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# THE PROGRESSIVE FARMER.

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THE INDUSTRIAL AND EDUCATIONAL INTERESTS OF OUR PEOPLE PARAMOUNT TO ALL OTHER CONSIDERATIONS OF STATE POLICY.

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PAPERS.  
Progressive Farmer, State Organ, Raleigh, N. C.  
Kaneonian, Raleigh, N. C.  
Excelsior, Hickory, N. C.  
Rattler, Whitakers, N. C.  
Our Home, Beaver Dam, N. C.  
The Populist, Lumberton, N. C.  
The People's Paper, Charlotte, N. C.  
The Vestibule, Concord, N. C.  
The Plow-Boy, Wadesboro, N. C.  
Carolina Watchman, Salisbury, N. C.

Each of the above-named papers are requested to keep the list standing on its first page and add others, provided they are duly elected. Any paper failing to advocate the Ocala platform will be dropped from the list promptly. Our people can now see what papers are published in their interest.

## AGRICULTURE.

Stirring and fining the soil helps very materially to make plant food that is already in the soil available for use by the growing plant.  
If you want your manure quickly fitted for helping the crops, throw salt on it. Salt hastens decomposition and makes manure soluble.  
Get special customers for your butter and furnish it every week. It is worth a few cents per pound to the customers to know that they are eating pure, clean butter and not oleo, or some other manufactured stuff, and there is a big difference between cash and trading out butter.

There is no reason why a farmer should pay fifteen cents for beef and sell his chickens for less, nor should he be content with pork and potatoes when he can have poultry on his table. If the markets are dull and prices are low, the best place to dispose of the surplus is at home.  
The farmer who wishes to keep his Irish potatoes during the winter, should not have them exposed to the sun for any length of time. Dig them on a cloudy day, early morning or late evening, and let them dry in the shade. This plan is recommended by a correspondent of a Kentucky paper.

Corn fodder contains more starch than clover, while clover is richer in protein. A ration of both clover and fodder is excellent where no grain is allowed, as is sometimes the rule in warm weather. A mixed ration is better at all times than to rely entirely upon one kind of food, and for all classes of stock.  
The average yield of milk per cow for all the cows in the country in 1850 was 700 quarts a year. In 1890 the average was 1200 quarts per cow for a year. This increase has been accomplished by the greater use of improved breeds, and is equivalent to nearly doubling the number of cows by estimating from the amount of milk derived in 1890.

## WEEKLY DIGEST

Of Experiment Station Bulletins. No. 73.

### SUGAR BEETS.

The destruction of the sugar industry of Cuba and the certainty of increased protection to American sugar under the new tariff bill are causing a widespread interest in sugar beet production. Bulletins 27 and 33 of the U. S. Department of Agriculture, bulletin 75 of Ohio Station, 55 of Wisconsin Station, 36 of Colorado Station and 23 of Arizona Station are devoted to this subject. These bulletins have been issued in response to a flood of inquiries from farmers, which have been pouring in by every mail since the first of the year.

This article will be confined to a summary of the salient points set forth in the above named bulletins. It will take years after the war ends to restore the sugar plantations of Cuba. The United States now consumes eight times as much sugar as it produces. The value of the sugar imported into this country each year almost equals the value of the wheat and flour exported; yet sugar beets are a more profitable crop than wheat. Why should we produce cheap wheat with which to buy dear sugar? There are now eight sugar beet factories in this country, and it will require 500 factories of the same average capacity to supply our own markets. The factories thus far started have made great progress and are now very profitable.

During the season of 1894-95 the world produced 7,800,000 tons of sugar, of which 4,800,000 tons were beet sugar and 3,000,000 tons were cane sugar. Beet sugar is in all respects equal to cane sugar. Germany leads all other countries in producing beet sugar, having 405 factories. The German Government gives a bounty of a third of a cent a pound on all sugar exported from that country and puts a tax of 2 cents per pound on all sugar produced there and consumed there, and a tariff tax of 4 cents per pound on all sugar imported from other countries, which is prohibitive. The bounty paid by the government to sugar producers is nearly six million dollars a year in Germany, ten millions in France, five millions in Belgium, two millions in Austria, and three millions in Russia, Denmark and Sweden. In this country sugar has been protected by a tariff duty ranging from 1 cent a pound in 1789 to 5 cents in 1874, till the McKinley bill put it on the free list and gave sugar growers a bounty instead of a protective duty.

