

Hoosfield Fertilizer and organic manure treatments 2001-present

Fertilizer Treatments (per hectare per year unless indicated)

Nitrogen (applied in the spring)

N0, 1, 2, 3 0, 48, 96, 144kg N as calcium ammonium nitrate (Nitro-chalk)

Rates of N change cyclically every year in the order N3→N2→N1→N0→N3

Organics (applied before ploughing in the autumn)

FYM 1852 - 35t Farmyard manure since 1852

FYM 2001- 35t Farmyard manure since 2001

(FYM) 1852-71 35t Farmyard manure, 1852-1871 only

Minerals (applied before ploughing in the autumn)

P2 44kg P as triple superphosphate since 2001

P 35kg P as triple superphosphate (47% P₂O₅)

(P) 35kg P until 2002 (not currently applied as soil levels are adequate)

K 90kg K as potassium sulphate

K* 180kg K, 2004-8 (450kg in 2003)

Mg 35kg Mg as Kieserite every 3 years since 2001

(Mg) 35kg Mg as Kieserite every 3 years until 2002 (not currently applied as soil levels are adequate)

Si 450kg sodium silicate since 1980

(Si) 450kg sodium silicate 1868-1979; 450kg of calcium silicate and sodium silicate 1862-67

(Ashes) Ashes as added to minerals to aid spreading, 1852-1932 only

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

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

Applied to Strips 1 - 4 (not to plots 62 or 72)

O None

A 48kg N as ammonium sulphate (1852-1967)

AA 48kg N as sodium nitrate (1852-1967)

C 48kg N as castor bean meal 1955-1967; castor bean meal at 1.12t/ha 1941-1954;
rape cake at 1.12t/ha 1858-1940 and at 2.24t/ha 1852-57.

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.

Additional Fertilizer treatments 1968-1978:

Barley received N0, N1, N2, N3 (0, 48, 96, 144kg N as Nitro-chalk)

Beans received no nitrogen

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

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 (Details 1968-73)