

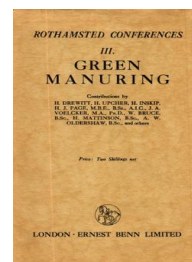
Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Green Manuring

[Full Table of Content](#)



Green Manuring on a Bedfordshire Farm

H. Inskip

H. Inskip (1928) *Green Manuring on a Bedfordshire Farm* ; Green Manuring, pp 10 - 13 - **DOI:** <https://doi.org/10.23637/ERADOC-1-196>

cannot be obtained—but I like farmyard manure best, especially if made with pigs. If every farmer of 300 acres would keep from twenty to thirty sows his farm would be the better for it, and England would not have to buy so much pig in various forms from the foreigner.

Raise all the stock you possibly can, is my advice to all farmers, no matter whether it is cattle, sheep, pigs or poultry, and green manuring is a good way to start. The more fertile your land becomes the more stock you can keep, and it is cheaper to grow food for stock on fertile land than it is to buy it.

GREEN MANURING ON A BEDFORDSHIRE FARM

By H. INSKIP

NEARLY the whole of the farm which I occupy at Stanford, near Shefford, Beds, consists of very unretentive gravel soil, which, if not frequently manured, would soon become destitute of plant food. When I entered the farm in 1903 there was considerable litigation on the matter of unexhausted improvements. The previous tenant had manured the land liberally, and naturally wanted me to pay for all the manurial residues in the soil that I took over with the farm. Dr Bernard Dyer was called in, and made a complete analysis of the soil in three separate fields. In his report he said :

“As far as the chemical constituents of the soils go, one characteristic feature is that the soils are almost destitute of organic matter, notwithstanding past applications of dung and the root residues, etc., of past crops. The nitrogen in the soils only amounts to from 0·114 to 0·144 per cent., indicating, when allowance is made for the stones, no greater quantity of nitrogen per acre than is found in some of the Rothamsted soils to which no dung has been applied for fifty or sixty years. The smallness of the organic matter and of the nitrogen included therein are explained by the open and hungry character of these soils. While this must render it necessary to use a good deal of dung in order to retain moisture in the soil, the mechanical benefit arising from its application must, in my opinion, be rapidly lost unless the dung is frequently renewed.”

I might say that the adjudicator in giving his award was influenced to a considerable extent by Dr Bernard Dyer's report, and let me off with a very moderate payment to the outgoing tenant. At the same time, I realized that I had a great problem to solve—how to maintain the fertility of the farm without spending an impossible amount of money on London stable manure.

Also, I had to consider how best to retain the greatest possible

GREEN MANURING

11

amount of water in the soil in times of summer drought. I therefore resolved to go in for deep ploughing in the early spring, and with the help of a Fordson tractor, and a special type of single-furrow plough, I always plough at least 12 in. deep for potatoes. Another great help to conserving moisture is, as every practical farmer knows, to hoe the crop frequently during the summer, even when there are no weeds to destroy.

But the best way of conserving moisture, and also providing plant food, is to maintain a constant supply of humus in the soil. I use considerable quantities of farmyard and London stable manure, and supplement it as often as possible by ploughing in a crop of green manures.

I work my farm on a three-year rotation as follows :

- 1st year—potatoes, which are manured and also green-manured.
- 2nd year—peas, mangold seed and miscellaneous crops.
- 3rd year—corn.

The green manures are sown in, or after, the corn crop, in preparation for the succeeding crop of potatoes.

After an experience of at least twenty years, during which time I have experimented with many kinds of green manures, I have no hesitation in saying that ordinary broad-leaved clover is the best for my purpose. The cost of the seed per acre should not exceed 10s., which is much cheaper than many of the alternative crops. It collects nitrogen as well as supplying humus, and it makes possible a ploughing of the ground in the autumn, and again in the spring—a practice which I strongly recommend for such a crop as potatoes. The only drawback to clover sown in the corn in the early spring is that I often fail to get a plant if a short period of dry weather succeeds the date of sowing.

Only last year (in the spring of 1925) I arranged to conduct some experiments for Mr H. J. Page, of Rothamsted, and sowed five or six different varieties of clovers, in order to test their comparative values for ploughing in as green manures. It was a great disappointment to all concerned that all these crops failed because of the drought that followed. I always try to sow the clovers as early in the spring as possible before the land loses too much of its winter moisture. Sometimes I sow at the end of March, and in an average season on my land it is wise to do so. I have, however, occasionally sown too early, when the summer rainfall has been well above the average, and instead of having no plant I have had too much of a plant, and the corn crop has suffered, and has been difficult to harvest. I have sometimes thought that a good average clover plant tends to decrease the yield of the corn crop, but have no definite evidence to bring forward on that point. If it is so, however, I may have been to some extent losing on the swings what I have gained on the roundabouts.

