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Hoosfield spring barley experiment plans and fertilizer treatments 1968-2000

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Description: Standardised experiment plans for the Hoosfield spring barley experiment, 1968-2000, with details of fertilizer and manure treatments (not to scale).

- **Pages 1-2:** Cover pages
- **Pages 3-4:** Experiment plan and fertilizer treatments, 1968-1978, including rotation of potatoes, beans and barley.
- **Pages 5-6:** Experiment plan and fertilizer treatments, 1979-2000, including silicate treatments.

Site: R/HB/2. Hoosfield, Rothamsted Experimental Farm, Rothamsted Research, West Common, Harpenden, Hertfordshire, AL5 2JQ, UK. Geolocation: 51.81206, -0.37608

Related Resources:

- Original plans for individual years can be found here: <http://www.era.rothamsted.ac.uk/eradoc/book/81>
- Rothamsted (1977) *Details of the Classical and Long-Term Experiments 1968-1973*, p10. Rothamsted Experimental Station, Lawes Agricultural Trust, Harpenden UK. <https://doi.org/10.23637/ERADOC-1-193>
- Rothamsted (1991) *Guide to the Classical Field Experiments*, pp 19-20. Rothamsted Experimental Station, Lawes Agricultural Trust, Harpenden UK. <https://doi.org/10.23637/ERADOC-1-189>
- Rothamsted Research (2012) *Hoosfield spring barley experiment plan and fertilizer treatments, 1852-1967. Electronic Rothamsted Archive, Rothamsted Research.* [10.23637/rhb2-plan1852-1967-01](https://doi.org/10.23637/rhb2-plan1852-1967-01)
- Rothamsted Research (2009) *Hoosfield spring barley experiment plan and fertilizer treatments, 2001 onwards. Electronic Rothamsted Archive, Rothamsted Research.* [10.23637/rhb2-plan2001.01](https://doi.org/10.23637/rhb2-plan2001.01)

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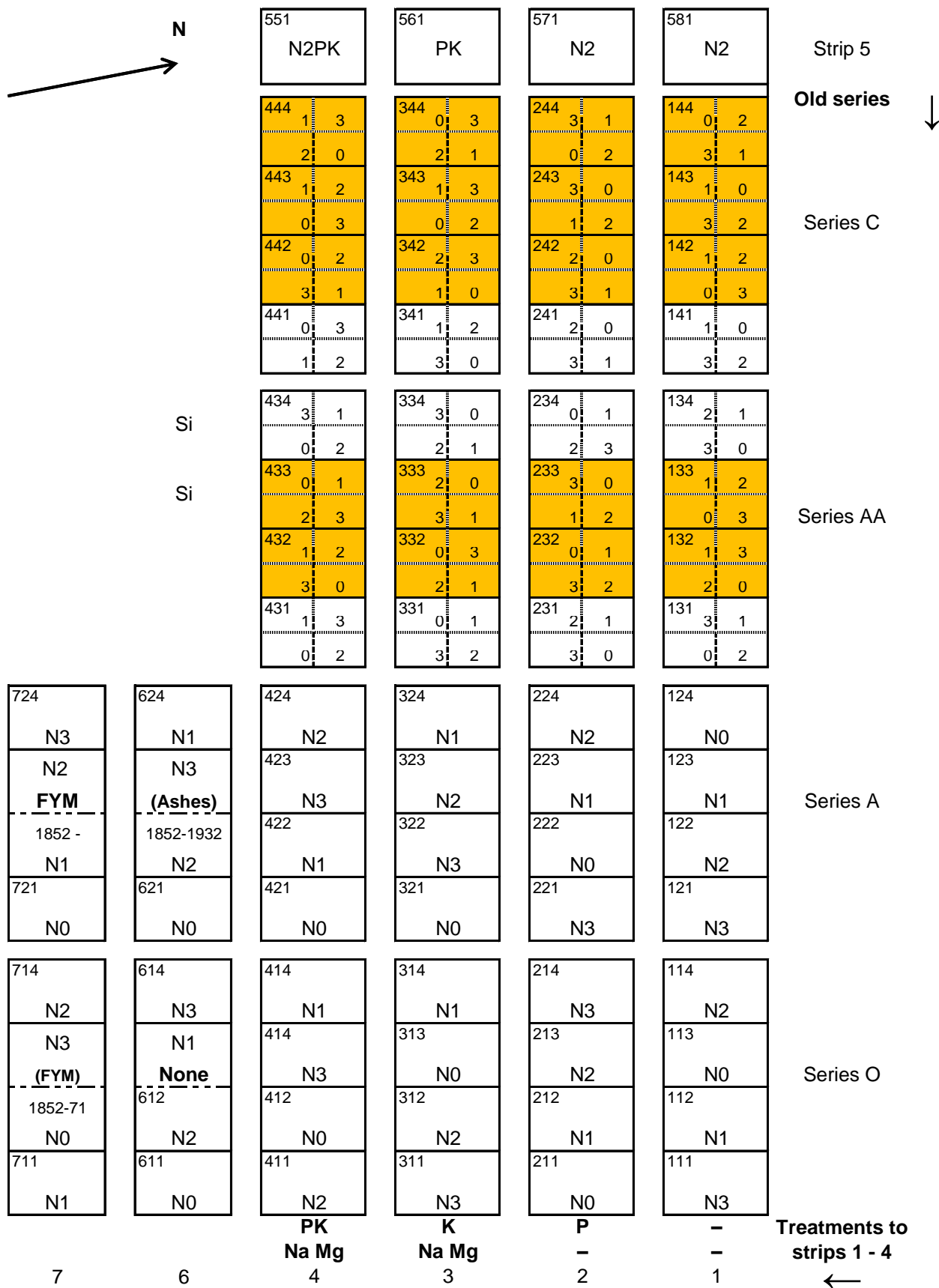
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Hoosfield spring barley 1968 - 1978



