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Yields of the Field Experiments 2008

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Results of the
Classical and other
Long-term Experiments
2008

R/PG/5 Park Grass

Rothamsted Research

Rothamsted Research (2009) *R/PG/5 Park Grass* ; Yields Of The Field Experiments 2008, pp 25 - 30 -
DOI: <https://doi.org/10.23637/ERADOC-1-218>

08/R/PG/5

PARK GRASS

Object: To study the effects of organic manures and inorganic fertilisers and lime on old grass for hay.

The 153rd year, hay.

For previous years see 'Details' 1977 and 1973 and Yield Books for 74-07/R/PG/5.

Treatments: Combinations of:-

Whole plots

1.	Manure	Fertilizers and organic manures:
	N1	Plot 1
	K	Plot 2/1
	None (FYM)	Plot 2/2
	None	Plot 3
	P	Plot 4/1
	N2P	Plot 4/2
	N1PKNaMg	Plot 6
	PKNaMg	Plot 7
	PNaMg	Plot 8
	PKNaMg(N2)	Plot 9/1
	N2PKNaMg	Plot 9/2
	N2PNaMg	Plot 10
	N3PKNaMg	Plot 11/1
	N3PKNaMgSi	Plot 11/2
	None	Plot 12
	(FYM/F)	Plot 13/1
	FYM/PM	Plot 13/2
	PKNaMg (N2*)	Plot 14/1
	N2*PKNaMg	Plot 14/2
	PKNaMg (N2*)	Plot 15
	N1*PKNaMg	Plot 16
	N1*	Plot 17
	N2KNaMg	Plot 18
	FYM	Plot 19
	FYM/N*PK	Plot 20
	N1, N2, N3:	48, 96, 144 kg N as sulphate of ammonia
	N1*, N2*:	48, 96 kg N as nitrate of soda (30 kg N to plot 20 in years with no farmyard manure)
	P:	35 kg P (15 kg P to plot 20 in years with no farmyard manure) as triple superphosphate in 1974 and since 1987, single superphosphate in other years
	K:	225 kg K (45 kg K to plot 20 in years with no farmyard manure) as sulphate of potash
	Na:	15 kg Na as sulphate of soda
	Mg:	10 kg Mg as sulphate of magnesia
	Si:	Silicate of soda at 450 kg
	FYM:	Farmyard manure at 35 t every fourth year

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Experimental diary

			Rate	Unit
03-Dec-07	f	Triple Superphosphate Plots 6, 7, 8, 9/1, 9/2, 10, 11/1, 11/2, 14/1, 14/2, 15, 16	171.00	kg/ha
	f	Triple Superphosphate Plot 20	73.00	kg/ha
20-Dec-07	f	Sulphate of Potash Plots 2/1, 6, 7, 9/1, 9/2, 11/1, 11/2, 14-1/ 14/2, 15, 16, & 18	542.00	kg/ha
	f	Sulphate of potash Plot 20	108.00	kg/ha
	f	Anhydrous Sulphate of Soda Plots 6, 7, 8, 9/1, 9/2, 10, 11/1, 11/2, 14-1/ 14/2, 15, 16, & 18	43.00	kg/ha
	f	Magnesium Sulphate Plots 6, 7, 8, 9/1, 9/2, 10, 11/1, 11/2, 14-1/ 14/2, 15, 16, & 18	111.00	kg/ha
	f	Silicate of Soda Plot 11/2	450.00	kg/ha
03-Apr-08	f	Sulphate of Ammonia Plot 6 (a 12' 6" pass applied to C and D plots in error)	229.00	kg/ha
	f	Sulphate of Ammonia Plots 4/2, 9/2, 10 18	457.00	kg/ha
	f	Sulphate of Ammonia Plots 11/1, 11/2	686.00	kg/ha
	f	Nitrate of Soda Plot 20	188.00	kg/ha
	f	Nitrate of Soda Plots 16, 17	300.00	kg/ha
	f	Nitrate of Soda Plot 14/2	600.00	kg/ha
05-Jun-08	a	Mow paths		
23-Jun-08	a	Cut harvest strips, weighed and sampled completed 24-Jun-08		
	a	Mowed completed 24-Jun-08		
25-Jun-08	a	Turned hay		
	a	Row up		
	a	Baled by contractor, 34 round bales		
26-Jun-08	a	Topped to remove straggly grass		
29-Jul-08	a	Mow / Rotavate paths		
28-Oct-08	a	Cut harvest strips (2 nd cut), weighed and sampled, completed 4-Nov-08		
04-Nov-08	a	Mowed		
	a	Baled		

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1ST CUT (23-24/6/08) DRY MATTER TONNES/HECTARE