It is a good plan to leave a narrow strip not drilled with clover for

the purpose of comparison, and whenever I have done so I have seen a very marked difference in the foliage of the potatoes, the leaves being a much darker green where the clover has been ploughed in. In the year 1907 I conducted a series of experiments on my own account in order to test the values of different kinds of artificial manures on potatoes. I also compared the effect of a clover plot against a no-clover plot, and the result was that a good crop of clover ploughed in for green manure can be relied on to give an increase of 2 tons potatoes per acre. This is surely worth doing even although the plant may sometimes fail.

After the corn is harvested the autumn rains cause the clover to grow rapidly, and when it has made its maximum growth, and before it is seriously cut down by frost, I apply about 15 tons manure per acre and then plough to a depth of about 6 in. In March it is ploughed again with a tractor to a depth of 12 in., when the clover roots and manure are nicely rotted and mixed together in the soil, and an ideal tilth is obtained for the reception of the potatoes.

When I fail to secure a plant of clover I make an effort to sow a catch crop immediately after harvest, but no time must be lost if any considerable growth is to be made before winter sets in. Fortunately the tractor comes to my assistance, and immediately the corn is carted the land is quickly ploughed, and seeded down. Some few years ago I used rye for this purpose with apparently satisfactory results. I found out by experience that it was not wise to leave it growing too long in the spring before ploughing it in, as, although there was a greater quantity of matter to turn into the soil, it tended to become too stalky and probably absorbed nitrogen from the soil in the act of decomposition. For this reason a crop like clover, or even mustard, that can be ploughed in in the late autumn has a considerable advantage, as the crop is being made available for plant food during the winter months.

During the last two years I have sown tares at the rate of $2\frac{1}{2}$ bushels per acre, with $\frac{1}{2}$ bushel of rye or winter oats to keep them off the ground. The cost of ploughing, seeding and drilling would amount to about £2 per acre, and I very much doubt if it is a paying proposition.

Last year I conducted some experiments on various autumn-sown green crops in conjunction with Mr H. J. Page, of Rothamsted. The seeds were sown on 20th August 1925, and included rape, white turnip, mustard, rye, tares, with, of course, a control plot on which nothing was sown. Previous to ploughing in the stubble the land had been dressed with about 15 tons farmyard manure, and in the spring the following artificial manures were supplied per acre on all the plots:

Sulphate of ammonia, $1\frac{1}{2}$ cwts.

Superphosphate, 40 per cent., $1\frac{1}{2}$ cwts.

Steamed bone flour, $1\frac{1}{2}$ cwt.

GREEN MANURING

13

The control plot and the mustard plot were ploughed in November, before the winter frosts had killed the mustard, but of course the other plots could not be ploughed until the spring. When this was done early in April the rye was about 2 ft. high, and it should have been turned into the soil several weeks earlier, for the reasons I have already stated. When the potato plots were dug in October it was found that no very definite results had been achieved. Owing to the fact that all the plots had received a fairly liberal supply of manure and artificials, and also that the summer rainfall had been above the average, there was not a great variation in the yield on any of the plots. The tares plot was certainly the best, and gave a yield of 10 tons 13 cwt. per acre (including seed and chaff), but the nothing plot came second with a yield of 10.5, and the mustard next with 9.15. These two latter results seem to point to the value of an additional ploughing of the land in the autumn.

I cannot say that this experiment has made me enthusiastic about the value of ploughing in autumn-sown green crops as green manure, especially when the cost of producing them is considered, but at the same time I have learned by experience that it is not wise to base one's judgment on one year's results.

On other matters connected with farming I have often proved that a course of action which is right one year proves to be entirely wrong the next, owing to the vagaries of our British weather conditions.

I have no doubt, however, about the value of spring-sown clovers for green manure, and can heartily commend the practice to all those who have to deal with land such as mine.

SOME RECENT EXPERIMENTS ON GREEN MANURING

BY H. J. PAGE, M.B.E., B.Sc., A.I.C.

Rothamsted Experimental Station

Introduction.—The trials on green manuring that were commenced in 1924, under the Research Scheme of the Royal Agricultural Society, were undertaken with the object of fostering the extension of this system of manuring in this country. Such an extension, if it could be effected with profit to the farmer, is particularly desirable in these times when farmyard and stable manures are increasingly scarce and costly.

In principle the possibilities of green manuring for British agriculture are attractive, but in practice a number of serious difficulties arise. There is, in fact, a striking contrast between the *possibilities* of