England consumes 86 pounds of sugar per each inhabitant, the United States 63 pounds, Denmark 41, France 31, Holland 31, Germany 37, Belgium 22, Austria 20, Spain 14, Russia 10.

In Germany, each factory pays a license tax of \$800 to \$2,500 per year, owing to capacity.  
The following facts show what progress has been made by the beet sugar factories in this country: The one at Lehi, Utah, has been running 5 years, and in that time the acres of beets grown by surrounding farmers has increased from 1500 acres to 3,300; the tons of beets produced has increased from 9,960 to 38,108; the average yield per acre has increased from 6 tons to 11½; the pounds of sugar per acre has increased from 1,162 to 2,539; the number of days in operation each year has increased from 58 to 118.

In the last five years, the factory at Chino, California, has made still greater progress. In 1891, the farmers realized but \$28 37 per acre from their beets, but in 1895 they averaged \$47 08. The factory at Norfolk, Neb., worked up 8,183 tons of beets in '91, and 27,204 tons in '95. It got 161 pounds sugar from each ton of beets in '91, and 183½ pounds per ton in '95.

These statistics all go to show that the farmers now get a much larger yield per acre and a better price per ton for their beets, than 5 years ago, and the factories get more sugar per ton of beets than at first. This is gratifying progress all around.  
Analysis show that the average richness in sugar and purity of juice is somewhat higher in the beet-growing regions of this country than in Germany.

The beet sugar industry is only about 100 years old, and since in that time it has far outstripped the cane sugar industry, it offers an inviting field of competition for the future.  
A hundred pounds of beets contain about 95 pounds of juice, and this juice will contain about 15 pounds of solid matter, of which 12 pounds is sugar.

To determine the purity of juice, chemists divide this 12 pounds of sugar by the 15 pounds of total solids, which gives twelve fifteenths, equal to four fifths, or eighty one-hundredths; hence, they say its coefficient of purity is 80. That is about an average of purity. Some beets go above that and some below. A high degree of purity is very important; for every pound of impure solid matter in the juice keeps a pound of sugar from crystallizing. For instance, in the average case above given, the 3 pounds of impure solids would keep 3 pounds of sugar from crystallizing so that of the 12 pounds of sugar actually sent only 9 or 10 pounds can be gotten out of it.

Unripe beets and large, rank beets, grow on soils rich in manure and vegetable matter or on mucky, marshy soils, have a low degree of purity. The leaf stems and the crowns of the beets are also full of impure solids, so that these are cut off and used for stock feed. In practice, the factories get an average of 7 out of every 10 pounds of sugar contained in beets.

The Wisconsin Station has been distributing sugar beet seeds to the farmers of that State for 5 years, and has had reports and beets sent in for an analysis from 517 farmers living in 59 counties. The average weight of the beets sent in range from a little more than half a pound in Lincoln county to more than 4 pounds each in Crawford. The per cent. of sugar ranged from 8 in Jackson county to 16 in Calumet. The purity ranged from 65 in Marinette to 84 in Milwaukee. The average per cent. of sugar was 12½ and average purity 76. The average per cent. in Ohio was 13, and average purity 77, the range in per cent. of sugar being from 9½ in Meigs county to over 17 in Hancock, and range of purity from 69 in Anglin's to 8½ in Morrow.

In Colorado, New Mexico and Arizona, much higher sugar content and greater purity are reported, but irrigation is necessary in most places in those States, as also in Utah.

The sugar beet belt is where the summer temperature averages about 70 degrees.

