

### Can the Growing of Sugar Beets Be Made Profitable in Pennsylvania?

To the popular mind a sugar comes from sugar-cane, grown in Southern fields under the same sunny skies and balmy air as the cotton, but so great is the misconception of the public as to the source of this product that it might be interesting to look into its manufacture and learn something of the facts about sugar.

During the year 1896 there were 7,707,500 tons of sugar produced in the world. Of this vast amount 4,960,000 tons were made from sugar beets, while only 2,747,500 tons were crushed from sugar-cane. Such figures will doubtless prove surprising to a majority of the people who have paid little or no attention to the source whence comes our supply of sweets. The United States consumes 500,000 tons more sugar annually than any European country and it has been this enormous consumption that has led our sugar people to a study of the question looking to the production of enough to supply the home market at least.

It became evident from the very first that if sugar-cane was to be looked to for the supply the undertaking would prove hopeless and necessarily attention was directed to the sugar beet, which is now producing about 64 per cent. of the world's sugar supply, or for every pound of sugar from 1.5 pounds are produced from the sugar beet. It is a noteworthy fact that during the Cuban war the sugar exports from that country have fallen off from about one million tons to less than one-tenth that amount, and yet there has been no appreciable shortage in the world's supply of sugar, the sugar beet having been able to make good the diminished production of sugar from the sugar cane.

Very nearly all this enormous amount of beet sugar is produced in the countries of continental Europe. Of our own domestic production of sugar, amounting to about 300,000 tons per annum, 84 per cent. is produced from the sugar cane, 14 per cent. from the sugar beet and 2 per cent. from sorghum, maple and miscellaneous sources. Beet sugar has been made in this country in small amounts since 1830, but not until 1889 did the product exceed 2,000 tons per annum. Since then there has been a steady growth in the production, the estimates for 1896 being in the neighborhood of 40,000 tons, the product of seven factories, three situated in California, two in Nebraska, one in New Mexico and one in Utah.

In considering the question of the domestic production of sugar from the beet, a sharp distinction must be made between the two parts of the question. There are, first, the production of the beets and second, the manufacture of sugar from them. The second portion of the problem has been very thoroughly worked out in European countries and is not a question at present needing investigation in this country. The technology of sugar manufacture has been perfected by years of study and experience, and is now very thoroughly understood.

It is not an industry which can be carried on by the small scale farmer himself, or even in a small factory. The most reliable estimates place the minimum size of a successful beet sugar factory at a capacity of 300 tons of beets per day, and the cost of such a factory is estimated at not less than \$200,000. The season during which sugar can be manufactured is comparatively short, being limited by the length of time during which the beets can be preserved and secure an adequate return upon the capital invested requires that the factory shall be employed to direct its operations.

The question for us now is whether we can raise good sugar beets in sufficient quantity to supply a factory and at a cost which will leave an adequate profit. The farmer should confine his attention strictly to this side of the question. When he can and will produce the beets, capital will be forthcoming to manufacture the sugar, as has been amply demonstrated in other States.

A bulletin issued by the Pennsylvania State College Experiment Station reports the results upon sixty-nine experiments carried on in Pennsylvania. Sugar beets do grow best in north temperate latitudes and it has recently dawned upon the minds of the farmers of the State that if they can cultivate them successfully the new industry might be an avenue of escape from the unprofitable channels into which farming in Pennsylvania has been drifting during the last decade.

A number of individual experiments have been reported in various parts of the State, but none of them have quite satisfied the experimenters and it remained for the experiment station to carry out the work in a way that would be of use to the farmers of the State and systematically report upon the results.

Of the sixty-nine varieties of sugar beets experimented upon in twenty counties in the State fifty-five (or 80 per cent.) showed over 12 per cent. of sugar in the beet. Thirty-four samples (or 49 per cent.) showed a co-efficient of purity of over 80 per cent. Thirty-two out of the total number (or 46 per cent.) showed over 12 per cent. of sugar and also over 80 per cent. of purity. In view of the fact that practically all of the beets were raised by farmers who had had no experience in the culture of this plant for sugar, the results must be regarded as decidedly favorable so far as the quality of the beets is concerned.

In forty cases out of the whole number we have data regarding the average weight of the beets. Of these forty samples, 12 (or 35 per cent.) weighed between .80 and 1.35 pounds; 18 (or 45 per cent.) were below .80 pounds in weight and 8 (or 20 per cent.) were above 1.35 pounds. It thus appears that, as a rule, the size of the beets was rather small.

Thirty-four of the experimenters reported the yield of beets. In most cases the yield was calculated from that comparatively small area, and in many cases there is evidence that the results may be considerably in error. Taking the figures as they stand, however, 10 (or 29 per cent.) reported a yield of over 15 tons per acre; 2 (or 6 per cent.) a yield between 10 and 12 tons per acre, and 17 (or 50 per cent.) a yield below 10 tons per acre. It thus appears that while, as stated above, the general quality of the beets was good, the yield was rather small.

