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Marketing of Tomatoes in Gregg County, Texas

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MARKETING OF TOMATOES IN GREGG COUNTY, TEXAS

By

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W. E. J.

DEDICATION

This paper is dedicated to my wife, Ruby D. Jones, and my two sons, Cederic and Richard.

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CHAPTER I

INTRODUCTION

Tomato growing is one of the leading agricultural enterprises in Gregg County, Texas. The Commercial Tomato Area is located in the Southwestern section of East Texas. In this area, climatic and soil conditions are favorable for production of early tomatoes for shipment to northern and eastern markets. In addition, the main lines of the Texas and Pacific Railroad, running north from Gladewater to Chicago, bisects the area, providing rapid refrigerator-car transportation to the major urban localities. With these advantages, Gladewater is one of the leading towns for the production of early spring tomatoes from the standpoint of acerage planted, volume produced, and cash income from tomatoes.

Tomatoes have been grown commercially in Gregg County, Texas, for more than 10 years. Approximately 50 farmers in Area I are now engaged in growing them.

HISTORICAL DEVELOPMENT

The tomato is of tropical American origin and it probably was improved beyond its wild state when found by early adventures. It was grown and eaten by the Aborigines and called tomato from the Aztec Xitomate, but apparently was of small importance. In the Sixteenth Century the tomato was called "Pomod Oro" in Italy and "Love Apple" in England. Early names indicate that the forms first cultivated in European Countries originated in Peru and Mexico. The food value of the tomato first was recognized extensively by the Italians. It is legendary that the tomato was thought to be poisonous and was valued principally as a curiosity or ornament. However, Tracy (Tomato Culture) asserts that it was grown for culinary use in Virginia in 1781. A Frenchman grew and attempted to sell them to Philadelphians in 1788 but with poor success. An Italian made a simolar effort at Salem, Massachusetts in 1802. Tomatoes were quoted in the New Orleans market in 1812, and offered by seedsmen as an edible vegetable in 1818. The plant gained rapidly in popularity after 1820, and was a standard vegetable in many sections in 1835.

In the United States, today the tomato is the third most important vegetable crop, ranked only by

the potato and sweet potato. There are approximately 237,735 acres devoted to tomato production, with total production of 29,687,000 bushels having a total farm value of $83,099,000.

Statement of problem and purpose.--The lack of an efficient marketing system is stifling farm income from tomatoes in Gregg County. It has been predicted that if something is not done to improve the marketing conditions, Gregg County will be out of the marketing business in about 5 years. U.S.D.A. studies show that:

> East Texas has too many single buyers and commodity markets (60 to 65 tomato sheds) to operate efficiently for buyers and sellers. There is no question among people who are a part of East Texas vegetable businesses where the trouble lies. They all agree that farmers can produce more than they can sell profitably. Marketing is always pointed out as the number 7 problem.[1]

With a view towards improving the marketing of tomatoes by Negro growers, a study of present marketing practices were made among them. Current marketing information was obtained and analyzed in respect to sales, transportation facilities, cost incurred, and prices received for tomatoes.

The ultimate objectives of this thesis is to present a study of marketing practices as they exist presently, and offer possible suggestions in an effort

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[1]Ralph L. Watts, The Vegetable Growing Business (New York: Orange Judd Publishing Company, 1946), p. 218.

to improve practices as they occurred among Negroes farming in Gregg County, Texas.

Scope.--Fifty Negro Farmers in Gregg County, Texas were included in the study. These fifty represented a total of all Negro tomato growers in Area I of Gregg County.

Method of study.--The method of study was based upon a survey of growers selected through a sampling procedure. Each grower was interviewed by the writer with questionaires drawn up for this specific purpose.

Area I of Gregg County was selected as my universe and a 100% coverage was taken.

CHAPTER II

THE TOMATO INDUSTRY IN GREGG COUNTY

Materials presented includes information obtained from 50 tomato growers located in the three communities in the Gregg County Area. These growers depend to a large degree upon tomatoes for their major source of income. The largest number of growers was found in the Waters Bluff Area. (See Table 1).

TABLE 1

DISTRIBUTION OF GROWERS IN ACCORDANCE TO COMMUNITIES AS FOUND IN GREGG COUNTY, TEXAS, MARCH, 1954

Community	Number Interviewed	Per Cent of Totals
Waters Bluff	25	50
Camp Switch	10	20
Shiloh	15	30
Total	50	100

As the age group became older the number of growers increased, reaching a peak in the 30-49 years

age group; the reason given for this was that in this group an adequate family labor supply became available. Children of farmers between the age of 30-49 provided an additional labor supply, making it possible for more farmers to enter the tomato enterprise.

After the peak was reached in the 30-49 age group, the number of growers decreased rapidly, partly because the children who once made up a large part of family labor had reached maturity and left the farm (See Table II). Entering college, operating farms of their own, or migrating to the city for work, were found to be the main reasons for children leaving the farm.

TABLE 2

TOMATO GROWERS BY AGE AS FOUND IN GREGG COUNTY MARCH, 1954

Years Old	Number	Per Cent of Totals
20-30	15	30
30-40	30	60
40-50	5	10
Total	50	100

With reference to the age of growers, the greatest number of growers were in the 30-40 years age group. Thirty per cent were from 20 to 30 years old. This age

group consisted in the main, of young farmers raising tomatoes on small plots of land for commercial outlets.

