

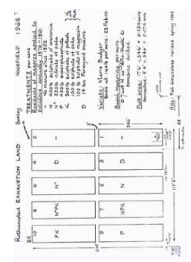
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ROTHAMSTED
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Collection of Plans for the Exhaustion Land Experiment

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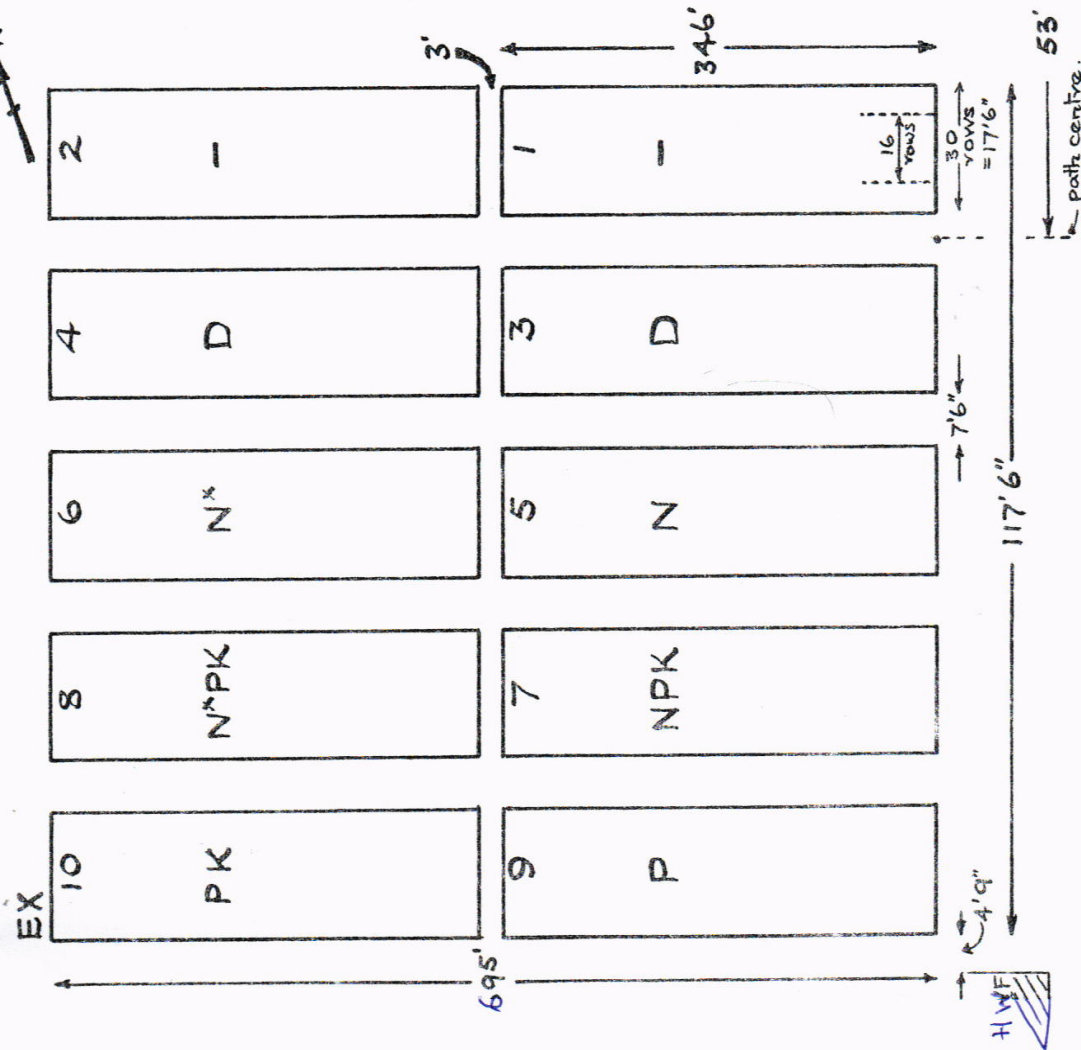


Default Title

Rothamsted Research

Rothamsted Research (1973-1986) *Default Title* ; Collection Of Plans For The Exhaustion Land Experiment, pp 1 - 17

Rothamsted EXHAUSTION LAND Barley. HOOSFIELD 1968⁴



TREATMENTS per acre

Residuals of manures applied to potatoes annually 1876-1901

- No manure since 1852

N 400 lb sulphate of ammonia

N^x 550 lb nitrate of soda

P 400 lb superphosphate

K 300 lb sulphate of potash

100 lb sulphate of soda

100 lb sulphate of magnesia

D 14 ton Farmyard manure.

$\left. \begin{matrix} K \\ with \\ Na, Mg \end{matrix} \right\}$

Variety: Maris Badger

Sown at 140 lb per acre: 28 Feb 191

Basal manuring: per acre

0.7 cwt N as Nitro-Chalk 21

combine drilled.

Plot area: 17'6" x 346' = 0.139 acre

Harvested: 9'4" x 346' = 0.074 acre

White concrete post

Note: Plot dimensions revised spring 1968

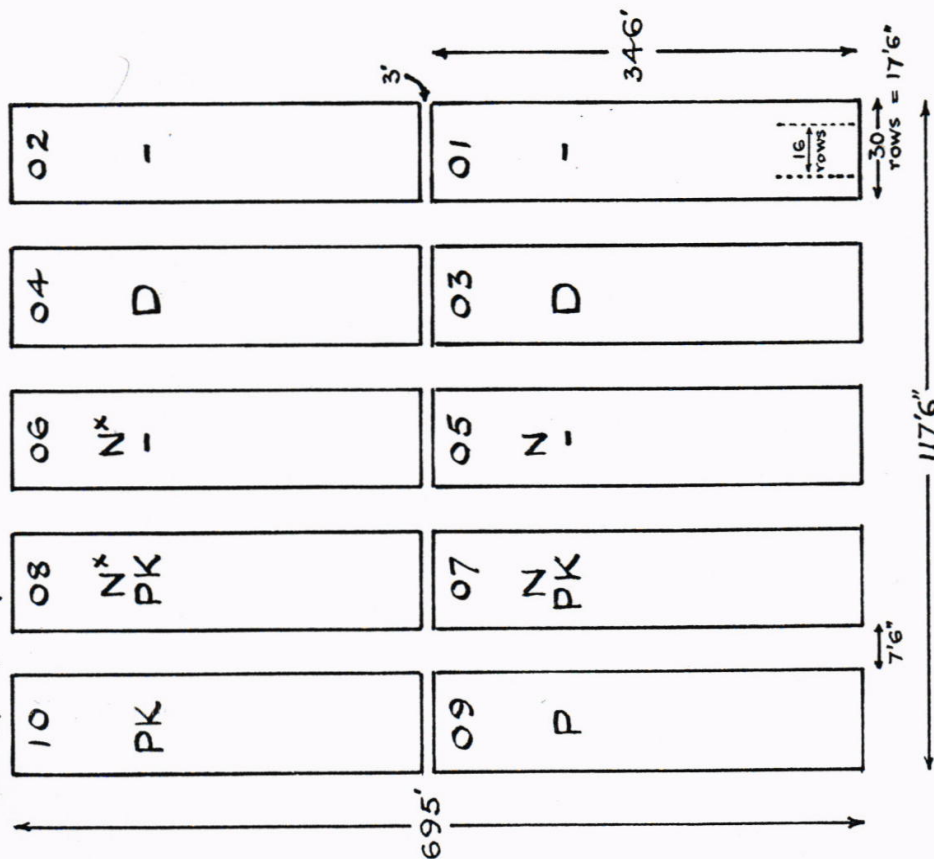
4
(681)

Barley HOOSFIELD 114th year 1969

Rothamsted EXHAUSTION LAND



69/R/EX/4



TREATMENTS per acre

Residuals of Manures applied to POTATOES annually 1876 - 1901

- No manure since 1852
- N 400lb sulphate of ammonia
- N^x 550lb nitrate of soda
- P 400lb superphosphate
- K 300lb sulphate of potash } ^K with Na, Mg
- 100lb sulphate of soda
- 100lb sulphate of magnesia
- D 14 tons Farmyard manure.

Variety: Maris Badger

sown at 140lb per acre on 10th March.

