

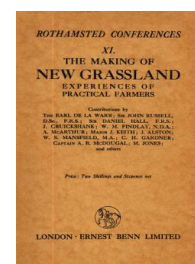
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The Making of New Grassland

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J. Alston

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34 THE MAKING OF NEW GRASSLAND

The only fresh thing I have tried during the past five years is systematically manuring part of the grass to get it to come earlier. This has been a most complete success. One thirty-acre field on the Norfolk farm has been manured each spring for the past five years with a complete manure applied in February, and has always been ready for folding ewes and lambs about 1st April, after which it makes a quick recovery and carries more than its fair share of the other stock all summer.

I have also experimented in trying to get later grass by manuring in August or September, but it has not been so successful. A very experienced friend tells me his experience is exactly the contrary—no good in spring and very useful in autumn. I have also for a year or two harrowed and broken up any rough patches in late winter. This seems very beneficial to both rough and green grass and I will gradually extend the practice till I give all the grass a thorough harrowing: fortunately it is perhaps the only farm job which is best done in wet weather, when a not too heavy harrow will enter easily and tear up the old grass and moss.

THE MAKING OF NEW GRASSLAND

By J. ALSTON

East Harling, Norwich

I THINK the first thing I had better explain is the nature of the soil which I have been attempting, I believe not unsuccessfully, to convert from arable land to pasture.

In Norfolk it would be described as useful, medium loam, but in most parts of England it would be considered rather light and sandy, but as the subsoil is mostly brick earth it holds moisture much better than might be expected from the appearance of the top soil.

The average annual rainfall in Norfolk is only in the neighbourhood of twenty-five inches, which must be taken into account when deciding the seeds to be included in the mixture. After deciding to put a field down to pasture it is, to my mind, essential that it should be absolutely clean. It is often said that if land is laid down to pasture it will automatically clean itself, even if it is foul when the seeds are drilled, but I have never heard how many years it will take for this cleaning to come about. I have seen land ploughed up after having been down for ten years and the twitch-grass was as strong and healthy as when it was laid down, and the pasture had never been anything but rubbish all the time. I have even gone to the expense of taking two root crops—potatoes, followed by swedes—to make sure that there was no foul grass left before putting in the seeds.

It should, however, be possible in the normal rotation to get the land sufficiently clean. Then the Norfolk sequence of roots, barley,

THE MAKING OF NEW GRASSLAND 35

seeds is usually successful, for at that position in the rotation the heart of the land ought to be good. Just as, in my experience, to lay land down when foul so it is an equally short-sighted policy to lay it down when out of condition. Condition should be built up before the seeds are sown, then the pasture will usually go right ahead. Manuring before the seeds are sown is to my mind as important as, if not more important than, manuring afterwards, although that too must not be neglected. I do not mean that it is necessary to spend years preparing for grass. There is usually no time for that when grassing down is contemplated. Condition, by sound tillage and high farming, is, in my experience, fairly quickly built up. I have, for instance, this year grown 13 tons per acre of sugar-beet on land that was derelict four years ago, and I am sure I could lay that field down to permanent grass with success next year. It is clean and in good heart.

In regard to the seed, the next point to be considered, I might mention, is what a very prominent Essex agriculturist insisted was essential in making a really first-class pasture. His essentials were, "Wild White Clover and a Scotsman," and I thoroughly agree with the former part of the mixture. When I first started laying down permanent pasture I had to a great extent to be guided by the seedsmen's catalogues, and I can assure you it was a most elaborate and expensive mixture, as you will be able to judge when you hear it contained, 5 lb. Cocksfoot, 1 lb. Tall Fescue, 1 lb. Meadow-Fescue, 2 lb. Timothy, 2 lb. French-Italian Ryegrass, 6 lb. Irish Perennial Ryegrass, 2 lb. Hard Fescue, 1½ lb. Sheep's Fescue, 1 lb. Fiorin, ¾ lb. Bunnett, ¾ lb. Chicory, ½ lb. Single-cut Cowgrass, ½ lb. Wild Red Clover, 1 lb. Giant Red Suckling, 2 lb. Pivurie Lucerne, ½ lb. Giant White Clover, ½ lb. Wild White Clover, 2 lb. English Trefoil and 2 lb. Canadian Alsike—32 lb. all told, and 19 species.

I did not repeat that mixture, as it was not only too expensive (as far as I can remember the cost was in the neighbourhood of 65s. per acre; of course seeds, like everything else, were much dearer then than they are now), but a lot of the seeds I was never able to find, and a few of the others I wish I had never found, as they have been an eyesore to me ever since. I might mention chicory in that category. The cattle seem to eat a bit of the leaf in its young stages, but it soon runs up a big coarse stalk which nothing will touch, and which gives the meadow a very rough, uncared-for appearance. Gradually I eliminated one thing after another, as I considered they were either ineffective or not worth their money, till eventually the mixture has been cut down to 6 lb. Cocksfoot, 2 lb. Timothy, 12 lb. Perennial Ryegrass, 2 lb. Single-cut Cowgrass, 1 lb. Rough-stalked Meadow-Grass and 2 lb. Wild White Clover—25 lb. in all; and I am doubtful if the single-cut cowgrass is worthy of a place, as the cattle always seem to avoid it as much as possible.