As to education, surprisingly a large percent of the growers had had no formal training. Percentage wise, 50% reported as having had no schooling, 16% had completed high school and 34% had had training above the high school level. (See table 3).

TABLE 3

EDUCATIONAL STATUS OF TOMATO GROWERS IN GREGG COUNTY, TEXAS APRIL, 1954

Education	Number	Per cent of total
No Schooling	25	50
High School	8	16
Above High School	17	34
Totals	50	100

Growers falling in the category of above high school, with respect to formal training, seemly were better growers than the other group, yield being used as a criteria. It was reported that this group was more receptive to ideas as given by government agencies,

and local advisors, as Vocational Agriculture teachers, County Agents, etc. The tomato growers with the most education seemed to have better crops and had higher net profit.

In the tomato area studied in Gregg County, Texas, 70 per cent of the growers were land owners. Twenty-two per cent rented land, and 8 per cent were owners who rented additional land. (See table 4).

TABLE 4

TOMATO GROWERS: LAND OWNERSHIP BY AGE GROUPS IN GREGG COUNTY APRIL, 1954

Age	Owned Land	Rented Land	Owned & Rented	Totals
20-30	16	4	2	22
30-40	5	3	0	8
40-50	3	2	1	6
50-60	8	0	1	9
60-70	3	2	0	5
Totals	35	11	4	50
Per Cent	70	22	8	100

From table 4 it should be noted that the largest per cent of owners were in the 20-30 year age group.

Beyond this group, the trend of land ownership was downward. Growers owning and renting additional land were few. Also five of these growers have had agricultural training through the Veterans-On-The-Farm training program and they proved to be the most progressive farmers.

Acreage.--Tomatoes produced for commercial purposes by the interviewed farmers were grown on plots ranging from ½ to 5 acres. (See table 5).

TABLE 5

NUMBER OF ACRES GROWN BY TOMATO GROWERS IN GREGG COUNTY, TEXAS APRIL, 1954

Acreage	Number	Per Cent of Totals
½ to 1	15	30
1 to 2	10	20
2 to 3	8	16
3 to 4	9	18
4 to 5	8	16
Totals	50	100

Small acreage is due to the fact that tomatoes are a highly specialized, intensive crop, with high cost and value per acre. In the East Texas Area it was found

that for production 300 man hours per acre were needed.[1]

Records show that tomato growing in East Texas is a new industry. After a slow beginning, about 1945, the enterprise developed rapidly around 1930, spreading into adjacent counties.

Tomatoes provided the sole income for 50 per cent of the growers, although additional income was received by many from city work and other farm labor. The rose growing business furnished labor for farmers in the off season.

Varieties.--The more important varieties of tomatoes grown may be grouped rather arbitrarily under headings named for the oldest or best known variety in each group. Yearly, all markets demand the large-fruited red varieties, although a few purple pink or purple.

Earliana group.--Earliana, in the recent past, probably was grown more extensively by market gardeners than all others--early varieties combined. Extreme earliness, its chief point of excellence, has kept Earlianas among the tomatoes commonly planted. The fruit is bright and red with a tendency to remain green. Canadian and Peru State are well known strains of Earlianas.

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[1]Norman J. Efferson, Farm Management and Cost of Tomato Farms in East Texas, 1945-46, (Texas A. & M. College and Agricultural Experiment Station), p. 25.

Marglobe group:--The varieties of this group are resistant to fusarium wilt and less susceptible to foliage diseases. Break O'Day is early, but not quite as early as Earliana.

Pink varieties:--June pink has been called pink Earliana. Globes are medium early and are valued in East Texas for shipping. (See table 6).

TABLE 6

VARIETIES OF TOMATOES GROWN BY COMMUNITIES IN GREGG COUNTY, TEXAS APRIL, 1954

Communities	Varieties			
	Earliana	Marglobe	Globe	Mixture
Waters Bluff	8	4	3	2
Camp Switch	3	1	4	5
Shiloh	5	5	3	7
Totals	16	10	10	14
Percent	32	20	20	28

Planting systems.--Tomatoes of a high quality are grown from both single and double row systems. The tomatoes are easier to pick from the single row system.

The double row is recommended as being more economical, but some growers prefer to use single rows. Thirty-two percent used single row system, 48 percent

used double row, and 20 percent used a combination of of the single and double row system. (See table 7).

TABLE 7

TYPES OF ROW SYSTEMS USED BY COMMUNITIES IN GREGG COUNTY, TEXAS APRIL, 1954

Community	Single Row	Double Row	Single & Double	Totals
Waters Bluff	6	9	3	
Shiloh	5	6	4	
Camp Switch	5	9	3	
Totals	16	24	10	50
Percentages	32	48	20	100

Cultural Practices.

Planting:--Tomato plants should be set in the open ground with as little check in growth as possible. Most growers in East Texas area usually buy their plants, to insure disease free plants. These plants are set out as early as possible to meet the early market. Most growers plant around the 15th of March, not later than the first of April. Nothing is gained by setting out too early and exposing the plants to many cool, possibly frosty nights, for under such conditions, they make very little growth and there is a risk of serious loss.

Planting distances are determined by the pro-

ductiveness of the soil, the vigor of the variety to be grown, and the method of culture or system of cultivation. In this soil and with small growing varieties, 3 x 3 feet apart will be satisfactory for early varieties. The common distance for most growers are 4 x 5 feet. Even more space is often allowed in soils where good growth is not made. The usual hand method of transplanting is employed.

