ROTHAMSTED RESEARCH

Yields of the Field Experiments 1971

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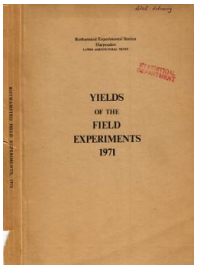

71/R/RN/1 and 71/R/RN/2 Ley/ARABLE - Old Grass, Leys, Barley, Wheat

Rothamsted Research

Rothamsted Research (1972) *71/R/RN/1 and 71/R/RN/2 Ley/ARABLE - Old Grass, Leys, Barley, Wheat ;* Yields Of The Field Experiments 1971, pp 50 - 67 **- DOI: https://doi.org/10.23637/ERADOC-1-97**

71/R/RN/1 and 71/R/RN/2

LEY/ARABLE

Object: To study the effects of three-year leys on the fertility of the soil as measured by a sequence of three arable test crops. Since 1968, continuous winter wheat has been grown after the three test crops to study the build-up and decline of take-all (Ophiobolus graminis) after the different cropping sequences - Highfield and Fosters.

The 23rd year, old grass, leys, barley, wheat.

For previous years see 'Details' 1967, 68/B/1(t), 69/R/RN/1&2(t) and 70/R/RN/1&2(t).

Continuous winter wheat: The basal PK for blocks in continuous winter wheat is now 75 kg P_2O_5, 75 kg K_2O as (0:20:20) combine drilled, the N test is unchanged.

Management of hay plots (H): These plots now receive 75 kg N, 75 kg P_2O_5, 75 kg K_2O as (15:15:15) in spring and 75 kg N, 48 kg K_2O as (25:0:16) after each cut except the last. They are cut at the same times as the leys.

HIGHFIELD

2nd year Treatment Crops:

All-grass ley: PK applied: 20 Oct, 1970. NK applied: 17 Mar, 1971. Cut four times: 19 May, 8 July, 13 Sept, 2 Nov. NK applied after first three cuts.

Clover-grass ley: PK applied: 20 Oct, 1970. K applied: 17 Mar, 1971. Cut four times: 19 May, 8 July, 13 Sept, 2 Nov. K applied after first three cuts.

Lucerne: PK applied: 20 Oct, 1970. Sprayed with paraquat at 0.56 kg ion in 225 l: 4 Feb, 1971. Cut three times: 4 June, 14 July, 7 Sept. Variety: Du Puits.

Hay: Seed undersown in barley at 32 kg: 7 May, 1970. NPK applied: 17 Mar, 1971. Cut four times: 26 May, 14 July, 13 Sept, 2 Nov. NK applied after first three cuts.

2nd Test Crop. Wheat:-

PK applied: 26 Sept, 1970. Deep-tine cultivated twice: 28 Sept. Seed combine drilled at 202 kg: 5 Oct. N applied, plots sprayed with 2,4-D at 0.56 kg plus dichlorprop at 2.24 kg in 225 l:14 Apr, 1971. Combine harvested: 24 Aug. Variety: Joss Cambier.

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71/R/RN/1 and 71/R/RN/2

3rd Test Crop. Barley:-
Ground chalk applied: 11 Sept, 1970. Ploughed twice: 11 Sept, 15 Dec. Seed combine drilled at 157 kg: 25 Feb, 1971. N applied: 5 Mar. Sprayed with ioxynil at 0.53 kg plus mecoprop at 1.57 kg in 225 l: 3 May. Combine harvested: 16 Aug. Variety: Julia.

4th, 6th and 7th Test Crops. Wheat:-
Ploughed: 11 Sept, 1970. Seed combine drilled at 202 kg: 5 Oct. N applied: 13 Apr, 1971. Sprayed with 2,4-D at 0.56 kg plus dichlorprop at 2.24 kg in 225 l: 14 Apr. Combine harvested: 24 Aug. Variety: Joss Cambier.

