ROTHAMSTED RESEARCH

Yields of the Field Experiments 1986

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86/W/RN/4 Market Garden - Clover

Rothamsted Research

Rothamsted Research (1987) *86/W/RN/4 Market Garden - Clover ;* Yields Of The Field Experiments 1986, pp 57 - 66 **- DOI: https://doi.org/10.23637/ERADOC-1-36**

86/W/RN/4

MARKET GARDEN

Object: The experiment compared the effects of fertilizers and organic manures applied annually in the period 1942 to 1967, on market garden crops. Residual effects of the organic manures were studied in arable crops from 1968 to 1973. From 1974 until 1982 the site was maintained in grass without yields. A new sequence of cropping started in 1983 to study further the residual effects of the organic manures, particularly the availability of metals from sewage sludge - Woburn Lansome I.

Sponsor: S.P. McGrath.

The 45th year, clover.

For previous years see 'Details' 1967 & 1973, 74-80/W/RN/4 and 83-85/W/RN/4.

Design: 2 series each of 4 blocks of 10 plots split, systematically, into 2.

Whole plot dimensions: 8.15 x 5.18.

Treatments:

To Series A, first year white clover, all combinations of:-

Whole plots

1. OM RESID — Residues of organic manures:

FYM	Farmyard manure until 1967
SEWAGE	Sewage sludge until 1961
SEW COM	Sewage sludge, composted with straw, until 1961
VEG COM	Vegetable compost until 1962, then farmyard manure until 1967

2. OM RATE — Rates of organic manures (t per crop):

25
50

EXTRA — plus one extra treatment (duplicated):

NONE — No organic manures

Sub plots

3. NPERCUT — Nitrogen (kg N) per cut, as 'Nitram':

0
100

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86/W/RN/4

To Series B, third year white clover, all combinations of:-

Whole plots

1. OM RESID — Residues of organic manures:

FYM	Farmyard manure to whole plots until 1964, to half plots until 1967. Untreated half plots received a balancing dressing in 1974
SEWAGE	Sewage sludge until 1961
SEW COM	Sewage sludge, composted with straw, until 1961
VEG COM	Vegetable compost until 1962, then farmyard manure until 1965

2. OM RATE — Rates of organic manures (t per crop):

25
50

EXTRA — plus one extra treatment (duplicated):

PEAT — Peat at 31 t per crop to half plots 1965 to 1967. Untreated half plots received a balancing dressing in 1974.

Sub plots

3. NPERCUT — Nitrogen (kg N) per cut, as 'Nitram':

0
100

Basal applications:
Series A and B: Manures: K at 150 kg as muriate of potash.
Weedkillers: MCPA at 0.16 kg with MCPB at 1.12 kg in 240 l.

Seed: Blanca, white clover, sown at 17 kg to series A.

Cultivations, etc.:-
Series A: Ploughed: 19 Dec, 1985. K applied: 17 Apr, 1986. Heavy spring-tine cultivated, N applied: 7 May. Spike harrowed with crumbler attached, seed sown: 8 May. Weedkillers applied: 15 July. Cut 6 Oct.
Series B: K applied: 17 Apr, 1986. N applied: 17 Apr, 27 June. Weedkillers applied: 5 May. Cut: 19 June, 6 Oct.

NOTE: Crop samples were taken at maturity and soil samples after harvest for chemical analyses.