Cultivation.--Clean tilliage is essential to high yield. Some hand hoeing usually is required, although this work will be slight if frequent cultivation is practiced as long as the vines will permit. Yields are depressed following the development of weeds to a height of only a few inches.

Prunning and training.--The operation of prunning and training is of importance, resulting in less injury from fungus diseases, clean fruit that requires less labor in preparing for market, and greater convenience in harvesting. Of the growers interviewed only two prunned or trained the vines. The production of prunned, staked tomatoes is one of the most specialized, intensive and costly enterprises of vegetable growing. Financial success is dependent upon careful, thorough-going management and prompt execution of every detail for growing the plant to selling the crop. It should not

be attempted on poor soils or under other adverse conditions. Applications of fungicides is likely to prove profitable wherever foliage diseases are troublesome. Mulching with straw or other litters helps reduce blossom-end rot by retaining moisture. Irrigation is almost essential for maximum results and insures the large investment against loss by drought, which is probably the greatest risk with the crop. In some localities there is considerable risk by hail which may warrant the purchase of hail insurance.

Fertilization.--The soil should be in a high state of fertility with an abundance of humus, very liberally fertilized to the amount of 1000 lbs. or more to the acre, and additional side dressing with nitrogen and possibly potash is likely to be required after fruiting begins. The most prevelent rate of application as found used by growers is 500 to 600 pounds of 5-10-5 per acre. All growers side dressed with ammonium nitrate at the rate of about 300 to 400 lbs. per acre.

CHAPTER III

TOMATO HARVESTING

Tomato growers begin picking as early as 5 o8clock and as late as 9 o'clock in the morning. Tomatoes for shipment are picked in the mature-green color that is, as soon as they show a whitish-green color. This results in sacrifice of quality, because the best flavor is developed where the fruit is permitted to remain on the vine until they are ripe. For local markets it is often advisable to pick tomatoes at the pink stage, just before they are fully ripe, so that they will reach the consumer in a firm stage. Growers pick tomatoes for canning when they are fully ripe, a factor of great importance in securing high quality.

Of the growers interviewed, 93 per cent used hand-carriers and bushel baskets. They are carried to a shed and graded. Crooked, blueish and very small specimens are discarded. They are graded into two or three sizes and degrees of ripeness.

Packing.--Packing is of great importance in handling of tomatoes. The lug box holds about 30 pounds. The 12 quart baskets hold 18 to 20 pounds and are also used for shipping. Good sorting and packing is of great

importance for growers who expected to obtain top prices for their tomatoes. Although the size method of sorting has been found satisfactory, most Negro sorters poured tomatoes from several boxes on a well-cushioned table and then removed the culls. The cushion was made from one to two folded burlap sacks. This protected the fruit from injury when poured from boxes. A few used no cushion and this undoubtly had an adverse effect upon the quality of the tomatoes. The sorting and packing of tomatoes is usually done on the farms. The actual grading is done by Federal-State inspectors at the assembly point. On Negro tomato enterprises, the same person usually did the sorting and packing. The major objectives are to meet at least the minimum standards for grade and to make the packaged fruit attractive to the ultimate consumer.

Labor.--Of the growers studied, 95% of them used family labor to pick some or all parts of their crops. Approximately 5 per cent of the growers used hired labor only. Pickers, family as well as hired labor, were not well instructed regarding pickers practices. This caused great loses in personal incomes to the growers when the tomatoes were graded. A large per cent of the hired labor was found to be farm families, helping out to a great extent during rush periods, as tomato marketing is somewhat of a perishable nature.

Cost.--There were no standard methods of paying pickers nor were there any degree of uniformity in the case of wage rates. On an average about 95% of the pickers were paid by the day, at a rate of $4.50 per day. The other 5 per cent were paid by the lug, at the rate of 50¢ per lug.

The growers preferred to pay a regular wage rate of about $4.50 per day, rather than by the lug. Lug picking requires a certain degree of skill, in areas of grading and sorting, they require more than ordinary labor. One grower expressed the opinion that an individual should know another very well before he could trust him to package lugs.

Hired labor for sorting and grading was scarcely found to exist among growers interviewed. These individuals are usually government graders, and are paid at the rate of $10 per day. The growers who employ these type of skill workers usually operated packing sheds from where tomatoes are shipped directly to Eastern markets.

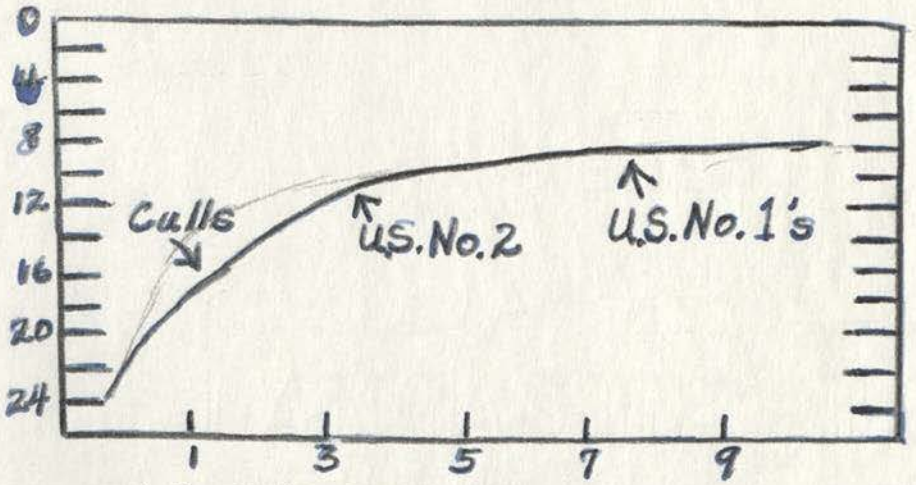
Fruit ripening.--As a tomato fruit grows there is an increase in size and a storage of starch. As ripening begins there is a softening of the fruit, change of starch to sugar, and the formation of red color. In red tomatoes there are two pigments--a red pigment called lycopin and a yellow pigment, carotin. Yellow tomatoes have only the yellow pigment. Carotin formation is not

