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The Making of New Grassland

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Laying Land Down to Permanent Grass

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make a pasture breaks a man." Well I did a little of the former during the war, with not too satisfactory results, and I have done a lot of the latter since the war, and up to the moment have not filed my petition, but, so far as I can judge, unless I continue this policy more rapidly than I have done I will soon be compelled to do so.

LAYING LAND DOWN TO PER- MANENT GRASS

By W. S. MANSFIELD, M.A.

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THE methods which may be employed in laying down permanent grass are so varied that it is impossible that any one man should have first-hand experience of them all. Having had experience of several methods, and having been a close observer of several more, my observations are based on these cases, all of which were confined to the heavier types of land in the Eastern Counties.

I think that it must have been in the Eastern Counties that the saying "To make a pasture breaks a man" had its origin. In any event, putting land down to grass in these regions has always been regarded as a "dark and difficult adventure."

In the days when wild white clover seed was unobtainable I believe there was every justification for this being so, but now that we have reliable supplies at a reasonable price the position is very different. In this comparatively dry climate (an average rainfall of twenty-one inches, with spring drought) our land does not take naturally to grass. Wild white clover seed has revolutionized the whole outlook. Personally, I no longer regard the laying down of permanent pasture with misgivings.

When, where, how and what to sow would seem to be the first questions that arise; followed by such points as suitable manurial treatments and management of the new pasture in the first few years.

When to Sow.—I have seen permanent grass seeds sown successfully in every month from March to September. This does not mean that I believe that all times between these dates are equally good, but that, given suitable conditions of soil and weather, there is quite a wide range of time in which seeds may successfully be sown. My experience leads me to believe that April and July are the optimum months for sowing in the Eastern Counties. If sown in April there will be plenty of moisture in the soil to germinate the seed rapidly, and the plant should be fairly well established before a drought is likely to occur. Moreover, if undersown in a corn crop the seedlings will have an opportunity of making a certain amount of growth before the cover-crop robs them of light and air.

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I choose July as the other date, for this is usually a wet month, and if sowing is postponed after July it may be that a dry August will compel deferring it until September. My objection to a September sowing, and it has been supported by several instances, is that, though it may be quite satisfactory as far as the grasses are concerned, the little plants of wild white clover are too small to withstand the attacks of slugs which so often occur on clay lands in a wet and open winter. Moreover, there can be no doubt that a larger and more mature plant is better able to withstand the wet and cold of the winter. It sometimes happens that in a September sowing all the wild white seed does not germinate the same year. Quite a high proportion, even as high as 50 per cent., may remain dormant until the following spring or summer. In some ways this is an advantage, as the risk of losing the whole of the seed is very much reduced for this reason. For this reason also, where a fair quantity of wild white has been sown, I would never quite give up hope of getting a plant until twelve months after the first seeds had germinated.

Where to Sow.—Some prefer to sow on the open land, some under a winter-sown corn crop, and others under a spring-sown corn crop. I have seen all these methods applied successfully, and circumstances must decide, but on the whole I am inclined to favour the last-named arrangement.

The plants require plenty of light and air if they are to flourish, at the same time they are the better for a certain amount of shade in the hottest weather. Successful plants on headlands where the middle of the field is a failure is often pointed to as emphasizing the importance of the solidity of the seed bed. Without belittling the importance of solidity I am inclined to think that the seeds on the headlands often flourish best because the cover-crop is here the thinnest, rather than through any additional solidity of the soil.

If the plants are to get plenty of light and air then the cover-crop must not be too thick and heavy. It must not lodge (this rules out winter oats as a suitable cover-crop), and for preference it should be so arranged that the small seeds are given a good start in order that they may get reasonably established before the cover-crop shades them excessively.

For this reason I prefer a light seeding of barley sown rather late (the middle of April), followed immediately by the sowing of the small seeds. It may be that this will make the harvesting of the barley difficult, but I regard the corn crop as of small importance compared with obtaining a successful plant of permanent grass.

It is rarely possible to get a maximum corn crop and a perfect plant of seeds. It can be done if the season is suitable, as in 1929, but if attempted in such seasons as 1930 (and unfortunately we seem to have more of the 1930 variety than the 1929) it means disaster. In any case, the season cannot be foretold at the time of sowing.

Some people prefer sowing under winter wheat, and I have used it

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successfully myself as a cover-crop. It has the undoubted advantage of a firm and fine seed bed, but by April the wheat is growing fast, and may shade the land very thoroughly before the small seeds sown in April have established themselves.

I once saw an old and worn-out field of lucerne used successfully for sowing permanent grass seeds. The land was not ploughed, but was torn about with cultivators in the late winter, and the seeds were drilled in the spring. The result of the cultivation was to rejuvenate the old lucerne ley, which served as a very useful cover-crop for the young seeds, which planted well. Wherever it is decided to sow the seed, and the possibilities are many, one thing is essential—that is, a uniformly firm and fine seed bed. It can hardly be too fine or too firm, and of course the cleaner the better, though annual weeds are of no consequence. In fact, if not too numerous or too strong, they may be an advantage in some seasons where a July sowing or fallow is being made. In such a case the annual weeds will take the place of a light cover-crop, shading the young plant in the event of a dry, hot autumn, and affording protection in the winter.

How to Sow.—I have no hesitation in affirming that in the Eastern Counties small seeds are better drilled than broadcasted. Broadcasting is admittedly cheaper, and a perfect distribution may be obtained with a minimum amount of labour; if, however, the condition of the seed bed is not uniformly perfect, or if a period of dry hot weather sets in immediately after sowing, then the loss of a quantity of expensive seed may result. Drilling is very much safer, and if a proper small seeds-drill is used (one with coulters four inches apart), and the seed divided into two portions, and half is sown each way, the distribution will be perfectly satisfactory.

