Yields of the Field Experiments 1974

[Full Table of Content](#)

74/R/CS/14 N P K to Old Grass - Old Grass

74/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 tenth year, old grass.

For previous years see 65/C/22(t), 66/C/13(t), 67/C/9(t), 68/C/7 and
69-73/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. Area harvested: 0.00086.

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

	PLOT
Park Grass Plot 5/1: No P or K 1856-1964	5/1NORES
Park Grass Plot 5/2: Superphosphate to supply 34 kg P, sulphate of potash to supply 224 kg K annually 1856-1964	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

157

74/R/CS/14

together with extra treatments, all combinations of:-
1. Nitrogen fertiliser (kg N for each cut):   NPERCUT

        33.6   33.6
        67.2   67.2

2. Residues of PK fertilisers applied 1965 only: PKRES65

     33.6 kg P, 56 kg K   34P56K
     33.6 kg P, 336 kg K   34P336K

Cultivations, etc.:- P and K applied: 13 Dec, 1973.   Cut: 5 June, 1974,
  5 Aug, 14 Oct. N applied: 13 Mar and after first two cuts.

158

74/R/CS/14

TABLES OF MEANS

PLOT 5/1 NORES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

1ST CUT

	P				
	0.0	16.8	33.6	67.2	Mean
K					
0	1.08	1.90	2.25	2.06	1.82
112	1.72	3.73	4.02	3.05	3.13
224	1.20	4.84	3.73	4.13	3.47
448	1.46	4.16	3.99	4.30	3.48
NPERCUT					
33.6	1.09	3.01	2.63	2.85	2.39
67.2	1.63	4.31	4.37	3.92	3.56
Mean	1.36	3.66	3.50	3.38	2.98

	K			
	0	112	224	448
NPERCUT				
33.6	1.65	2.40	2.79	2.73
67.2	1.99	3.86	4.16	4.22

159

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PLOT 5/1 NORES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

2ND CUT

	P 0.0	16.8	33.6	67.2	Mean
K					
0	1.18	1.32	1.73	1.47	1.42
112	1.75	2.12	2.22	1.86	1.99
224	1.88	2.72	2.69	2.51	2.45
448	1.97	2.61	3.13	3.10	2.70
NPERCUT					
33.6	1.49	1.86	2.03	1.81	1.80
67.2	1.90	2.52	2.85	2.67	2.49
Mean	1.70	2.19	2.44	2.24	2.14

	K 0	112	224	448
NPERCUT				
33.6	1.30	1.56	2.08	2.26
67.2	1.55	2.42	2.82	3.15

160

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PLOT 5/1 NCRES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

3RD CUT

	P				
	0.0	16.8	33.6	67.2	Mean
K					
0	0.39	0.84	1.11	0.95	0.82
112	0.46	1.42	1.67	1.62	1.29
224	0.29	1.75	1.35	1.88	1.32
448	0.32	1.66	1.40	1.75	1.28
NPERCUT					
33.6	0.38	1.14	1.03	1.24	0.95
67.2	0.35	1.70	1.73	1.86	1.41
Mean	0.37	1.42	1.38	1.55	1.18

	K			
	0	112	224	448
NPERCUT				
33.6	0.62	0.90	1.07	1.20
67.2	1.02	1.68	1.57	1.37

161

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PLOT 5/1 NORES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

TOTAL OF 3 CUTS

		P			
	0.0	16.8	33.6	67.2	Mean
K					
0	2.66	4.06	5.09	4.47	4.07
112	3.93	7.27	7.91	6.53	6.41
224	3.37	9.31	7.77	8.52	7.24
448	3.75	8.44	8.52	9.14	7.46
NPERCUT					
33.6	2.97	6.01	5.69	5.89	5.14
67.2	3.89	8.53	8.96	8.44	7.45
Mean	3.43	7.27	7.32	7.17	6.30

		K			
	0	112	224	448	
NPERCUT					
33.6	3.57	4.86	5.94	6.18	
67.2	4.57	7.96	8.55	8.74	

162

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PLOT 5/1 NORES

PKRES65 plots

DRY MATTER, TONNES/ HECTARE

| | PKRES65 | | |
	34P56K	34P336K	Mean
NPERCUT	1ST CUT		
33.6	1.20	1.22	1.21
67.2	1.29	1.06	1.18
Mean	1.24	1.14	1.19

Grand mean   2.62
Mean D.M. %   28.0

	2ND CUT		
NPERCUT			
33.6	1.31	1.26	1.29
67.2	1.41	1.48	1.44
Mean	1.36	1.37	1.36

Grand mean   1.99
Mean D.M. %   21.1

163

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PLOT 5/1 NORES

PKRES65 plots

DRY MATTER, TONNES/HECTARE

	PKRES65		Mean
	34P56K	34P336K	
	3RD CUT		
NPERCUT			
33.6	0.54	0.43	0.49
67.2	0.44	0.41	0.42
Mean	0.49	0.42	0.45