Permanent Grasses:
The 23rd experimental year permanent (old) grass, blocks 1, 2 and 4, the 23rd year reseeded grass, blocks 1 and 4. PK applied: 20 Oct, 1970. NK applied to 'all-grass' half plots, K to 'clover-grass' half plots: 17 Mar, 1971. Cut four times: 19 May, 8 July, 13 Sept, 2 Nov. NK applied to 'all-grass' half plots and K to 'clover-grass' half plots after each cut except the last.

FOSTERS

2nd year Treatment Crops:
All-grass ley: PK applied: 20 Oct, 1970. NK applied: 17 Mar, 1971. Cut four times: 19 May, 8 July, 13 Sept, 2 Nov. NK applied after first three cuts.
Clover-grass ley: PK applied: 20 Oct, 1970. K applied: 17 Mar, 1971. Cut four times: 19 May, 8 July, 13 Sept, 2 Nov. K applied after first three cuts.
Lucerne: PK applied: 20 Oct, 1970. Sprayed with paraquat at 0.56 kg ion in 225 l: 4 Feb, 1971. Cut three times: 4 June, 14 July, 7 Sept. Variety: Du Puits.
Hay: Seed undersown in barley at 32 kg: 7 May, 1970. NPK applied: 17 Mar, 1971. Cut four times: 26 May, 14 July, 13 Sept, 2 Nov. NK applied after first three cuts.

2nd Test Crop. Wheat:-
PK applied: 26 Sept, 1970. Deep-tine cultivated twice: 28 Sept. Seed combine drilled at 202 kg: 5 Oct. N applied: 13 Apr, 1971. Sprayed with 2,4-D at 0.56 kg plus dichlorprop at 2.24 kg ion 225 l: 15 Apr. Combine harvested: 24 Aug. Variety: Joss Cambier.

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3rd Test Crop. Barley:-
Ploughed twice: 10 Sept, 14 Dec, 1970. Seed combine drilled at 157 kg: 25 Feb, 1971. N applied: 5 Mar. Sprayed with ioxynil at 0.53 kg plus mecoprop at 1.57 kg in 225 l: 3 May. Combine harvested: 16 Aug. Variety: Julia.

4th, 6th and 7th Test Crops. Wheat:-
Ploughed: 10 Sept, 1970. Seed combine drilled at 202 kg: 6 Oct. N applied: 13 Apr, 1971. Sprayed with 2,4-D at 0.56 kg plus dichlorprop at 2.24 kg in 225 l: 15 Apr. Combine harvested: 24 Aug. Variety: Joss Cambier.

Permanent Grasses:
The 23rd year reseeded grass, blocks 1 and 3. PK applied: 20 Oct, 1970. NK applied to 'all-grass' half plots, and K to 'clover-grass' half plots: 17 Mar, 1971. Cut four times: 19 May, 8 July, 13 Sept, 2 Nov. NK applied to 'all-grass' half plots and K to 'clover-grass' half plots after each cut except the last.

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71/R/RN/1 and 71/R/RN/2

SUMMARY OF RESULTS

WHEAT 2ND TEST CROP

GRAIN: TONNES/HECTARE

HIGHFIELD

	1967 - 69					1949-63
	LU	LC	LN	AH	Mean	R*
Mean	6.65	6.17	6.86	6.62	6.58	6.06
1971						
N0	6.18	5.72	5.46	5.43	5.70	5.74
N1	7.24	6.32	7.35	6.71	6.90	6.07
N2	7.32	6.64	7.61	7.10	7.17	6.42
N3	5.87	6.01	7.03	7.24	6.54	5.99
1970						
F	6.74	6.22	6.78	6.70	6.61	6.51
D	6.57	6.12	6.95	6.54	6.54	5.60
1970						
N0	7.33	6.30	6.72	6.85	6.80	5.97
N1	7.03	6.61	7.32	6.89	6.96	6.50
N2	6.31	6.09	6.46	6.36	6.31	5.74
N3	5.94	5.69	6.94	6.38	6.23	6.02

