

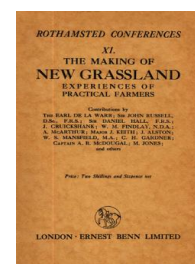
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The Making of New Grassland

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Grass During the Past Five Years

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better than put your seeds down with a growing crop and sow early. If you are in the habit of using steam ploughs, try to use them when ploughing the field for the last time. This may not appear to be of much importance. The object is to get your land free from hollows, as no furrows are left when steam ploughs are used. When grazing sheep in after years, especially ewes in-lamb, you will be almost sure to lose several by them getting cast if furrows remain as they would do if the land had been horse-ploughed.

With regard to after-cultivation of young grassland, if this is grazed judiciously the only work required on same is to roll it well at the proper time in the spring. Harrowing is detrimental for many years after laying down.

I should just like to say in conclusion that those who wish to lay down pastures other than permanent—that is, with two objects in view, a hay crop as well as grazing—a different mixture should be used, so don't compare a three years' ley with permanent pasture.

I have been relating my experience. All I have told you represents the methods which I am convinced are correct in my case, although it is possible that all present may not see eye to eye with me. I did not, nor do I, presume to dictate to anyone that there is only one method, and that my own. Far from it. I have farmed too many years, and have met with too many rebuffs, to be so bigoted. I started farming when I left school, and have been at it for forty years or more; and my father was a farmer before me, worse luck! I wish he had been a lawyer. I might now have been laying down the law to you in place of simply relating to you my humble experiences of farming operations.

GRASS DURING THE PAST FIVE YEARS

BY MAJOR J. KEITH

Pitmedden

IT is now rather more than five years since the full possibilities of rotation grasses sown under the newer systems have been realized in Aberdeenshire, but one can hardly deal with the most recent development of one's ideas in these years without looking at the previous practice. Except in a few gentlemen's parks and on high-lying grounds there has never been much permanent grass, and it was generally believed that only on limited areas of the best soil would grass hold for more than three years or so.

Prior to the great improvements on grassland which began about twenty years ago, as the result of experiments and propaganda by the

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North of Scotland Agricultural College, most of the grass in Aberdeenshire was laid down for three years only, and much of it was very poor, frequently consisting in the third year almost entirely of Yorkshire fog. In a rough way it was valued at first year's grass three times the land rent, second year's grass twice the land rent, and third year's grass at just the land rent: older grasses at varying figures according to whether improvement or further deterioration set in. On good or well-managed land it frequently improved in the fourth and subsequent years, but on ordinary or indifferently managed land it became practically valueless. Some improvement began to take place early in this century through sowing cleaner ryegrass, and the better mixtures of grasses recommended by the Agricultural College and writers such as Elliot of Clifton Park, but it was not till the fundamental discovery of wild white clover came that real improvement took place. It was only about the end of the war that the sowing of wild white clover became general and a few years longer till the change in the carrying capacity of the pastures became fully appreciated. Rather more than five years ago I found that my grassland had so improved that instead of requiring $1\frac{3}{4}$ to 2 acres to carry a cow I was now able to carry one cow or her equivalent to the acre, and it was seen that the extra carrying capacity lay largely in the improvement of the older grasses. Third year's grass had now become as valuable as first year's. For milk I think it is very much more so, and older grasses seem to become even better with age, if reasonably well treated and managed.

Very serious trouble began to be experienced with the corn crops following the wild white clover—they grew so luxuriantly as to be frequently lodged soon after coming into ear, and very serious losses were sustained. These heavy corn crops also made the re-establishment of the grass more difficult, and a legend arose that wild white did not do so well the second time it was grown. Every imaginable plan was tried, with more or less success—chiefly less—to enable one to have the best possible pasture and at the same time to have manageable corn crops.

I tried most of these plans, but about five years ago I came to the conclusion that the best plan was to alter the whole system by changing the rotation. To this end I have adopted the plan of allowing most of the grass to lie from five to eight years, and keep part of the farm under continuous cropping for a similar period.

So far as I can yet see, this plan will work excellently; one can concentrate on establishing good grass as quickly as possible and on improving it to the utmost extent without being troubled by the bogey of laid crops. When any of these older grasses have to be broken up I do not take a corn crop till the land has been sucked a bit by two green crops, one of which is turnips and the other either silage or potatoes.