At the Wisconsin Station, in a good season which produced 21 tons of beets per acre, the cost of production, harvesting, topping and hauling to factory was \$1 75 per ton; but in a dry year, the cost was \$3 76 per ton. R. M. Allen, an extensive cattle feeder, of Ames, Neb., grew 500 acres for feed, averaging 15 tons per acre, at a cost of \$1 50 per ton. His foreman is an expert beet grower from Germany, and he uses the best machinery. The lowest price paid in Europe is \$3 50 per ton, and in this country \$4. In California and Nebraska, farmers often clear \$20 to \$30 per acre. Most of the cost of growing beets is for labor, much of which is thinning, and weeding, and this can be done by the farmer and his family, thus securing good wages in addition to the clear profit. The Wisconsin Station produced beets that would yield sugar at the rate of 5,000 pounds per acre, but a good average is 2,000 to 2,500.

Beet growing is not exhaustive to the soil if the tops and crowns and pulp be fed to stock and the manure applied to the land. Sugar is formed by a union of water and carbon, and the beets get the carbon from the air and the water can be cheaply replaced. A study of the industry in Europe shows that the beet growing regions produce as many cattle and as large a quantity of other crops as do any other section.

Beet sugar factories must do all their work within a few months. They can start when the earliest beets mature, and must then run day and night till the weather gets too cold to handle beets. By storing beets in pits the season may be prolonged. Hence, the factories must be large, and as they use large quantities of water and coal, they must be so located as to secure these cheaply. Artesian water is best.

The cost of a factory large enough to work up 350 tons of beets in 24 hours will be about \$48,000 for building and \$170,000 for machinery. A factory of double that capacity costs about \$75,000 for building and \$260,000 for machinery. The building should be substantial and fire proof.

Communities desiring to go into this industry should organize associations of beet growers, each member pledging so many acres of beets at a stipulated minimum price per ton. Before making such offers to induce the erection of a factory, however, each member should grow an acre or two of sugar beets for stock feed, to test the business. They pay well as feed.  
Land rich enough to produce good

crops of corn or potatoes is rich enough for beets. Never apply manure to beets direct. Always apply it to the corn or some other crop the year before planting to beets. The seed are sown by drills in rows 24 inches apart, and three or four days afterwards, harrow the land lightly so as to kill the sprouting weeds but not disturb the beet seed. Plant 2 inches deep in land plowed at least 12 to 15 inches deep. The beet must be grown under ground. That part above ground contains little sugar and much impurity and must be cut off. Start the cultivator as soon as the rows can be seen. When four leaves appear, chop out with hoes to bunches 5 to 6 inches apart, and thin these bunches by hand to a single beet, leaving the largest one. Lay by in low ridges. When the leaves turn yellow and begin to dry up, cut off the crowns a quarter of an inch below the surface of the soil, with a sharp hoe or other suitable implement, and run a deep furrow close to the beets. Then walk along the other side and kick the beets out into the furrow, from which they are readily picked up and thrown into wagons. The stubble shavers used by Louisiana cane planters, and drawn by horse power, would doubtless be good to top the beets with. The tops and pulp are good feed for all kinds of farm animals and may be preserved in silo. They are improved by balancing up with linseed meal or oil meal.

Lane's Improved and Vilmorin are the best varieties. Seed must be bought every year at the rate of 15 or 16 pounds per acre. The production of seed is a high art in itself. A slice of beets is analyzed and those richest in sugar and having the greatest purity are set out to produce seed. By thus constantly and carefully selecting seed from year to year, the sugar content has been brought up from 6 per cent. 100 years ago, to from 12 to 20 per cent. now.

Planting may be done from the middle of March to the middle of June. An 8 hoe wheel drill is a good planting implement, leaving open the first, fourth and seventh rows. This puts the rows 24 inches apart. Begin at right hand edge of the field, and in returning, run left wheel in the track it made going over first time. In starting on second round, run right wheel 16 inches from its last track. This will put all rows 24 inches apart. Don't leave beets farther apart in the drill than 6 inches, or they will grow too large. Large beets are poor in sugar. An average of 2 pounds is about right for largest yield of sugar per acre. The more sunshine received by the growing crop, the larger the sugar content.