Mean D.M. %: 79.8

* AH since 1964

https://doi.org/10.23637/ERADOC-1-97

71/R/RN/1 and 71/R/RN/2

WHEAT 2ND TEST CROP

STRAW: TONNES/HECTARE

HIGHFIELD

	1967 - 69					1949-63
	LU	LC	LN	AH	Mean	R*
Mean	7.66	7.68	7.17	6.97	7.37	7.14
1971						
N0	7.02	7.02	6.36	5.57	6.49	6.14
N1	8.56	7.94	7.44	7.11	7.76	7.28
N2	7.90	7.92	7.87	7.45	7.78	7.84
N3	7.17	7.85	7.01	7.73	7.44	7.32
1970						
F	7.54	7.59	7.09	6.82	7.26	6.99
D	7.79	7.77	7.25	7.11	7.48	7.30
1970						
N0	7.53	7.26	6.89	6.72	7.10	7.03
N1	7.84	7.74	7.39	7.09	7.51	7.03
N2	7.72	7.75	6.98	6.81	7.32	7.30
N3	7.56	7.97	7.43	7.24	7.55	7.21

Mean D.M. %: 87.6

* AH since 1964

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WHEAT 2ND TEST CROP

GRAIN: TONNES/HECTARE

FOSTERS

	1967 - 69					1949-63
	LU	LC	LN	AH	Mean	R*
Mean	6.74	6.67	6.46	6.17	6.51	6.56
1971						
NO	6.03	6.09	5.83	5.04	5.75	5.31
N1	7.21	7.09	6.87	6.24	6.85	6.92
N2	7.27	7.19	7.05	6.94	7.11	7.25
N3	6.47	6.30	6.10	6.48	6.34	6.75
1970						
F	6.64	6.54	6.34	5.69	6.30	6.68
D	6.85	6.80	6.59	6.66	6.72	6.44
1970						
NO	7.00	6.62	6.47	5.91	6.50	6.48
N1	6.79	6.83	6.14	5.91	6.42	6.32
N2	6.52	6.58	6.81	6.46	6.59	6.47
N3	6.66	6.64	6.43	6.41	6.54	6.96

Mean D.M. %: 79.0

* AH since 1964

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WHEAT 2ND TEST CROP

STRAW: TONNES/HECTARE

FOSTERS

	1967 - 69					1949-63
	LU	LC	LN	AH	Mean	R*
Mean	7.08	7.19	6.61	6.54	6.86	7.02
1971						
N0	5.77	6.02	5.53	4.90	5.55	5.73
N1	7.07	7.49	6.69	6.28	6.88	7.07
N2	8.18	7.54	7.71	7.25	7.67	7.78
N3	7.29	7.72	6.53	7.73	7.32	7.51
1970						
F	6.71	6.76	6.17	6.03	6.42	6.77
D	7.45	7.63	7.06	7.05	7.30	7.27
1970						
N0	7.12	7.15	6.33	5.73	6.58	6.87
N1	7.07	6.98	6.39	6.21	6.66	6.71
N2	6.74	7.27	6.85	6.78	6.91	6.93
N3	7.38	7.38	6.88	7.43	7.27	7.58

Mean D.M. %: 87.3

* AH since 1964

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BARLEY 3RD TEST CROP

GRAIN: TONNES/HECTARE

HIGHFIELD

	1966 - 68					1951-62	1951-68		
	LU	LC	LN	AH	Mean	R*	GC	GN	Mean
Mean	5.78	6.14	6.04	5.89	5.96	6.27	6.09	5.94	6.01
1971									
N0	5.29	5.82	5.24	4.91	5.31	6.07	6.27	6.27	6.27
N1	6.27	6.29	6.76	6.37	6.42	6.61	6.55	5.96	6.20
N2	5.92	6.05	5.93	6.15	6.01	6.22	5.52	5.88	5.70
N3	5.64	6.40	6.25	6.14	6.11	6.19	6.01	5.64	5.82
1970									
N0	6.35	6.09	5.70	5.85	6.00				
N1	5.47	6.18	6.04	5.82	5.88				
N2	5.75	5.84	6.22	6.01	5.96				
N3	5.56	6.45	6.22	5.89	6.03				
1969									
F	5.71	6.12	6.10	5.59	5.88	6.14			
D	5.85	6.16	5.99	6.19	6.05	6.40			

