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Yields of the Field Experiments 2001

Yields of the
Classical
and other
Long-term Experiments
2001

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01/R/PG/5 - Park Grass

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01/R/PG/5

PARK GRASS

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

The 146th year, hay.

For previous years see 'Details' 1977 and 1973 and 74-00/R/PG/5.

Treatments: Combinations of:-

Whole plots

1.	MANURE	Fertilizers and	d organic manures:				
	N1	Plot 1	N1				
	K	Plot 2/1	K since 1996 (as 2/2 before)				
	O(D)	Plot 2/2	None (D until 1863)				
	0	Plot 3	None				
	P	Plot 4/1	P				
	N2P	Plot 4/2	N2 P				
	N1MN	Plot 6	N1 P K Na Mg				
	MN	Plot 7	P K Na Mg				
	PNAMG	Plot 8	P Na Mg				
	MN(N2)	Plot 9/1	P K Na Mg (N2 until 1989)				
	N2MN	Plot 9/2	N2 P K Na Mg				
	N2 PNAMG	Plot 10	N2 P Na Mg				
	N3MN	Plot 11/1	N3 P K Na Mg				
	N3MNSI	Plot 11/2	N3 P K Na Mg Si				
	0	Plot 12	None				
	(D/F)	Plot 13/1	None (D/F until 1994)				
	D/F	Plot 13/2	D/F				
	MN(N2*)	Plot 14/1	P K Na Mg (N2* until 1989)				
	N2*MN	Plot 14/2	N2* P K Na Mg				
	MN(N2*)	Plot 15	P K Na Mg (N2* until 1875)				
	N1*MN	Plot 16	N1* P K Na Mg				
	N1*	Plot 17	N1*				
	N2KNAMG	Plot 18	N2 K Na Mg				
	D	Plot 19	D				
	D/N*PK	Plot 20	D/N*P K				
	N1, N2, N3:	48, 96, 144 kg	N as sulphate of ammonia				
	N1*, N2*:	2*: 48, 96 kg N as nitrate of soda (30 kg N to plot 2					
		_	no farmyard manure)				
	P: 35 kg P (15 kg P to plot 20 in years with no farmy						
		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 soc	- ·				
	D:		e at 35 t every fourth year				
	F:		fourth year to supply 63 kg N				
	MN:	P K Na Mg as ak					

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Sub-plots

2.	LIME	Liming	plots	1-17:					
	A	Ground	chalk	applied	as	necessary	to	achieve	рН7
	В	Ground	chalk	applied	as	necessary	to	achieve	рНб
	C	Ground	chalk	applied	as	necessary	to	achieve	рН5
	D	None							

NOTE: Lime was applied regularly at the same rate, to all 'A' and 'B' sub-plots of plots 1 to 17 (except 12) from 1924. Differential liming started in 1975 on certain 'B' and 'C' sub-plots (except on plot 12) and in 1976 on certain 'A' sub-plots (including plot 12) and 12B. Lime was applied in 2000, the third application in a triennial scheme of soil pH analysis and remedial chalk applications.

LIME Liming plots 18-20:

NOTE: Differential rates of lime were applied to sub-plots 2 and 3 regularly 1920-1974. Since 1975 plot 18-1 has been split into two for treatments 'C' and 'D' as above and plot 18-3 split into two for treatments 'A' and 'B'. Plots 19 and 20 received no further chalk after 1978; plot 18/2 no further chalk after 1972.

Experimental diary:

```
18-Jan-01 : T : P applied.
19-Feb-01: T: K, Mg, Na and Si applied.
20-Feb-01 : T : FYM applied.
12-Apr-01 : T : N applied.
26-Jun-01 : \mathbf{T} : Cut, sampled and weighed yield areas, plots 4/1-13, 18-
27-Jun-01: T: Cut, sampled and weighed, plots 1-3, 14-17, completed.
30-Jun-01: B: Mowed discards for hay, excluding s and w of plots 13,
                    18-20.
02-Jul-01 : B : Turned hay.
03-Jul-01 : B : Turned hay.
04-Jul-01 : B : Turned, rowed up, baled and carted hay bales.
05-Jul-01 : B : Topped.
06-Jul-01 : B : Baled.
          : B : Rowed up remaining grass.
03-Oct-01 : T : Cut weighed and sampled yield areas and discards,
                    started.
04-\text{Oct}-01 : \mathbf{T} : Cut weighed and sampled yield areas and discards
                    completed.
```

Note: Samples of herbage from both cuts were taken for chemical analysis.

Unground samples of herbage from all plots from both cuts were archived.