As I prefer to graze rather than hay in the first year, believing that

36 THE MAKING OF NEW GRASSLAND

a quicker and better-knit turf is produced that way, I shall in all probability drill no more cowgrass, and in that respect I do not except Montgomery late-flowering red clover, which in my experience has little to commend it under the dry Norfolk conditions. I well remember two adjacent fields, tilled in exactly the same way for years, and permanently seeded at the same time; one was hayed in the first year, the other was grazed; the latter is now a good pasture, but the former has been ploughed up; and I cannot forget that lesson. The omission of late-flowering red clover, the cowgrass of the seedsman, will cheapen my mixture but it is not expensive as already it stands, and I use it with little modification on every occasion. It is a very plain, inexpensive mixture, last season costing only in the neighbourhood of 25s. per acre, and for our part of the country I believe it is all that is necessary. Some of you may think the quantity of wild white is excessive, as you would no doubt get the same result eventually, and more cheaply, from a smaller quantity, but you would have to wait longer for it. When I start I want pastures at once, and a heavy seeding of wild white goes a long way towards that end.

I have tried putting the seeds down in August after a bare-fallow, but I have been much more successful drilling with a barley crop in the spring. The only thing to avoid is getting the barley too heavy and smothering the small plants, and it is advisable in a dry country like Norfolk to drill the seeds as early as possible, so that they may be well established before the hot weather sets in. I sow as early as the end of March or the beginning of April, drilling on a flat-rolled surface, harrowing and rolling again. Having secured a plant I give it a top-dressing during the first winter of 4 cwt. of meat or bone meal, containing 6 per cent. ammonia and 35 per cent. phosphates, and this I like to repeat every second or third winter. I am told that I am wasting money by using meat or bone meal, but I am not so sure. I know I could buy slag and, say, sulphate of ammonia more cheaply; but should I get the same result? Should I get the benefit of readily available phosphates combined with continued nitrogenous action?—which I think is so desirable in the first few years. I am afraid I shall stick to my meat or bone in spite of the prospect of economy, which is supposed to be so attractive to all of my race.

As I have already said, I think it is a mistake to cut a new pasture for hay the first year, as the coarse grasses are apt to get too rank at the expense of the finer ones.

When grazing a young pasture with cocksfoot in it, it is most essential to feed it down hard in the early spring and summer, and even then it is difficult to prevent some of the cocksfoot from running to seed, in which event the grass-mower must be brought into use, otherwise you will soon have a very rough pasture of poor feeding-value. In spite, however, of the extra care that is required in grazing cocksfoot I have come to the conclusion that it is indispensable, for the

THE MAKING OF NEW GRASSLAND 37

grazing of dairy cattle, on land inclined to be light. I have come to rely on cocksfoot to give me a bite in April, without the use of any forcing manures. I can often turn stock on to it by 1st April, and I have on occasions been feeding my lighter pastures in the middle of March. That has been entirely due to cocksfoot. Most of the cocksfoot I have used recently has been Swedish Scandia, which I have found much easier to handle than that usually supplied in commerce, and I trust we may look hopefully to the future selections of cocksfoot for real practical assistance, which should make that invaluable grass even more useful.

In conclusion, may I add a few words regarding the carrying capacity of my new pastures and my experience of the extension of grassland in conjunction with dairy farming in Norfolk. It will be necessary to introduce a few personal items. I farm something over 2000 acres of land. There used to be about one-tenth of the farm permanent grass. I have increased that to one-fourth and my cows to 280. I am therefore called upon to provide feed for those cows during the summer, and I would emphasize, to provide it in one of the driest counties in England, although I am glad to say I do not farm the worst of the land in that country. Nevertheless, we are not supposed to be able to produce grassland in the Eastern Counties. We are supposed to be parched up in July and August, but although I prepare every year for that drought, by growing crops on the arable land in anticipation, I find that they are not wanted in more than half the years. When the drought really comes, and it is only in times of general drought that I suffer, we are usually no worse off than other districts.

Nevertheless, with my head of stock, I must be ready each year. I used to save mangels for July, now I save sugar-beet pulp. I grow marrow-stem kale, sown in March, for August and September feed, and I find it better than maize for the purpose in mind, and, as I think I have suggested, I am one of those who refuse to believe that East Anglian grass is useless.

In 1924 I ran 70 cows during the day for the whole of the summer on twenty-seven acres of grassland down in 1922, and in 1930 nine acres carried 18 heifers from the middle of April, and 7 more two weeks later until the field was shut for wild white clover seed on 7th June. With my simple mixtures, with heavy wild white clover seeding, and suitable manuring, I find that the poverty period, which I was taught was inevitable, does not exist. There seems no reason why, given clean land in good heart, and suitable seeding and subsequent management, arable land should not be as effective as old grassland two years after laying down. Ryegrass and wild white clover, with cocksfoot on the light lands, are the important species in the process, and I believe that a heavy seeding of wild white clover is essential. Occasionally I have had scouring on my new wild white pastures.

There is an old saying that "To break a pasture makes a man and to

38 THE MAKING OF NEW GRASSLAND

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.

University Farm, Cambridge

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.