Basal manuring, per acre

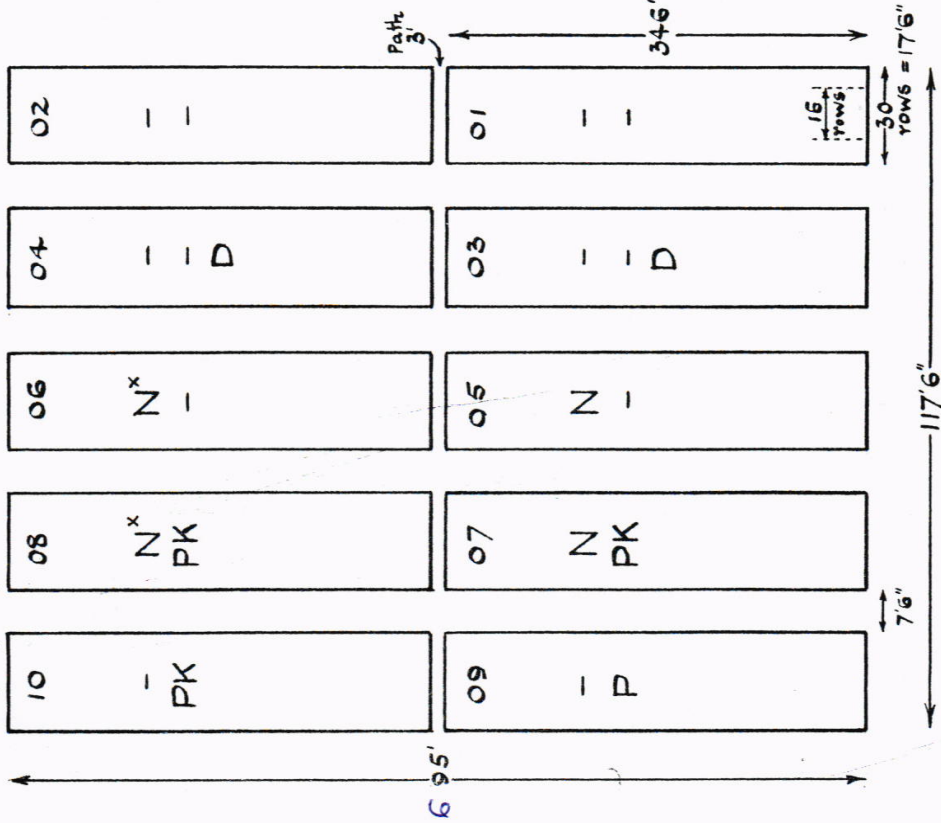
0.7 cwt N as 'Nitro-Chalk' 21 combine drilled

Plot area: 17'6" x 346' = 0.139 acre

Harvested: 9'4" x 346' = 0.074 acre

Rothamsted EXHAUSTION LAND Barley HOOSFIELD 116th year 1971 4

71/R/EX/4



TREATMENTS per acre (hectare)
Residuals of Manures applied to POTATOES
annually 1876 - 1901

-	No manure since 1852
N ^x	400 lb (448 kg) sulphate of ammonia
N ^x	550 lb (617 kg) nitrate of soda
P	400 lb (448 kg) superphosphate
K	300 lb (336 kg) sulphate of potash
	100 lb (112 kg) sulphate of soda
	100 lb (112 kg) sulphate of magnesia
D	14 tons (35 tonnes) farmyard manure

} 'K' with Na, Mg

Basal manuring, per acre (hectare)

0.7 cwt (87.5 kg) N as 'Nitro-chalk' 2:1 combine drilled

Variety : Julia

Sown at 140 lb per acre (157 kg/ha) on 25 Feb 1971

Plot area: 17'6" x 346' = 0.139 acre (0.056 ha)

Harvested: 9'4" x 346' = 0.074 acre (0.03 ha)

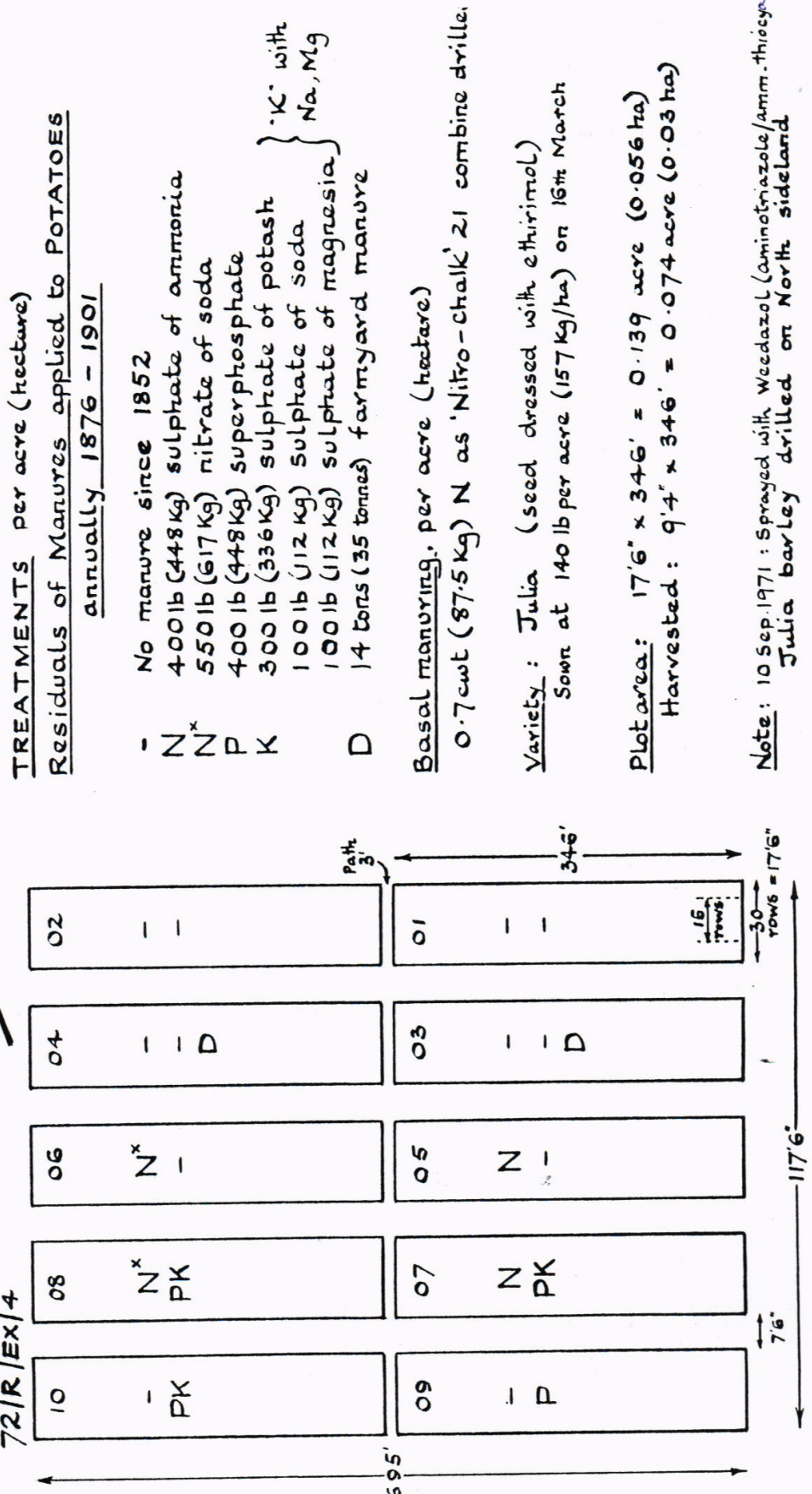
Note:

Julia barley drilled on North sideland

Rothamsted EXHAUSTION LAND Barley HOOSFIELD 117th year 1972 4

72/R/EX/4

Barley



TREATMENTS per acre (hectare)
Residuals of Manures applied to POTATOES
annually 1876 - 1901

- No manure since 1852
- N^x 400 lb (448 kg) sulphate of ammonia
- N^x 550 lb (617 kg) nitrate of soda
- P 400 lb (448 kg) superphosphate
- K 300 lb (336 kg) sulphate of potash
- 100 lb (112 kg) sulphate of soda } 'K' with Na, Mg
- 100 lb (112 kg) sulphate of magnesias }
- D 14 tons (35 tonnes) farmyard manure

Basal manuring, per acre (hectare)
0.7 cwt (87.5 kg) N as 'Nitro-chalk' 21 combine drille.

