

years the production of cane sugar has increased about ten per cent., while in the same period beet sugar has increased more than sixty per cent. This contest has resulted in an enormous increase of refined beet sugar and has made itself felt in a very powerful way in the markets of this country. Already stock owners are beginning to use sugar for a great many purposes, and its use for all kinds of stock cannot be too highly commended. It is of special value as a flavor, and might and perhaps will be used to a very great extent for flavoring ordinary food. In this way it will most likely be treated in solutions of about twenty to thirty per cent. strength to moisten and render soluble cut fodder, and for preparing dry meal. This is certainly the most effective and economical way of using it, for one gets the double advantage of all the food value there is in the syrup itself, and a much greater proportion of what exists in the fodder. If dry fodder continues to be used it is certain that sugar will find a much larger sphere with stockmen than it has hitherto done. The value of sugar as an article of diet cannot be determined by its chemical composition only. Chemists and physiologists have not yet agreed as to how sugar accomplishes its results, but it is enough for practical men and commercial purposes that there is advantage in it. Every sensible man knows it promotes the secretions necessary for active digestion, and that assimilation of nutriment is best secured when digestion is vigorous. Besides this great advantage, sugar in solution enables the stockman to prepare in an appetizing form the dry and very largely insoluble food which is presented from day to day in hay, clover, and grain. Wonder has often been excited at the success of manufactured meals containing certain mild flavors and locust beans. Locust beans contain fully fifty per cent. of sugar and have no appreciable value apart from their content of that substance. It very frequently happens that locust beans are a more expensive form of sugar to buy than the cheap molasses which can be obtained in the home market, and if used in solution to soften the fibre of other food an economy of from twenty to twenty-five per cent. of such food will result. This might be accomplished with the use of half to one pound of molasses per meal, and if it could be bought for one cent and a half per pound the money would be well spent. Two to three pounds of sugar per day could be very easily disposed of with great economy to the beef and dairy producer.

There is another form in which sugar may be used to great advantage, and farmers would do well always to keep the fact in mind when they determine the area of their root crops, and the kind of roots they will grow. It is the merest folly to select seed for the greatest yield in bulk, since the roots grown will have a large preponderance of water, be fibrous, and of strong flavor. The root that will give the greatest yield of sugar, the highest proportion of solid constituents, and tender and well-flavored cellular structures, will yield the best return in the stomach of an animal. The golden tankard, yellow globe, and white carrots are all useful feeders; but sugar beets are much richer in total solids than any of them, and yield a high percentage of sugar. It is very doubtful whether the solids of the ordinary farm root is much above 14 or 16 per cent., but in the sugar beet the dry food will run as high as the potato, while the sugar alone will be from 13 to 18 per cent. On the Island of Montreal 14 and 15 are very usual results, while the sugar yield of good carrots and tankard roots seldom reaches 7 per cent. A gain of dry food to the extent of 10 per cent. in a root is an

important consideration with the farmer, and especially so when 7 per cent. of the increase is sugar. Such is the perfection achieved in Germany that 18 per cent. of sugar is not at all unusual in the beets sold to the refiners. Seven per cent. of sugar may certainly be valued at two cents per lb. on the farm, and as every ton of roots would contain 140 pounds extra here is \$2.80 per ton to start with. If the roots be valued at a cent per lb. of their yield in sugar, and the content of sugar be 15 per cent., we get three dollars of sugar in every ton of beets. Well may the milkman of Montreal keep such roots rather than take seven dollars per ton for them.

The best form in which to feed these roots is in the pulped condition, and so incorporated with fodder and meal as shall insure an intimate mixture of the whole. It is hardly desirable to feed more than ten pounds a meal, as the food value of these roots is high, and the sugar being in a more concentrated form its tendency to relaxed bowels is greater unless used with discretion. To a farmer who grows a dozen acres of roots this is a matter deserving his attention, and if a commencement were made on one or two acres it is quite likely he would end by planting a larger area in after years. The increase in solid matter is so much less water to cart to the barn in harvest time, and the more concentrated character of the root will be found an advantage to the labor account of the farm in every respect. There will be much less bulk to care for through the winter months, and the desire for winter dairying so often expressed, would become possible were the growth of these roots undertaken in preference to the ordinary kinds.

