

MARKET DEVELOPMENT POTENTIAL  
FOR EAST TEXAS BLUEBERRIES

Preliminary Analysis

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## HIGHLIGHTS

- \* An experimental planting of rabbiteye blueberries has been cultivated for ten years at the Overton, Texas Experiment Station. Cultural practices are established. In 1981 and 1982, research was done (including market tests) on the marketing of Texas blueberries.
- \* Caution: The projections and estimates in this report are based upon producers making extensive and expensive investments in quality control and market development. Without total commitment to market development and orderly marketing plantings of the magnitude discussed in this report could result in extensive over-production, disastrous prices and large losses for producers.
- \* At present, Texas blueberries have an extremely limited market, which can justify total plantings of less than 40 acres. There is no reason to think this market will grow without substantial investments in market development.
- \* The purpose of the market test and this analysis is to focus on the fresh market distribution system through supermarkets and examine this market. It is estimated 500 acres of Texas blueberries represents the level of production that can be profitably marketed assuming regional and national distribution for fresh products. Other markets are identified--processing and export--that could result in eventual recommendations to increase the plantings.
- \* Blueberry varietal tests, harvesting, handling and storage experiments are continuing at Overton. These form a firm basis for estimating the ability to supply major markets.
- \* Texas blueberries are from 2 to 3 weeks earlier than major markets and command an early season premium that continues even after other areas introduce their production into competing areas.
- \* Texas blueberries have a lower marketing cost in many large and rapidly growing market centers than those from competing production areas. This is especially true during the peak harvest.

- \* The orderly marketing required for the development of the Texas blueberry industry can be best accomplished by a centralized decision making center. The form of organization should be decided well in advance of large marketings.

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INTRODUCTION

Among the agricultural enterprises offering potential benefits to producers in East Texas, blueberries offer a high potential income per acre on a limited number of acres. Traditional methods of marketing in East Texas assume any one of the four following forms:

1. Pick your own
2. At-the-farm marketing
3. Roadside sale
4. Farmers markets

These traditional markets will not be sufficient for a sizeable Texas planting.

This study initially examined the acceptance of Texas blueberries in the produce section of selected supermarkets. These fresh market blueberries were found to exhibit strong pricing patterns during a four week market test conducted jointly by the Overton Experiment Station, the Texas Agricultural Market Research and Development Center, and the Safeway Corporation. Since sales per store declined each week during the test, results indicated that the Texas fresh market, without further market development, will take only a limited amount (less than 40 acres) of fresh blueberry production at premium pricing levels. This study reports that market test in detail.

It was felt that the product has market potential beyond the Texas fresh market and that this crop could only make an impact on East Texas agriculture if an expanded market were supplied. The following market segments are explored in this report in addition to the Texas fresh market:

1. National fresh market
2. Frozen and processed markets

income areas to participate in a market test of blueberries produced at the Overton Experiment Station. The blueberries were packed in one pint containers, 12 pints to a master container. They were then sold in the produce departments of these stores under standard retail conditions.

Standard retail sales audit procedures were used to measure sales on a weekly basis at each participating supermarket. Sales were calculated from deliveries, inventory changes and correction for damaged fruit. Audits were also run on strawberries, peaches and oranges for the purpose of obtaining comparative data. While some competing produce had point-of-sale advertising, no advertising was possible for blueberries because only a few of the stores had the berries.

From the data gathered and confidential store customer counts supplied, an estimate of the Texas state market was prepared and an estimate of the crop's potential in terms of acres planted and revenue was prepared.

Table 1 indicates the results of the test. Initially, it was felt that the retail price of \$1.49 per pint (approximately one pound) would be reduced during the test period. However, the product moved well at \$1.49 and the food chain advised against any lowering of price; therefore, Texas blueberries sold at retail in the test supermarkets for \$1.49 per pint during the entire harvest season, Table 1.

Table 2 shows the results by customer income level when the stores were arbitrarily divided into a high income group and a middle income group.

Table 3 shows the wholesale price per pint of blueberries on the Dallas wholesale market. During most of the period, the blueberries also were available from Georgia, Texas and Arkansas. During the last week of the test, prices declined when the production from the largest producing area in the U.S. (Michigan) reached the market. The results of the market test suggest that Texas blueberries with proper grading and handling can command a strong, stable price and maintain their early season premium.

