

INVESTIGATIONS ON BAGASSE.

1. Introduction.

From the earliest days, the cane sugar industry has depended upon its sugar product to pay all expenses and to make somewhat hazardous profits. Not so long ago, sugar commanded a high price, and the producers made handsome profits. No attempts were made to put the various by-products of the industry to uses other than the most obvious. In the light of our present knowledge, these uses were not as remunerative as they might have been. Suggestions as to the possibility of utilising these products to greater advantage were made, but little serious attention was paid even to experimental work done in support of the suggestions, and no encouragement was given to the extension of the investigations.

The low prices which have prevailed for sugar during the last few years have set the general body of sugar technologists seeking for means of augmenting their diminishing profits. Of the many suggestions made, the most attractive is that which advocates the more remunerative use of the by-products of the industry. This, however, can only be done after intensive research into their properties.

Of these by-products, bagasse probably offers the greatest possibilities. When one remembers that the average sugar factory turns out more bagasse than it does sugar, one is surprised at the lack of knowledge about the material. Many schemes have been propounded for the commercial utilization of bagasse, but most of these have a serious defect, in that the sugar factory owner receives for his bagasse a price which bears little relation to the prices obtainable for the materials produced therefrom. What is required is a scheme by which the factory itself can utilise the bagasse, and sell the product at market prices.

At present, in the large majority of sugar factories, bagasse is used solely as a fuel, but, in many cases, there is still a surplus left, over and above the fuel requirements.

Such a surplus might result from any or all of the following reasons:

1. High fibre content of cane.
2. Efficient furnaces and use of water-tube boilers.
3. Efficient prime movers in the factory.
4. Economical use of steam.
5. Continuous operation at or above capacity.
6. Electrification.

In the event of bagasse being used successfully in commercial enterprises, certain factories might even find it profitable to substitute some other fuel for it either in part or in toto.

One of the great obstacles to be tackled is the fact that bagasse is a very bulky material, cost of freight being high in proportion to its value. This difficulty might, to a certain extent, be overcome by baling. Again, bagasse has previously been regarded as a homogeneous material. Attempts to utilize it commercially have shown that this is untrue, and that while certain portions of it might be admirably suited for any one purpose, the remainder is not only useless, but also lowers the value of the useful portion to the buyer.

In this paper, some indication of the changes incident in baled bagasse is given, and the results of analyses of the various mechanical fractions of baled bagasse are recorded.

content, for it has been shown in the Philippine Islands that the moisture content of baled bagasse, stored in the open for six months, dropped from about 48% to 18%. The cost of baling should be very small when compared with the benefits derived from such an operation. Besides improving the burning qualities and fuel value of the bagasse, baling also offers other advantages. The baled bagasse can be insured in many countries against fire. It can be stored, in neat fashion and in less space, as an emergency fuel to tide over stoppages for starting up and shutting down, etc. Also, if small enough, the bales offer a good fuel