

## Permanent Pastures.

BY THE EDITOR.

This paper was read at several of the meetings of the Farmer's Institutes of Ontario, held during 1887.

The term, permanent pastures, though a very comprehensive one, is often used in a very loose sense. The most simple definition that we can give of it is to say that it denotes a piece of land that is grazed for a long term of years. It may be hill or hollow, table-land or depression, sparse growing forest, even, or watery marsh, where only coarse uninviting grasses grow. It may be composed of only one individual species, or of a combination of grasses, and it may last but a limited number of years or for a long time, although in its strict sense the term denotes lengthened duration.

In this country it is often confounded with the term *mixed grasses*, although they are by no means synonymous terms. Nay, so different are they that in a country where the latter will flourish, there may be no place for the former, unless it be in that form of grass which is indigenous to all countries that will sustain the grazing of domesticated animals. A mixed meadow or pasture field may become a permanent pasture, but a permanent pasture does not necessarily contain mixed grasses.

A permanent pasture, in the popular sense of the term in Ontario, denotes the growth of a larger or smaller number of grasses in conjunction, and for a number of successive years, with the view of obtaining a greater variety and regularity of pasture during the season, and also a larger amount of nutriment to the acre. This view of them implies that some come early in the season, and that others come later, that while one variety has given of its sweetness, another generously provides a toothsome bite while the former is resting, so that, whatever may be the season, there is always something both inviting and satisfying for the herds and flocks that may graze upon it.

Britain has long sustained pastures of this character, indeed, they are at once the pride and mainstay of her agriculture, and the deeper her periods of distress, the more is she disposed to find solace in the relief which they bring to her in the production of increasing quantities of beef, milk, butter and cheese. But, will Canada ever sustain such pastures as these? We have grave doubts. In two particulars Britain has an overwhelming advantage—in a greater degree of moisture in summer, and a much higher temperature in winter. So long as we have scorching suns in July and August to parch our pastures, and so long as the ice-burges hug so fondly the shores of Hudson's Bay and Labrador, we can never have permanent pastures that will be so abiding, or that will exactly subserve the purpose of those of the motherland. In making the tour of the eastern counties of Ontario last summer, we found whole townships where the timothy, one of the hardiest of our native grasses, was so worsted in the conflict with the cold of the previous winter, that it was able to maintain but a feeble growth, notwithstanding the abundance of the genial showers of spring-time. If, then, one of our veteran grasses is now and then so sadly worsted in the conflict with the elements of an inauspicious climate, how shall it not fare with those that are more tender, as is the case with most of the grasses usually sown here in the production of permanent pastures?

Every country where grass will grow has some form or other of permanent pasture indigenous to it, and Ontario is no exception. It we mistake not, our permanent pastures consist of June grass and white clover. Nature never makes a mistake in the suitability of the flora which she chooses for any country, and we do well to recognize this fact in all the operations of husbandry and tillage.

When our forests are removed, even though not a blade of grass be sown, after a year or two of rioting in the production of weeds, like the big boy, sometimes, in the transition state between boyhood and manhood, the entire surface of the earth that is not covered with water for a long term, becomes coated with a thick mass of June grass and white clover, but more particularly the former, the intertwining rootlets of which become so matted that every square foot of the soil contains several pounds of them.

In this we have the simplest form of permanent pasture that we can ever have, and it is certainly the most abiding. Our cattle place more store upon it than it may be their owners do, and here, we may add, Nature makes no mistakes in her teachings. The very fact that our cattle prefer June grass, with

its freshness and greenness, to any other form of grass is significant in itself, and should lead us to enquire if it is not just possible that it will be found to be the most profitable form of permanent pasture that the country will sustain. It will be found particularly so when favored with plenty of shade, or where the surface is so broken that it cannot be easily got at with the plough.

The objection most frequently urged against June grass as a pasture, is that it flourishes during so short a period of the year, and this is too true, but in the autumn when it has not been pastured too closely during the summer, it will produce a large amount of pasture. And in the spring-time it affords a nice juicy bite before the other grasses have waked at all, so that, with the exception of it may be orchard grass and some forms of clover, it provides pasture on the whole for a longer term than most other kinds of grass.

But we must not make too much of what nature has done for any country in providing for it a flora. Timothy is not an indigenous grass, and yet it is one that, to a Canadian farmer, is absolutely indispensable. The same may be said of our three leading clovers, the red, the large red and alsike. The alsike, although the most recently introduced, has accommodated itself to the conditions of our soil and climate with a readiness that is wonderful, and has without the shadow of a doubt, so far as we can judge, a bright career before it in this land of trying winters. It may be found in coming years that other foreign grasses will do equally well, and after a time we may have permanent pastures containing a variety of grasses of much longer duration than we can have them to-day.

Permanent pastures, such as Britain possesses, we cannot have just now, for we have not the grasses that will endure the contest of our winters, as we have already said. June grass being indigenous, and white clover, will always form important factors in our permanent pastures. Next to these come Kentucky blue grass, orchard grass and timothy, in the order named, because of their duration. Beyond these, we are very doubtful indeed, if we can go further at present, though it may be different in the future.