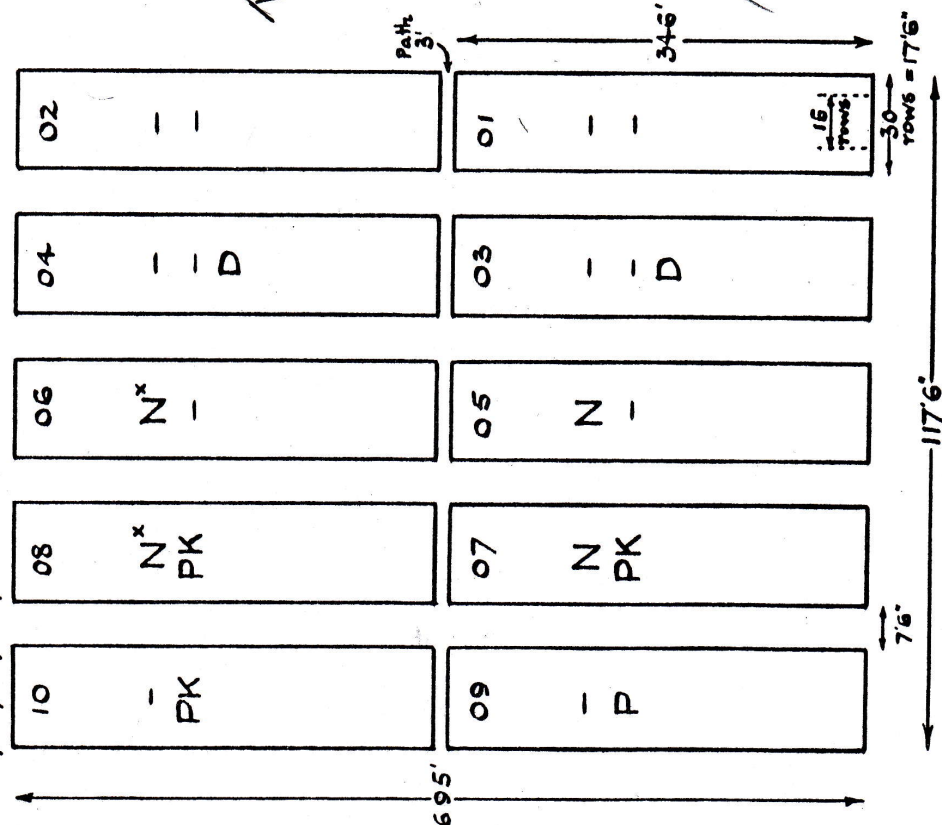
Variety: Julia (seed dressed with ethirimol)
Sown at 140 lb per acre (157 kg/ha) on 16th March

Plot area: 17'6" x 346' = 0.139 acre (0.056 ha)
Harvested: 9'4" x 346' = 0.074 acre (0.03 ha)

Note: 10 Sep. 1971: Sprayed with Weedazol (aminotriazole/amm. thiocyanate)
Julia barley drilled on North sideland

Rothamsted EXHAUSTION LAND Barley HOOSFIELD 118th year 1973 4

73/R/EX/4



TREATMENTS per acre (hectare)
Residuals of Manures applied to POTATOES
annually 1876 - 1901

- No manure since 1852
 400 lb (448 kg) sulphate of ammonia
 550 lb (617 kg) nitrate of soda
 400 lb (448 kg) superphosphate
 300 lb (336 kg) sulphate of potash
 100 lb (112 kg) sulphate of soda
 100 lb (112 kg) sulphate of magnesia
 14 tons (35 tonnes) farmyard manure

N^x N^x P K D } 'K' with Na, Mg

Basal manuring. per acre (hectare)

0.7 cwt (87.5 kg) N as 'Nitro-chalk' 2.5 combine drilled

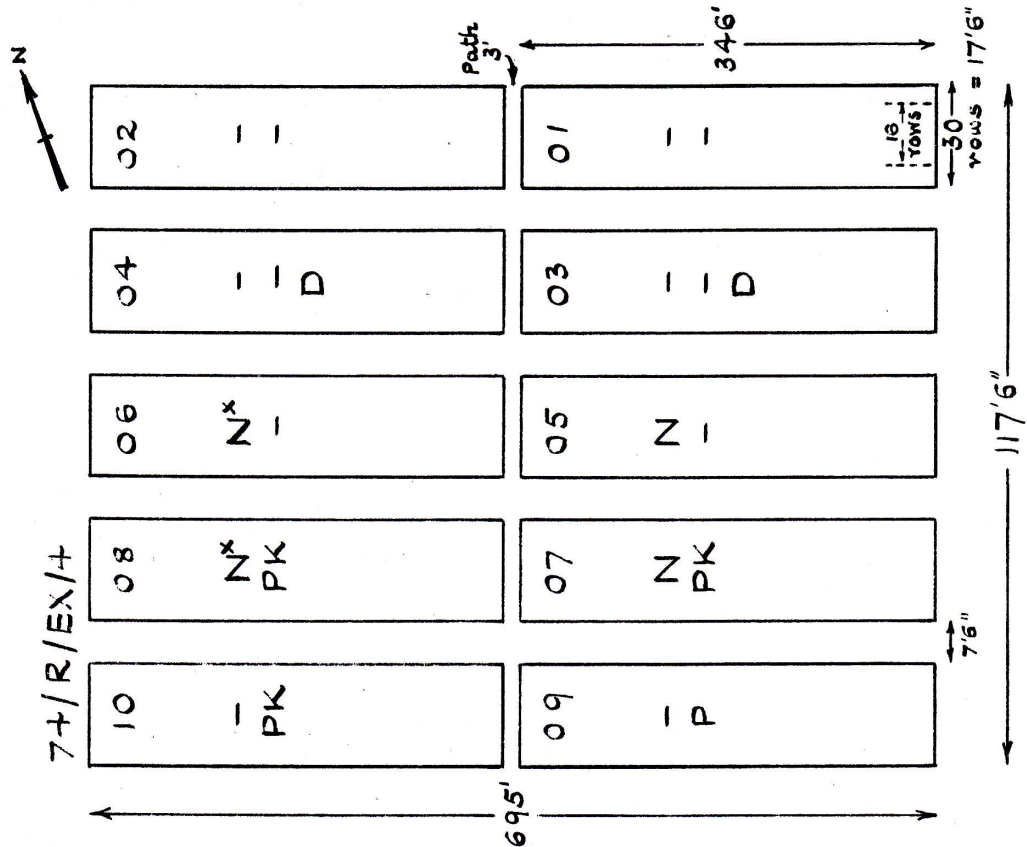
Variety: Julia (seed dressed with ethirimol)

Sown at 140 lb per acre (157 kg/ha) on 9 March

Plot area: 17'6" x 34'6" = 0.139 acre (0.056 ha)

Harvested: 9'4" x 34'6" = 0.074 acre (0.03 ha)

Rothamsted EXHAUSTION LAND 119th year BARLEY HOOSFIELD 1974 4



TREATMENTS per acre (hectare)

Residuals of Manures applied to POTATOES
annually 1876-1901

- No manure since 1852
 - N^{*} 400 lb (448 kg) sulphate of ammonia
 - N 550 lb (617 kg) nitrate of soda
 - P 400 lb (448 kg) superphosphate
 - K 300 lb (336 kg) sulphate of potash
 - 100 lb (112 kg) sulphate of soda
 - 100 lb (112 kg) sulphate of magnesium
 - D 14 tons (35 tonnes) farmyard manure
- } 'K' with Na, Mg

Basal manuring per acre (hectare)

0.7 cwt (87.5 kg) N as 'Nitro-Chalk' 25 combine drilled

Variety: Julia (seed dressed with ethirimol)

Sown at 14.0 lb per acre (157 kg/ha) or

Plot area: 17'6" x 346' = 0.139 acre (0.056 ha)

Harvested: 9'4" x 346' = 0.074 acre (0.03 ha)

