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The Challenge of Constant Change

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The sugarbeet industry in America had its beginning in change; it became established in change; and if it is to survive, its future will be in adapting to change. Many improvements in both agriculture and factory operations have contributed to the attainment of its status. Each improvement represented a change from previous methods or materials.

Specific improvements are too numerous to mention individually, but time should be taken to briefly review some of the important advances.

The development of varieties reistant to disease and adapted to special conditions of certain beet-growing areas probably has been among the most important achievements. In addition, hybrid varieties have replaced open-pollinated varieties with an attendant increase in yield. Monogerm varieties have become available, which, together with modern, selective herbicides and more precise farming tools and methods, have permitted the establishment of a more uniform stand of single beets.

In the area of plant nutrition, much has been learned about the functions of various elements in growth and sugar accumulation in sugarbeets. Of the elements generally added, perhaps the most important is nitrogen. We now understand its need for the growth of the plant, and the deleterious effect on sugar content that soluble nitrogen present in the root at harvest time has. In the arid western lands on which sugarbeets are grown, the proper use of nitrogen must be coordinated with the irrigation practices used.

The mechanization of harvesting and thinning and the general improvement in cultural methods have contributed to reducing the grower dependence on hand labor and have reduced production costs of the sugarbeet crop.

Pesticides have become available in a wide array, primarily as herbicides, insecticides, and fungicides. Several fungicides and insecticides are used to enhance the inherent tolerance or resistance of varieties to diseases and insects.

Most of these improvements have been made possible as a result of the efforts of many individuals and groups who have cooperated in the solutions to problems as they arose and the incorporation of improvements when they appeared achievable.

Many improvements in factory operations and product quality have also taken place. Some of these might be mentioned. Continuous

[1]President's address.

carbonation and continuous diffusion have resulted in considerable labor savings in the process of refining sugar from sugarbeets. Available evidence, however, indicates that the installation of these changes has been accompanied by some reduction in juice quality. Automatic centrifugals have reduced the amount of labor required in the refining process in addition to improving sugar quality and making a more uniform product. The use of bulk sugar storage and distribution has made possible more efficient labor utilization, has tremendous warehousing advantages, and provides substantial savings. The central control concept of process control has resulted in both labor savings and also better control of the entire operation. Better methods of juice clarification have produced labor savings and better control of juice quality.

All of these various changes and improvements have resulted in the present generally high level of production of sugarbeets in the beet-growing areas of this country and in the present high quality sugar produced by the beet sugar industry. By adopting these improvements, as well as many others which I have not had time to mention here, we have arrived at our present status. We might ask—What is our present status?

Current Status of Beet Sugar Industry in the United States

Currently, the beet sugar industry in America produces about 30% of the U. S. consumption, or something over 3,000,000 tons of sugar annually. Sugar comprises the single largest component of the American diet on a dry weight basis.

The industry is currently expanding as evidenced by the construction of three new beet sugar factories which are in the process of completion and the expansion of some existing factories.

For the past 40 years, we have had a United States Sugar Act. It has performed well and served its purposes, namely to provide sugar to the American consumer in adequate amounts and at reasonable prices, and to provide fair and reasonable prices to the grower of the beets. During this 40-year period, only minor modifications have been made, indicating the farsighted views of the original authors of the Act. The current Sugar Act expires this year. As the expiration approaches, there appears to be differences of opinion as to the forms a continuation of the Sugar Act should take, or, in some cases, whether there should even be a continuation of it.

Economically, we have had several good production years. Yields have been good and prices for beets have been the highest in history. Ordinarily, this should be the prelude to continued good demand by growers for sugarbeet acreage. However, such is not uniformly the case. Processors in many beet-growing areas will not be able to contract adequate acreage for 1974 because of intense competition from other crops.

Sugar prices, and consequently beet prices, have increased steadily in recent years, but such price increases have been eclipsed in the past year by the dramatic price increases experienced in some other commodities that compete with beets for land use. An indication of the speed with which this change has taken place might be demonstrated by referring to a speech I made in Michigan just about a year ago. Part of the speech concerned the general health of the industry and indicated that "in most areas of the United States, requests by growers for sugarbeet acreage at least equalled the ability of the processors to contract and process the crop."

