

60 rods of drains at 20 cts. . . . \$12 00  
 550 pipes (13 inches in length  
 here) at \$8 per thousand, and  
 breakage . . . . . 7 00

—  
 \$19 60

Cartage, of course, additional: a heavy charge, as 1000 of these pipes would be a two horse load—to say nothing of railroad charges. But make the total 22, and it is not much for an acre of land well drained. If this proud-sog French company really lends money on mortgage at 6 per cent., I cannot conceive any so profitable investment for a farmer as borrowing enough to drain all the land on his farm that wants it. The yearly interest will be only \$132 an acre—as to the profit, it may safely be put down as three that sum.

If my experience be thought worth anything, I shall always be happy to give any advice, or to answer any questions, either in the *Journal* or by letter as may be preferred: gratuitously of course. I saw so many thousand acres of land, during my tour through the Townships this summer, and in the French country at other times, perishing for want of draining, that I could not help thinking that for the neglect of this, the most profitable of all improvements, the educated part of the community were sorely to blame; since it is to them that our less enlightened population look to lead them into new ways, and shew them how to unite "theory with practice."

That drainage does actually raise the temperature of the soil, may be shewn by the following experiments made at Clarendon Park, Hampshire, England. The soil is a heavy clay—"impervious" they used to call it, before drainage proved the contrary. Here, the temperature was raised 10.5 F. by drains 4½ feet deep. The register seems to have been kept very accurately; and it proves that not only was the summer and autumn heat of the soil greater, but the increased temperature was preserved for a long time through the winter, in fact, March, 1850, was a peculiar month for the South of England: for seven nights out of the first eighteen, the mercury sank to 26° F. yet the following table shows a greater degree of heat, at one and two feet under the surface, than for several years previously in the same month, by 1.17 degrees at one foot, and 1.44 at two feet:

	1 foot	2 feet
	deep.	deep.
Mean of March, 1838.....	41° 48'	41° 46'
" " 1839.....	41° 46'	41° 45'
" " 1840.....	39° 24'	41° 71'
" " 1844.....	41° 55'	41° 41'
" " 1845.....	47° 79'	38° 43'
" " 1846.....	44° 47'	45° 53'
" " 1847.....	40° 22'	44° 03'
" of these years.....	41° 16'	41° 74'
" of first 18 days March 1850.....	42° 33'	42° 18'

The land was drained in the autumn of 1848.

### LUCERNE and OTHER FODDERS.

#### Loss of plant—Lucerne-hay—Hungarian grass—Carrots for horses.

In my seed catalogue for this year, which Mr. Ewing kindly sent me as usual this Spring, there were some very eulogistic remarks about my favorite forage crop lucerne, to the effect that it had long since passed the initial stage of the "Gentleman farmer's" fad and was being exclusively or, at any rate, increasingly patronised by practical farmers.

Poor Gentleman farmer! he does not I am afraid enjoy any much higher reputation here than he does at home. In the lay of the Three Jovial Huntsmen," one of Caldecott's charming nursery books for children, we read of how "They hunted an' they holl'd, an' the first thing they did find,

Was a tatter'd boggart in a field, an' that they left behind

Look ye there.

One said it was a boggart, an' another said nay,

It's just a go'man farmer that has gone an' lost his way

Look ye there."

As nothing succeeds like success, and nothing is more deplorable and discouraging than failure, however undeserved, or attributable to unforeseen circumstances beyond control, on my intruding into Mr. Ewing's sanctum, towards the end of April, on seed purchasing intent, and informing him in response to enquiries about my lucerne, that it had been frozen down to the ends of its long roots, quite 4 feet (1) his genial countenance was overspread, by a somewhat downcast expression. It was but momentary, however, as he remarked very truly indeed, that as pretty nearly all the clover in the country had been killed, and that even the elucery was nearly all done for, one could hardly expect that lucerne would prove an exception.

Quite so, and, one might just as well never sow clover again as give up growing lucerne because it was killed last winter. (2)

It is of course unfortunate, that for two very intelligible reasons, I have not yet been able to ascertain for how many years this crop will grow in this country without reseedling. Knowing absolutely nothing about lucerne, when I first tried it, I put it in a field, where there is always water, at a depth of four feet, and in the third year, after giving splendid crops, cuttings for soiling, every year it died out like a flash, as soon as its roots reached the water. This it will always do, and must be avoided, although it likes lots of water at top. I can easily understand, that, with irrigation its possibilities are enormous.

Dry cold, and a high degree of cold, will not injure it, even in an exposed situation, and without being mulched, or protected by any great quantity of snow.

Lucerne is quite good enough for me, to keep sowing it every year, to the extent of at least 5 acres, whenever I have that extent of available land close enough to the stables. I can sow it on the worst land I have, with less trouble and expense, than anything else I have ever tried.

In its second and third year, I have cut it for soiling, 6 or 7 times a year.

I have not so far tried to make hay of it, but shall endeavour to do so this year. I have sowed it both alone and with oats. As far as I can see, the lucerne sowed alone, is longer, and more luxuriant, but there are more weeds, amongst it, there are fewer weeds where sowed with oats. The lucerne sowed alone, this Spring, on the 26th and 28th of April last, in the same field where it was killed by frost last year, as well as in another additional one, which I have put it in, this year, has

(1) M. Bouthillier and the editor traced roots down still lower, and then they went deeper still.