The Arizona Station suggests that in climate, as well as in California and in the Pecos valley of New Mexico, the operating season is much longer than in Europe and the Northern States, and those sections also produce Canaigre in great abundance, and much of the same machinery used in extracting sugar from beets can also be used to extract tannic acid from Canaigre roots, and as Canaigre roots can be left in the ground indefinitely and harvested any season, the factories might run on Canaigre from the close of one sugar season to the opening of the next. It estimates the increased cost of a 200 ton factory to operate on both roots at only \$25,000 more than for sugar alone.

The best sugar beet soil is a deep, mellow, sandy loam, though almost any soil will answer. Even alkali soils, if not too salty, will produce good beets. The soil should contain a high per cent. of potash.

Of the \$280,417 yearly expense of running the factory at Lehi, Utah, \$142,283 was paid to farmers for beets, and \$52,924 was paid for labor. The rest went for coal, chemicals, bags, lime, etc. This shows what an immense advantage such a factory must be to any community.

## THE CULTIVATION OF CROPS.

Cultivation is often of greater importance than fertility, as there are times when the best soil will not produce a crop without cultivation, while the soil is rarely so sterile that at least a small crop cannot be grown if it is well cultivated.

Cultivation has a two-fold object; to destroy vegetation that would, if allowed to grow, interfere with the crop, and to loosen and pulverize the soil to allow air to enter it and render the plant food available for the use of the crop.

If the land is too wet when plowed, and warm, sunny days follow before it is harrowed, it often bakes into clods

and lumps that are impenetrable to the roots of the crop plants, and almost impervious to moisture.

Wherever this happened this spring careful cultivation is very essential to the welfare of the crop, for until the soil is fine and mellow much of the plant food it contains is lost. In fitting a field plowed a little too wet, and allowed to bake before being harrowed down, the clods always remain on the surface and what fine soil there is lies under them. Where there is a roller on the farm these lumps and clods may be reduced to powder, very often by rolling the land, pressing the clods down into the fine soil and allowing them to lie there a day or two; then running over the land with a harrow. The clods being rolled into the fine soil absorb moisture and become damp, and the harrow following reduces them to the proper condition very easily.

If corn has been planted where the soil is cloddy and a rain comes soon after, the clods, if harrowed before they again become dry, will break up very fine. This plan reduces the clods and cultivates the crop at the same time.

Where corn has been planted in cloddy land the cultivator should be set as deep as possible the first time the corn is plowed in order to dig up the clods and let fine soil fall into the place they occupied, that the roots may reach out without obstruction.

The old-fashioned wide shovel plow has gone and the narrow shovel is giving way to the eagle claw more and more every year. It is not common now to see deep cultivation practiced, and experience teaches that the roots should be disturbed as little as possible. When the corn is first cultivated the soil should be stirred deeply and subsequent cultivations should be each more shallow than the preceding one, until, at last, but two inches of the surface should be stirred.

What is true of corn will apply, generally to other crops. After the soil has been thoroughly fined, frequent cultivation will increase the size of the crop, because the plant food in the soil is easily reached by the feeder roots of the crop, and to this extent tillage is manure.

Many fields may be made to produce their ordinary yield by perfect cultivation, and as it costs no more to cultivate thoroughly than in a slipshod manner, it pays to be careful in this manner.

A plant is never so easily killed as at the time when the first root starts. If moved at all at that time it is usually killed, and frequent cultivation by moving the soil kills most of the weed crop before it makes its appearance above the surface.

It is always better to cultivate well a small acreage than to half cultivate twice as much. The taxes are no more on a well cultivated field than on a neglected one, and, very often, the increase in the yield from good cultivation will pay the taxes many times over.—Farmers' Voice.

## PROFIT IN SMALL FARMS.

I have always been an advocate of comparatively small farms, believing them to be the ideal farms, says a writer in the New England Farmer, and I have found that a great deal of produce can be grown on a small farm when managed right. To illustrate: I have grown the past season on fourteen square rods of land, twelve bushels of straw berries, selling to the amount of \$29 75, besides using all we wanted in the family of four persons; some were also given away. From five rows of cabbages, fifteen rods long, we had all we wanted to use, stored some for winter, sold to the amount of \$10 46 besides some waste and small heads fed out. Nine rows of onions, fifteen rods long, produced twenty-three bushels of fine onions. Oats yielded fifty-six bushels to the acre. In 1895 they did a little better—sixty-one and one-half to the acre. Onions also did better that year. From a piece of ground 27x64 feet, I harvested forty-three bushels.