Rotation of potatoes, beans and barley; all other parts continuous barley

Rates of N shown (N0, N1, N2 & N3) are those applied to barley 1968 - 1973. N rates changed in 1974 and 1977, since 1981 they have rotated each year in the order N3 > N2 > N1 > N0

Hoosfield Treatments 1968-1978

Fertilizer treatments (per hectare per year unless indicated)

Nitrogen (applied in the spring), all applied as calcium ammonium nitrate (Nitro-chalk)

Barley received N0, N1, N2, N3 (0, 48, 96, 144kg N)

Beans received no nitrogen

Potatoes received a basal dressing of 144kgN 1968-1972, and 0, 96, 192 and 288kg 1973-1978

Organics (applied before ploughing, usually in the autumn)

FYM 1852 -	35t Farmyard manure since 1852
(FYM) 1852-71	35t Farmyard manure, 1852-1871 only
(Ashes)	Ashes were added to minerals to aid spreading, 1852-1932 only

Minerals (applied before ploughing in the autumn)

P	34kg P as superphosphate
K	90kg K as potassium sulphate
Na	16kg Na as sodium sulphate
Mg	11kg Mg as magnesium sulphate
Si	448kg sodium silicate

Series treatments (last applied 1966, 1967 for parts of Series C)

O	No N fertilizer
A	48kg N as ammonium sulphate
AA	48kg N as sodium nitrate
C	48kg N as castor bean meal since 1941; rape cake 1852-1940

Lime:

Lime has been applied as required since the 1950s to maintain soil pH at a level that does not compromise yield. No lime was applied 1968-1973.

Notes:

In 1968 plots 721 and 723 received no N and 722 and 724 N1; thereafter shown as on the plan
In 1968 plots 611-614, 621-624, 711-714 and 721-724 received N at 63 (N1), 129 (N2) and 192 (N3) in error.

1970-72 plots 551 and 561 received 18kgP and 168kg K in error

Na as sodium sulphate discontinued in 1974 (applied with K and Mg);

Cropping: Rotation 1968-1978

Series C: Plots 142-144, 242-244, 342-344 and 442-444 in a rotation of barley, beans and potatoes, each crop grown every year
Plots 141, 241, 341 and 441 in continuous barley

Series AA: Plots 132, 133, 232, 233, 323, 333, 432 and 433 in a rotation of barley, beans and potatoes, one crop grown each year:
Potatoes: 1968, 1971, 1974, 1977
Beans: 1969, 1972, 1975, 1978
Barley: 1970, 1973, 1976
Plots 131, 134, 231, 234, 331, 334, 431 and 434 in continuous barley

Spring barley was grown every year on the rest of the experiment

Reference:

Rothamsted (1977) *Details of the Classical and Long-term Experiments 1968-73*, p10.