Mean D.M. %: 76.3
* AH since 1963

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BARLEY 3RD TEST CROP

GRAIN: TONNES/HECTARE

FOSTERS

	1966 - 68					1951-62
	LU	LC	LN	AH	Mean	R*
Mean	6.30	6.22	6.19	5.92	6.16	6.31
1971						
N0	5.19	5.85	5.41	4.64	5.27	5.32
N1	6.25	6.17	6.44	6.12	6.24	6.49
N2	7.26	6.75	6.38	6.29	6.67	6.69
N3	6.51	6.12	6.55	6.65	6.46	6.76
1970						
N0	6.21	6.21	6.21	5.31	5.98	6.65
N1	6.18	6.24	5.87	6.27	6.14	6.11
N2	6.64	6.14	6.22	5.94	6.24	6.34
N3	6.18	6.30	6.47	6.17	6.28	6.16
1969						
F	6.33	6.03	6.15	5.93	6.11	5.94
D	6.27	6.42	6.24	5.91	6.21	6.69

Mean D.M. %: 78.8

* AH since 1963

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WHEAT 4TH TEST CROP

GRAIN: TONNES/HECTARE

HIGHFIELD

	1965 - 67					1950 - 67				
	LU	LC	LN	AH	Mean	RC	RN	GC	GN	Mean
1971										
N1	4.87	6.47	6.69	6.10	6.03	7.01	7.42	6.72	6.73	6.97
N2	5.17	6.76	6.57	6.32	6.21	6.35	7.08	5.83	7.35	6.65
N3	5.23	6.57	6.82	5.72	6.08	6.56	5.67	5.93	5.99	6.04
N4	5.71	5.76	5.75	5.96	5.80	5.32	5.58	4.68	5.79	5.34
Mean	5.24	6.39	6.46	6.03	6.03	6.31	6.44	5.79	6.46	6.25

Mean D.M. %: 82.1

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WHEAT 4TH TEST CROP

GRAIN: TONNES/HECTARE

FOSTERS

	1965 - 67					1950 - 67		
	LU	LC	LN	AH	Mean	RC	RN	Mean
1971								
N1	6.18	6.22	6.34	5.72	6.12	7.14	7.01	7.07
N2	7.02	6.41	6.87	6.46	6.69	6.62	6.27	6.45
N3	6.57	6.51	6.42	6.49	6.50	5.82	5.72	5.77
N4	6.00	6.00	5.94	6.37	6.08	6.55	5.90	6.23
Mean	6.45	6.28	6.39	6.26	6.35	6.53	6.23	6.38

Mean D.M. %: 79.5

71/R/RN/1 and 71/R/RN/2

WHEAT 6TH TEST CROP

GRAIN: TONNES/HECTARE

HIGHFIELD

	1963 - 65					1951 - 68				
	LU	LC	LN	AH	Mean	RC	RN	GC	GN	Mean
1971										
N1	4.90	5.30	3.41	4.76	4.59	5.54	5.39	5.45	4.20	5.14
N2	5.98	5.70	4.21	5.56	5.36	4.26	5.72	6.39	4.10	5.12
N3	5.25	5.16	4.40	5.80	5.16	4.28	5.35	3.90	4.42	4.49
N4	5.70	4.53	3.94	5.70	4.97	4.26	4.39	5.28	3.94	4.47
Mean	5.46	5.17	3.99	5.45	5.02	4.58	5.21	5.26	4.16	4.80

