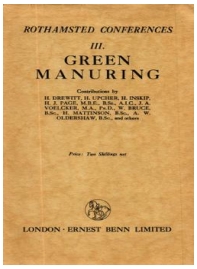
ROTHAMSTED RESEARCH

Green Manuring

Full Table of Content



Account of the Discussion

Rothamsted Research

Rothamsted Research (1928) *Account of the Discussion ;* Green Manuring, pp 33 - 36 **- DOI: https://doi.org/10.23637/ERADOC-1-196**

As has been previously noted, the ancients held the view that much lime is harmful, and I believe they were right.

From the limited evidence available I think the ideal condition is a slightly acid or a neutral soil.

After Cultivation

Lupins are occasionally horse-hoed, although care must be taken in doing this as the stems are very brittle. Where, as is often the case on lupin land, much sorrel and spurrey is present, it is best to horse-hoe. I know one case in which sorrel spoiled a field of lupins.

When the crop is to be ploughed in green it is unusual even to horse-hoe—weeds and crop being allowed to grow together until ploughing takes place.

Ploughing in

Where the crop is very rank and tall it may be necessary to roll it down before ploughing in. If a chain is attached to the plough to drag the crop in it is wonderful what a quantity of green matter can be buried by a skilled ploughman. I have seen a crop 4 ft. 6 in. high completely buried without rolling.

Harvesting the Seed

The crop may be cut by the binder or by the side-delivery reaper. When cut by the binder, the spiny pods are rather hard on the binder canvasses. The seed is somewhat apt to shell.

The crop is shocked and, when dry, carted, exactly as with spring beans.

THE DISCUSSION

Mr Barwell Field said that mustard was the only green-manuring crop which in his experience had stood the test of practice in Hertfordshire.

With mustard he had often found difficulty in making a suitable seed bed on corn stubbles after harvest, and he considered that when the time could be afforded it was best grown as a mustard fallow.

He was able to agree with Dr Voelcker as to the progressive failure of yields of wheat following the continued use of mustard as a green manure.

Mr Macdonald, speaking with experience of mustard on heavy land near Peterborough, said that he had encountered very great difficulties in getting a seed bed in July. He had found that the use

https://doi.org/10.23637/ERADOC-1-196

of a silage crop in his rotation in place of a bare fallow or a mustard fallow was a better means of increasing and maintaining the organic manure supply of this soil.

Mr GEORGE MAJOR had found that beans sown as a catch crop after early potatoes, at the rate of one sack to the acre, and ploughed in when in flower, made a useful green manuring crop for keeping rich soil in high condition.

He had also had good results with red clover used in an unusual way. The first crop was cut and left on the land and the whole was ploughed in when the second growth was well developed. He was accustomed to spread dung on a green crop and plough both down together as a preparation for potatoes. This year he was using rye-grass as in the Scottish practice.

He considered that, of the usual green-manure crops, aftermath of red clover gave the best results with potatoes, and that the next best were obtained with tares. For grain crops he thought the best green-manure crop was mustard.

Mr ARTHUR AMOS considered that the high proportion of unsuccessful experiments that had been referred to by Mr Page was due to the fact that the scheme was very widespread, and was not under the close supervision of the persons primarily interested. He thought that a greater proportion of successes might have appeared in a more closely controlled scheme.

With reference to Dr Voelcker's remarks in particular, and to the problem under discussion in general, he thought that the whole practice of green manuring was divided into distinct sections : (*a*) an endeavour to build up fertility on very poor land, as instanced by Mr Upcher and Dr Voelcker ; and (*b*) an endeavour to conserve plant food on very highly farmed land, as described by Mr Bruce, Mr Inskip and others. He thought that this division should be carefully considered in any discussion or in the design of any experimental work on this subject.

Mr LAWSON asked whether it was possible that the curious results obtained at Woburn were due, in part at least, to the use of shallow-rooted green manuring plants with relatively short growing periods, which were used. He said that he believed that in some other Woburn experiments red clover, which was a more deeply rooted plant, had given far better results than either the tares or mustard.