In the period of one short year, grower demand for sugarbeet acreage has been considerably reduced. Improvement in sugar prices in just the past few weeks may have helped the outlook for sugarbeet acreage in some areas, but in some others it is probably too late to have an appreciable effect on the 1974 acreage.

The fuel supply, present and potential, offers some concern for the present and future of the beet industry. The spectre of a fuel shortage seems to have our entire economy, not just agriculture, nor specifically the sugar industry, concerned. The sugarbeet industry is one of the fuel intensive crops when both growing and refining are considered. The sugarbeet, however, is one of the most efficient plants for producing annually renewable energy.

Where from Here?

With the situation that confronts us at this time, then, it might be well to ask the question, "Where from here?" As in the past, changing conditions will continue to require changing efforts. The Sugar Act in some form will probably be renewed. In perspective, beets will remain competitive, whether as a result of increasing sugar prices or decreasing prices in competing crops, or a combination of both. While the fuel shortage may be here for several years, with careful use there will be enough to both grow the crop and refine the sugar.

So we come into some of the problems that exist in the areas of most interest to and that can be influenced by members of this organization. In the beet sugar industry, those who study the problems and those who apply the results, whether they are in agriculture or factory operations, work very closely together. This closeness is largely responsible for the rapid transition of many methods and materials, developed through research, into practical utilization in field or factory. Yet there are some places where this transition is painfully slow.

We must better utilize all knowledge that is available. A recent survey indicated the top 10 percent of the growers in each of our districts had yields averaging almost 40 percent above the district average production of sugar per acre in each of the last ten years, both good years and bad. This is indeed a wide range. Now it is apparent that all

growers are not going to be able to produce equal crops in a given area. There are many differences, some soil differences, some grower differences. These differences must be recognized. The goal, however, for each one involved—researcher, grower, or processor—in the production of sugarbeets is to attempt to produce sugarbeet crops that will approach or equal that top 10 percent. That top 10 percent today should be tomorrow's average, but for it to become such will require the application of the best methods and materials available.

To achieve any such benefit, increased efforts must continue to improve the crop potential. Better utilization of already known guides to plant nutrition must be adopted and an effort made to supply the beets only with the amounts of the specific materials they require. Continuing efforts must be spent in developing varieties of greater yield and improved processing quality as well as new methods of controlling pests, both old and new.

Now within the factories where do we go to improve efficiency of the beet sugar operation? Nationally, we recover as sugar about 20% less than the sugar received in beets, and this difference appears to be increasing. This difference is made up of actual sugar losses plus that sugar which goes into molasses and is sold at a price much below that of sugar. Actual losses may occur in many places. There are metabolic losses or losses caused by organisms of decomposition during transit or storage. There are losses that result from normal factory operations as well as from improper factory operations or faulty equipment. The amount of sugar going into molasses is influenced by the quality of the beets as received, handling of the beets between harvesting and processing, and in the degree of non-sugar elimination in the factory operation itself. Whether by reducing actual losses or be reducing the amount of sugar going into molasses, every effort must be exerted to increase the recovery of sugar from beets. If extraction or recovery could be increased by one percentage point (1.0%), the value of the additional sugar recovered from the U. S. beet crop would be approximately 12 million dollars annually at current wholesale sugar prices.

All research and technology go through several definite steps. These include planning, investigation, and installation. All of these are accompanied by constant evaluation. Studies proving unfruitful, or where a principle appears to have been exploited, should be discontinued and efforts applied to more profitable areas. Priorities should be set in all areas. New areas continually become available, and these, too, should be evaluated, priorities established, and, where possible, exploited.

One of the main assets that an industry such as this has is a large number of well-trained, well-equipped personnel. Many of the people sitting in this audience have been and are still involved in the changes and improvements mentioned in this paper. To many of you are due the thanks of the entire industry for achieving the many accomplish-

ments attained. Upon you and many others like you, we will continue to depend for adapting this great industry to constantly changing patterns, and thereby remain healthy and viable. I hope you share with me this optimism for the future of the beet sugar industry in America.

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A.S.S.B.T.
San Diego, California
February 24-28, 1974