Table 2  
BLUEBERRY RETAIL STORE MARKET TEST

AVERAGE SALES PER STORE

Dallas, July 1981

Product	High Income Stores Average Sales of Each Product	Middle Income Stores Average Sales of Each Product	All Test Stores Average Sales of Each Product
<u>Blueberries (pints)</u>			
Texas	350	308	336
Florida	88	62	79
New Jersey	12		8
Michigan	4		3
	<u>454</u>	<u>370</u>	<u>426</u>
<u>Strawberries (pints)</u>			
California	778	564	707
<u>Peaches (pounds)</u>			
California	1018	2247	1427
Texas	1370	2100	1613
Illinois	280	320	260
	<u>2618</u>	<u>4667</u>	<u>3300</u>
<u>Oranges</u>			
California			
Bulk (pounds)	1289	2222	1600
4 lb. bag	880	624	795
7 lb. bag	228		152
	<u>2397</u>	<u>2846</u>	<u>2547</u>
Average pounds of Fruit Sold Per Store (pt.=lb.)	6247	8447	6980

Source: TAMDRC store audits.

The volume data was fit to an equation using ordinary least squares with volume per store as the dependent variable and week of the market test as the independent variable. The equation:

Weekly sales per store = 143.3 pints minus 46.72 log week of test

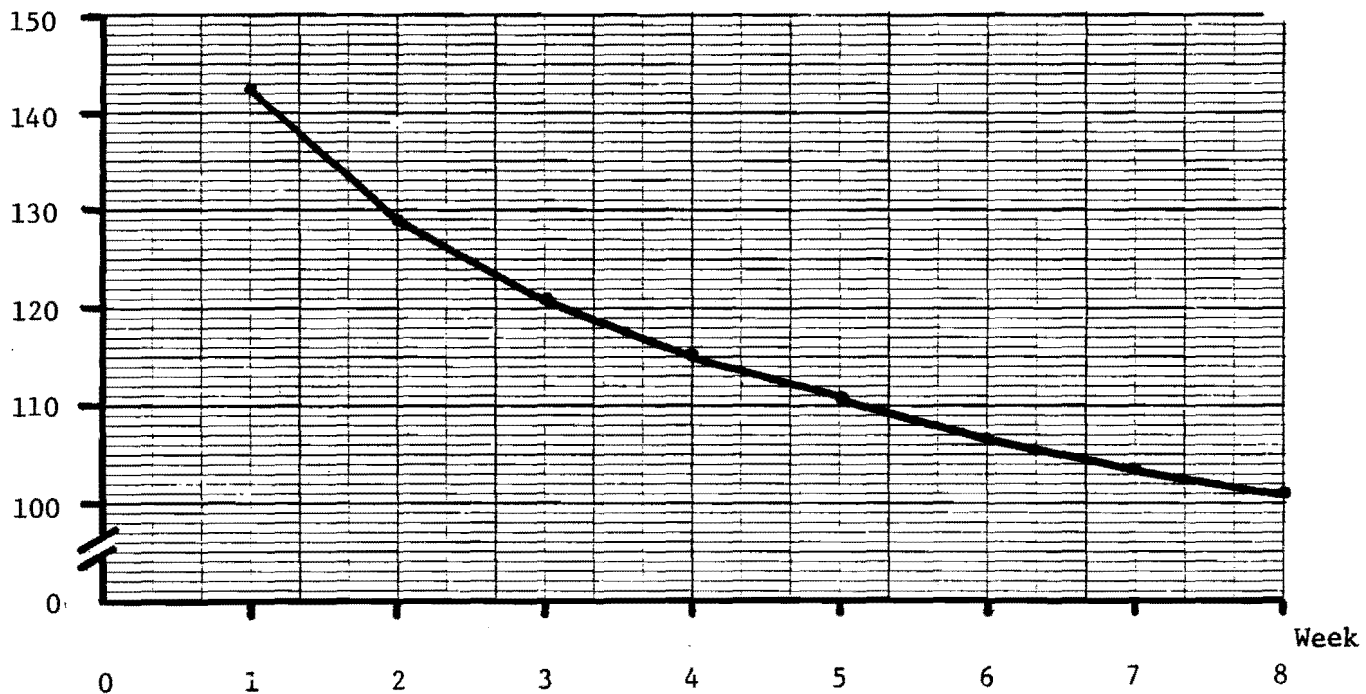
$$R^2 = .92 \quad (6.89)$$

$$t = 6.78$$

Basically this shows a typical seasonal pattern for sales volume. This is shown graphically in Figure 1. It is interesting to note that many items once believed to be seasonal are now purchased by the consumer year round. Many formerly seasonal items are available 52 weeks a year in the supermarket. The average shopper presently knows no season. Blueberries give indications of being part of this trend, Figure 1.

Figure 1  
Blueberry Sales/Store  
Estimated Present  
Blueberry Weekly Sales  
Behavior Patterns in Texas Markets

Pints/Store





than Texas can be served for a longer period than the four weeks of the test. This results in an estimate of a fresh market for 400 acres of production at 12,000 pound/acre.

In the future, fresh fruits and vegetables will benefit from changing consumer preferences towards fresh produce and the growing importance of the fresh produce departments for supermarkets.

Retailers are responding by placing their primary emphasis on the produce department. Produce departments have become the "image makers" for the store. Within this category, the specialty fruits, like blueberries, are the single fastest growing segment, rising from almost zero only a few years ago to as much as five percent of total produce sales in some supermarkets. Demand for specialty fruits, fueled in part by the recent interest in gourmet cuisine and nutrition, is expected to increase.

#### RECENT TRENDS IN PRODUCE: STATUS OF THE PRODUCE DEPARTMENT

A 1982 survey by Advertising Age magazine of six major U.S. metropolitan areas has shown that the produce department is now the leading "shopper draw"-- the primary "point of difference" for many retailers.

A few years ago, supermarket produce departments carried as few as 60 items. Today, they carry an average of 125 items with super stores handling as many as 200 produce items.

