

is an Englishman, and has all of an English farmer's zeal for root-culture, together with the skill which long practice has given them in the work. Mr Aitken is certain that butter can be made on mangels greatly cheaper than on corn. It possibly may be so, *with men who can grow them, as he does, for four cents a bushel; but this is probably not more than one-third what they would cost the average Vermonter, in the present state of his knowledge of the business.* That mangels make good butter was pretty well demonstrated by the success of Mr. Aitken in carrying away all the biggest premiums at the butter exhibit.

Mr. Aitken is foreman on the Billings farm at Woodstock, is a fine specimen of the Scotch English farmer—tall, straight, shrewd and sensible—a good speaker and a persistent debater. His butter drew the "grand sweepstakes" prize.

Cheese or butter?—I lately asked the following question :

If it is intended to encourage cheese-making all over the Province, from Gaspé to Ottawa and Pontiac, how are the nitrogen and the phosphates to be restored? Are we not in danger of forgetting that the *very rich old pastures* of Cheshire, England, were rendered completely unproductive some fifty years ago owing to the exportation of cheese from the farms? Would it not be better to make butter?

JENNER FUST.

Mr. Barnard has been good enough to send me the following answer :

I am not an advocate for *cheese all over the Province*; but I would rather have that than export hay and grain! Again; before importing nitrogen or phosphates, I would save the whole or part of the 75 % or more made in the stable, &c., and allowed to waste.

Once more; were I to seek for nitrogen, I would rather feed a very few pounds of half cotton-cake and half bran, along with good, well-cured viz. green-clover-silage, or mixed with straw in layers of a few inches in the mass; green fodder-corn; or *even* mangels, sugar-beets, or swedes, along with straw finely cut up and bruised—to as many milch-cows as my farm could profitably keep.

I may be wrong, yet, after 33 years of experience, I am more and more convinced that pastures, at best, are only worth anything in this province for from 4 to 5 months out of the 12; moreover, that, out of these 4 or 5 months, we have to count either on excessive rains, or on broiling, scorching weather, for at least two months or more; that, during this very dry, hot weather, a great deal of the ammonia of the urine may be pumped up into the skies, owing to the immense evaporation then going on.

Moral! Produce *green meat*, on well-manured, thoroughly pulverised yet well packed (*rolled*) soil, and feed the whole where flies will not hurt, and where stock may be watered with fine, clear, cool water—instead of having to go, perhaps, a mile or more for impure, hot, and, probably, muddy water.—Again; place your cows where no liquid or solid manure need be wasted; keep the best milking breeds; feed as high as needed to produce good milk in plenty, without waste, and then you need not fear a renewal of what happened in Cheshire, England, fifty years ago—viz.; "completely unproductive pastures."

Respecting butter, you have known my opinion for years. Where one knows how to make the best butter, and allows no waste of manure, a farm must be very poor if it cannot allow of a considerable annual exportation of butter, provided the milk, and perhaps everything else, is turned, as far as practicable into butter-fat. I am not at all inclined to support the views expressed at last year's Huntingdon Dairymen's Convention, where two renowned Professors of a renowned

Agricultural College—not a thousand miles from Ontario—*professed* that the exportation of cheese, in *even* large quantities from the farm, without the importation of food from exterior sources, not only does *not* impoverish the soil, but from its better manuring and cultivation, *actually* enriches it!!!

ED. A. BARNARD.

The exhausted pastures of Cheshire were restored by a dose of half-a-ton of bone-dust to the acre and are now flourishing again. I had no idea that such extraordinary theories as those of the two professors mentioned by Mr. Barnard had ever been promulgated! Butter is, of course, or ought to be, almost entirely carbon and water, the exportation of which, seeing they are derived from the atmosphere, cannot injure a farm. But, unfortunately the bones and lean-meat of the animals which consume the skim- and butter-milk are composed in great measure of phosphates and nitrogen, so, do what we may, we cannot keep those two important elements at home. To my mind, it is clear that the purchase of cheap feeding-stuffs is the main thing for the farmer to aim at; but how that is to be secured is the difficulty, for the duty on corn and cotton-seed imported from the States stands in the way.

A. R. J. F.

Corn or mangels.—The following is a leading article from the Montreal Gazette. I need hardly say that it is not a correct description of my views on growing roots. What I contend for is: that as in England singling an acre of roots—swedes or mangels—costs only 5 shillings sterling (\$1.20), if M. l'abbé Chartier paid \$12.00 for singling an *arpent* of mangels, he paid a great deal too much; for that price per arpent equals \$14.18 an acre, and no difference between the wages of the two countries can account for such a variation in the value of such an operation. What does Dr. Hoskins say on the subject? (See p. 41 of this number) "...Mr. Aitken is certain that butter can be made on mangels greatly cheaper than on corn. It probably may be so, with men who can grow them, as he does, *for four cents a bushel*; but this is properly not more than one third what they would cost the average Vermonter, in the present state of his knowledge of the business." But the Vermonters, I believe, are not slow to learn, and I doubt not that, in a year or two, Dr. Hoskins will see several of Mr. Aitken's neighbours just as skilful mangel-growers as Mr. Aitken himself.

I never ventured, as the Gazette gives me credit for doing, on so rash a step as to say that I could *raise mangels at \$3.00 an acre*, neither did M. Séraphin Guèvremont declare that he had *grown mangels at \$3.40 an acre*. What we both say is, that four women at 60 cents a day, under our tuition, have no difficulty in singling an acre of mangels or swedes in an ordinary day; and that the singling and horse-hoeing, together, can be done, and have constantly been done on M. Guèvremont's farm, for \$3.40 cents. *M. Chartier's expenditure for singling alone being \$12.00.* M. Guèvremont's account—v. November No. of Journal, 1887, p. 171—is as follows:

Two horse-hoeings.....	\$1.00
Two women—chopping out—1 day, at 60 cts.....	1.20
Two do., singling by hand after the chopping out.....	1.20
	\$3.40

To which M. Guèvremont adds: I think this is the extreme possible cost. The man, "a Frenchman who knew perfectly how to use the hoe," employed by M. Chartier worked, according to his statement, for 13½ hours a day, exclusive of his meal-times—equal to 7½ days of 10 hours each—and was never able to *single (éclaircir)* more than an ar-