As stated above, thirty-two of the samples showed more than 12 per cent. of sugar and more than 80 per cent. of purity. Of these 32 experiments, 7 (or 22 per cent.) reported a yield of over ten tons per acre; 4 (or 13 per cent.) a yield of between 8 to 10 tons per acre; 7 (or 22 per cent.) a yield of less than 8 tons per acre, while 14 (or 44 per cent.) did not report the yield. These figures confirm those given above in showing that the yield was, as a whole rather small.

The experiment is too few in number to permit any reliable conclusions to be drawn as to the influence of locality. So far as the results show, good beets and poor beets have been raised in all portions of the State.

The first question presents itself to the farmer is whether it will pay him to raise sugar beets for sale to a factory. The experiments here reported were made on a small scale and afford no reliable data as to the cost of raising a crop. The figures and estimates as to the cost of raising beets which are given by large growers in other States are quite variable, ranging all the way from \$20 to \$70 per acre. A conservative estimate, however, is from \$30 to \$40 per acre, although the cost will naturally depend upon local conditions and especially upon the experience and intelligence of the grower. The general experience in other States has been that the second year's crop has been produced much more cheaply than the first year's.

The price paid for beets at the factory depends chiefly upon the market price of sugar and upon the richness of the beets, but also upon local conditions. Assuming four dollars as an approximate price for this country, the profits of the grower will depend largely upon the tonnage of good beets which he is able to produce. Ten tons per acre seems to be generally regarded as a fair crop, although good land and careful cultivation should produce twelve to fifteen tons. According to these figures, the total value of the crop at the factory would range from \$40 to \$60 per acre.

To the above estimates it is to be added the feeding value of the diffusion residues, or pulps, from the manufacture of sugar. These constitute a palatable and nutritious food for stock and in all beet-sugar growing countries the keeping of live stock is regarded as an adjunct to the growing of beets.

A beet sugar factory must necessarily have a large territory tributary to it. The best authorities estimate the minimum capacity of a profitable sugar beet factory at 300 tons per day. In other words, such a factory would eat up daily the product of 30 acres, producing 10 tons of beets per acre. For a season of 70 days this is equivalent to the product of 2,100 acres. This means that to make a beet sugar factory a success, there must be a large number of skilled beet growers and that these must be so located that the transportation of the beets to the factory will not cost too much.

Evidently, then, if the farmers of any locality desire to secure the erection of a beet sugar factory they must do two things: 1. They must learn to grow good sugar beets. There is no difficulty in growing a large crop of beets, but unless they are of the requisite quality, sugar manufacture cannot be carried on. A crop of beets containing seven or eight per cent. of sugar, however large, is of no more value to a sugar factory than so many potatoes.

2. They must see whether their soil and climate and conditions are adapted to the profitable culture of the sugar beet.

Have a Veritable Zoo.

Ringling Bros., Wonderful Display of Birds and Animals.

The superiority of Ringling Brothers' world's greatest shows over similar organizations in the United States and Europe is demonstrated in many ways, but in none more effectively than in its zoological department. Many shows carry menageries, but it has remained for Ringling Brothers to organize a complete zoological garden, in which every beast of the jungle and every fowl of the air is displayed with proper classification and in a manner to permit of careful study and comparison. The arrangement of the menagerie manager pavilion itself carries out the idea of a huge traveling "Zoo." In the centre area are the led animals, including the most superb display of big and little elephants ever seen in this or any other country.

This great triple herd of pachyderms embraces twenty-five magnificent specimens of the African and Asiatic elephants, all of which have been carefully trained to perform many marvelous feats in which the accuracy and memory of these animal performers are put to a successful test. On one side of the great ellipse is the aviary. This is a notable departure in zoological displays. It is not merely a conventional display of the most interesting tropical birds, but a complete exposition of ornithology, in which almost every bird, from the humming-bird and macaw to the huge stork and ostrich, is shown in its proper family group. The bright plumage of the tropical birds elicits endless expressions of admiration, while the entire pavilion is filled with the melody of these feathered songsters. Probably no exhibition ever given in America has ever proved a greater attraction to the ladies and children among the patrons of this great show. The aquarium which is also a new and novel feature, is notable for its remarkable collection of hippopotamus, sea lions, seals, Polar bears and other water-frequenting animals, and the huge tanks in which they are displayed are arranged in such a way, and with such characteristic environments, that it is easy to realize the conditions under which these strange animals exist in their native state.