(2) Excellent! And so with "permanent grasses." Ed.

been quite long enough to cut for soiling for some time. Most of the stems measured, on the 16th of this month, from a foot to 19 inches in length.

A friend of mine, who has made alfalfa hay, for 12 years on a ranch in Colorado, tells me that it makes beautiful hay, out there, curing quite green, as soon as it is in bloom, (1) and that they cut three crops for hay in the year. Of course it is very easy to cure, there, one day being often quite sufficient, and, I presume, although I forgot to ask him about it, that it is kept in stacks. I shall try and make hay of the lucerne alone, and of the lucerne and oats mixed.

If I find I can make good hay from lucerne, it will pay me to grow some 10 acres of it next year, on the best land I have on the farm, and at some distance from the farm buildings.

If good hay can be made from it, it certainly deserves the very best treatment it can get and a very liberal top-dressing of wood ashes, in the autumn.

At the risk of repetition, I must say again that I have read most misleading and erroneous directions given about the cultivation of lucerne, in some of the Eastern States, in some of the American Agricultural papers. I have seen it recommended to be sowed in drills, and cultivated afterwards to keep it free from weeds. This would be needlessly troublesome and expensive. Lucerne should be sowed on clean, well manured land, a nice sandy loam, naturally or artificially drained as far away from any water in the subsoil as possible, either alone, or with oats, (2) in a naturally protected situation, if you can get it. I should prefer growing it alone, for the following reasons. I think that it will grow more luxuriantly, and stand the heat better if grown alone and, as it should be cut early for soiling, so as to get rid of the weeds, it is not much use growing the oats, unless you cut them green also. After the weeds—there will always be a certain amount, although there will be fewer, when sown with oats—have been mowed, with the first cut of lucerne for soiling, the lucerne will grow more quickly than the weeds, and with each cutting there will be fewer each year. In sowing lucerne, especially alone, I should sow it as thickly as possible, quite up to 30 lbs. per arpent if possible.

Lucerne does not spread at all, and wherever there is a vacant space, with little or no seed, there will be weeds, or at any rate, there will be a small vacant patch, where, although the shade from the lucerne may have prevented the weeds from growing, there will be no lucerne. Lucerne seed, in this country, for whatever reason it may be, is not very reliable, and you must make allowance for a good deal of seed that won't come up. (3)

In a second or third year crop of lucerne, you will see very few weeds, and the well furnished plants present a beautiful sight, covering the ground well, from fence to fence, if lacking somewhat of the gorgeousness of *Big Rawdon*, or other red clovers.

Although, of course, lucerne, will grow better than any other clover on sand, (I have not, so far, grown it anywhere else), a long spell of heat, on burning

(1) Immediately it shows for bloom. The flowers should not be allowed to expand.—Ed.

(2) Barley is better for all grass- or clover-seeds.—Ed.

(3) Or else, 18 lbs. to the arpent would be an ample seeding.—Ed.

sand, does try it considerably, and the leaves shrivel up, and the stems get woody: still, an occasional shower does it a wonderful amount of good and enables it to recuperate wonderfully.

In common with a great many farmers on the Island of Montreal, I have put in some corn and Hungarian grass, in anticipation of a very scanty hay-crop. Of Hungarian grass, I know absolutely nothing myself beyond the answers to some enquiries made to fellow-farmers on the Island of Montreal, and elsewhere, who have tried it.

Mr. Archie Rolland, of Ste-Marie de Monnoir, informs me that he has got an enormous crop from it one year, and a very poor one, on day, another.

Mr. Johnson, of Como, seems to have been very successful with it.

There seems to be no trouble at all about it being relished by both horses and cattle, and I am told that you can make hay from it in two months from date of sowing. It seems to be a little difficult to cure properly so as not to have it dusty. If any kind correspondent would give some directions for the curing of Hungarian grass, I should, in common with a good many others, be very much obliged for the information.

The July No. of the *Journal*, is particularly good. The articles are full of plainly expressed, useful directions, that any one can understand, singularly free from scientific verbiage, and endless repetition of chemical formula, which are not so important, or so reliable, as some people would fain have you believe. Mr. Melachla's directions for the cultivation of carrots is just the thing one wants for handy reference.

There are only two roots that seem suited to the regimen of the horse, and these are parsnips and carrots, although I am aware that turnips are fed occasionally to farm horses in England. Three meals of carrots per week are very good for horses, but not much more than that. Too many carrots act like a diuretic, and like too much nitre, are not good. Linseed meal, with a little grooming and a blanket, will do more for the coat than carrots. One requires a good place to store carrots, half-frozen carrots are very bad for brood-mares, and not very good for anything. The dealers, in Ireland, feed boiled potatoes, mixed with bran and cabbage leaves, to horses, and this diet get horses very round and fat, which condition covers of course a multitude of defects, but does not produce hard flesh. There is very great economy in the chaffing of hay and straw, (1) for the feeding of horses, and it is well worth the extra time and trouble involved.

One thing is absolutely necessary: scrupulous cleanliness in the feed-boxes, in which this cut hay, and crushed oats, or bran, is fed to horses. If this is practised, they will feed all right and remain in the best of condition, otherwise they will not do well. It is some trouble to get horses accustomed to long hay, to eat this chaff and, no doubt, the long hay is better when you have plenty of it, where economy is an object: and it will be worth most farmers' while this year; there is an immense saving in feeding chaffed hay.

C. F. BOUTHILLIER.

(4) Mixed 2-3 hay 1-3 straw.—Ed.