Rothamsted EXHAUSTION LAND

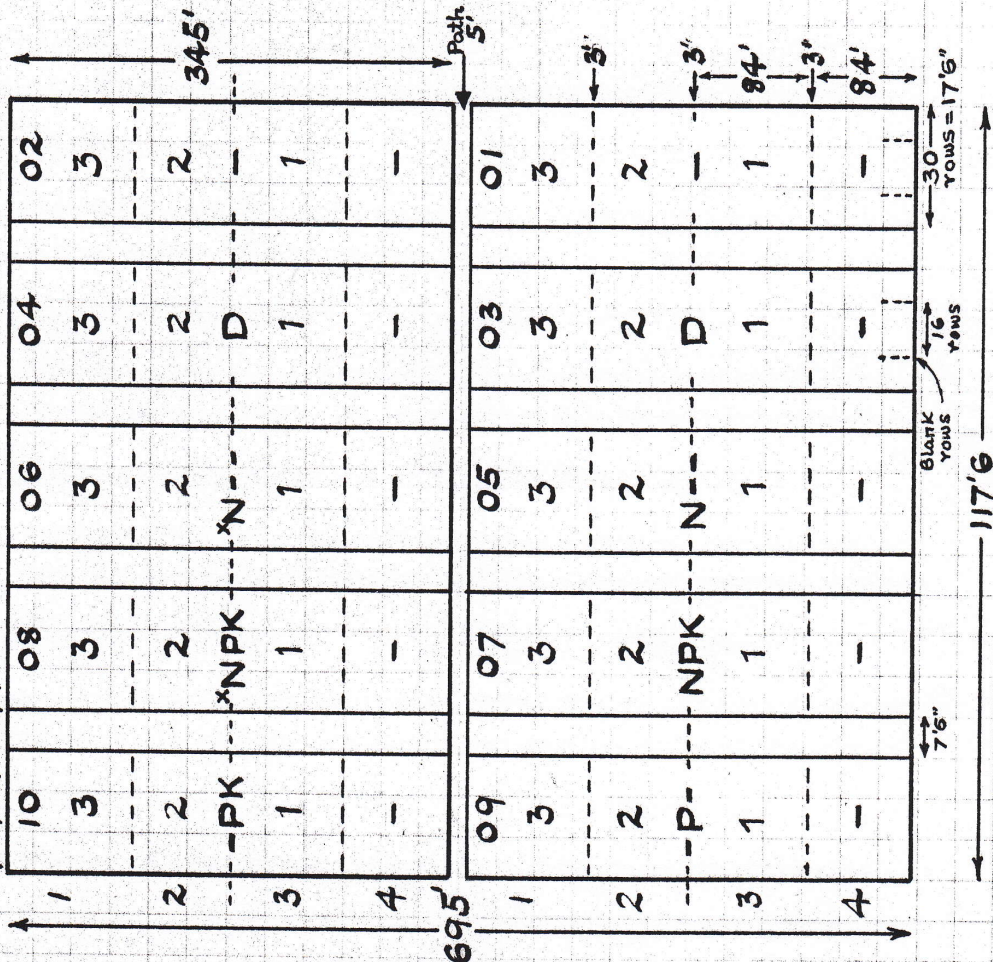
76/R/EX/4

21st Year

BARLEY

HOOSFIELD 1976

4



TREATMENTS per hectare (acre)

N to Sub-Plots - 1st Year, bare followed in 1975 (N rates to rotate every year)
 - 1, 2, 3 None, 48, 96, 144 kg N as Nitro-Chalk 25 (- 43, 86, 129 lb N)

Basal manuring: None

Variety: Julia, seed dressed with ethirimol sown at 140 lb/acre (157 kg/ha) on 3 Mar.

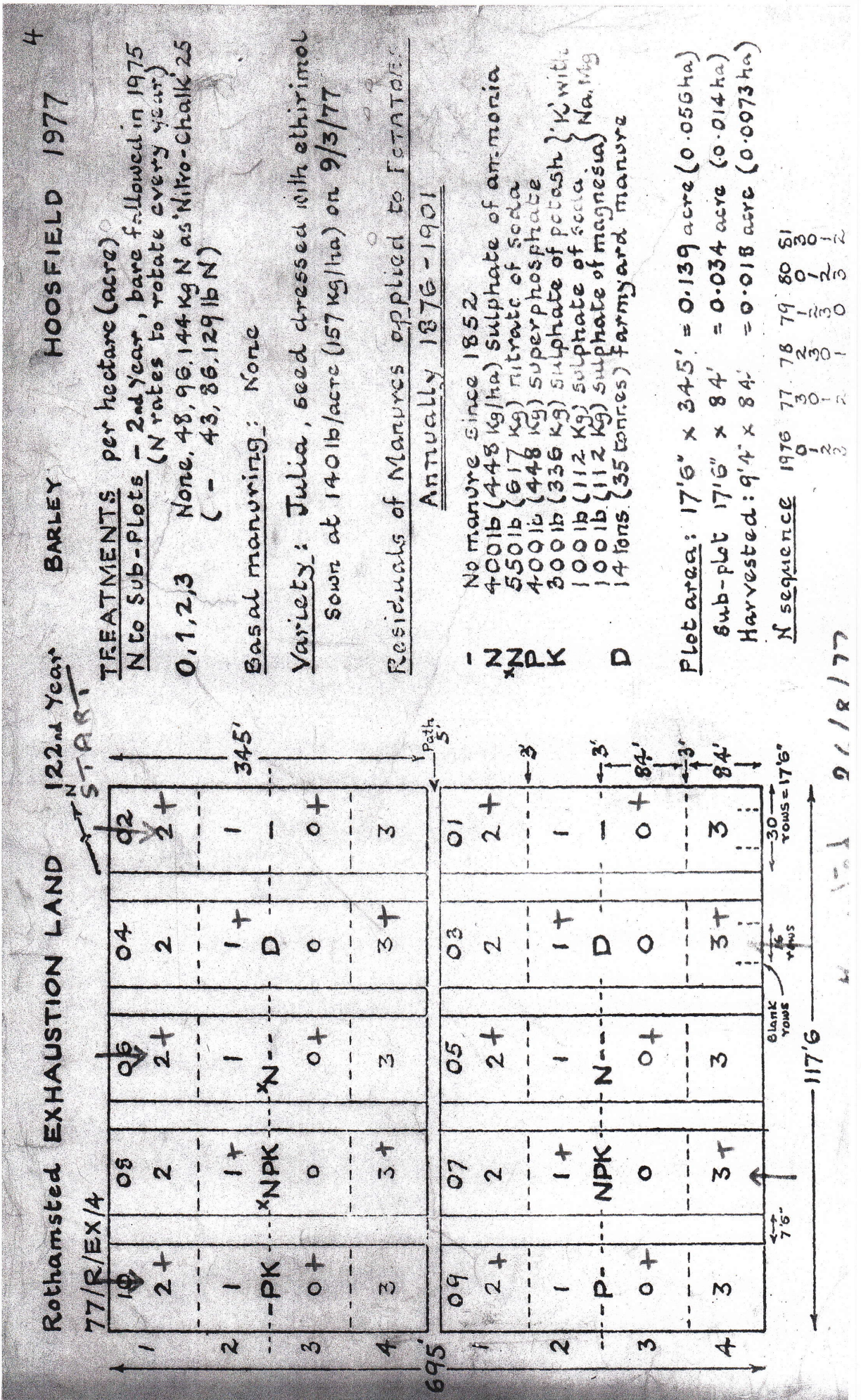
Residuals of Manures applied to POTATOES

Annually 1876 - 1901

No manure since 1852
 400 lb (448 kg/ha) sulphate of ammonia
 550 lb (617 kg) nitrate of soda
 400 lb (448 kg) superphosphate
 300 lb (336 kg) sulphate of potash } K with
 100 lb (112 kg) sulphate of soda. } Na, Mg
 100 lb (112 kg) sulphate of magnesium }
 14 tons (35 tonnes) farmyard manure

Plot area: 17'6" x 345' = 0.139 acre (0.056 ha)
 Sub-plot 17'6" x 84' = 0.034 acre (0.014 ha)
 Harvested: 9'4" x 84' = 0.018 acre (0.0073 ha)

N sequence 1976 77 78 79 80 81
 0 0 1 0 0 0
 1 1 2 3 2 1
 2 3 0 1 0 2
 3 0 1 0 2 3