The children's menagerie has been augmented this year by a huge monkey, fitted up as a playground, with a carroussel in the center, upon which the sinuous ride and gambol with delight to themselves and unlimited amusement to those who witness their almost human antics. Interest in the coming of this famous show to Bellfonte, Tuesday, May 10th, is universal, and no small part of this interest has been aroused by the enconiums that have been fairly showered upon its unique zoological display.

Gubernatorial Wages.

The Governor of New Jersey has been receiving a salary of \$10,000 a year. The Governors of New York and Pennsylvania, besides the Governor of New Jersey, are the only Governors who receive a salary as large as that. The Legislature of New Jersey believe that \$10,000 is too much for their Governor and have voted to reduce the amount of \$7,500. This does not seem to be unreasonable cut in gubernatorial wages, when the salaries of most Governors are taken into consideration. With \$7,500 a year the Governor of New Jersey will receive more than any of the Governors, with the exception of those of New York, Pennsylvania, Ohio and Massachusetts, the Governors of the latter two States receiving \$8,000 a year. The Governors of Illinois, California and Nevada receive \$6,000 a year; those of Colorado, Indiana, Kentucky, Minnesota, Missouri, Montana, Virginia and Wisconsin \$5,000 a year; while those of Oregon and Vermont must make \$1,500 answer.

Bucklen's Arnica Salve.—The best salve in the world for cuts, bruises, sores, ulcers, salt rheum, fever sores, tetter, chapped hands, chilblains, corns, and all skin eruptions, and positively cures piles, or no pay required. It is guaranteed to give perfect satisfaction or money refunded. Price 25 cents per box. For sale by F. Potts Green.

—Possibly a few trees in the Old World are more profitable than the English walnut, which thrives in England and all over the northern part of the continent of Europe. The wood is especially useful for gunstocks, and for many articles of furniture, and is found profitable from trees of ten years of age and upwards. There is always good demand for the nuts, so that there are two distinct lines of profit:—by the timber and by the fruit. In our country they thrive in any portion of the Eastern States; although, as they progress northwardly, the tips of last year's shoots are destroyed by winter. The living portions push out again, however, and generally bear abundantly as before. In the vicinity of Philadelphia there are numerous trees, planted by the early settlers, which bear every year. Single or isolated trees sometimes fail to bear fruit, on account of the pollen-bearing flower maturing and scattering pollen before the nut-bearing flower is in condition to receive it; and for this reason crops are more assured when a number of trees are planted together. In this way some of the pollen-bearing catkins are conditional as to be in bloom before their appearance. In all this there is a suggestion for many. We would make futile generations rich by utilizing our waste places in planting them with walnut trees. We have hills denuded of their forests. The soil cannot be tilled on account of rocks. Out of the chestnut or oak springs a thicket of no value, save as a lair for the fox or a scanty browsing place for the old field cow. All such spots could be made valuable and beautiful by the planting of walnut trees. In twenty years a tree of this kind is fit for the market, and we learn the price of good walnut is \$60 to \$70 per thousand.

—M. Ricardo, who is now working in a cigar factory in Tampa, Fla., for \$40 per month, was worth \$4,000,000 a year ago. At that time he was a resident of Cuba, owning a great deal of property in Havana, besides valuable tobacco lands. Weyer had him arrested, accused him of giving false information to the rebels, and had him banished and confiscated his property.

Children Cry for Fletcher's Castoria.

When baby was sick, we gave her Castoria, When she was a Child, she cried for Castoria, When she became a Woman, she clung to Castoria, When she had Children, she gave them Castoria.

Business Notice.

Wisconsin Farm Lands.

Roofing.

A LEAKING ROOF IS A PESKY NUISANCE.

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A SCHOOL GIRL'S NERVES.

This Record is of Especial Value to Parents. It's a Message from a Loving Mother Dedicated to the Mothers of Growing Girls. A Truthful Narrative of the Utmost Interest and Importance.

It is important that the nerves are carefully guarded. Mothers who have young daughters of school age should watch their health more carefully than their studies.

The proper development of their bodies is of first importance. After the confinement of the school room, plenty of outdoor exercise should be taken. It is better that children never learn their a, b, c's, than that by over-study they lose their health.

All this is self-evident. Everyone admits it—everyone knows it, but everyone does not know how to build the health up when once broken down, even the best physicians failing at times.

The following method of Mrs. Stephen Barnes, whose post office address is Burney, Ind., if rightly applied, may save your daughter.

When her daughter Lucy was at that critical girlhood age of twelve years she grew weak and nervous.

Previously she had been a bright, healthy young girl," says Mrs. Barnes, "She was diligent and progressive in her studies.

"I became nervous, however, for her to leave school.

"She was overtaxed mentally and physically.

"Her nerves were at such a tension that the least noise irritated her.

"She had continual twitching in the arms and lower limbs and symptoms of St. Vitus' dance.

"Her blood was out of order she was thin and pale, almost lifeless. In three months she lost twenty-three pounds.

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