PROCEEDINGS

OF THE

CARIBBEAN FOOD CROPS SOCIETY

EIGHTH ANNUAL MEETING
SANTO DOMINGO
DOMINICAN REPUBLIC

1970

VOLUME VIII

THE TOMATO INDUSTRY IN THE DOMINICAN REPUBLIC

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INTRODUCTION

The industry had its first faint beginnings about 29 years ago. However, we usually consider its first official beginning from 1967. In both cases, the industry was begun by Mr. José Barceló, Hato del Yaque near Santiago. What we term "the" tomato industry actually has its its origin much later. Barceló Industrial acquired new equipment in 1962 and began processing in earnest. The addition of Peravia Industrial in Baní and Industrias Portela in Navarrete approximately 4 years ago and further expansion by Barceló Industrial in 1968 provides the country with a capacity of about 1,500 tons per 24 hours. These plants, with Brugal Industrial in Puerto Plata, represent an investment of approximately 4 million pesos in equipment and buildings.

AREA

The pear-shaped tomato used for processing is grown for the industries in Azua, Bani, Manzanillo, Guayubin and in the areas of Esperanza y Mao Last year, approximately 6,150 acreas were grown. This year, it is expecyed that an area of about 9,000 acreas will be planted. This increase has been due to climatic factors. The plantings represent an investment of about 1,800,000 dollars for production costs, in the field. Financing is furnished by the Agricultural Bank and AID and by the respective companies. The labor force varies from 1,000 to 15,000 laborers. The primary areas of Manzanillo, Guayubin, Mao and Esperanza were previously planted in bananas by the United Fruit Company. With the departure of the United Fruit, the area soon declined in economic importance to the country. The growth of the tomato industry has provided new life to the area and it has now returned to be of economic importance. Of the approximately, 9,000 acres to be planted this year, 2/3 of the planting will be in these areas. Azua is a new area for tomato production. However, this area have two future problems: lack of water and mosaic. Further studies on the water table in the Azua basin area are a must. If we continue to pump out water indiscrimanately, the area may return to its former dry status. Most of the plantings in Azua will be with the Agrarian Reform Planting with the Agrarian Reform in the country is taking on an important significance. It is estimated that about 3,000 acres will be planted with this organization this year. The industry has provided the Reform farmers with a good cash crop. Here to fore these farmers had been forced to plant secondary crops of low income. The industry grows under contract with approximately 460 farmers.

VARIETIES

Our basic tomato variety is Roma VF. Las year, successful plantings of Napoli and Chico II were made. We expect that these two varieties will be planted on a much larger scale. Both look quite good. However, we do not foresee any rapid changes made in our varieties. The Roma variety has proven to be a good producer and will probably continue to be our basic variety for some to come. Solid concentrates vary from 2.7 to 5.2 depending on our climatic conditions which is to say rainfall. Napoli and Chico III offer one distinct advantage in that they can be doubled rowed on our spacing of 60 to 63 inches and the pickers still can get in and harvest without causing too much damage. But again, early plantings will make a heavier growth than our later plantings. Chico III shows one disadvantage in that it does no like to be transplanted. It must be hardened off and this is a new process that we will have to teach our farmers. Therefore, only our most experienced farmers are growing Chico III and they are direct seeding. Napoli apparently does not suffer this disadvantage. Both varieties are about 5 to 10 days earlier than Roma.

SOILS AND FERTILIZERS

Soils in the primary area may be classified as clay loam and sandy loam. The pH varies from 7.0 to 8.1 or 8.2 an average would be about 7.4 to 7.5. Our soils are normally low in phosphate and nitrogen. Potash is usually high to very high but we are not sure that it is all assimilated. Further work needs to be done. Magnesium is adequate and calcium usually high to very high. Organic matter runs from 2.0 to 3.5%. Soluble salts vary from a low of 1.00 to a high of 11.00 toward the end of the river Yaque del Norte at Manzanillo. However, the salt content was reduced considerably by the flooding of the river Yaque in December 1968 and the high rainfall in 1969 and this year (1970).

Many of our farmers are forming the habit of taking soil samples for analysis. The Food and Agricultural Organization at the Institute for Superior Agriculture in Santiago analyzes the samples for a small fee. The National Laboratory in San Cristóbal also does analysis. However, in lieu of or with the analysis most of our farmers use the formulas 16-20-0 and 12-24-12. Rates vary from 260 to 600 lbs per acre. Some farmers sidedress at the rate of 60-120 lbs. of Urea at the second flower stage. Nutrileaf and other foliage fertilizers are quite popular.

PLANTING

We use both the direct and transplanted systems of plantings. The former made its appearence in January 1969 after the Yaque floods. It was the only way to get back into production rapidly. Some of our farmers have built their own planting units. Others plant by hand or use a one wheel Planet Junior.

In general most of our farmers use the transplanting method. Spacing is usually 60 to 63 inches between the rows and 12 to 18 inches between plants in the row. We have found that our variety Roma VF gets quite bushy during our planting of September and October. This is specially true if we do not hold down our nitrogen. This heavy growth makes its more difficult to spray and harvest.