The severe competition which must take place among stockmen will do much to hasten improved feeding of every kind, but the adoption of sugar as a regular article of diet is most likely to be found among the earliest of the changes to be looked for. Meat and dairy product cannot in the nature of things ever become as prolific as grain stuffs, and this it may be confidently expected will lead to the early use of sugar in various forms for the increase of meat and dairy products. C.

Toronto, February, 17 1885.

FAILURE OR SUCCESS IN CANADA.

From Bell's Weekly Messenger.

Canada is as bad a country for those who don't know how to work as it is for those who cannot or will not work from incompetence or sheer laziness. It is even safe to say that a great part of the failures of which we occasionally hear are due principally, if not solely, to the want of knowledge how to set about the achievement of success in a new country, where the conditions of life and the modes of agriculture are so different from those of the old country. There is then this practical side to the otherwise almost threadbare topic of emigration, and above all threadbare topics of emigration to that much-talked-of land, the Canadian North-West. How may success in some measure be assured where the inclination exists to take up farming in Canada, and where there is the determination to get on there if the natural conditions of the country will allow of it?

It is to meet this practical phase of the emigration problem that an effort has recently been made to obtain from actual settlers of every grade, without reference to their political and religious opinions, or to their standing in the community, plain matter-of-fact experiences on the various points which have excited so many a pen and ink controversy. The outcome of this endeavor is two small publications, not

inaptly entitled "Plain Facts from Farmers in the Canadian North-West," and "Practical Hints" from the same authorities. The first thing to strike the reader is a formidable list of settlers' names, whose experiences are published, to each of which is appended the postal address, permitting, as is remarked in the preface, any reader to verify the accuracy of the answers published by writing to the settler.

The capital required to commence a prairie farm is shown by statistics from settlers of every class, on three points—date of settlement of each settler, capital at commencement, and present value of farm. Twenty lead off with no capital whatever at the outset; some, indeed, acknowledge that they were worse than capitalless, in that they owed money. The dates of their settlement range from 1871 to 1883, and the present value of their farms ranges from 200/ to 1,600/, and in two cases, as much as 2,400/. Most of these settlers had apparently to work as agricultural laborers for the first year or so, and this plan, it may be here remarked, is strongly recommended to those whose capital is limited. Genuine farm hands are still in good demand in most parts, and while gaining experience on the farm of a most valuable nature, the new-comer may, with ordinary care and industry, so add to his capital as to enable him shortly to become his own landlord by taking up a Government free grant of 160 acres. The income of other settlers began at nine shillings, and ran as high as 6,000/, with present value ranging from 500/ to 10,000/, and 2/ to 2/ 8s per acre of land. The fair deduction from these figures is, that while the man with large capital may get a fair interest on his money if he is prepared to leave old country customs behind, and adapt himself to the modes of farming which past experience shows most suited to the prairie soil, yet it is to the man with capital of from 150/ to 1,000/ that the land will hold out the greater inducements, not that his actual returns per cent. will be necessarily greater, but that his position of independence must contrast more favorably with his former status than will that of the wealthier settler.

The climate is the next point, and there appears little hesitancy in the replies. Indeed, whatever drawbacks the Canadian North-West may have, and it is not without them, its climate cannot, if actual residents be believed, be placed among them. The duration of the winter would appear to average from the first to the middle of November, and end with the middle or end of March. "The climate," says an English settler, Mr. W. G. Knight, J. P., of Oak Lake, Manitoba, "is undoubtedly healthy, the exceeding dryness of the air being favorable to the healthy and vigorous action of the lungs." A Scotchman, Mr. George McGill, of Carrolton, Manitoba, a little lower down in the page writes, "suffered no hardship or loss from winter, persons soon learn to avoid them both. Climate unquestionably healthy, never hear a person coughing in church." "Climate very healthy," says an Englishman again, Mr. Thomas F. Purdy, of Regina; "those who come out here will find that out when they come to feed themselves." "Except for consumptives in late stages," writes another, "the climate is certainly healthy, for them it is too severe." Of another nature is the reply of an Irishman, Mr. Powers, of Brandon, who says, "My wife came here weighing 130 lbs., and sickly, now she weighs 184 lbs. and has good health." "I left Toronto," says a much respected settler, Mr. William Wagner, member of the Manitoba Provincial Legislature, "with a fever, ague, and rheumatism, and to-day, 65 years old, I am strong and healthy."

Unanimity is not, however, so general on