Rothamsted EXHAUSTION LAND

123rd Year

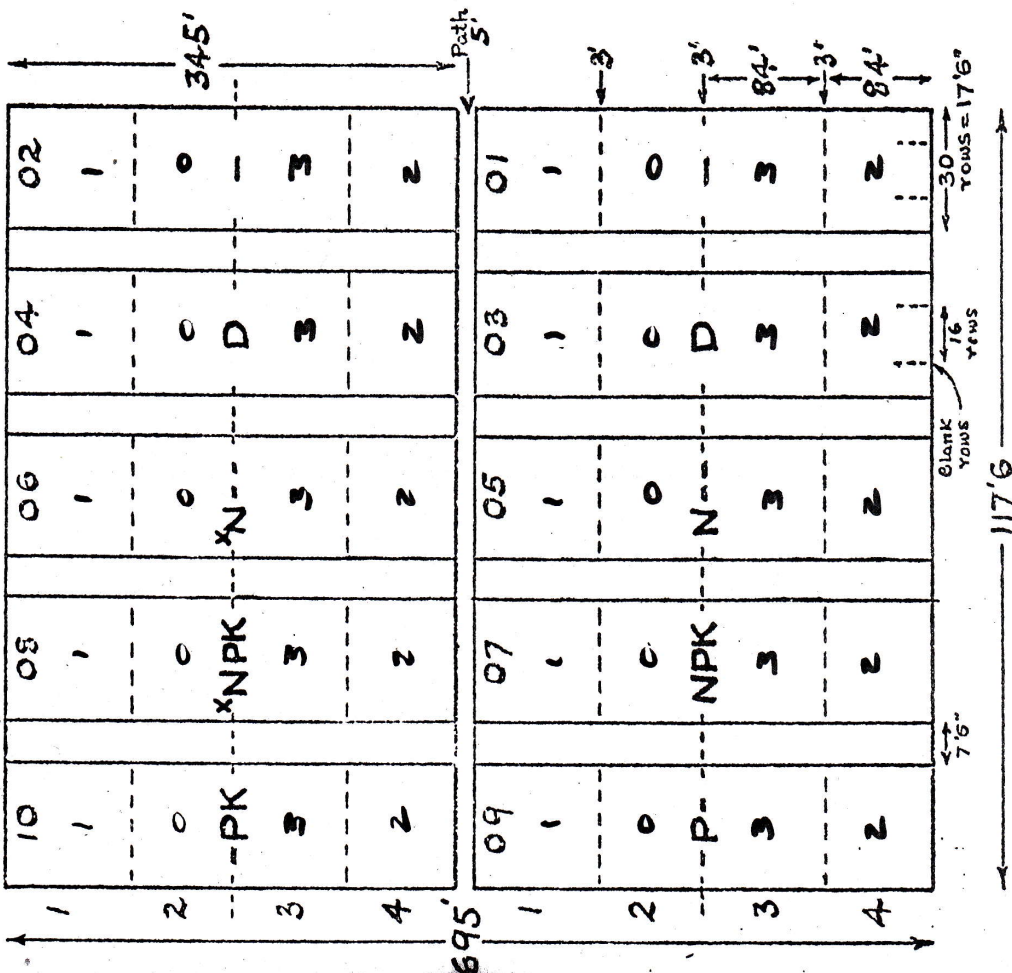
BARLEY

HOOSFIELD 1978

4

(J.F.J., A.E.J., J.M.)

78/R/EX/4



TREATMENTS per hectare (acre)

N to Sub-Plots - 3rd Year (N rates rotate every year)*

0,1,2,3 None, 48, 96, 144 kg N as Nitro-Chalk 25 (- 43, 86, 129 lb N).

Basal manuring: None

Variety: Julia, seed dressed with ethirimol sown at 140 lb/acre (157 kg/ha) on 31 March

Residuals of Manures applied to POTATOES

Annually 1876-1901

No manure since 1852
400 lb (448 kg/ha) sulphate of ammonia
550 lb (617 kg) nitrate of soda
400 lb (448 kg) superphosphate
300 lb (336 kg) sulphate of potash } K with
100 lb (112 kg) sulphate of soda. } Na, Mg
100 lb (112 kg) sulphate of magnesium }
14 tons (35 tonnes) farmyard manure

Plot area: 17'6" x 345' = 0.139 acre (0.056 ha)
Sub-plot 17'6" x 84' = 0.034 acre (0.014 ha)
Harvested: 9'4" x 84' = 0.018 acre (0.0073 ha)

* N sequence 1976 77 78 79 80 81
0 1 2 3 0 1 2
2 3 0 1 2 3 0 1 2

Rothamsted EXHAUSTION LAND 12 4 Year BARLEY HOOSFIELD 1979

Sponsors: J.F. Johnston, A.E. Johnston, J. McEwen
TREATMENTS per hectare (acre)
N to Sub-Plots

(N rates rotate every year
0, 1, 2, 3 None, 48, 96, 144 kg N as Nitro-Chalk
(- 43, 86, 129 lb N)

Basal manuring: None

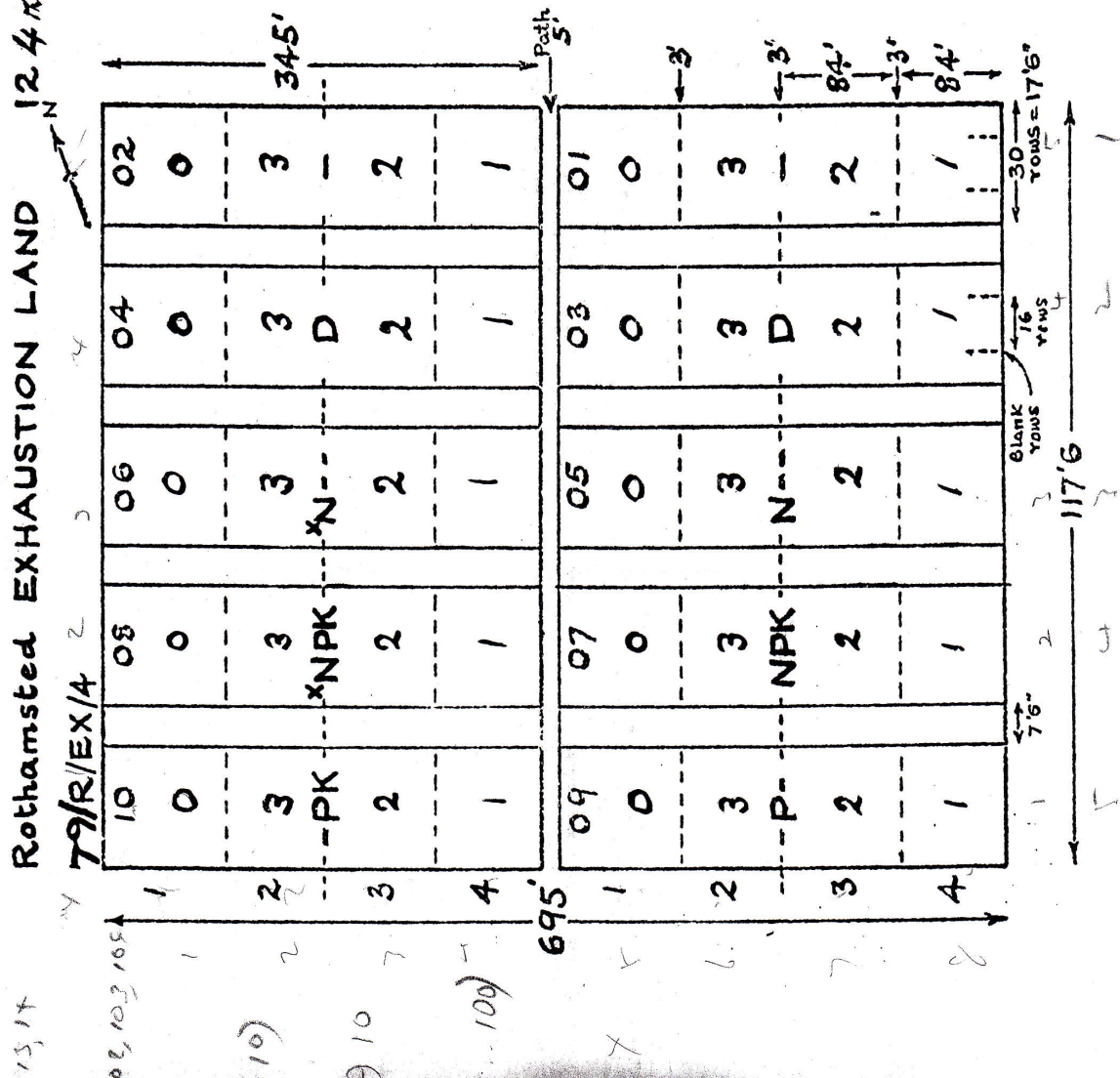
Variety: Julia, seed ^{not} dressed with ethion
sown at 140 lb/acre (157 kg/ha) on 18 April

Residuals of Manures applied to POTATO
Annually 1876 - 1901

- NPK D
No manure since 1852
400 lb (448 kg/ha) sulphate of ammonia
550 lb (617 kg) nitrate of soda
400 lb (448 kg) superphosphate
300 lb (336 kg) sulphate of potash } K₂O
100 lb (112 kg) sulphate of soda } Na₂O
100 lb (112 kg) sulphate of magnesia } MgO
14 tons (35 tonnes) farmyard manure