Grand mean   1.03
Mean D.M. %   24.7

	TOTAL OF 3 CUTS		
NPERCUT			
33.6	3.05	2.91	2.98
67.2	3.13	2.95	3.04
Mean	3.09	2.93	3.01

Grand mean   5.64
Mean D.M. %   24.6

164

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PLOT 5/2 PKRES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

1ST CUT

	P				
	0.0	16.8	33.6	67.2	Mean
K					
0	3.95	4.57	3.54	4.22	4.07
112	4.79	4.60	4.66	4.15	4.55
224	4.96	5.60	4.72	4.17	4.87
448	4.69	4.39	4.21	4.33	4.41
NPERCUT					
33.6	3.58	3.48	3.28	2.96	3.32
67.2	5.62	6.10	5.29	5.48	5.63
Mean	4.60	4.79	4.28	4.22	4.47

	K			
	0	112	224	448
NPERCUT				
33.6	2.89	3.76	3.34	3.30
67.2	5.26	5.35	6.39	5.51

165

74/R/CS/14

PLOT 5/2 PKRES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

2ND CUT

		P			
	0.0	16.8	33.6	67.2	Mean
K					
0	3.13	2.99	2.93	3.04	3.02
112	2.92	3.33	3.29	2.77	3.08
224	3.36	3.76	3.49	2.78	3.35
448	3.57	3.07	2.71	3.11	3.12
NPERCUT					
33.6	2.78	2.54	2.66	2.28	2.56
67.2	3.70	4.04	3.54	3.58	3.72
Mean	3.24	3.29	3.10	2.93	3.14

		K		
	0	112	224	448
NPERCUT				
33.6	2.56	2.64	2.64	2.42
67.2	3.49	3.51	4.05	3.81

166

74/R/CS/14

PLOT 5/2 PKRES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

3RD CUT

	0.0	16.8	P 33.6	67.2	Mean
K					
0	1.87	1.66	1.92	1.77	1.81
112	1.93	1.47	1.83	1.90	1.78
224	1.61	2.10	2.10	1.69	1.88
448	1.75	1.39	1.80	1.74	1.67
NPERCUT					
33.6	1.64	1.61	1.68	1.40	1.58
67.2	1.94	1.71	2.14	2.15	1.98
Mean	1.79	1.66	1.91	1.77	1.78

	0	K 112	224	448
NPERCUT				
33.6	1.58	1.58	1.69	1.50
67.2	2.03	1.99	2.06	1.84

167

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PLOT 5/2 PKRES

Excluding PKRES65 plots

DRY MATTER, TONNES/HECTARE

TOTAL OF 3 CUTS

	P 0.0	16.8	33.6	67.2	Mean
K					
0	8.95	9.23	8.39	9.03	8.90
112	9.64	9.40	9.77	8.82	9.41
224	9.94	11.46	10.31	8.64	10.09
448	10.01	8.85	8.72	9.18	9.19
NPERCUT					
33.6	8.00	7.62	7.62	6.63	7.47
67.2	11.27	11.85	10.97	11.20	11.32
Mean	9.63	9.74	9.30	8.92	9.40

	K 0	112	224	448
NPERCUT				
33.6	7.02	7.97	7.67	7.22
67.2	10.78	10.84	12.51	11.17

168

74/R/CS/14

PLOT 5/2 PKRES

PKRES65 plots

DRY MATTER, TONNES/HECTARE

	PKRES65		
	34P56K	34P336K	Mean
NPERCUT	1ST CUT		
33.6	3.86	3.75	3.80
67.2	5.13	5.73	5.43
Mean	4.49	4.74	4.62

Grand mean   4.50
Mean D.M. %   29.2

	2ND CUT		
NPERCUT			
33.6	2.82	2.74	2.78
67.2	3.33	3.52	3.42
Mean	3.07	3.13	3.10

Grand mean   3.13
Mean D.M. %   19.8

169

74/R/CS/14

PLOT 5/2 PKRES

PKRES65 plots

DRY MATTER, TONNES/HECTARE

	PKRES65 34P56K	34P336K	Mean
	3RD CUT		
NPERCUT			
33.6	1.62	1.58	1.60
67.2	2.21	2.06	2.14
Mean	1.91	1.82	1.87

Grand mean   1.80
Mean D.M. %   22.3

TOTAL OF 3 CUTS

NPERCUT			
33.6	8.29	8.06	8.18
67.2	10.66	11.31	10.99
Mean	9.48	9.69	9.58

Grand mean   9.43
Mean D.M. %   23.8

170