Now who will say, in the face of such facts, that a small farm cannot be made to support a family in good shape? Indeed, I am certain that if properly managed a very few acres will support a family well; and if I was a young man again I would purchase a piece of land somewhere, even if it were but two acres, and build up a home thereon; then if more land was needed, add to it afterwards as opportunity offered. I have a great deal of faith in well enriched and properly managed soil. I like the term "intensive farming," and the more we apply it to our farming operations, the better it will be for us.

## ACTION OF THE WINSTON TOBACCO BOARD OF TRADE.

From the Southern Tobacco Journal May 31st. 1897.

We particularly urge the tobacco growers to action, because they can render valuable assistance, and as their interests no less than those of the manufacturers are endangered, they should unhesitatingly do all that lies in their power for their own protection. An 8 cent tax means, beyond any doubt, lower prices for the common grades of tobacco, which constitute the major part of the crop, and which are already selling far too low. Any man or paper that tells the planters that a higher tax will bring with it higher prices for leaf, misleads them, either intentionally for political ends or through ignorance.

Among the readers of The Southern Tobacco Journal are a number of tobacco planters, prominent and influential men in their various sections of the country, and we ask them to take the lead in this matter. We ask them to get up petitions or write to their representatives in the Federal halls of legislation, and get their neighbors to write; and let their position relative to the proposed increased tax be known, and known at once. Their opposition will have a good effect, and will well supplement the work that is being done by the manufacturers and others connected with our threatened industry.

An account of the meeting Wednesday of the manufacturers at Washington, together with a hearing given their delegation by the Senate committee, appears on another page, and it will be noticed that the committee evinced a special desire to learn upon whom the burden of a higher tax rate would fall. The spokesman of the delegation said truly that the additional two cents would ultimately be borne principally by the grower. What impression this statement made, it will be further observed, has not been disclosed. Probably, coming from what might be thought a wholly interested source, it did not carry the weight it should. The planters need be heard from, and that promptly. Let them speak out in unmistakable language. They have a right to ask, if not demand, that the already meagre returns for their labor and investments be not further cut down by legislative enactments, and to require of those whom they have sent to Congress to stand staunchly by them, irrespective of party politics or anything else.

The situation at Washington, so far as we can gather, is this:

The Senate Finance Committee is determined upon increasing the internal revenue tax rates on manufactured tobacco, snuff and cigarettes, holding—and no other reasons are given—that the government must have more revenue, and that tobacco the world over is recognized as an article to bear heavy taxation. The fact that this is a tobacco producing country, with the greatest of tobacco manufacturing enterprises; that growers and manufacturers would be greatly injured by higher taxes, that the proposed rates would likely reduce the consumption and therefore not yield any more revenue than under the present rates, are blindly ignored. Nothing may be expected from this committee.

The Democrats and Populists in the Senate are solid against the proposed tobacco schedule, and they are able to prevent its passage if two Republican Senators will stand by them. The new Republican Senator from Kentucky, Mr. Deboe, will be true to his State and its principal agricultural product.

What will Senator Pritchard, of North Carolina, do? It depends upon him. He has declared that he will oppose higher taxes on tobacco in caucus, but has not committed himself to vote against his party's measure in the Senate. Will he sacrifice his people to his partisanship? Or will he, like the California Republican Senators who defeated the proposition to put fruit on the free list, show that his first allegiance is to the interests of North Carolina?

Senator Pritchard should not be left in any doubt as to sentiment of the people in this matter! Write to him! Send petitions to him, manufacturers, growers, leaf dealers and warehousemen!

More than half the yield of anything you cultivate depends upon the effort you put forth to make it productive. Fertility of the soil is the basis of all real profit, and the farmer who does not increase the productive capacity of his soil is surely going down hill.