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86/W/RN/4 WHITE CLOVER SERIES A

1ST AND ONLY CUT (6/10/86) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

OM RESID / OM RATE	FYM	SEWAGE	SEW COM	VEG COM	MEAN
25	1.72	1.43	1.29	1.48	1.48
50	1.73	1.13	1.36	1.67	1.47
MEAN	1.72	1.28	1.32	1.58	1.48

NPERCUT / OM RATE	0	100	MEAN
25	1.49	1.47	1.48
50	1.49	1.45	1.47
MEAN	1.49	1.46	1.48

NPERCUT / OM RESID	0	100	MEAN
FYM	1.65	1.79	1.72
SEWAGE	1.32	1.24	1.28
SEW COM	1.38	1.26	1.32
VEG COM	1.60	1.55	1.58
MEAN	1.49	1.46	1.48

OM RATE	NPERCUT / OM RESID	0	100
25	FYM	1.64	1.79
	SEWAGE	1.62	1.24
	SEW COM	1.24	1.34
	VEG COM	1.46	1.50
50	FYM	1.66	1.79
	SEWAGE	1.03	1.23
	SEW COM	1.53	1.18
	VEG COM	1.74	1.61

NONE	NPERCUT	0	100	MEAN
		1.44	1.71	1.58

GRAND MEAN 1.50

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86/W/RN/4 WHITE CLOVER SERIES A

1ST AND ONLY CUT (6/10/86) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	OM RESID	OM RATE	NPERCUT	OM RESID OM RATE
SED	0.137	0.097	0.104	0.194

TABLE	OM RESID NPERCUT	OM RATE NPERCUT	OM RESID OM RATE NPERCUT	NONENPER
SED	0.201	0.142	0.284	0.208

EXCEPT WHEN COMPARING MEANS WITH THE SAME LEVEL(S) OF:

OM RESID	0.208		
OM RATE		0.147	
OM RESID.OM RATE			0.294

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	28	0.275	18.4
BLOCK.WP.SP	31	0.415	27.8

1ST CUT MEAN DM% 15.1

SUB PLOT AREA HARVESTED 0.00047

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86/W/RN/4 WHITE CLOVER SERIES B

1ST CUT (19/6/86) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

OM RESID / OM RATE	FYM	SEWAGE	SEW COM	VEG COM	MEAN
25	3.11	2.86	2.78	2.85	2.90
50	2.68	2.78	2.62	2.83	2.73
MEAN	2.90	2.82	2.70	2.84	2.81

NPERCUT / OM RATE	0	100	MEAN
25	2.59	3.21	2.90
50	2.29	3.16	2.73
MEAN	2.44	3.19	2.81

NPERCUT / OM RESID	0	100	MEAN
FYM	2.41	3.38	2.90
SEWAGE	2.57	3.07	2.82
SEW COM	2.36	3.03	2.70
VEG COM	2.41	3.27	2.84
MEAN	2.44	3.19	2.81

OM RATE	NPERCUT / OM RESID	0	100
25	FYM	2.63	3.60
	SEWAGE	2.73	2.98
	SEW COM	2.48	3.08
	VEG COM	2.51	3.19
50	FYM	2.19	3.16
	SEWAGE	2.40	3.15
	SEW COM	2.24	2.99
	VEG COM	2.32	3.34

PEAT	NPERCUT	0	100	MEAN
		2.58	3.26	2.92

GRAND MEAN 2.83

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86/W/RN/4 WHITE CLOVER SERIES B

1ST CUT (19/6/86) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	OM RESID	OM RATE	NPERCUT	OM RESID OM RATE
SED	0.242	0.171	0.115	0.342

TABLE	OM RESID NPERCUT	OM RATE NPERCUT	OM RESID OM RATE NPERCUT	PEATNPER
SED	0.291	0.206	0.412	0.231

EXCEPT WHEN COMPARING MEANS WITH THE SAME LEVEL(S) OF:

OM RESID	0.231		
OM RATE		0.163	
OM RESID.OM RATE			0.326

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	28	0.483	17.1
BLOCK.WP.SP	31	0.461	16.3

1ST CUT MEAN DM% 19.6

1ST CUT SUB PLOT AREA HARVESTED 0.00053

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86/W/RN/4 WHITE CLOVER SERIES B