Plot area: 17'6" x 34'5" = 0.139 acre (0.0561)
Sub-plot 17'6" x 8'4" = 0.034 acre (0.0141)
Harvested: 9'4" x 8'4" = 0.018 acre (0.0073)

* N sequence 1976 77 78 79 80 81
0 1 2 3 4 5
1 2 3 4 5 6
2 3 4 5 6 7
3 4 5 6 7 8
4 5 6 7 8 9
5 6 7 8 9 10



Rothamsted EXHAUSTION LAND 12.5 Year BARLEY HOOSFIELD 1980 4

Sponsors J. F. Johnston, A. E. Johnston, J. McCuen

TREATMENTS per hectare (acre)

N to Sub-Plots (started 1976)

0,1,2,3 None, 48, 96, 144 kg N as 'Niko-Chalk' 26 (N rates rotate every year)*
(- 43, 86, 129 lb N)

Basal manuring: None

Variety: Georgie, seed/dressed with ethirimol
Sown at 140 lb/acre (157 kg/ha) 9 April

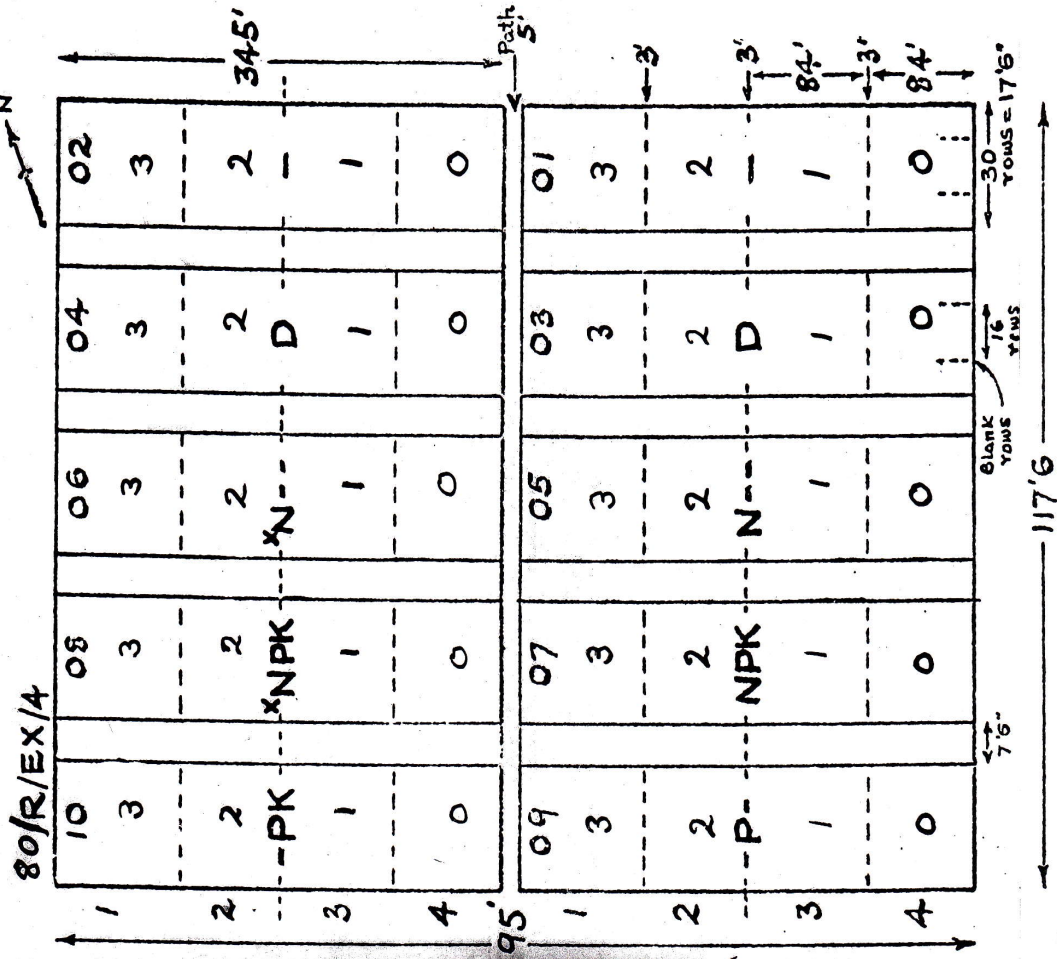
Residuals of Manures applied to POTATOES

Annually 1876-1901

- N N P K D
No manure since 1852
400 lb (448 kg/ha) Sulphate of ammonia
550 lb (617 kg) nitrate of soda
400 lb (448 kg) superphosphate
300 lb (336 kg) sulphate of potash } K with
100 lb (112 kg) sulphate of soda } Na, Mg
100 lb (112 kg) sulphate of magnesias }
14 tons (35 tonnes) farmyard manure

Plot area: 17'6" x 34'5" = 0.139 acre (0.056 ha)
Sub-plot 17'6" x 8'4" = 0.034 acre (0.014 ha)
Harvested: 9'4" x 8'4" = 0.018 acre (0.0073 ha)

* N sequence 1976 77 78 79 80 81
0 3 2 1 0 3
1 0 3 3 0 3
2 3 0 1 2 2



NOTE: Northern sidebands to receive N at 96 kg/ha in 1980

4

81/R/EX/14 ROTHAMSTED EXHAUSTION LAND 126th YEAR BARLEY HOOSFIELD 1981

Sponsors: T. F. Tenby, A. E. Johnston, J. McEwen

TREATMENTS Per hectare (acre)

N to Sub-Plots (Started 1976)

(N rates rotate every year)

0, 1, 2, 3 None, 48, 96, 144 kg N as Nitro-Chalk, 26% N
(- , 43, 86, 129 lb N)

BASAL MANURING: None

VARIETY: Georgie, seed dressed with Ekurimol
Sown at 140 lb/acre (157 kg/ha) on 18 February

RESIDUALS OF MANURES APPLIED TO POTATOES

ANNUALLY 1876-1901

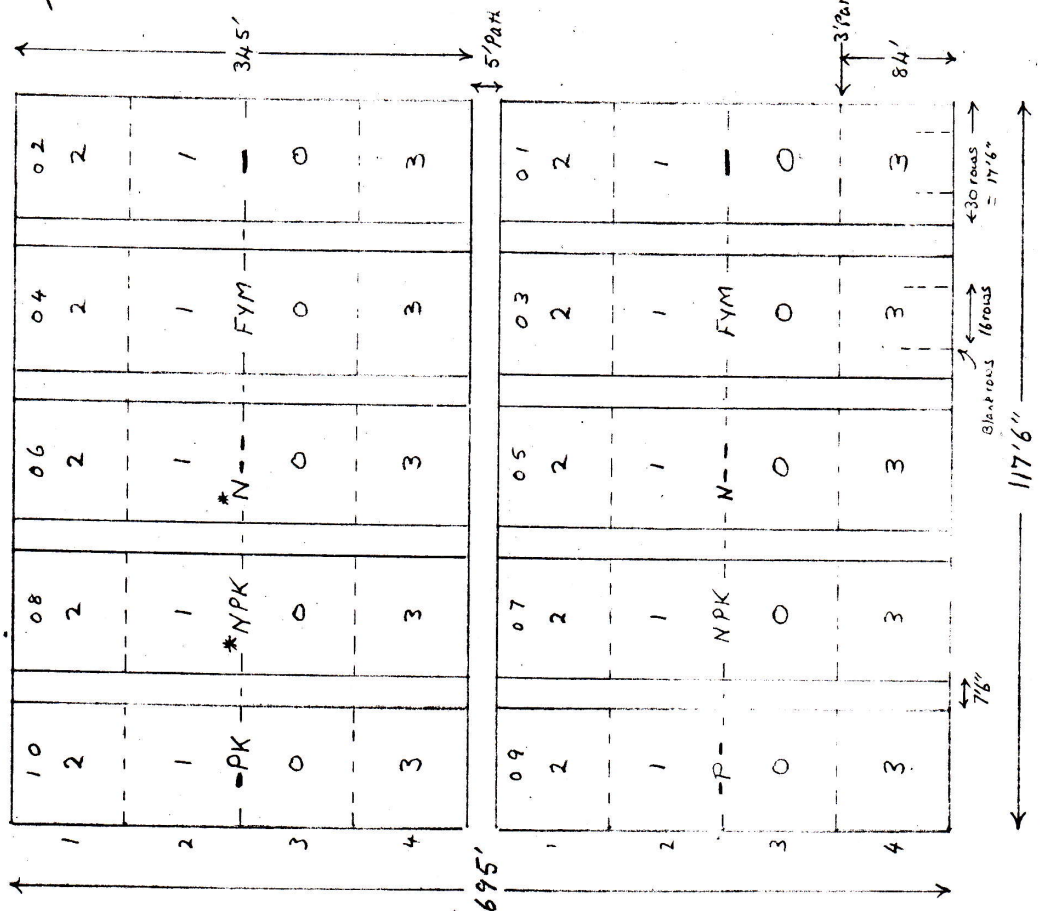
-	No Manure since 1852	Sulphate of ammonia
N	400 lb/ac (448 kg/ha)	Nitrate of Soda
*N	550 " " (617 " ")	Superphosphate
P	400 " " (448 " ")	Sulphate of potash
K	300 " " (336 " ")	Sulphate of Soda
	100 " " (112 " ")	Sulphate of Magnesia
FYM	100 " " (112 " ")	Farmyard manure
	14 tons (35 tonnes)	