What to Sow.—So much has been said and written on the subject of suitable grass mixtures that I hesitate to say anything. However, perhaps a fool may rush in where angels fear to tread. Where I have adopted the following rules I have generally been successful:

- (1) Do not use too complicated or elaborate a mixture.
- (2) If you decide that a particular species is worth including, sow plenty of it. A small quantity of a single species is never worth while.
- (3) Sow between 30 and 35 lb. per acre.
- (4) Whatever else you sow always include a minimum of 1 lb. of wild white clover seed, and let it be the best certified indigenous stock that can be bought. I would sooner sow $\frac{1}{2}$ lb. per acre of the best seed than $1\frac{1}{2}$ lb. of some cultivated strain. If conditions are perfect there seems little to be gained by sowing more than 1 lb. per acre, otherwise I should suggest $1\frac{1}{2}$ lb. I have been told by one farmer that when he puts land down to permanent grass he sows 4 lb. of wild white per acre, and nothing else. He assures me that his results are highly satisfactory.

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- (5) If indigenous varieties are obtainable at reasonable prices they are to be preferred to ordinary commercial strains.
- (6) Do not include cocksfoot unless you are prepared to graze the pasture thoroughly and carefully. Cocksfoot is a splendid servant but a bad master. In seasons of drought it provides keep when other species are dried up ; all stock seem to like it in its leafy stage, but if kept not grazed down it may spoil a pasture with its strong, rank, tufty growth. Some indigenous strains are much easier to manage than the commercial. Their growth is much more " leafy," they are less inclined to become tufty if undergrazed, and the tendency to send up flowering shoots is reduced. If cocksfoot is to be included at all, at least 8 lb. per acre should be sown.
- (7) You cannot have your cake and eat it. When making up your mixture take the long view. It is surely wiser to consider what the pasture will be like in three or four years' time than to think mainly of the weight of the hay crop that may be taken in the first year. For this reason I do not care to include much red clover, or any Italian ryegrass. I cannot say that I have found any of the strains of late-flowering red clover persist sufficiently to warrant their inclusion. After the first year 90 per cent. of the plants seem to die out. Moreover a strong growth of red clover will inhibit the development of the wild white clover, and, though it does not kill it, it delays the formation of a close sward, which is so much assisted by the rapid spread of wild white.

Manuring.—On heavier land, with which I have had most experience, basic slag is a *sine qua non* for pasture formation. I have been in the habit of using 8 cwt. per acre of high-grade Bessemer slag, applied either the previous winter or at the time of sowing the small seeds. This may seem a heavy dressing, but the results seem to justify it.

I have seen astonishing results from the use of lime applied just before sowing the seed on a clay soil which already contained an adequate quantity of lime, but am at a loss to explain the reason. I have never, so far, used it myself, and have never felt the need for it on the soils with which I have had to deal.

Management of Newly Sown Permanent Grass.—To my mind this is perhaps the most important consideration of all, and on it depends the success of the pasture.

Nothing can compensate for mismanagement in the first few years, however perfect the mixture chosen may be, or however liberal the manuring.

It is by grazing, and grazing only, that a sward can be obtained *rapidly*. I do not mean that taking a hay crop in the first year will ruin the chance of ultimately obtaining a close sward, but I am sure it will postpone the objective. The aim should be to keep the new

pasture grazed *closely and evenly*, and never to allow any of the plants to send up flowering shoots. This can be done only by skilful grazing with mixed stock. Sheep are invaluable as an aid to pasture formation. Some of the best results I have seen have followed the close folding of ewes and lambs on a new pasture in its first season, instead of mowing it for hay, which I suppose is the most usual practice. I should not advocate this course in the case of fields sown late in the previous autumn, where the clover plants will probably be too small to stand the close grazing of the sheep.

At the same time, I have convinced myself that the old teaching that the grazing of a pasture in the first year should be confined to cattle is erroneous. If the plants are reasonably well established, as they will be by the time they have been sown twelve months, they may be grazed, and grazed closely, by sheep with advantage. This close grazing will cause the wild white to spread as will nothing else, and in this way the whole of the ground will rapidly become covered with a close and dense sward.

I have outlined only a few of the more important considerations, and I am afraid I have not contributed anything new or original. At the same time, I am satisfied that if, under Eastern Counties conditions, the work is carried out on the lines I have suggested a good pasture will result in almost every instance.

MAKING OF NEW PASTURES

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IN no way is it intended to present this paper as containing superior knowledge of the subject in any way likely to supersede general practice. It is but a plain statement of procedure that has produced satisfactory results with land of average possibility, my soil being a rather sticky clay, situated a few miles north of the Chilterns.

Just sowing down unwanted arable land is not enough. Some guiding principle is needed as to its subsequent use and place in farm economy. I conceive most things in life and business as working in one of two circles of sequences. In laying down land to grass the first requisite is to plan and work within the accommodating circle, so that each possible sequence makes possible yet another advantageous one. Here are factors we need to consider—labour is expensive, straw is scarce, cattle prices boom in spring and slump in autumn, store and growing cattle are best wintered out. Land is warmer where compressed. Clovers subsequently feed grasses, nitrogen is cheap. It is necessary to grasp the part expected to be played, or a full stop may occur at a vital moment and so nullify a good original intention.