Mr HEIGHAM said that he would like to carry Mr Amos's division a step further and to consider green manuring not as one or two systems, but as a number of sub-systems which, to be used successfully, must be related very closely to the major practices of agriculture. In

https://doi.org/10.23637/ERADOC-1-196

general, systems of farming and the cultivation of staple cash crops could not be varied much or suddenly without a great risk of disaster. The use of a green manuring crop could only be considered as a practical possibility where its cultivation and ploughing in would not give rise to any high degree of such risk. He thought that in any future scheme of experiment this fitting of the green manure crop to the prevailing systems of farming should be very carefully considered.

The cost of farmyard manure was undoubtedly a very important factor in deciding whether green manuring, with its attendant risks and trouble, was worth while or not. This cost had been variously estimated by different speakers from Scotland and England. The general level of cost, whatever it was, must depend largely upon the current prices for fat cattle, for milk and for pigs. Thus it would appear that when these were low the importance of green manures as a substitute for impossibly expensive dung became greater, and vice versa.

Sir JOHN RUSSELL, concluding the discussion, said that in conjunction with the broad suggestion of two divisions put forward by Mr Amos, it was necessary to consider the possible methods of applying the green manure which had emerged during the conference.

These could be tabulated under three heads :

(1) The Old Fallow method, exemplified by the mustard before corn, mentioned by several speakers.
(2) The Catch Crop method, following main crops coming early to harvest or such things as early potatoes.
(3) The Under-sown Crop, as used successfully by Mr Inskip and as attempted in a number of experiments.

Of these methods the first and second appeared to be successful in many cases, and under a considerable range of conditions, while the third seemed to be difficult to work and to be notably uncertain in its results.

He noticed that mention had been made in one case at least of changes which are occurring in some of the older systems of husbandry, where sheep are being replaced by dairying and potatoes. Such changes must bring the need for some fertilizing agent to replace the sheep and keep the naturally poor and hungry soils in a high condition. There seems to be a fair opportunity here for the extension of green manuring.

Just at present, too, there were signs that wheat was again tending to become the most profitable of the cereal crops. Without prejudice or prophecy as to the future of wheat upon the market it would seem that any return towards its old dominance in our agriculture must be accompanied by an added interest in the well-proved methods of cultivating it successfully. The mustard fallow to be followed by corn

https://doi.org/10.23637/ERADOC-1-196

was the most widely known of all the green manures mentioned at the conference, and this practice might very well increase in popularity again along with a paying wheat crop.

The cost of farmyard manure was always a matter of dispute, but the figures given by different speakers ranged from 13s. to 35s. The cost to most farmers was probably somewhere between these wide limits, but any rise towards the higher one must undoubtedly be accompanied by some stimulus to green manuring in general.

SUMMARY OF POINTS

By C. HEIGHAM, M.A., and H. V. GARNER, M.A., B.Sc.

General Considerations

(1) Green manuring is an important feature of the agriculture of a great part of the world. It is general in the Tropics, frequent in America, and of great local importance in parts of Northern Europe.

(2) In England at present it is a feature of certain specialized systems of farming and is subject to severe economic and climatic limitations.

(3) Under favourable circumstances green manuring can cause great increases in the crops that follow it, and there is much experience and a number of accredited experimental results to support this statement.

(4) The general use of green manures in the hotter countries is associated with (*a*) the rapid growth of plants obtained there, and (*b*) a general shortage of live stock capable of producing other forms of organic manure.

(5) The relative importance of green manuring crops as a part of the supply of organic material to the soil increases when stock becomes scarce or when farmyard manure rises in cost.

(6) The extended use of any systems of green manuring in this country must depend largely upon the possibility of producing the green manure crops without disturbance to those main crops which support the finances of the farm, and without introducing increased risks of drought or disease.

(7) Satisfactory results from green manuring must always depend upon the successful production of two crops :

(*a*) The crop for green manure ;
(*b*) The crop to benefit from the green manure.

This implies that the farmer involved must use all opportunities and all due skill in the preparation and sowing of his green manure crop, and he must not treat it as a matter of secondary importance.

https://doi.org/10.23637/ERADOC-1-196