PLOT AREA: 17'6" x 34'5" = 0.139 acre (0.056 ha)

Sub-Plot 17'6" x 8'4" = 0.034 " (0.014 ")

Harvested 9'4" x 8'4" = 0.018 " (0.0073 ")

+ N Sequence	1980	'81	'82	'83	'84	'85
	0	3	2	1	0	3
	1	0	3	2	1	0
	2	1	0	3	2	1
	3	2	1	0	3	2



4

82/R/EX/14 ROTHAMSTED EXHAUSTION LAND 12TH YEAR BARLEY HOOSFIELD 1982

SPONSORS: J. F. Tenby, A. E. Johnston, J. McEwen

TREATMENTS Per hectare (acre)

N to Sub-plots (Started 1976)
(N rates rotate every year)
- 1, 2, 3 None, 48, 96, 144 kg N as Nitro-chalk, 26% N
(- 43, 86, 129 lb N)

BASAL MANURING: None

VARIETY: Georgie, seed dressed with Ethirimol
Sown at 140 lb/acre (157 kg/ha) on 30 March

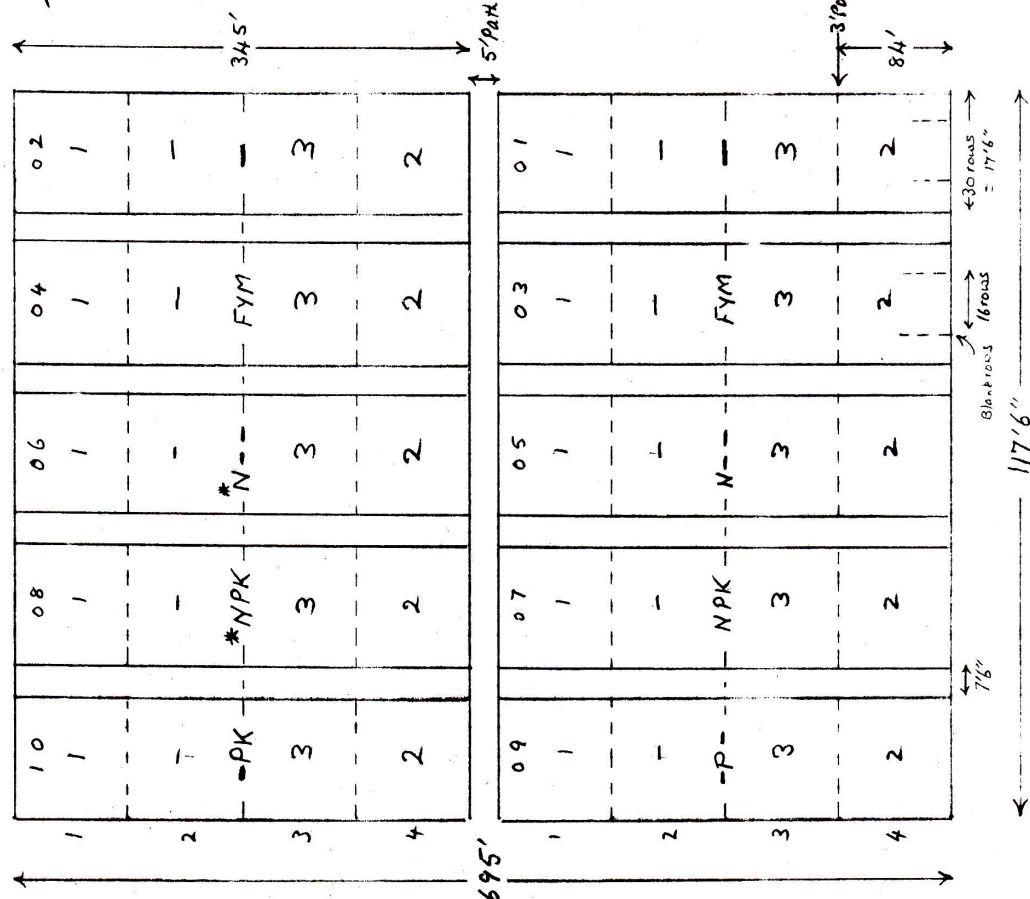
RESIDUALS OF MANURES APPLIED TO POTATOES

ANNUALLY 1876-1901

- No Manure since 1852
N 400 lb/AC (448 kg/ha) Sulphate of ammonia
P 550 " " (617 " ") Nitrate of Soda
K 400 " " (448 " ") Superphosphate
FYM 14 tons (35 tonnes) Sulphate of Potash } 'K' with Na, Mg
Sulphate of Magnesia
Farmyard manure

PLOT AREA: 17'6" x 34'5" = 0.139 acre (0.056 ha)
Sub-Plot 17'6" x 8'4" = 0.034 " (0.014 ")
Harvested 9'4" x 8'4" = 0.018 " (0.0073 ")

+ N Sequence 1980 '81 '82 '83 '84 '85
0 3 2 1 0 3
1 0 3 2 1 0
2 1 0 3 2 1
3 2 1 0 3 2



4

83/R/EX/4 ROTHAMSTED EXHAUSTION LAND 128th YEAR BARLEY HOOSFIELD 1983

Sponsors: T. F. Tenby, A. E. Johnston, J. McEwen

TREATMENTS Per hectare (acre)

N to Sub-Plots (Started 1976)
(N rates rotate every year)
- 1, 2, 3 None, 48, 96, 144 kg N as Nitro-Chalk, 26% N
(- 43, 86, 129 16 N)

BASAL MANURING: None

VARIETY: Georgie, seed dressed with Ekurimol,
Sown at 140 lb/acre (157 kg/ha) on 10/3/83

