

# Exhaustion Land Experiment Plan

1940-1985

Phase III

↗ N

<b>Plot 10</b>	<b>Plot 8</b>	<b>Plot 6</b>	<b>Plot 4</b>	<b>Plot 2</b>
<b>N3</b>	<b>N3</b>	<b>N3</b>	<b>N3</b>	<b>N3</b>
<b>N2</b>	<b>N2</b>	<b>N2</b>	<b>N2</b>	<b>N2</b>
(PKNaMg)	(N*PKNaMg)	(N*)	(FYM(N*P))	(Nil (FYM))
(1876-1901)	(1876-1901)	(1876-1901)	(1876-1901)	(1876-1901)
<b>N1</b>	<b>N1</b>	<b>N1</b>	<b>N1</b>	<b>N1</b>
<b>N0</b>	<b>N0</b>	<b>N0</b>	<b>N0</b>	<b>N0</b>

  

<b>Plot 9</b>	<b>Plot 7</b>	<b>Plot 5</b>	<b>Plot 3</b>	<b>Plot 1</b>
<b>N3</b>	<b>N3</b>	<b>N3</b>	<b>N3</b>	<b>N3</b>
<b>N2</b>	<b>N2</b>	<b>N2</b>	<b>N2</b>	<b>N2</b>
(P)	(NPKNaMg)	(N)	(FYM(P))	(Nil)
(1876-1901)	(1876-1901)	(1876-1901)	(1876-1901)	(1876-1901)
<b>N1</b>	<b>N1</b>	<b>N1</b>	<b>N1</b>	<b>N1</b>
<b>N0</b>	<b>N0</b>	<b>N0</b>	<b>N0</b>	<b>N0</b>

(not to scale)

## Annual Treatments per hectare, 1940-1985, Phase III:

1940-1948: 75 kg N ammonium sulphate, all plots

1949-1963: 63 kg N ammonium sulphate, all plots

1964-1974: 88 kg N calcium ammonium nitrate, all plots

1976-1985: Divided into 4 subplots given 4 rates of N:

N0: No N

N1: 48 kg N calcium ammonium nitrate

N2: 96 kg N calcium ammonium nitrate

N3: 144 kg N calcium ammonium nitrate

N rates rotate each year N0>N3>N2>N1, eg N0 1976, N3 1977, N2 1978, N1 1979, N0 1980

No other fertilizer or manure was applied 1902-1985

Spring barley grown in most years, except 1920, 1967 and 1975 when no crop was grown

**Annual Treatments per hectare, 1856-1901, Phase I:**

Nil : No fertilizer or manure

FYM : 35 of farmyard manure since 1876

Nil (FYM) : FYM 1876-1881, no fertilizer or manure 1882-1901

FYM (P) : FYM plus P until 1882, FYM only 1883-1901

FYM (N\*P) : FYM plus N\* and P until 1881, FYM plus P 1882, FYM only 1883-1901

N : 96 kg N as ammonium salts (ammonium sulphate & ammonium chloride)

N\* : 96 kg N as sodium nitrate

P : 34 kg P (as superphosphate 1876-96, from basic slag 1897-1901)

K : 137 kg K as potassium sulphate (91 kg K 1859-74)

Na : 16 kg Na as sodium sulphate

Mg : 11 kg Mg as magnesium sulphate

**1902-1940, Phase II:**

No fertilizer or manure applied, cereals grown most years

**Sources of data:**

Rothamsted (1970) "Details of the Classical and Long-Term Experiments up to 1967",

*Rothamsted Experimental Station, Lawes Agricultural Trust, Harpenden UK*

Rothamsted (1991) "Guide to the Classical Field Experiments",

*Rothamsted Experimental Station, Lawes Agricultural Trust, Harpenden UK*

Johnston, A. E. and Poulton, P. R. (1977) "Yields on the Exhaustion Land and changes in NPK content of the soils due to cropping and manuring, 1852-1975",

Rothamsted Experimental Station Annual Report for 1976, Part 2, 53-85

*Yields of the Field Experiments* books, Lawes Agricultural Trust, Harpenden, UK

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