affected seriously by temperature but this is not true in the case of the red pigment lycopin. The red color is formed primarily between 68° and 85°F., and its development tends to be inhibited by a daily temperature above 89°F. Thus, it is possible for a normally red tomato to be entirely yellow in color if ripened at temperatures above 90°F. Such an extreme case rarely occurs in the field, but this condition is indicated by tomato fruits having yellow shoulders at harvest. These yellow areas on the fruit are defects according to canning graders.

In U. S. Canning grades of tomatoes, there are two colors in descriptions.

FIGURE 1

Color rating indicating color improvement as a tomato fruit ripens. Color improves very rapidly in a cull tomato, but very slowly after the fruit becomes a U. S. Number 1.



A U. S. Number 1 is "fairly well colored" or 90% good red color.

Figure 1 illustrates these color changes with reference to age of the tomato. Color improvement is rapid as a cull, much slower as a U. S. Number 2, and there is a very gradual improvement of color at the U. S. Number 1 or "well colored" stage. In order for canning tomato growers to deliver a large percentage of "well colored" tomatoes their pickers need to be informed adequately about color standards. Skill is required to obtain the maximum percentage of "well colored" tomatoes from a field.

Harvesting.--A fruit normally ripens about 45 to 50 days from fertilization of the ovules. The immature tomatoes are green; as them mature in size, they turn to a whitish green and then the red color starts to develop at the red ripe stage. Market tomatoes are picked at this stage or even at the mature green stage. Shipping tomatoes are picked at the whitish green stage; hence called "green wraps" since usually they are wrapped in paper before packing.

Canning tomatoes of various qualities and sizes are marketed together in lug boxes, but must comply with the grade specified in the contract. Sorting is unnecessary for the removal of fruits other than those with serious defects which are discarded in the picking operation. Market and shipping tomatoes are graded

carefully as to size. The pack of tomatoes usually is expressed in terms of the number of rows on top of the lug. Thus, a 4 by 4 pack is 16 tomatoes in the top layer and 7 by 8 pack is 56 tomatoes. These are packed in a Los Angeles big box, to a weight of 32 pounds.

Storage.--Both storage temperature and desirable length of storage period varies for ripe and mature green tomatoes. Ripe tomatoes if not already soft may be stored for a week or ten days at 40° to 50°F. and 85 per cent humidity. Lower temperatures frequently cause the fruits to break down. At a storage temperature of 55° or slightly higher, green tomatoes will ripen slowly and may be kept for a period of 3 to 5 weeks. If more rapid ripening is desired temperatures between 60° to 70°F. should be used even through it will also accelerate the development of decay.

The ripening of green wrap tomatoes at the terminal markets is an expensive procedure since the fruit does not ripen evenly. Chilling injury tends to accentuate uneven ripening. The ripening tomato must be sorted 2 or 3 times to remove those that are ready for market in order to store the remainder for further ripening. Tomato ripening operators are able by adjusting ripening temperature to maintain a uniform supply of ripe tomatoes on the market.[1]

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[1]John H. MacGillivray, Vegetable Production, (New York: The Blakeston Company, 1953), pp. 327-330.

CHAPTER IV

HOW COMMODITIES ARE MOVED OFF FARMS

About 89 per cent of the agricultural commodities moving from farms go directly to initial markets, with only 11 per cent moving from farms to railroads or docks for further shipment by the growers.[1] As a greater part of our agricultural products move by rail dur- the marketing process, it appears clear that most of the railroad transportation is procured directly by a middle man.

The first haul from farm to initial market is very largely a truck haul. Nearly half of the tonnage of agricultural products moving from farms to initial markets is carried in farm owned transport equipment, according to the results of a survey made in April, 1953 by the Bureau of Agriculture Economics. "For Hire" trucks carry about one-third and buyers' trucks haul the remainder of the total tonnage moving from farms. (See FigureI)

Fruits and Vegetables.--For the United States more than one-half of the vegetables and fruit tonnage moves from farms in farm-owned equipment. Hired and buyers' trucks each have about two-thirds as much as is hauled in farm-owned equipment.

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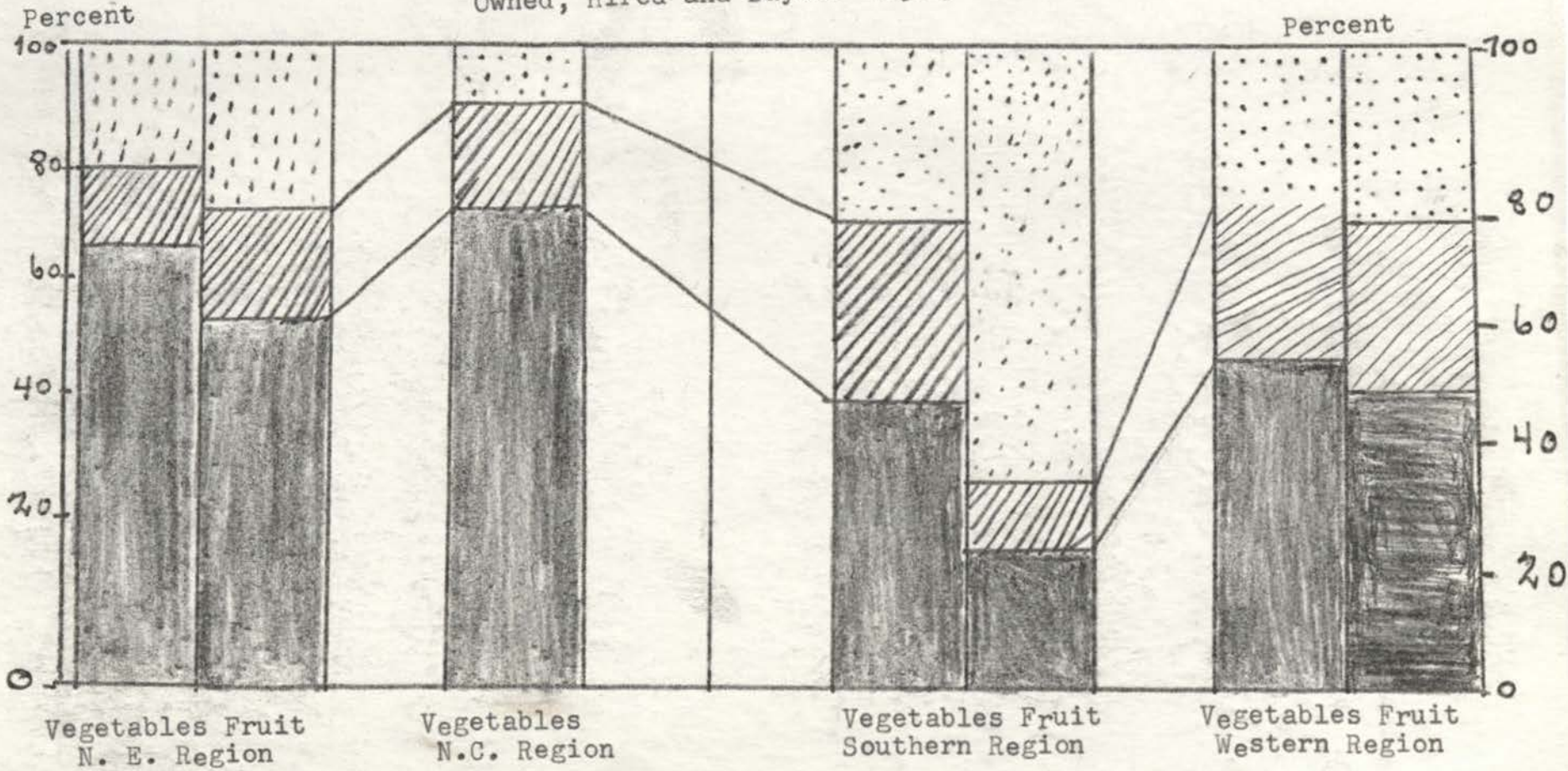
[1] Marketing and Transportation Situation, U. S. D. A., June, 1949, p. 6.

Farm-owned and buyer's equipment seem to be of equal importance in the initial movement of fruit from farms, each hauling about 40 per cent of the total tonnage for the country as a whole. Buyers' trucks haul by far the greatest percentage in the southern region, while farm-owned equipment hauls the greatest percentage in the north-eastern region. For-hire trucks are of only minor importance in the haulage of fruit and vegetables in most regions. (See Table 8).

CHART I

Percentage of Total Tonnage of Fruit and Vegetables Moved From Farms to Initial Markets in Farm-Owned, Hired and Buyers' Equipment



DIRECT HAUL BY TRUCK TO INITIAL MARKET COMPARED WITH JOINT TRUCK, RAIL, OR WATER HAULS

TABLE 8

Percentage of Total Tonnage Trucked from Farms To Initial Markets Compared With Percentage Moving Off Farms To Railroad Or Dock For Further Shipment

Commodity and Destination	United States	North-eastern Region	North-Central Region	South-ern Region	Western Region
	Percent	Percent	Percent	Percent	Percent
All agriculture Commodities					
Direct Truck Haul	89	97	92	92	79
Joint Haul	11	3	8	8	21
All Grains					
Direct Truck Haul	91	92	94	93	82
Joint Haul	9	8	6	7	18
All Fruit					
Direct Truck Haul	83	99	99	83	79
Joint Haul	17	--	1	17	21
All Vegetables					
Direct Truck Haul	82	99	83	85	69
Joint Haul	18	1	17	15	31

SOURCE: U. S. D. A. BAE. Statistical Finding on Transportation, November, 1949, Page 23.

Farm products are usually moved from farms to other points for grading, packing, processing, or storing, and only

a small portion goes directly from the farm to the consumer. Evidently the initial market for most products lies near the farm, since 89 percent of all agriculture commodities are reported by growers as moving directly to initial market without reaching the railroad. A large portion of all agriculture products move by rail during some stage of the marketing process from producerto consumer, however. Hence, it is clear that most of the transportation by railroad is produced by a middle man, and that the first haul from farm to initial market is largely a motor truck haul. Note percentage of fruit and vegetables moved direct by truck in the northeastern and northcentral regions in Table 8.

In the study conducted among growers in Gregg county, Texas, approximately 70 percent of Negro growers interviewed furnished their own means of transportation for hauling tomatoes to local market outlets. Thirty percent either had no available transportation facilities or thought it more economical to pay a neighbor to haul their produce to market.

Growers who sold at the farm sold to landlords, to peddlers, and to other growers. These buyers removed the tomatoes from the original growers' farm in their own vehicles. In a number of instances, when tomatoes were sold at the farm, the grower had an urgent need for quick cash.

For those growers who took ripe tomatoes to market outlets, the methods of transportation were the same as those used for "green wraps." They not only shipped crates of ripe tomatoes along with baskets of "green wraps", but in most instances they sold both types of tomatoes at the same market outlets.

Seventy percent ofthe Negro tomato growers used their own facilities for transportation. Of these, 48 percent used farm trucks, 31 percent family automobiles, and 14 percent used horse-and-wagon methods. The remaining 7 percent used a trailer hooked to the family automobiles, or they sold their tomatoes at the farm. Growers who hauled their own tomatoes used market outlets ½ to 18 miles from their farms.

The 30 percent of growers who hired heighbors to haul tomatoes, had their fruit carried to market outlets 1 to 17 miles from their farms. This group either had no transportation facilities or thought it more economical to pay a neighbor to haul for them. In some instances, individuals who raised no tomatoes received a small income by hauling pickers to and from a tomato field. They also hauled crates and baskets of tomatoes for tomato growers for a small fee. In several instances, a grower reported that even with his own transportation abailable, by hiring transportation he had more time for the supervision of his farm.

Of the growers using hired transportation, 70 percent had their tomatoes hauled in farm trucks, 26 percent in family automobiles, and 4 percent by horse and wagon.

Cost.--Cost for hired transportation was the same per basket of ripe tomatoes as for a crate of "green wrap" tomatoes--varying from 5 cents to 25 cents per crate.

No relationships was found between costs of hired transportation and distance hauled to market outlets. Many growers paid the same transportation cost for having tomatoes hauled a short distance as those who had tomatoes hauled a long distance.

Fifty-eight percent of the growers hiring transportation paid 10 cents a bushel or lug for having tomatoes hauled 1 to 10 miles. Several growers reported paying 25 cents a unit to have tomatoes hauled 5 to 6 miles; others said they paid the same price to have their tomatoes hauled a distance as far as 17 miles.

CHAPTER V

MARKETING CHANNELS FOR TOMATOES

Private stores.--The tomato season in Gregg County, Texas usually covers a period of about three months, extending from April to June. During these months tomato production is at its peak. During the 1953 season some tomatoes were sold as early as the last of March.

The early growers usually sell to local markets outlets. The early production and marketing of tomatoes is due to favorable climate. Prices are very good and the grower receives as much as $8 to $10 a bushel. Standard price for early tomatoes ranges from $3.00 to $5.00 per bushel.

Seventy-five percent of the growers sold their tomatoes to dealers referred to as Private Associations. The private "Associations" operate much like selling to brokers, but in addition, they arrange for the pooling of tomatoes. Then they are sold in car load lots. All tomatoes delivered to an "Association" for rail shipment out of state are inspected by licensed Federal-State Inspectors.

Independent Local Buyers.--A little more than 10 percent of the growers sold through independent local

buyers, who usually operate a general merchandise grocery. The independent local buyer offered extended credit and other assemblying services comparable to private "Associations." In a few cases, independent local buyers collected tomatoes for such associations. Prices received for tomatoes sold through this outlet ranged from an average of $5.00 to $6.00 per bushel. Prices received by farmers selling through this outlet are not as good as some others, although the buyer extends added services as credit and other commodities.

Cooperative Associations.--About 10 per cent of the growers were found to be selling through cooperative Associations. Usually these cooperatives were a number of people who purchased fertilizer together. The cooperative associations, which were run by and for those members who used them, assembled and handled their members' tomatoes for a small fee. Members received patronage dividends in proportion to their patronage. These cooperatives also offered their members many advantages in buying household goods. One example, a member may save as much as $100 on an ice box. On the basis of return on investment, the best prices received by growers were received by those selling through cooperatives. The cooperative associations were performing marketing services more efficiently, such as reduction in duplication of service that a greater share of consumers' dollars

went to the producer. Better facilities for packaging and sorting were also observed in sheds operated by cooperative associations.

Roadside Stands.--Five per cent of the growers marketed their tomatoes through roadside stands, and private individuals. A typical roadside stand consisted of a crudely constructed shelter to protect tomatoes from the weather. In most cases the grower, or member of his family, stood at the roadside with small baskets of tomatoes for sale.

Tomatoes sold at the roadside stands were often field tomatoes sold ungraded and not faced. Roadside stands were also used by growers to sell those tomatoes that could not meet the top grade for the fresh market. It was thought to be more economical to sell instead of grading them. This violation of marketing principle results in lower prices to many producers marketing them through this outlet.

Market Outlets for Tomatoes for Processing.--Overipe tomatoes and those with minor defects as well as those produced too late for fresh markets, were sold to canners. The ordinary range of price was $15 to $20 per ton.

The canning industry has been especially helpful to growers in the event of a late crop. Therefore, selling tomatoes became a mean of marketing crops too

late to sell profitably in fresh markets. Because of hail and rain, which badly damaged this 1954 tomato crop, growers in many cases would have suffered severe losses had it not been for the processing industry. The fresh tomatoes usually clear the farmers from all debts, and the tomatoes sold to the cannery usually brings clean profit. Most of the producers interviewed attempted to produce for fresh market rather than for processing.

Records.--Among the growers interviewed, it was found that only 33 per cent kept some kinds of sales and expense records on their tomato enterprise, in most cases records that were maintained were incomplete. Some records that showed only the total sums received for each shipments of tomatoes, with no indications of expenses were kept. Several growers maintained sales records of fertilizer. On the other hand a few kept records of expenses; they believed it only important to keep records for the sum owed.

Records for sales and expense were written on the fronts of calendars, in books and on pieces of paper hidden in trunks. Some had no records, said they kept account in their heads.

Finance.--Growing tomatoes was a side line for some of the growers, for they found it difficult to earn a livelihood on their small units of land. Some were doing only part-time farming. Others had regular

jobs off the farm, leaving the family the job of operating the tomatoes. Some were employed at oil refineries, rose farms, and saw mills. Two are bus drivers for school district. Others are part-time farm laborers on other farms.

In financing tomatoes, 86 percent used financial aids from various credit agencies. The remaining 14 percent borrowed from landlords, banks, and private individuals. Loans ranged from $14 to $500, at interest rates of 4 percent to 12½ percent. Only two were able to finance their own tomato crop.

Loans extended to growers on crops were by far the most important type of credit available to growers. This type of credit was used to a large extent for fertilizer, seed, and supplies, as well as for food and clothing for the family.

Only one of these obtained funds from the Production Credit Association, even through the rate of interest on such loans was only about one-half the market average.

SUMMARY

Fifty Negro growers of tomatoes in Gregg County, Texas were interviewed, to obtain information concerning tomato marketing practices of Negro growers in the commercial tomato market area of the county. Twenty-five per cent of these growers reported growing tomatoes as their major source of farm income. Seventy-seven per cent of the operators owned their farms; the largest number of tomato growers were between the ages of 30-49 years of age. Seventy-five per cent had had at least one year of elementary education.

Tomato plots ranged from ½ to 5 acres. The average tomato enterprise was around ½ acre. Single row, double row, and a combination of the two row systems were utilized. Plants were set from March 15 to April 7th, useing mainly the Rutgers Variety. Four-fifths of the growers had grown the same variety for more than five years.

Negro growers began to pick tomatoes as early as five o'clock and as late as nine o'clock in the morning. Tomatoes were hauled from the farm to a market outlet chiefly during the morning, although a few growers hauled as late as four o'clock in the afternoon. These market outlets were of ½ to 12 miles, with 34 per cent of the growers living in a radius of 10 miles from their markets.

Thirty-three percent of the growers utilized family labor, for picking tomatoes, while sixty-seven percent hired labor to pick part of the tomato crop. Sorting and packing were done by family labor, as was the stemming of the overripe tomatoes.

In hauling tomatoes to market outlet, 54 percent used farm trucks, 30 percent used family automobiles, and 11 percent used horse and wagon. The remaining 5 percent relied upon trailers and family automobiles.

Fresh tomatoes were sold mainly through private "associations," independent local buyers, cooperative associations and road side stands.

Prices ranged from $5 to $10 per bushel for fresh tomatoes. Later in the season some sold for $1.50 to $3.00 per bushel.

In financing tomatoes, 86 percent used financial aids from various credit agencies. The remaining 14 percent borrowed from landlords, commercial banks and private individuals. Loans ranged from $14 to $500 at interest rates of 4 percent to 12½ percent. Only 33 percent kept some kind of records. These records in most cases were incomplete. In order to obtain current information on demand, supply, and prices of tomatoes, 89 percent of the growers utilized the radio.

To harvest and market a bushel of tomatoes cost growers $1 to $1.50. The #2 tomato could be harvested

for as little as 50¢ per bushel.

There may be some gains to the entire economy in Gregg County from breaking up a commodity market into segments as have been described. The producer may gain by facilitating trade, segregating markets, and in cases developing monopolistic practices. There are ample opportunities for losses, however, as it costs to divide the market. It is difficult to hold up demands for top quality segment of a commodity. Sometimes the consequence is an increased demand for lower quality product which may be dumped on the market at lower prices, as was found with roadside stands.

The physical attributes of quality cover the criteria which are used to measure differences, the scores which one set up, and the range of tolerance as was found in sheds where grading was being done.

Emphasis should be placed on the fact that quality enters demand analysis in being implicit in the definition of a commodity. Quality enters price policy because the sum of demands for the different grades may be greater than the demands for the whole commodity if ungraded. The opportunity for discrimatory pricing is presented if segments of the market can be walled off from the other and leakage prevented. There is also as I observed, an opportunity to shift the basic wants of consumers, all of them; however be offset by cost increases.

