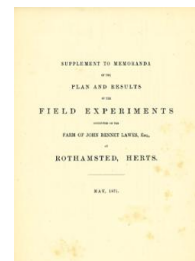


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Supplement to Memoranda of the Plans and Results of the the Field Experiments at Rothamsted May 1871



[Full Table of Content](#)

Experiments on the Economy of Nitrtogenous Manures

Rothamsted Research

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EXPERIMENTS WITH A VIEW TO ECONOMY IN THE USE OF EXPENSIVE NITROGENOUS MANURES.

It is found that generally less than half the nitrogen supplied in such manures as guano, ammonia-salts, or nitrate of soda, is recovered in the increase of crop obtained by their use; that a considerable quantity may remain in the soil in a comparatively inactive state, and that a considerable quantity may be carried away by drainage and lost. It seemed desirable, therefore, to commence a series of experiments to determine whether any saving can be effected

by applying comparatively small quantities near to the seed, instead of larger amounts as evenly as possible over and throughout the surface soil as in the usual mode of broadcast sowing and harrowing-in. The following experiments were therefore arranged for the present season, 1871.

It is also intended to make experiments with a view to ascertain the best periods of the year for the application of such manures to different crops.

EXPERIMENTS UPON WHEAT; FIRST SEASON, 1871. LITTLE HOOS' FIELD.

4 Plots, about $\frac{1}{4}$ acre each.

PLOT 1.—Unmanured. Seed, 1 bushel per acre, dibbled, 6 inches apart in the rows.

PLOT 2.—Sulphate of ammonia, 146 lbs. per acre (containing about the same quantity of nitrogen as 15 bushels of grain, with its average proportion of straw). Seed, 1 bushel per acre.

Holes dibbled 6 inches apart in the rows (as for Plot 1); the ammonia-salt, previously ground with an equal weight of fine ashes, put, according to calculated measure, into the holes, and the seed, according to calculated number, put in above the manure.

PLOT 3.—Sulphate of ammonia, 292 lbs. per acre (double the quantity of Plot 2). Seed, 1 bushel per acre.

The ammonia-salt mixed with fine ashes and sown broadcast. Seed dibbled 6 inches apart in the rows.

PLOT 4.—Sulphate of ammonia, 146 lbs. per acre. Seed, 1 bushel per acre.

The ammonia-salt mixed with as little water as would dissolve it, the seed put into the solution, the whole dried up by admixture with dry ashes, and sown broadcast.

EXPERIMENTS UPON BARLEY; FIRST SEASON, 1871. THIRTY-ACRES' FIELD.

6 Plots, about $\frac{1}{2}$ acre each.

PLOT 1.—Unmanured. Seed, 3 bushels per acre, drilled.

PLOT 2.—1 cwt. superphosphate, 1 cwt. nitrate of soda, per acre. Seed, 3 bushels per acre. Manures sown broadcast; seed drilled.

PLOT 3.—1 cwt. superphosphate, 1 cwt. nitrate of soda, per acre. Seed, 3 bushels per acre. Manures mixed with fine ashes and drilled; seed drilled above the manure.

PLOT 4.—1 cwt. superphosphate, 1 cwt. nitrate of soda, per acre. Seed, 3 bushels per acre.

The manures well mixed with fine ashes, then the seed well mixed with the manure, and the whole drilled together.

PLOT 5.—1 cwt. superphosphate, 1 cwt. nitrate of soda, per acre. Seed, $1\frac{1}{2}$ bushel per acre.

Holes dibbled 6 inches apart in the rows; the manures well mixed with an equal weight of fine ashes, and put, according to calculated measure, into the holes, and the seed, according to calculated number, put in above the manure.

PLOT 6.—2 cwts. superphosphate, 2 cwts. nitrate of soda, per acre. Seed 3 bushels per acre.

The manures mixed with ashes and sown broadcast. The seed drilled.