As to the actual management of grass, I should make it clear that

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the land I farm is entirely different from the strong clay of Mr Cruickshank's land. Mine is mostly a strong loam overlying boulder clay or rock, but it is nearly all well drained, and not much inclined to poach in wet weather. It is much heavier, I think, than Mr Findlay's Craibstone land or even average Aberdeenshire land, but none of it will grow a bean. So far I have not altered the seed mixture from that recommended by the North of Scotland College of Agriculture—

14 lb. Ryegrass	3 lb. Red Clover
8 lb. Cocksfoot	1 lb. Common White Clover
4 lb. Timothy	1 lb. Alsike White Clover
1 lb. Wild White Clover	

—but I am inclined to think that in our climate, on many soils, the timothy and cocksfoot might be left out and the ryegrass increased to 20 to 24 lb.

The enormous amount of nitrogen stored by the white clover induces a great vigour and persistence in the ryegrass, which always predominates on the best-eaten parts of the field, while the cocksfoot tends to get into patches not eaten by stock, and increases the difficulty of management.

A friend of mine, who has laid out a great deal of grass very successfully in Norfolk, says cocksfoot is essential to get early grass, but suggests that one should have part of one's pastures almost entirely cocksfoot and wild white clover and the remainder without any cocksfoot.

Contrary to my previous practice, I have adopted the plan of grazing the new layer pretty closely after harvest and in early winter. The treading is beneficial on my land and the grazing checks the ryegrass and seems to give the clover a better start. I have no doubt it also reduces the hay crop, if one is taken, and prevents the smothering out of the white clover in the first year. Personally, I have always been more successful in getting good grass quickly if no hay crop is taken and the first year's grass is pretty closely grazed with cattle.

If a hay crop is taken it is most important that the aftermath should not be allowed to get too strong. It is no use having a moderate crop of hay and cutting it early to save the clover, and then allowing the aftermath to destroy it. Cocksfoot, which throws a strong aftermath, is almost worse than the red clover. I had two very interesting examples of this last season. On my Norfolk farm I had a 70 acre field laid down for pasture, in hay, the aftermath of which was grazed by cows, and the plan adopted was to give the cows part of it at a time, say 10 acres, and move the wire back to give another 10 acres as soon as they had fairly well cleaned up the previous piece. The first section eaten has now very much the best white clover and it grows progressively worse on each later section, while on the last part, where the cocksfoot became rusty and was scarcely eaten, the white clover has almost disappeared. The other example was in Aberdeenshire. A

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field was split, and one half eaten early by lambs, while the other was saved for the cows, and not eaten till pretty late. The early-eaten half has now by far the better bottom of clover.

My land, on analysis, has a high amount of available phosphates, but I have manured freely with phosphates both for arable and grass, and usually apply, when sowing out, 4 cwt. steamed bone-flour or 8 cwt. high-grade slag, and repeat the dressing at the third or fourth year. This seems quite sufficient, but a neighbour who has extraordinarily good grass applies 3 cwt. steamed bone-flour to all his grass each winter, and says he sees the benefit of the application every spring by April.

Another thing I have adopted in recent years is dividing the larger fields into areas of 10 to 15 acres, to enable the grazing to be better controlled. After dividing my fields, I conceived the idea of giving the milking cows the first eat, and cleaning up the field with dry cows and in-calf heifers, but however well this plan may work out on farms with very uniform land, which grazes evenly, it was an entire failure with me. The store stock would not eat the rough, which just ran to seed, and they made the best-eaten parts so bare that their recovery was too slow, and the field not again ready for milking cows at the proper time.

The mowing-machine is really the only way to keep a pasture even. As far as possible I cut the pastures which look as if they would run to seed, and the results are so good that I would run all over the grass, only it has to be done at a time of extreme pressure on the farms, and I do not object to some rough grass, as it provides employment for the sheep in the snowstorms, but unless in snow the sheep will not look at the old rank patches, they remain determinedly on the green parts, so I doubt if it is worth while leaving much rough grass. It used to be thought that rough grass, not too much eaten in winter, gave an earlier bite in spring, but with good wild white pastures this does not seem so necessary. This year I am trying the experiment of giving a fairly large area of closely eaten grass a light coat of strawy farmyard manure, not for manurial effect so much as to see if the shelter of the straw will save the grass from spring frosts and wind and give an earlier bite. I shall also give part of this strawed area some nitrogenous manure. If this experiment is successful I shall abandon the practice of leaving any rough grass except what gets beyond me.

The difficulty with this rotational grazing is to know when to move the cows. I generally found when grazing from five to six cows per acre that the milk has begun to drop before the grass looks as if it was requiring relief. The only plan I can think of is to move the cows to a fresh field through the day at least one day before making the complete move. Cows are rather less particular about what they eat at night and not so inclined to wander about as during the day. Perhaps someone can throw light on this point, it does not arise when grazing two or three cows per acre.

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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.

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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,