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1ST CUT (26,27/6/01) DRY MATTER TONNES/HECTARE

**** Tables of means ****

M	LIME	А	В	С	D	MEAN
N1	ANURE 1 2/1 2/2 3 4/1 4/2 6 7 8 9/1 9/2 10 11/1 11/2 12 13/1 13/2 14/1 14/2 15 16 17	A 3.43 2.87 2.39 2.31 2.69 5.54 5.79 6.23 1.91 4.36 6.31 4.67 8.14 7.62 2.01 3.19 3.98 5.25 6.52 5.92 6.49 2.33	B 2.05 2.82 2.47 2.14 3.33 3.61 5.13 5.63 3.47 4.69 6.83 4.47 7.159 1.59 4.95 5.63 5.17 6.51 5.19 6.80 1.71	2.06 1.09 1.12 0.70 1.68 5.13 4.40 1.55 4.80 6.42 5.13 6.65 6.16 0.93 3.24 5.72 3.72 4.62 1.49	0.77 1.13 1.16 1.04 1.43 1.32 2.15 1.48 1.45 2.55 1.72 2.42 4.83 1.07 3.74 5.02 4.51 5.88 2.60 4.40 1.58	2.08 1.98 1.79 1.55 2.28 3.90 5.46 4.60 2.10 3.82 5.53 4.00 6.15 1.40 3.78 5.01 4.93 6.15 4.36 5.58
N2KNAMG0 N2KNAMG2 N2KNAMG1 D0	18/1 18/2 18/3 19/1	2.05	2.39	4.93	1.84	3.39 2.66 2.22
D2 D1 D/N*PK0 D/N*PK2	19/1 19/2 19/3 20/1 20/2 20/3					4.47 6.76 5.09 5.25 7.51 6.06
						0.00

1ST CUT MEAN DM% 29.2

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2ND CUT (3,4/10/01) DRY MATTER TONNES/HECTARE

**** Tables of means ****

	LIME	А	В	C	D	MEAN
N1	1 2/1 2/2 3 4/1 4/2 6 7 8 9/1 9/2 10 11/1 11/2 12 13/1 13/2 14/1	A 1.31 1.78 1.35 1.09 1.44 1.27 2.53 2.90 1.06 2.24 2.30 1.63 3.34 3.59 0.88 1.58 2.90 1.89 2.20 2.30 2.53 1.47	B 1.47 1.75 1.69 1.22 1.54 1.29 2.44 2.85 1.77 2.11 2.78 1.74 3.37 3.35 1.02 2.50 3.47 2.60 2.45 2.22 2.58 1.68	C 0.61 1.03 0.91 0.81 1.56 1.14 1.58 1.01 1.30 1.55 1.38 2.95 3.03 0.86 1.40 2.59 2.42 2.44 1.15 1.82 1.45 0.92	D 0.09 0.74 0.93 0.94 1.36 0.56 0.85 1.18 0.17 2.02 1.68 3.27 0.94 0.99 2.20 2.10 2.26 0.66 1.31 1.38 0.08	MEAN 0.87 1.32 1.22 1.01 1.47 1.06 2.49 2.04 1.25 1.45 2.16 1.61 3.23 3.31 0.93 1.62 2.79 2.25 2.34 1.58 2.06 1.50 0.50 2.16 1.57 2.14 3.22 2.42
D/N*PK0 D/N*PK2	20/1 20/2 20/3			a		2.58 2.93 2.54

2ND CUT MEAN DM% 21.3

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TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

**** Tables of means ****

LIME MANURE		A	В	С	D	MEAN
N1 K O(D) O P	1 2/1 2/2 3 4/1	4.73 4.64 3.73 3.40 4.13	3.52 4.57 4.16 3.36 4.87	2.67 2.12 2.03 1.51 3.23	0.86 1.88 2.09 1.98 2.79	2.95 3.30 3.01 2.56 3.76
N2P N1MN MN	4/2 6 7	6.82 8.32 9.13	4.90 7.57 8.48	5.98	1.87 3.01	4.96 7.95 6.65
PNAMG MN (N2) N2MN N2 PNAMG	8 9/1 9/2 10	2.97 6.60 8.61 6.31	5.25 6.80 9.61 6.22	2.55 6.10 7.97 6.51	2.66 1.61 4.57 3.40	3.36 5.28 7.69 5.61
N3MN N3MNSI O	11/1 11/2 12	11.48 11.21 2.89	10.56 10.94 2.62	9.60 9.19 1.80	5.68 8.10 2.01	9.33 9.86 2.33
(D/F) D/F MN(N2*) N2*MN	13/1 13/2 14/1 14/2	4.77 6.88 7.14 8.72	7.44 9.09 7.77 8.95	4.64 7.99 7.19 8.16	4.73 7.22 6.61 8.14	5.40 7.79 7.18 8.49
MN(N2*) N1*MN N1* N2KNAMG0	15 16 17 18/1	8.22 9.01 3.80	7.40 9.37 3.39	4.87 6.44 2.95	3.26 5.71 2.96	5.94 7.63 3.27
N2KNAMG0 N2KNAMG2 N2KNAMG1 D0 D2	18/2 18/3 19/1 19/2	3.52	4.05	5.86	1, 92	3.89 4.81 3.79 6.62 9.98
D1 D/N*PK0 D/N*PK2 D/N*PK1	19/3 20/1 20/2 20/3					7.51 7.83 10.44 8.60

TOTAL OF 2 CUTS MEAN DM% 25.2