

Additional Facts for Sugar Making.

Not a few of our farmers remember the time when they relied not on the Muscovado so much as on the sugar bush for the sugar for all the purposes of the table. Times are much changed since then, yet many agriculturists say that we may in every part of North America grow and refine every pound of sugar we need, and that the time is fast approaching when we shall do so. Beet-grown sugar is a staple product of countries not better adapted to beet culture than this Canada of ours, and the attempts that are being made for that purpose here will, we hope, be successful. But these experiments are not limited to the beet. It is thought that the expressed juice from corn and sorghum can be profitably made into sugar. We clip from the New York *World* an interesting article on the subject:—

"Can sugar be profitably made from corn and sorghum?" is a question that is just now agitating the public mind. Professor Collier, the chemist, who was present at recent experiments set forth at the National Agricultural Department in Washington for the solving of this problem, says that, as a practical question, he is by no means assured that there is enough in it to make farmers go to work with it at a profit. The matter requires another season's experience before definite results can be obtained. There are many practical points, such as at what time the corn should be cut, and at what time used, which can only be settled by the experience and observation of cultivators. Of one thing Professor Collier expresses himself certain—that if under the circumstances in which these experiments have been made sugar can be produced at merely a bare profit, it will be a most profitable business when undertaken under favorable circumstances. He felt confident in predicting 50 per cent. better results than were shown by the experiments at the department conducted under adverse circumstances.

A number of samples of sugar sent to the department and made from the new kind of amber sorghum now being experimented with to a considerable extent in Minnesota, has the appearance and taste of the best refined white sugars. Kenney & Miller, successful producers, claim that they are able to realize from \$50 to \$100 per acre in the cultivation of the new kind of amber sorghum for sugar. They have been manufacturing sugar for two years and have succeeded in obtaining 13½ pounds of dense syrup to the gallon, and from this 13½ pounds a yield of granulated sugar of 7 pounds is gained, the residue being a fine syrup.

This amber cane is a variety of the Imphee, and has been mainly cultivated in Minnesota, where the soil and climate appear to induce its greatest development. Its history is not without interest. According to Commissioner Le Duc it originated in a single seed among sorghum raised in Indiana. One season one stalk ripened several weeks in advance of the other. The juice from this stalk was of an amber color, hence the name "early amber." From this early amber seed came the cane which is now engrossing so much interest in Minnesota. The characteristics marking it as a superior cane to other kinds for sugar are that the stalks contain more juice and that the juice granulates more rapidly. Numerous correspondents agree in stating that thus far all sugar made from the amber cane in Minnesota has been manufactured without the use of dry chemicals.

In the growing of this variety of cane it has been found that a high clay loam of a rather loose or sandy texture is best. The application of barnyard manure is said to dilute and injure the juice. New land is regarded as preferable to old land for the perfection of this variety. The ground is usually plowed immediately before planting and thoroughly pulverized with the harrow. In Minnesota the seed is planted about the middle of May, and either drilled in rows four feet apart, or in hills with from seven to ten seeds in each, the hills three feet six to ten inches each way. The seed should be covered with half an inch of soil if the earth is moist, or one inch if it is dry.

The beet sugar works at Isleton, Cal., are said to be working night and day, and using about 70 tons of beets in 24 hours.

There is only half a crop of potatoes in Central New York. The leading variety planted was the Early Rose, and they were killed by frost in July.

About Small Farms.

The question of small or large farms is one of the many subjects debated on often but never decided. The immense area of some farms sown by some wealthy men in the United States has brought the question more forcibly before the people. We give beneath a paper on Small Farms that was read at the weekly meeting of the Farmers' Club of the American Institute, New York, Oct. 29:—

"The permanency of the homes of a people is an element of incalculable importance as a factor of national wealth and strength. It is not less so as a factor of moral than of material power. The political economist, the patriot and the Christian statesman are therefore all interested in the study of the elements promotive of permanency. Security and thrift are indispensable to a permanent condition. In a very great majority of cases large farms produce the reverse of security and thrift. They cost too much for purchase, improvement and expense of carrying them on.

"Mortgages and taxes on the debtor side of the balance sheet, and meagre receipts on the credit side, do their normal work. So, instead of a farm being the home of a family for generations, as in the Old World, a single generation has often occupied several farms, and perhaps in as many different States. Permanency of rural homes is important to individuals, to families, to the several States and to the nation. One of the results of the reverse of permanency is the gravitation of double the number of young men and women from the country to the cities than can make the change to either pecuniary or moral profit to themselves or others concerned. Hundreds of thousands have thus changed purity and competence for want and crime.

"Developments of the subject of small farms would help hundreds of thousands out of the cities, and back into the peaceful freedom of life in the country. It would also show how many a farm of an hundred or more acres is room enough not only 'for all the boys,' but for them and their children's children. Thus the permanence of homes would be promoted, and the permanence of the ideas as well as the institutions of our country insured. We have only to turn our eyes across the ocean for positive proof that this is not chimerical. It is especially significant also that of about 5,500,000 farms in France more than 5,000,000 are less than six acres in extent.