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

<https://doi.org/10.23637/ERADOC-1-193>

Hoosfield spring barley 1979 - 2000

		551 N2PKMg ----- N2PK 552	561 PKMg ----- PK 562	571 N2Mg ----- N2 572	581 N2Mg ----- N2 582	Strip 5	
		444 N3	344 N0	244 N1	144 N2	Old series ↓	
		443 N0	343 N2	243 N3	143 N1		
		442 N1	342 N3	242 N2	142 N0	Series C	
		441 N2	341 N1	241 N0	141 N3		
	(Si) -	434 2 0 ----- 3 1	334 2 3 ----- 1 0	234 3 0 ----- 1 2	134 1 0 ----- 2 3		Series AA
	(Si) Si	433 2 3 ----- 0 1	333 0 2 ----- 1 3	233 1 2 ----- 3 0	133 3 0 ----- 2 1		
	(-) Si	432 3 0 ----- 1 2	332 2 1 ----- 0 3	232 2 3 ----- 1 0	132 3 1 ----- 0 2		
	(-) -	431 0 2 ----- 3 1	331 3 0 ----- 2 1	231 1 0 ----- 2 3	131 2 0 ----- 3 1		
		724 N2	624 N0	424 N1	324 N0	224 N1	Series A
		N1	N2	423 N2	323 N1	223 N0	
		FYM	(Ashes)	422 N0	322 N2	222 N3	
		1852 - N0	1852-1932 N1	421 N3	321 N3	221 N2	
		721 N3	621 N3				
		714 N1	614 N2	414 N0	314 N0	214 N2	Series O
		N2	N0	413 N2	313 N3	213 N1	
		(FYM)	None	412 N3	312 N1	212 N0	
		1852-71 N3	612 N1	411 N1	311 N2	211 N3	
		711 N0	611 N3				
			PK	K	P	-	Treatments to strips 1 - 4 ←
			Na Mg	Na Mg	-	-	
		7	6	4	3	2	1

Rates of N shown (N0,N1,N2 & N3) are those applied in 1991; they have changed cyclically every year since 1981 in the order N3→N2→N1→N0→N3

Hoosfield spring barley experiment Fertilizer and organic manure treatments 1979-2000

Treatments (per hectare per year unless indicated)

Nitrogen (applied in the spring)

N0, N1, N2, N3 0, 48, 96, 144kg N as calcium ammonium nitrate (Nitro-chalk)

Organics (applied before ploughing, usually in the autumn)

FYM 1852 - 35t Farmyard manure since 1852
(FYM) 1852-71 35t Farmyard manure, 1852-1871 only
(Ashes) Ashes were added to minerals to aid spreading, 1852-1932 only

Minerals (applied before ploughing in the autumn)

P 35kg P as triple superphosphate (47% P₂O₅)
K 90kg K as potassium sulphate
Mg 35kg Mg as Kieserite every 3 years
Si 450kg as sodium silicate since 1980
(Si) 450kg as sodium silicate 1862-1979

Note: 15kg Na as sodium sulphate discontinued in 1974 (applied with K and Mg);
P, K and Mg last applied to Series C for 1979
1970-72 plots 551 and 561 received 18kgP and 168kg K in error

Series treatments (last applied 1966, 1967 for parts of Series C)

O No fertilizer N
A 48kg N as ammonium sulphate
AA 48kg N as sodium nitrate
C 48kg N as castor bean meal since 1941; previously rape cake

Lime: Lime has been applied as required since the 1950s to maintain soil pH at a level that does not compromise yield.

Cropping:

Spring barley grown every year, except 1912, 1933, 1943 and 1967 when the whole experiment was fallowed to control weeds.

From 1968-1978 there was a rotation of barley - beans - potatoes on some plots of Series AA and C. See Plan 1968-78 for details.

Reference:

Rothamsted (1991) *Guide to the Classical Field Experiments*, pp 19-20.
Rothamsted Experimental Station, Lawes Agricultural Trust, Harpenden UK.
<https://doi.org/10.23637/ERADOC-1-189>