RESIDUALS OF MANURES APPLIED TO POTATOES

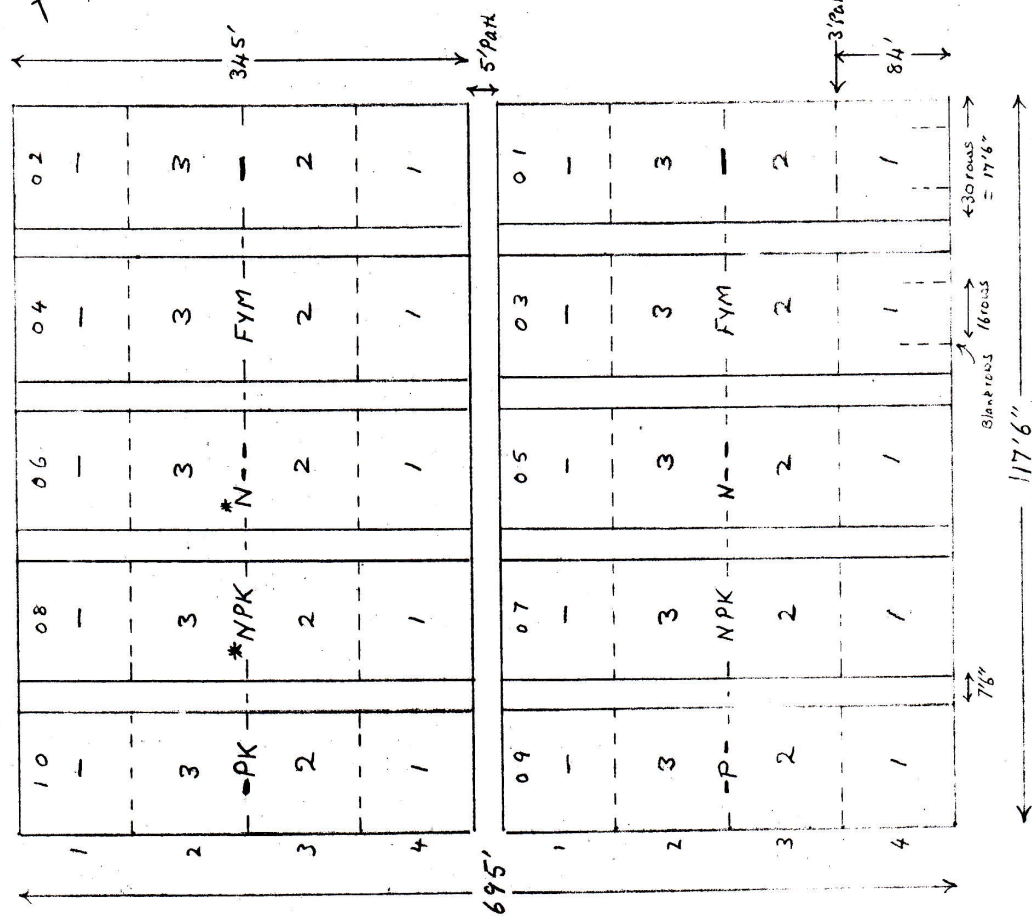
ANNUALLY 1876-1901

- No Manure since 1852
N 400 lb/AC (448 kg/ha) Sulphate of ammonia
*N 550 " " (617 " " Nitrate of Soda
P 400 " " (448 " " Superphosphate
K 300 " " (336 " " Sulphate of potash
100 " " (112 " " Sulphate of Soda } 'K' with
100 " " (112 " " Sulphate of Magnesia } Na, Mg
FYM 14 tons (35 tonnes) Farmyard manure

PLOT AREA: 17'6" x 34'5" = 0.139 acre (0.056 ha)

Sub-Plot 17'6" x 8'4" = 0.034 " (0.014 ")
Harvested 9'4" x 8'4" = 0.018 " (0.0073 ")

N Sequence	1980	'81	'82	'83	'84	'85
3	2	1	1	3	2	1
2	1	3	2	1	3	2
1	3	2	1	3	2	1



4

84/R/EX/4 ROTHAMSTED EXHAUSTION LAND 129 H YEAR BARLEY HOOSFIELD 1984

SPONSORS: J. F. Tenby, A. E. Johnston, J. McEwen



TREATMENTS Per hectare (acre)

N to Sub-plots (Started 1976)
(N rates rotate every year)
- 1, 2, 3 None, 48, 96, 144 kg N as Nitro-chalk, 26% N
(- 43, 86, 129 lb N)

BASAL MANURING: None

VARIETY: Triumph, seed dressed with Baytan,
sown at 140 lb/acre (157 kg/ha) on 10 March

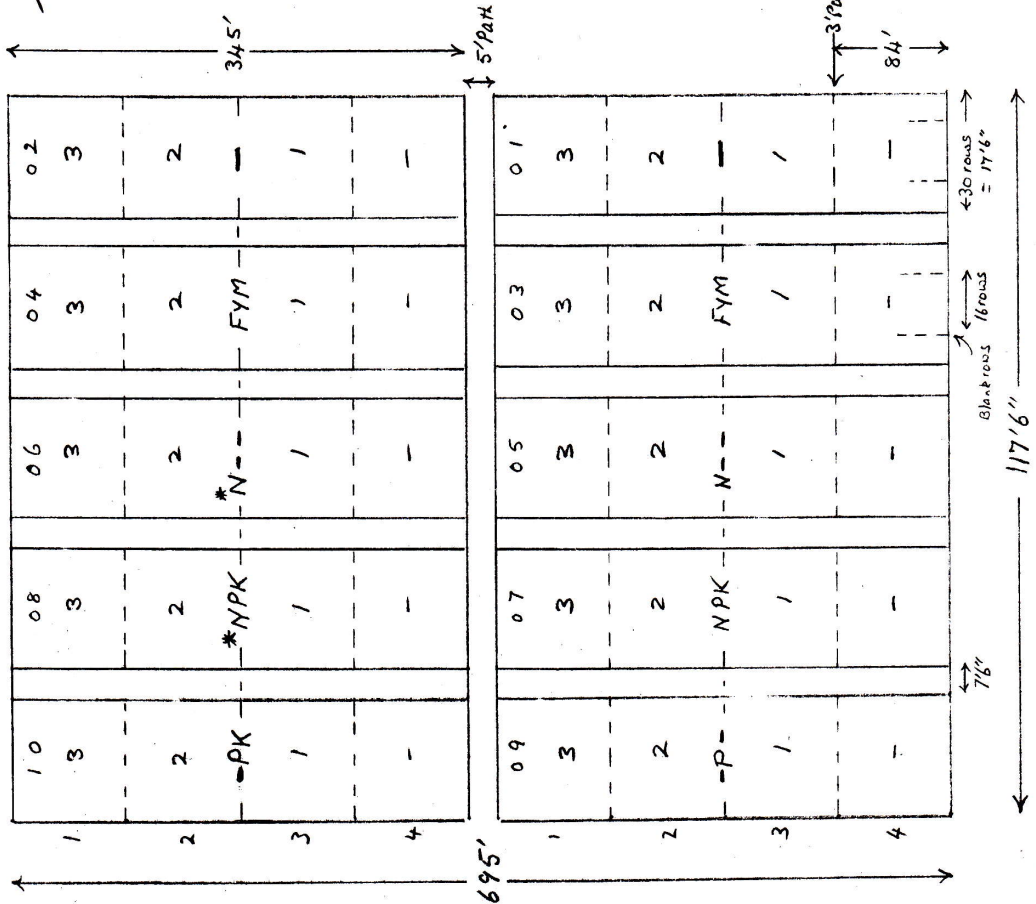
RESIDUALS OF MANURES APPLIED TO POTATOES

ANNUALLY 1876-1901

-	No Manure since 1852	
N	400 lb/AC (448 kg/ha)	Sulphate of ammonia
*N	550 " " (617 " ")	Nitrate of Soda
P	400 " " (448 " ")	Superphosphate
K	300 " " (336 " ")	Sulphate of potash
	100 " " (112 " ")	Sulphate of Soda
	100 " " (112 " ")	Sulphate of Magnesia
FYM	14 tons (35 tonnes)	Farmyard manure

PLOT AREA: 17'6" x 34'5" = 0.139 acre (0.056 ha)
Sub-Plot 17'6" x 8'4" = 0.034 " (0.014 ")
Harvested 9'4" x 8'4" = 0.018 " (0.0073 ")

+ N Sequence	1980	181	182	183	184	185	186
	-	3	2	1	-	3	2
	1	-	3	2	1	-	3
	2	1	-	3	2	1	-
	3	2	1	-	3	2	1



4

86/R/EX/4 ROTHAMSTED EXHAUSTION LAND 131 SE. YEAR S. BARLEY HOOSFIELD 1986

Sponsors: J.F. Jenkyn, A.E. Johnston, J. McEwen

TREATMENTS Per 1a. (acre)

N to sub-plots (Waste half plots 02, 04, 06, 08, 10), in 1986. Started on all plots 1976.

- 1, 2, 3. None, 48, 96, 144 kg N as Nitram, 33.5% N
(- 43, 86, 129 lb N)

N sequence - to 3 to 2 to 1, rotating every year.

P to sub-plots (Waste half only plots 01, 03, 05, 07, 09) started 1986

- None
P1 100 kg P₂O₅ (annually until index 1 achieved on most impoverished plots)
P2 200 " " { Annually until index 2 achieved }
P3 300 " " { " " " 3 " }

BASAL MANURING (Eastern half plots 01, 03, 05, 07, 09) started 1986

N at 144 kg N ha⁻¹ + K at 100 kg K₂O ha⁻¹

VARIETY Triumph, dressed 'Baytan', followed by fungicide spray as needed by control within main 2 May.

RESIDUALS OF MANURES APPLIED TO POTATOES ANNUALLY 1876-1901

- No manure since 1852
N 400 lb/ac (448 kg/ha) Sulphate of ammonia
*N 550 " " (617 " ") Nitrate of soda
P 400 " " (448 " ") Superphosphate
K 300 " " (336 " ") Sulphate of potash
100 " " (112 " ") Sulphate of soda
100 " " (112 " ") Sulphate of Magnesia
FYM 14 tons (35 tonnes) Farmyard manure

PLOT AREA 17'6" x 34'5" = 0.139 ac (0.056 ha)
17'6" x 84' = 0.034 " (0.014 ")
144' 9'4" x 84' = 0.018 " (0.0073 ")

