 Fd
 * One half before ploughing & one half after ploughing

Blocks I & III (plots not in ley)
 WO Winter Oats. Variety: Panemina. Sown at: 1806 (20 kg) Date 10 Oct
 Blocks II & IV (plots not in ley) (precision drilled) P, Dg
 SB Sugar beet. Variety: Monroie. Sown at: P, Dg
 Residues of Organic Manures (applied annually 1965-71) 811 kg (Ley sown 1965)
 (Dg) 40 tonnes (30 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 { Ploughed up 1971 Blocks I & II
 (Ln) Grass ley with N { 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
 to be applied in autumn/winter
 WOats - Blocks I & III 50 kg N as Nitro-Chalk in Spring
 Sugar beet - Blocks II & IV 150 kg (134 lb) N as Nitro-Chalk

PLOT AREA
 28' x 100' = 0.0643 acre (0.0260 ha)
 Harvested WOats - Eastern strip of each plot (1984)
 2.75m x 100' = 0.0207 acre (0.0084 ha.)