"The soiling system, whereby an acre will keep seven times as many cattle and sheep as can be done by pasturing, is understood and practised there. Trenching as well as draining land, as they do, very largely increases its productive power. Instead of throwing away hundreds of millions of dollars' worth of fertilizers annually in the matter of human excrement alone, as we do, they save this and other wastes of plant foods. In economies of solar heat alone, there is a field for almost indefinite multiplication in productiveness of rural industry, and so supplanting large farms with small farms.

"Model small farms, instead of large ones, may well engage the attention of agricultural societies and departments of moral reformers, and also of political economists. Over-extension of our national domain is a major factor in the 'big farm mania,' which is depleting the vigor of our national life. With approximately the same number of people as either France or Germany, we have many times as much territory as both of them combined.

"European statesmen recognize the present attitude of Germany in standing aloof from territorial aggrandizement to be wise and far sighted. She is not so stupid and insane as not to see that more territory than can be thoroughly cared for is an element of weakness with a nation as well as with an individual. Tens of thousands of acres in New England, where were once happy and thrifty rural homesteads, are now so deserted that the very location of the old hearthstone is obliterated and forgotten.

"This is a condition typical of the great republic a century or so in the future, unless the 'small farm' idea obtains vigorously in respect to buying or robbing more land from neighboring nations: unless more of the farmers in the country make it the means to enable them and their sons to stay there; unless it is made the means of giving relief to our over growing town and cities. The 'small farm' idea, to change the figure, is the key to unlock vast treasures of physical, financial and moral wealth for millions of men in both town and country; the key to unlock the same element, therefore, for the nation."

Fertilizers on Wheat.

Mr. W. W. Reid, Erie, Pa., states the results of some experiments by him the past season with different fertilizers on a field of 14½ acres, sown to Lancaster red wheat in the fall of 1877. The field was divided into six sections, five of a little over two acres each, and one of about four acres—the last alone being without fertilizers, with the exception of a little lime, while on the other five were respectively applied the following:—

No.	Fertilizer.	Cost per acre.	Yield, bu.
1.	Salt, 1 bbl per acre.....	\$1 00	29.6
2.	Guano, 400 lbs per acre.....	4 50	29.3
3.	Phosphate, 810 lbs per acre.....	7 28	37.5
4.	Bone dust, 590 lbs per acre.....	5 16	37.7
5.	Ground lime, 800 lbs per acre.....	1 20	35.7
6.	No fertilizer.....		14.3

These yields are by thrasher's measure, and as the wheat weighs 65 pounds per bushel, are less than the actual quantity. Mr. Reid says:—

This ground was carefully measured and staked off, and the different sections harvested and threshed separately, and every precaution taken to secure accurate results. The field is a clay soil mixed with some gravel, and has been thoroughly underdrained. It was sown to barley the spring before the wheat was sown, and yielded 18 bushels per acre. Before the wheat was harvested, the sections on which salt and guano were used looked equally as well as these sections treated with phosphate, bone dust and ground limestone, and if they had not been threshed separately, it would not have been possible from the appearance of the wheat to determine which was the best. This fact has convinced me that the only way to arrive at accurate results is to thresh separately, as in this case sections yielded 37 bushels per acre looked no better than those yielding 29 bushels per acre. I think it is not improbable that fertilizers have been condemned as useless, in many cases, when, if the grain had been threshed separately, they would have shown favorable results.

In this case the ground limestone proved to be the most economical fertilizer, showing a profit over bone dust of \$1.96 per acre; over phosphate of \$4.28 per acre; over guano of \$9.70 per acre, and over salt of \$5.90 per acre. I am using the ground limestone on about 70 acres of wheat this fall, and hope I may not have occasion to change the opinion formed from the foregoing tests, that in proportion to cost it is the best fertilizer for wheat. The field on which the above tests were made is being again sown to wheat, with a uniform dressing of 100 pounds of bone dust and 300 of ground limestone to the acre, and will be again harvested and threshed separately, to ascertain the yield of the different sections the second year.

The Aborigines under British Sway.

THE SIX NATIONS' PLOWING MATCH.

These annual matches, under the auspices of the Six Nations Agricultural Society, were held on the Reserve of Tuscarora, near the Council House, recently, and were attended by several spectators. The day was clear and fine, and twenty-four Indians competed for several suitable prizes. It was a pleasing and interesting sight to see so many teams, with keen drivers, for some hours handling the plow with more or less skill, while the many visitors scattered around enlivened the scene. The Superintendent twice visited the ground and drove around the large field viewing the work. The plowing was excellent, proving the Indian the equal of the white man in such work. The judges were Messrs. Edward McLean, John Duncan and Robert Hunter.

Clover as a Human Food.

According to Hon. J. Stanton Gould, clover has been used as human food for generations by the Indians of the plains. The Digger Indians of California eat it raw, and also cook it by placing a thick layer of green clover between stones that had been previously heated. When young onions or chives and grasshoppers are mingled with the clover, the dish is considered as a great luxury. The Apaches mingle together clover, pigweed, and dandelions in a vessel, which is then filled with water. Stones that have been heated in the fire are then thrown in, and when they have imparted their surplus heat to the water they are taken out and replaced by hotter ones, until the mass is sufficiently cooked.