We conclude that it is not wise to go to heavy expense and sow a large number of grasses in the hope of getting permanent pasture from them, when they cannot endure the fight of our winters for more than one season, or two at the longest. We are quite aware that it is popular to-day to say a good deal in favor of permanent pastures, partly because the subject is comparatively speaking a new one, and partly because we desire that the practicability of establishing here something on the European plan, should be demonstrated to be feasible. But we feel it is no part of our mission to advocate what is popular for its own sake, but to endeavor to show what is attainable in farming, and at the same time profitable.

There is no denying facts, and one fact well sustained is better than a hundred beautiful theories. Now, what are the facts? We have, during the past season, walked over permanent pastures in the popular sense of the term in the counties of Wentworth, Brant and Wellington, Halton, York and Ontario, Perth, Oxford and Carleton, and we have narrowly interrogated their owners, and with the uniform result that after the third winter, the only permanent grasses in the fields to any great extent, were June grass, Kentucky blue grass, timothy and orchard grass, and alsike and white clover. Beyond these six varieties, we are not prepared to go to-day, in our recommendation of grasses intended for a purely permanent pasture, and of these, June grass and white clover need not be sown, as they are indigenous, and will, after a time, burrow their roots amid the decay of the ashes of the others, and ultimately take complete possession.

We know that our talented Professor of Agriculture at the Experimental Farm, Guelph, has said and written a good deal in favor of the value of permanent pastures in producing beef and milk, but with all due deference to the good Professor, we regard his experiments in this direction as far from conclusive. He has told us what permanent grasses will do as regards the production of beef and butter in themselves during that part of the year when they flourish best, but two things regarding them he has not told us, that we would like exceedingly well to know. The first is their value in producing milk and butter the entire season through, from May 1st to Nov. 1st, for one year and for a successive term of years. The second is the comparative value of June grass, or the combination of grasses that we regard as

useful in forming a permanent pasture in the fulness of their variety, as pitted against permanent pastures as sown at the Experimental Farm.

Now, if we are correct in our interpretation of the report of 1885, and we have examined it with a good deal of care, the Professor's estimate for the six months' term of pasturage is based upon the returns for the first two or three months, and so of the beef test, the particulars of which were given in a bulletin issued from the Experimental Farm last summer. For milk production, there is no season of the year when any form of pasture will yield anything like a proportionate amount of milk, equal to what the month of June will give. We fully believe that the number and variety of the mixed grasses will produce more milk and of a better quality than any one form of grass alone, and so of beef, but there comes a time in the passing of our summers when all forms of grass for the time being fail if eaten very closely.

The comparative value of any form of pasture cannot be determined with any degree of precision unless pitted against some other form of pasture under like conditions. Fit up a piece of ground by piling on large quantities of manure and clearing it effectually by a hoed crop, and sow with June grass or two or three forms of grass in combination such as we ordinarily sow, and keep it for a term of years side by side with grasses sown, as at the experimental farm, and we would have a fair test. We have not the slightest doubt that the large variety would have considerable advantage the first and second years, from the fact that they, owing to their number, would form a more perfect food ration and to their more constant succession of growth throughout the season, and for this reason it might be well to sow them, but never in the hope of their abiding with us long in the face of our stern winters, and forming in the true sense of the term permanent pastures.

Before any experiment in agriculture becomes conclusive it must be tried repeatedly, and always under the same conditions, so far as these can be controlled by man, and before its superiority over any other system can be established, it must be repeated along with that other system for a term of years and under precisely the same conditions. Professor Brown has said to us: (1) That such pasture gives several crops per annum, (2) offers an earlier and later bite, (3) animals are more healthy and less liable to disease upon it, (4) it cannot possibly be destroyed by either drought or frost; (5) it gives more daily produce than any other kind of fodder; (6) it gives three times more of any animal produce per acre; (7) it can be used as a silage crop every year; (8) it is less expensive to produce and maintain than any other crop, (9) it is a continual source of reliance and wealth, and (10) it is permanent. We have looked at this panegyric of the grasses first on this side and then on that, and we have viewed it through the lens of charity, and the only verdict that we can arrive at as we sit in judgment upon it is the old Scotch one. "Not proven." It reminds us not a little of some beautiful myth of that older time, when the earth produced spontaneously, and universal justice prevailed among mankind. The good professor, in the moment of forgetfulness when he penned that encomium, must have had in mind the practice of the vendors of patent medicines or the market places of our towns and cities. To say that such pasture gives three times more of animal produce per acre than any other form of pasture is a strong statement when unsupported by evidence, and to assert that grasses are permanent in a climate where most forms of them will not live more than three years, as general experience is now demonstrating, is an unwarrantable statement. As yet Professor Brown has only furnished us in this matter food that should stimulate our inquiries and lead us to experiment. He has not given us established data on which we can safely build the structure of our plans in reference to the future of our pasture fields.

As to the varieties of grasses that we should sow to the acre in forming permanent pastures, and the quantities of seed, we may now say a word. We do not deem it necessary to sow them alone, but just as other grasses are sown, early in the spring of the year, along with other kinds of grain; nor do we name the large quantities fixed upon by some seedsmen and theory men as being the amount most suitable to sow. These will vary very much with soils. Those most suitable for a good catch require less seed than the others.

The following are the quantities that we would fix upon as a general average per acre: