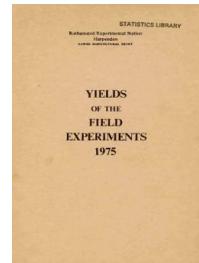


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Yields of the Field Experiments 1975

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75/ R/CS/14 - NPK to Old Grass - Old Grass

Rothamsted Research

Rothamsted Research (1976) 75/ R/CS/14 - NPK to Old Grass - Old Grass ; Yields Of The Field Experiments 1975, pp 153 - 162 - DOI: <https://doi.org/10.23637/ERADOC-1-141>

75/R/CS/14

NPK TO OLD GRASS

Object: To study the effects of a range of P and K levels on yields of permanent pasture on sites with much or little P and K in the soil - Park Grass Old Plots 5/1 and 5/2.

Sponsor: A.E. Johnston.

The eleventh year, old grass.

For previous years see 65/C/22(t), 66/C/13(t), 67/C/9(t), 68/C/7 and 69-74/R/CS/14.

Design: On each site: A single replicate of 2 x 4 x 4 in 2 blocks of 16 plots each, with 2 x 2 additional plots in each block.

Whole plot dimensions: 1.83 x 10.1.

Treatments:

The experiment is duplicated on sites differing in previous history:-

PLOT	
Park Grass Plot 5/1: No P or K	5/1NORES
Park Grass Plot 5/2: Superphosphate to supply 34 kg P, sulphate of potash to supply 224 kg K, annually 1898-1964	5/2PKRES

On each site, all combinations of:-

1. Nitrogen fertiliser (kg N for each cut):

	NPERCUT
33.6	33.6
67.2	67.2

2. Phosphate (kg P) as superphosphate annually:

	P
None	0
16.8	16.8
33.6	33.6
67.2	67.2

3. Potassium (kg K) as potassium chloride annually:

	K
None	0
112	112
224	224
448	448

75/R/CS/14

together with extra treatments, all combinations of:-

1. Nitrogen fertiliser (kg N for each cut):

NPERCUT

33.6
67.2

33.6
67.2

2. Residues of PK fertilisers applied 1965 only:

PKRES65

33.6 kg P, 56 kg K
33.6 kg P, 336 kg K

34P56K
34P336K

Cultivations, etc.: - P and K applied: 9 Dec, 1974. N applied: 18 Mar, 1975,
6 June and 8 Aug. Cut: 5 June, 7 Aug and 20 Oct.

75/R/CS/14 PLOT 5/1 NORES

EXCLUDING PKRES65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	2.52	4.22	4.10	4.44	3.82
67.2	2.58	4.86	5.26	5.44	4.54
MEAN	2.55	4.54	4.68	4.94	4.18

K NPERCUT	0	112	224	448	MEAN
33.6	3.14	3.71	4.49	3.92	3.82
67.2	2.93	4.90	5.39	4.93	4.54
MEAN	3.04	4.30	4.94	4.43	4.18

K P	0	112	224	448	MEAN
0.0	2.20	2.73	3.02	2.25	2.55
16.8	3.12	4.51	5.47	5.06	4.54
33.6	3.30	5.05	5.33	5.03	4.68
67.2	3.53	4.92	5.95	5.36	4.94
MEAN	3.04	4.30	4.94	4.43	4.18

NPERCUT	K P	0	112	224	448
33.6	0.0	2.72	2.63	2.76	1.95
	16.8	3.21	3.87	5.22	4.57
	33.6	3.11	4.23	4.60	4.45
	67.2	3.53	4.11	5.40	4.71
67.2	0.0	1.68	2.82	3.28	2.55
	16.8	3.02	5.16	5.72	5.55
	33.6	3.49	5.87	6.06	5.60
	67.2	3.53	5.73	6.49	6.01

1ST CUT DM % 20.5

75/R/CS/14 PLOT 5/1 NORES

EXCLUDING PKRES65 PLOTS

2ND CUT (7/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	1.04	1.00	0.74	0.82	0.90
67.2	1.47	1.24	1.93	1.64	1.57
MEAN	1.26	1.12	1.34	1.23	1.24

