

and the rest on level sandy loam, both without any manure worth mentioning, and on land just about "cropped to death" with years of grain, and badly infested with thistles and wire grass. I ought to have expected failure with such treatment, but I trusted to subsequent liberal applications of mulch and elbow grease to remove disadvantages. Well, most of them grew, although the Blackcap is more apt to fail than any other fruit plant, except the Blackberry, and I congratulated myself on my success. But the second season I began to see that something was the matter with those on the sandy soil; some of them began to wilt, and finally died out. What was the reason? Several reasons! I had planted them next to a wagon way through my grounds, which was left in grass, and the wild grass roots revelling in the loose cultivated soil, continually starved my scantily manured Blackcaps on one side. On the other side another plantation of raspberries came to within four or five feet of the Gregg's, and I found that the dead plants were all or nearly all next to the rows of Turner, which soon began to send up suckers all around the Gregg's, and attempted to take up the whole ground in the usual insidious fashion of that most persistent of red raspberries. But I was determined to have Gregg's, and so the Turner suckers were placidly planed off with the "side hoe," and the wire grass discouraged by chopping its roots where it could be reached with the hoe, and fingering where it could not, and I got fruit! I couldn't expect much, of course, and I didn't get much from those plants; but the berries I did get were such as to make me think at once of propagating more plants. Even with such culture they ran from five-eighths to three-quarters of an inch in diameter, and while of the best texture for shipping, were very good indeed to the taste. Indeed I did not realize how good they were until an overlooked berry or two showed me that the others had been eaten before they were quite ripe.

But there was another reason, for want of entire success, that has since been further impressed on me by learning the experience of other cultivators, and that is that the Gregg differs from many of its class in doing its best on clay loam, or a moist but well drained dark loam. When I examined the plants on the clayey slope referred to, the difference was very striking. Not only were the stalks thicker and sturdier and the foliage brighter, but the berries were larger and many more of them. I have Gregg canes now on that land that are nearly an inch thick, and about a dozen of them of various sizes, to a plant, though I am ashamed to say so, for I should have only permitted half a dozen to grow. I have not found the Gregg to be quite so hardy as I would like, though there does not seem to be much difference between it and the Mammoth Cluster in this respect. It usually does not winter-kill far enough back to prevent fruiting, and just how far this winter-killing is due to the tenderness of the plant itself, and how much to the depredations of the white cricket, and the switching against each other of the canes, to the injury of leaves and bark by the wind, I am unable to determine. Blackcaps, I find, need the shelter of bushes or trees on the west side, or they are rather apt to blow out of the ground the first two years; besides the wind prevents the tips of the branches from taking root, and so form new plants.

Drawing conclusions from all these facts, my verdict is that the Gregg is decidedly the largest and best, as well as the latest, blackcap at all tested, far in advance of Mammoth Cluster, Doolittle, etc., in size and texture of berry; about as delicious to the taste, and equal or greater in productiveness. There is great room for an early berry that shall prove anywhere near as good, and if Souhegan fills the bill, as it promises to, it will be a good acquisition. But for a late berry, the man who plants Gregg on good rich soil inclined to clay, and gives it good treatment, is likely to find himself in possession of the *ne plus ultra* in blackcaps, and if he has a taste for this kind of fruit, will be abundantly satisfied.

[In recently visiting the fruit ground of Major Bruce, near this city, we observed that while all the other berry canes were out down by the winter, the black caps stood the weather without injury.]

### Prize Essay.

#### THE SEEDING AND MANAGEMENT OF PERMANENT PASTURES.

This is a very important branch of agriculture which requires our immediate consideration in this country (especially the old settled parts.) I beg to contribute in writing a few remarks upon this subject, such as practice have taught me, and observations grafted on my mind.

This deficiency of permanent pasture I cannot but notice in travelling through this country, and if I mistake not, advocated it as the course for us farmers to take in my essay on artificial manures in last April number of the *ADVOCATE*.

Now since this is what I may call a continuation of former subjects, I'll continue to use manures, natural and artificial, with the soil, as the raw material which we as farmers have to work upon, calling to our aid the agencies of animal and vegetable life, and the stores of fertility which are present in the atmosphere, as the key to success in farming generally, and particularly to the management and seeding of permanent pasture.

In making permanent pasture it is most essential to have our soil well prepared, clear of noxious weeds, and well supplied with food for the support of the kind of crop or grass you intend to sow. This may be overcome by applying barnyard manure from meat-making cattle, sheep and pigs, with an addition of artificial manure in the form of superphosphate of lime made from bone, fermented bone, or half-inch bone, as the case may require.