RECOMMENDATIONS

The present harvesting and marketing practices among Negro growers offer possibilities for improved economic efficiency. It is believed that growers can profit, with the adoption of the following practices:

1. Carefully instruct and supervise pickers. Picking in the cool of the morning should be practiced daily, if the ripening of the tomatoes calls for daily picking as does the early variety. If picking is delayed for several days, the pickers are likely to inclued many overripe tomatoes, which means that all tomatoes in the container will deteriorate more rapidly. Both family and hired pickers should be parefully instructed as to: (1) proper stage of maturity at which to pick for shipping, and fresh tomatoes, (2) best way of picking, (3) care in handling tomatoes when being picked, and (4) avoid injury to plants and unripened tomatoes.

2. Furnish pickers with hand carriers of economical size. When picking tomatoes, pickers should be furnished with hand carriers constructed of light wood, fitted with a handle of convenient size.

3. Use packing sheds that are properly located. A packing shed located near the tomato plot should be used for sorting and packing. It should be located so that the pickers will have a minimum distance to travel from the field.

4. Carefully instruct and supervise sorters and packers

5. Use an economical size vehicle for hauling tomatoes to market.

6. Protect tomatoes that are being hauled to market outlets. When hauling fresh tomatoes from the farm to a market outlet, all crates and flats should be covered with a cloth or light peice of canvass. This allows free circulation of air during the trip, and keeps down the temperature of the tomatoes. It also protects the fruit from the sun.

7. Maintain a record of sales and expenses. Methods of keeping simple records of sales and expenses should be encouraged among growers. These records should be kept in a place that is safe and easily reached. In keeping records the grower will find it easier to plan next year's production and marketing of their tomatoes.

8. Growers should finance their own crops. Those growers who are in a favorable financial position should investigate the profitability of financing their own enterprise instead of using extended credit. They would not be obligated to sell to a particular market outlet.

9. Use more and timely market information on demand, supply, and prices. Most growers obtained prices from radio broadcasts. It should be more advantageous if broadcasts included demand, supply and price

10. In the location of roadside stands, emphasis

should be placed on such points as: (1) proper location near an intersection and on the right side of the road leading back to town, (2) adequate parking space, (3) adequate advertisement, (4) cleanliness, (5) having activities going on around the stand--as packaging or grading, etc., (6) adequate grading of commodity--selling only number I as number I., and (7) a modest structure, but adequate.

Potential Leadership

To a considerable extent it will be the job of Agricultural workers to aid growers in adopting the best marketing practices.

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THE MARKETING OF TOMATOES IN GREGG COUNTY TEXAS

Area_____

Record No._ _____

Date_____

Quaetionaire to lacal farmers, county agents, processors, independent local buyers, producing or handling tomatoes in Gregg County, Texas.

Name of Grower_____ Location_____

Acreage_____ No. of years growing tomatoes_____

Varities_____

Types of row systems_____

Fertilizer used per acre_____ Time application is made_____

Types check one or more_____ First application_____

Animal naure____Live_____ Second application_____

Green naure_____

Complete Fertilizer_____ Formula_____

Forcing equipment used--check one-- Hot bed___Cold frame_____

Green house_____Hot houses_____Cold Frames_____Purchase plants_____seed in field_____.

Types of insectides used_____ Ty pes of fungicides used_____

_____ _____

Do you use irrigation_____ Method_____

No. of times_____ Application cost_____

Do you stake or trellise your tomatoes_____(Yes) _____(No)

If you do not, why?_____

Time and method used to prune_____ Do you mulch___(Yes)___(No)___

_____ Type of material used_____

Time of Pruning_____ _____

Method used_____

Harvesting_____ Time_____

Cost_____ Labor used_____

No. of bushels sold to local market_____

No. of bushels sold to canners_____

Grading

Method you used to grade_____

No. of U.S. no. 1_ _____ Price received per lb._____

No. of U.S. no. 2_____ Price received per lb._____

No. of ripe_____ Price received per lb._____

Do you use, bushel basket_____, crates_____, boxes_____. (Check One)

Packing

No. picked green_____ Container used_____

No. packed pink_____ Container used_____

No. packed ripe_____ Container used_____

Transportation

No. sold in field_____ Transportation used_____

No. sold to local market_____ Transportation used_____ _____

No. shipped by truck_____ Cost_____

No. transported to rail head_____ Cost _____

Percent sold to local produce markets_____

Price received_____

Percent sold to processing centers_____

Price received_____

Percent sold in other ways_____

Price received_____

Is the demand greater for green____, Pink_____, or ripe_____

tomatoes? What crop brings the greatest returns? (Early) (Late)

Why_____

How far from local market are you?_____

Distance from cannery_____

Distance from rail head_____ Do you keep records on planting? Yes_____No_____

Records on income? (Yes) (No)

Do you use any of the following financial institutions in your operation? Banks_____, Local merchants,_____ Self_____, Loans_____, Individuals_____, Farm credit_____.

Your farming operation--- Is it full time____Part time_____

Types of work done other than tomatoes growing_____

If part time_____ Types of employment: Oil Field__ Construction____employed rose farm_____Others_____

Do you own your home_____ If not, how much rent do you pay per month_____

Place of Birth_____

No. of years you have lived in present position_____

Estimate of amt. of money made per year_____

Approximate age of grower--- Less than 35____35 through 55_____ Over 55_____.

Location_____

Date_____

Check by

_____