K NPERCUT	0	112	224	448	MEAN
33.6	0.40	0.66	1.32	1.22	0.90
67.2	0.47	1.31	2.09	2.43	1.57
MEAN	0.43	0.98	1.70	1.82	1.24

K P	0	112	224	448	MEAN
0.0	0.82	1.29	1.49	1.43	1.26
16.8	0.38	1.00	1.78	1.32	1.12
33.6	0.28	0.75	1.99	2.33	1.34
67.2	0.25	0.90	1.56	2.21	1.23
MEAN	0.43	0.98	1.70	1.82	1.24

NPERCUT	K P	0	112	224	448
33.6	0.0	0.71	0.75	1.37	1.31
	16.8	0.26	0.85	1.22	1.67
	33.6	0.23	0.71	1.24	0.78
	67.2	0.38	0.34	1.45	1.10
67.2	0.0	0.93	1.82	1.61	1.54
	16.8	0.50	1.15	2.33	0.98
	33.6	0.32	0.79	2.74	3.88
	67.2	0.11	1.46	1.67	3.32

2ND CUT MEAN DM% 36.8

75/R/CS/14 PLOT 5/1 NORES

EXCLUDING PKRES65 PLOTS

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	3.55	5.22	4.84	5.26	4.72
67.2	4.06	6.11	7.19	7.08	6.11
MEAN	3.80	5.66	6.01	6.17	5.41

K NPERCUT	0	112	224	448	MEAN
33.6	3.54	4.37	5.81	5.14	4.72
67.2	3.40	6.20	7.47	7.36	6.11
MEAN	3.47	5.29	6.64	6.25	5.41

K P	0	112	224	448	MEAN
0.0	3.02	4.01	4.51	3.68	3.80
16.8	3.50	5.52	7.24	6.39	5.66
33.6	3.58	5.80	7.32	7.36	6.01
67.2	3.78	5.82	7.51	7.57	6.17
MEAN	3.47	5.29	6.64	6.25	5.41

NPERCUT	K P	0	112	224	448
33.6	0.0	3.43	3.38	4.12	3.27
	16.8	3.47	4.72	6.44	6.24
	33.6	3.34	4.94	5.84	5.23
	67.2	3.92	4.45	6.86	5.81
67.2	0.0	2.61	4.65	4.89	4.09
	16.8	3.53	6.31	8.05	6.53
	33.6	3.81	6.66	8.80	9.49
	67.2	3.64	7.19	8.16	9.33

TOTAL OF 2 CUTS MEAN DM% 28.7

PLOT AREA HARVESTED 0.00086

75/R/CS/14 PLOT 5/1 NORES

PKRES65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	1.82	2.04	1.93
67.2	2.35	1.83	2.09
MEAN	2.08	1.93	2.01

1ST CUT DM % 26.3

2ND CUT (7/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	0.68	0.51	0.59
67.2	0.57	0.59	0.58
MEAN	0.63	0.55	0.59

2ND CUT MEAN DM% 41.2

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	2.50	2.54	2.52
67.2	2.92	2.42	2.67
MEAN	2.71	2.48	2.60

TOTAL OF 2 CUTS MEAN DM% 33.7

PLOT AREA HARVESTED 0.00086

75/R/CS/14 PLOT 5/2 PKRES

EXCLUDING PKRES 65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	4.29	5.24	4.65	4.29	4.62
67.2	6.48	6.29	6.34	5.99	6.28
MEAN	5.38	5.77	5.50	5.14	5.45

K NPERCUT	0	112	224	448	MEAN
33.6	4.47	4.72	4.85	4.43	4.62
67.2	5.92	5.97	6.80	6.40	6.28
MEAN	5.19	5.35	5.83	5.42	5.45

K P	0	112	224	448	MEAN
0.0	4.97	5.23	6.06	5.27	5.38
16.8	5.79	5.58	6.02	5.67	5.77
33.6	5.04	5.49	5.98	5.49	5.50
67.2	4.98	5.09	5.25	5.24	5.14
MEAN	5.19	5.35	5.83	5.42	5.45

NPERCUT	K P	0	112	224	448
33.6	0.0	4.31	4.13	4.80	3.92
	16.8	5.54	5.44	5.45	4.53
	33.6	4.27	4.66	4.88	4.79
	67.2	3.74	4.65	4.27	4.49
67.2	0.0	5.63	6.32	7.32	6.62
	16.8	6.05	5.72	6.60	6.82
	33.6	5.81	6.32	7.07	6.18
	67.2	6.21	5.54	6.22	5.99

1ST CUT DM % 20.9

75/R/CS/14 PLOT 5/2 PKRES

EXCLUDING PKRES65 PLOTS

2ND CUT (7/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	1.93	1.24	1.49	1.15	1.45
67.2	2.95	3.08	2.47	3.20	2.92
MEAN	2.44	2.16	1.98	2.17	2.19

K NPERCUT	0	112	224	448	MEAN
33.6	1.24	1.60	1.56	1.40	1.45
67.2	2.67	2.35	3.48	3.20	2.92
MEAN	1.96	1.97	2.52	2.30	2.19

K P	0	112	224	448	MEAN
0.0	2.00	1.87	2.96	2.93	2.44
16.8	1.73	2.11	2.37	2.42	2.16
33.6	1.81	1.93	2.64	1.54	1.98
67.2	2.28	1.99	2.11	2.31	2.17
MEAN	1.96	1.97	2.52	2.30	2.19

K P NPERCUT	0	112	224	448
33.6	0.0	1.57	1.86	2.41
	16.8	0.86	1.64	1.54
	33.6	1.14	1.91	1.42
	67.2	1.38	1.00	0.87
67.2	0.0	2.43	1.89	3.51
	16.8	2.60	2.58	3.19
	33.6	2.48	1.94	3.87
	67.2	3.19	2.98	3.34

2ND CUT MEAN DM% 28.7

75/R/CS/14 PLOT 5/2 PKRES

EXCLUDING PKRES65 PLOTS

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	6.22	6.48	6.14	5.43	6.07
67.2	9.43	9.37	8.82	9.19	9.20
MEAN	7.82	7.92	7.48	7.31	7.63

K NPERCUT	0	112	224	448	MEAN
33.6	5.70	6.32	6.41	5.83	6.07
67.2	8.60	8.32	10.28	9.61	9.20
MEAN	7.15	7.32	8.35	7.72	7.63

K P	0	112	224	448	MEAN
0.0	6.97	7.10	9.02	8.20	7.82
16.8	7.52	7.69	8.39	8.10	7.92
33.6	6.85	7.42	8.62	7.03	7.48
67.2	7.26	7.08	7.35	7.54	7.31
MEAN	7.15	7.32	8.35	7.72	7.63

K NPERCUT	P	0	112	224	448
33.6	0.0	5.88	5.99	7.21	5.79
	16.8	6.40	7.08	6.99	5.44
	33.6	5.42	6.57	6.30	6.27
	67.2	5.12	5.65	5.15	5.82
67.2	0.0	8.07	8.21	10.83	10.61
	16.8	8.64	8.29	9.78	10.75
	33.6	8.28	8.26	10.94	7.78
	67.2	9.40	8.52	9.56	9.27

TOTAL OF 2 CUTS MEAN DM% 24.8

PLOT AREA HARVESTED 0.00086

75/R/CS/14 PLOT 5/2 PKRES

PKRES65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	4.45	4.26	4.36
67.2	5.58	6.23	5.90
MEAN	5.02	5.24	5.13

1ST CUT DM % 22.6

2ND CUT (7/3/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	1.81	1.67	1.74
67.2	2.29	2.68	2.48
MEAN	2.05	2.18	2.11

2ND CUT MEAN DM% 29.3

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	6.27	5.94	6.10
67.2	7.87	8.91	8.39
MEAN	7.07	7.42	7.25

TOTAL OF 2 CUTS MEAN DM% 26.0

PLOT AREA HARVESTED 0.00086