It is for us to consider what ingredients required in plant life our lands have been robbed of most extensively, and the nature of the soil, as the fertility of a soil does not depend upon plant food which exists in great abundance, but the fertility of a soil is determined by the quantity of that essential food which is present in the least proportion.

To illustrate this by example: A carpenter may have plenty of boards for the construction he intends to erect, but if he has few nails his progress is soon stopped for want of further supply. "It is the short supply of nails which regulates his work."

Vegetable growth requires a variety of material, and that essential material which is present in the least abundance regulates the crop, and not those which are plentiful.

In making permanent pasture we want *plant food ready and coming into use*, and not *dormant matter* which would be decomposed in a few years; this dormant matter would do little to assist nature to encourage the small rootlets of the various grasses required to furnish a luxuriant and permanent pasture.

Now to remark further upon the majority of our Canadian soils, whether pasture land or lands which have been continually cropped with grain, "wheat in particular."

I believe there is a deficiency of phosphoric acid; this acid combined with lime forms a large portion of the skeletons of our animals; these ingredients have been taken away from our pasture land in the form of cows bringing forth their calves, and the milk they produce contains a very large percentage of these ingredients. Then again the over-cropping with wheat carries away this same plant-food, hence the deficiency.

This plant-food can be most cheaply replaced by applying bone, half-inch bone, bone dust or superphosphate of lime made from bone. Any of these artificial manures applied to calcareous soil readily unite and become food for plant life, especially grass. Only superphosphate combines sooner and acts earlier than raw bone, but has not the endurance.

I believe that common salt is required for nearly all lands and all crops in this country, but not very

largely for making permanent pasture in its early stage. It has a tendency to stunt and check the growth of young plants. Further I would remark as to the surface of land laid down as permanent pasture. Land in this country is not generally underdrained; it should therefore be plowed by a good plowman and laid in ridges, say 12 feet wide, the surface of each ridge being the part of a circle, thus:

And not as you commonly see in this country, thus:

The first encourages the water to the furrows in winter, where the second and common system in this country incline to keep the water and help to rot and destroy the tender roots of our fine grasses.

As to the seeding of permanent pasture, I should recommend the following mixture and quantity per acre to bring a good and lasting return, viz:

Red clover.....	3 lbs.
Alsike clover.....	2
White clover.....	2
Timothy.....	6
Orchard grass.....	1
Kentucky Blue.....	2
Meadow Fescue.....	2
Rib grass.....	3

Total 21

This mixture may seem less than many agriculturists recommend to make a close permanent pasture at first, but experience has shown me that if you overseed a permanent pasture the roots of these seeds grow in like a mat, and not having time to dig down into the soil the first year, frost heaves the soil, and in the spring the grass roots peel off the surface like a fleece, where by thinner sowing the roots dig deeper, hold their own the first year and continue to gain until they form a complete permanent pasture.

By sowing this mixture of clover seed with one-half bushel of barley, to take away the effect of the sun and establish feed for young cattle through summer and fall, I believe by so doing we will gain the end aimed at, and thereby save labor on our farms, change our system, get a good return, and make farming a business to enjoy and not annoy.

I advocate rib grass because it is one of those taprooted grasses which will stand frost, assist to make excellent herbage in pasture, and I believe it will answer in this country, as I have noticed it growing naturally so far east as the State of Maine, west in Kent county, and, if I mistake not, I noticed it growing in some of the fine old pastures at Ailsa Craig.

In reference to common salt as a fertilizer, and the conclusion that the Massachusetts Agricultural Society have arrived at, I believe that common salt which contain a large percentage of *chloride of sodium*, if skillfully applied, is beneficial. Its action as a fertilizer is in many respects peculiar, by reason of its apparently inconsistent influence; in many cases it gives a decided check to vegetable growth, yet thereby increasing the product of grain; therefore, if it checks growth of grassy fibre, it must hasten maturity, and wheat salted will ripen earlier with a stiffer straw, and naturally more grain.

This is quite natural, as vegetation is very quick in many parts of the States, and land unsalted will grow an abundance of straw without maturing grain.

Also in reference to the essay approved of by the Royal Agricultural Society of England in 1868, and the quantity of salt per acre. You will understand that high farming is the rule among those people; you will also observe that it recommends salt to be sown thicker on light soil than heavy soil, more to check the overgrowth of straw in grain crops than its real value as a fertilizer. While root crops, such as mangels, turnips and onions, we