2ND CUT (6/10/86) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

OM RESID / OM RATE	FYM	SEWAGE	SEW COM	VEG COM	MEAN
25	1.73	1.67	1.60	1.57	1.64
50	1.74	1.57	1.44	1.66	1.60
MEAN	1.74	1.62	1.52	1.61	1.62

NPERCUT / OM RATE	0	100	MEAN
25	1.66	1.62	1.64
50	1.58	1.62	1.60
MEAN	1.62	1.62	1.62

NPERCUT / OM RESID	0	100	MEAN
FYM	1.67	1.81	1.74
SEWAGE	1.51	1.73	1.62
SEW COM	1.60	1.44	1.52
VEG COM	1.72	1.51	1.61
MEAN	1.62	1.62	1.62

OM RATE	NPERCUT / OM RESID	0	100
25	FYM	1.71	1.76
	SEWAGE	1.51	1.82
	SEW COM	1.68	1.52
	VEG COM	1.76	1.38
50	FYM	1.63	1.86
	SEWAGE	1.51	1.64
	SEW COM	1.52	1.36
	VEG COM	1.67	1.64

PEAT	NPERCUT	0	100	MEAN
		1.39	1.57	1.48

GRAND MEAN 1.59

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86/W/RN/4 WHITE CLOVER SERIES B

2ND CUT (6/10/86) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	OM RESID	OM RATE	NPERCUT	OM RESID OM RATE
SED	0.109	0.077	0.086	0.154

TABLE	OM RESID NPERCUT	OM RATE NPERCUT	OM RESID OM RATE NPERCUT	PEATNPER
SED	0.164	0.116	0.231	0.172

EXCEPT WHEN COMPARING MEANS WITH THE SAME LEVEL(S) OF:

OM RESID	0.172		
OM RATE		0.122	
OM RESID.OM RATE			0.244

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	28	0.218	13.7
BLOCK.WP.SP	31	0.345	21.6

2ND CUT MEAN DM% 18.3

2ND CUT SUB PLOT AREA HARVESTED 0.00047

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86/W/RN/4 WHITE CLOVER SERIES B

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

OM RESID / OM RATE	FYM	SEWAGE	SEW COM	VEG COM	MEAN
25	4.85	4.52	4.37	4.42	4.54
50	4.42	4.35	4.06	4.49	4.33
MEAN	4.63	4.44	4.22	4.45	4.43

NPERCUT / OM RATE	0	100	MEAN
25	4.25	4.83	4.54
50	3.87	4.79	4.33
MEAN	4.06	4.81	4.43

NPERCUT / OM RESID	0	100	MEAN
FYM	4.08	5.19	4.63
SEWAGE	4.07	4.80	4.44
SEW COM	3.96	4.47	4.22
VEG COM	4.13	4.77	4.45
MEAN	4.06	4.81	4.43

NPERCUT		0	100
OM RATE	OM RESID		
25	FYM	4.33	5.36
	SEWAGE	4.24	4.80
	SEW COM	4.16	4.59
	VEG COM	4.27	4.56
50	FYM	3.83	5.02
	SEWAGE	3.91	4.79
	SEW COM	3.77	4.35
	VEG COM	3.99	4.99

PEAT	NPERCUT	0	100	MEAN
		3.97	4.83	4.40

GRAND MEAN 4.43

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86/W/RN/4 WHITE CLOVER SERIES B

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	OM RESID	OM RATE	NPERCUT	OM RESID OM RATE
SED	0.270	0.191	0.142	0.382

TABLE	OM RESID NPERCUT	OM RATE NPERCUT	OM RESID OM RATE NPERCUT	PEATNPER
SED	0.336	0.238	0.475	0.283

EXCEPT WHEN COMPARING MEANS WITH THE SAME LEVEL(S) OF:

OM RESID	0.283		
OM RATE		0.200	
OM RESID.OM RATE			0.400

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	28	0.540	12.2
BLOCK.WP.SP	31	0.566	12.8

TOTAL OF 2 CUTS MEAN DM% 18.9

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