HERBICIDES

We desperately need an effective, short-term residual and non-incorporated herbicide. Cultivation is one of our highest costs, particularly in direct seeding. Weeds and the lack of adequate equipment are the principal deterrents to direct seeding. We need a short-term residual herbicide so as not to interfere with our crop rotation. At present, little or no rotation is practiced. However, grain sorghum, corn and soybeans offer new possibilities.

INSECTS

Insects in the field as yet have not constituted a major problem. The most prevalent insects are tomato fruit worm, Heliothis armigera, hornworm Protoparce Sesta, leaf miners, Liriomyza pusilla, and occasionally aphids. Products used to control insects are Rothane, Cygon, Dipterex, Metasystox, Jeboderix, Malathion, and Forbidan. Parathion and aldrin are used in extreme cases. Sevin is recommended just before and during the harvest.

Nematodes have been reported in the Baní and Azua area.

DISEASES

Our most serious problem in the field is plant diseases. In the seed bed for our September plantings we may expect various organisms causing damping off. Later on, Alternaria solani, (Early Blight), shows up as does Stemphylium solani (Grey leaf spot). Last year, because of unusual conditions, Phytophora infestans presented us with great difficulties. In

some cases, late blight in conjunction with heavy rainfall and the in ability to spray effectively virtually wiped out our early plantings. Rhizoctonia solani (rot) becames a problem at this time as well. Coleetotrichum phomides (anthracnose) has been observed but is not a mayor disease. Claudisporium is prevalent in Azua. In all cases, control is the application of Dithane-45 and Anthracol. Some Captan, Maneb, Zineb, Copper and Manzate are used, but to a lesser extent. By far the most popular product is Dithane-45. Applications are made by hand sprayers, ground rigs, and by plane.

HARVESTING

Harvesting was previously done in wooden lugs holding approximately 50-55 lbs. of tomatoes. These were loaded into the trucks and transported to the plants. Then plastic boxes were introduced. Two crops ago, the large wooden bins appeared for transport after picking with the plastic crates. Hauling and handling at the plant is much more efficient with the larger crates. Harvesting is one our most serious problems. In general, our pickers have no sense of responsability. stepping on the vine and on the fruit. Most of the pickers are women and children. Costs of picking vary from 15¢ per 100 pounds at the beginning of the season to - 35¢ at the end of the season. The lack of sufficient pickers also presents a problem. Although there are probably sufficient people in the area may times we are forced to haul people from to 20-25 miles away. The tomatoes are bought in the field by the processors at $28 per ton, fixed by governmental decree.

This year tomatoes will be hauled from distances of 5 to 170 miles. Freight per 100 pounds varies from 10 to 50¢ depending on the distance and road conditions. The processing plants pay all transportation costs. Production costs up to the harvest stage vary from 90.00 to $195.00 per acre. This spread is so notable because it depends on whether the farmer has equipment, who he is, and his capability. Ironically as it may seem, we have found that farmers with no equipment can usually produce at lower costs. In many cases, these are family plantings and usually not over ten acres.

Our highests costs are the following:

Land preparation, farmers W/O equipment	$20/A
Transplantings	10
Chemicals and application	18
Cultivation	15
Fertilizer and application	25

Yields vary from 4 to 20 tons per acre. We know that we have capacity to reach at least 26 tons. Profit, therefore, varies from 14 to $355 per acre. Our average yields have been exceptionally low for the past two - years. Consequently, both the industry and its farmers are approaching a crisis. We must produce more this year.

PROBLEMS

First naturally is the heavy rains. The industry has had 2 consecutive bad years. We should have been able to cut off al imports of tomato to paste in the crop years 1963-69. We trust that we will be able to do so this year. Year before last we had 60 inches of rainfall during our harvest period and this past year 45 inches.

Secondly is the problem of credit. The Agricultural Bank, backed by AID, processes the loans entirely too slow. We have had cases where it has taken 4 to 5 months to process and approve or disapprove a loan. Private banks do not loan money in this sector of agriculture. Our planting season begins in September and ends in January. It is difficult for the growers to set up and keep a planting schedule. Since each plant has a fixed capacity, each delay throws the planting schedule off and puts more pressure on the processing plant. In a normal climatic year, this could be disatrous for the industry.

Lack of equipment is our third basic problem. Due to the rains our farmers have not been and are not in a position to buy equipment to help lower production costs. Fully equiped , a farmer might be able to produce for as low as 90 dollars per acre.

As previously stated, the need of a good effective herbicide for use under our conditions would be our fourth problem.

Fifthly, a good cash crop for rotation with our tomato plantings and a credit source. Fortunately, FAO work in soy beans looks promising. As stated another promising crop, for our larger farmers, may well be grain sorghum.

As the following data suggests, we have been able to substantially reduce our imports.

NATIONAL PRODUCCION/TONS

	1965	1966	1967	1968	1969
Paste:	847	1922	3056	6957	4100

IMPORTS

Paste:	1911	2480	1114	607	148*
Puree:	146	158	119	112	31*

The industry usually starts processing around December 20 and terminates in May. During the off-season, the industry maintains a part of its work force canning nectares, fruit juices, and pigeon peas. Future projects for the plants are soups, marmalades and jelly, vinegar, peppers and perhaps frozen vegetables for export. Within the next five years, the author predicts that the industry will be quite diversified and not so dependent upon tomatoes. We are looking at the export market and appears that we will enter it.

*First 4 months.