*****Tables of means *****

Manure	Lime	a	b	c	d	Mean
N1 1		3.23	2.78	2.40	1.96	2.59
K 2/1		2.86	2.77	1.23	1.31	2.04
None (FYM) 2/2		2.38	2.77	1.08	1.57	1.95
None 3		2.67	2.82	1.10	1.47	2.02
P 4/1		3.21	3.52	2.68	2.38	2.95
N2P 4/2		3.45	3.70	4.05	2.37	3.39
N1PKNaMg 6		6.01	5.93			5.97
PKNaMg 7		5.68	5.72	4.72	2.52	4.66
PNaMg 8		2.74	2.86	2.56	2.46	2.65
PKNaMg (N2) 9/1		5.51	5.58	4.98	0.98	4.26
N2PKNaMg 9/2		5.58	5.21	4.96	3.26	4.75
N2PNaMg 10		3.79	3.71	4.26	2.08	3.46
N3PKNaMg 11/1		6.42	5.60	5.04	3.71	5.20
N3PKNaMgSi 11/2		6.46	5.19	4.70	4.10	5.11
None 12		2.82	2.09	1.07	1.18	1.79
(FYM/F) 13/1		3.84	2.96	1.88	1.82	2.62
FYM/PM 13/2		3.19	3.19	3.26	3.17	3.20
PKNaMg (N2*) 14/1		5.40	5.43	5.62	4.85	5.33
N2*PKNaMg 14/2		7.24	5.52	5.25	5.02	5.76
PKNaMg (N2*) 15		5.59	5.97	5.06	2.75	4.84
N1*PKNaMg 16		5.67	5.80	4.77	4.55	5.20
N1* 17		3.12	3.08	2.44	2.81	2.86
N2KNaMg 18		3.17	3.68	3.22	1.77	2.96
N2KNaMg 18/2						4.08
FYM 19/1						3.58
FYM 19/2						3.83
FYM 19/3						4.41
FYM/N*PK 20/1						4.79
FYM/N*PK 20/2						4.55
FYM/N*PK 20/3						4.81

1ST CUT MEAN DM% 27.1

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2ND CUT (28/10/08 and 03/11/08) DRY MATTER TONNES/HECTARE

*****Tables of means *****

Manure	Lime	a	b	c	d	Mean
N1	1	1.72	1.52	1.29	0.93	1.36
K	2/1	1.60	1.41	0.89	0.88	1.19
None (FYM)	2/2	1.42	1.52	0.91	1.07	1.23
None	3	1.48	1.68	0.95	1.08	1.30
P	4/1	1.52	1.48	1.36	1.30	1.42
N2P	4/2	1.56	1.57	1.68	1.09	1.47
N1PKNaMg	6	2.90	3.16			3.03
PKNaMg	7	3.11	3.40	3.20	1.83	2.89
PNaMg	8	2.25	2.14	2.13	2.02	2.14
PKNaMg (N2)	9/1	3.30	3.48	3.11	0.50	2.60
N2PKNaMg	9/2	2.34	2.63	2.26	2.53	2.44
N2PNaMg	10	1.58	1.41	2.37	1.69	1.76
N3PKNaMg	11/1	2.78	2.65	2.76	3.05	2.81
N3PKNaMgSi	11/2	3.27	3.27	2.89	3.55	3.24
None	12	1.79	1.50	0.83	0.84	1.24
(FYM/F)	13/1	2.28	2.67	1.58	1.08	1.90
FYM/PM	13/2	2.50	3.02	2.78	2.59	2.72
PKNaMg (N2*)	14/1	1.99	2.54	2.49	2.12	2.29
N2*PKNaMg	14/2	1.83	2.40	2.27	2.04	2.13
PKNaMg (N2*)	15	2.54	2.35	2.51	1.32	2.18
N1*PKNaMg	16	2.77	2.87	2.38	2.05	2.52
N1*	17	2.19	2.02	1.53	1.33	1.77
N2KNaMg	18	1.66	1.86	2.59	0.97	1.77
N2KNaMg	18/2					2.16
FYM	19/1					2.97
FYM	19/2					3.27
FYM	19/3					3.16
FYM/N*PK	20/1					3.56
FYM/N*PK	20/2					3.60
FYM/N*PK	20/3					2.97

2ND CUT MEAN DM% 20.50

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TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

***** Tables of means *****

Manure	Lime	a	b	c	d	Mean
N1 1		4.95	4.30	3.68	2.89	3.96
K 2/1		4.46	4.18	2.12	2.19	3.24
None (FYM) 2/2		3.80	4.29	1.98	2.64	3.18
None 3		4.16	4.50	2.06	2.55	3.32
P 4/1		4.73	5.00	4.04	3.68	4.36
N2P 4/2		5.00	5.26	5.73	3.46	4.86
N1PKNaMg 6		8.91	9.09			9.00
PKNaMg 7		8.78	9.12	7.93	4.35	7.54
PNaMg 8		4.99	5.01	4.69	4.48	4.79
PKNaMg (N2) 9/1		8.81	9.05	8.09	1.48	6.86
N2PKNaMg 9/2		7.91	7.84	7.22	5.79	7.19
N2PNaMg 10		5.37	5.12	6.63	3.77	5.22
N3PKNaMg 11/1		9.20	8.25	7.80	6.77	8.01
N3PKNaMgSi 11/2		9.73	8.46	7.59	7.65	8.36
None 12		4.61	3.58	1.90	2.01	3.02
(FYM/F) 13/1		6.12	5.63	3.46	2.90	4.53
FYM/PM 13/2		5.69	6.21	6.03	5.76	5.92
PKNaMg (N2*) 14/1		7.39	7.98	8.11	6.97	7.61
N2*PKNaMg 14/2		9.07	7.92	7.52	7.06	7.89
PKNaMg (N2*) 15		8.13	8.33	7.57	4.07	7.02
N1*PKNaMg 16		8.44	8.67	7.15	6.60	7.72
N1* 17		5.31	5.11	3.97	4.13	4.63
N2KNaMg 18		4.83	5.54	5.81	2.74	4.73
N2KNaMg 18/2						6.24
FYM 19/1						6.55
FYM 19/2						7.10
FYM 19/3						7.57
FYM/N*PK 20/1						8.34
FYM/N*PK 20/2						8.15
FYM/N*PK 20/3						7.78

TOTAL OF 2 CUTS MEAN DM% 23.80