Mean D.M. %: 84.7

71/R/RN/1 and 71/R/RN/2

WHEAT 6TH TEST CROP

GRAIN: TONNES/HECTARE

FOSTERS

	1963 - 65					1951 - 68		
	LU	LC	LN	AH	Mean	RC	RN	Mean
1971								
N1	5.42	5.94	5.40	5.61	5.59	6.42	5.79	6.11
N2	6.39	6.78	6.48	6.90	6.63	6.82	6.76	6.79
N3	6.52	6.64	6.43	6.52	6.53	6.38	6.48	6.43
N4	6.12	5.77	6.16	6.36	6.10	5.90	5.63	5.77
Mean	6.11	6.28	6.12	6.35	6.21	6.38	6.17	6.27

Mean D.M. %: 79.9

71/R/RN/1 and 71/R/RN/2

WHEAT 7TH TEST CROP

GRAIN: TONNES/HECTARE

HIGHFIELD

	1962 - 64				1950-64		1950 - 67		
	LU	LC	LN	AH	R	Mean	GC	GN	Mean
N1	5.09	5.17	5.54	5.83	6.51	5.63	4.07	2.86	3.46
N2	5.56	5.45	6.08	6.62	6.55	6.05	3.81	4.19	4.00
N3	5.57	6.18	6.00	6.71	6.06	6.11	4.94	3.60	4.27
N4	5.62	4.92	5.61	6.01	5.23	5.48	4.87	4.64	4.75
Mean	5.46	5.43	5.81	6.29	6.09	5.82	4.42	3.82	4.12

Mean D.M. %: 81.8

71/R/RN/1 and 71/R/RN/2

WHEAT 7TH TEST CROP

GRAIN: TONNES/HECTARE

FOSTERS

	1962 - 64				1950-64	
	LU	LC	LN	AH	R	Mean
1971						
N1	5.17	4.85	5.35	4.68	5.46	5.10
N2	6.59	6.35	6.59	6.07	5.90	6.30
N3	6.38	6.15	6.05	6.45	6.26	6.26
N4	5.78	5.73	5.68	5.82	5.77	5.76
Mean	5.98	5.77	5.92	5.75	5.85	5.85

Mean D.M. %: 78.7

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71/R/RN/1 and 71/R/RN/2

HAY

DRY MATTER: TONNES/HECTARE

1st cut	2nd cut	3rd cut	4th cut	Total
		HIGHFIELD		
6.50	3.01	4.13	1.86	15.50

Mean D.M. %: 1st cut: 15.9
2nd cut: 21.6
3rd cut: 25.2
4th cut: 22.5
Total of 4 cuts: 21.3

		FOSTERS		
6.25	3.72	2.25	1.32	13.54

Mean D.M. %: 1st cut: 16.3
2nd cut: 22.1
3rd cut: 24.9
4th cut: 22.3
Total of 4 cuts: 21.4

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71/R/RN/1 and 71/R/RN/2

	HIGHFIELD Mean	FOSTERS Mean
LUCERNE, DRY MATTER: TONNES/HECTARE		
TOTAL OF 3 CUTS		
2nd year	4.66	5.56
ALL-GRASS LEY, DRY MATTER: TONNES/HECTARE		
TOTAL OF 4 CUTS		
2nd year	7.33	6.79
CLOVER-GRASS LEY, DRY MATTER: TONNES/HECTARE		
TOTAL OF 4 CUTS		
2nd year	3.22	4.06
RESEEDED GRASS, DRY MATTER: TONNES/HECTARE		
TOTAL OF 4 CUTS		

	HIGHFIELD			FOSTERS		
	Blocks	RC	RN	Blocks	RC	RN
23rd Exptl year	1 & 4	3.46	11.17	1 & 4	5.90	9.56

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PERMANENT GRASS, DRY MATTER: TONNES/HECTARE

TOTAL OF 4 CUTS

	GC	GN
	HIGHFIELD	
23rd Exptl year		
Blocks 1 & 4	3.21	10.41
Block 2	2.97	10.24

(C) Clover-grass management
(N) All-grass management

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