The entire specialty area is growing very rapidly. Moreover, a short time ago, strawberries, peaches and berries were specialty items, now they are standards.

Many, formerly, "seasonal" items are available 52 weeks a year.

Three years ago, supermarket produce sales as a percent of total store sales was in the 5-6% range. Today, the produce department commonly accounts for 7-8% of sales with some stores at 11-12% and even higher.

A Kroger executive presented the following 1975 to 1981 sales growth figures at the recent Food Marketing Institute convention in Chicago:

\*Green topped carrots and radishes up 1100%

\*White corn up 1173%

These berries were used for several end uses. Some were repackaged as frozen blueberries. Blueberries have an unusual characteristic in that when frozen in a 30 pound box, if the box is given a sharp jolt while frozen (i.e. dropped) the fruit separates and can be repacked as individual quick frozen (IQF) fruit.

A very small percent of the harvest goes directly without freezing to markets such as pie fillers, jelly and jam producers, syrup manufacturers, etc.

During 1981-82, approximately 30% of the processed blueberries were exported. This is 25 percent of the total crop. Europe was a major market for these exports, because the European blueberry industry had a short crop in 1981. The European market is mainly demands for wild rather than cultivated blueberries, but U.S. production was acceptable to European tastes when blended with their domestic, wild production. The size of this market is not known. Many industry sources believe the 1981-82 strong European market was an exception. In years of normal harvest, it will be less strong.

The Japanese market for processed blueberries is presently small but is expected to grow. This market offers the possibility of long run contracts so the production is sold far in advance--adding stability to blueberry pricing.

Other major producing areas have formed cooperatives that handle the domestic and export marketing of frozen blueberries. The cooperatives establish grades, packages, etc. and need a large volume of sales to function efficiently. In Michigan, for example, the statewide blueberry cooperative has joined with cherry producers to jointly market processed products.

The earlier portion of this study shows that Texas production has a distinct advantage over other areas in fresh market production. Later sections will show the peak harvest is too large to be profitably sold in the fresh market. A marketing plan is developed showing that approximately 25% of the annual production of Texas blueberries will be best utilized as frozen blueberries. These will be available for processing during the third and fourth week of a six week harvest.

at 75 cents per pint (pound) and found customers equally pleased with pick-your-own at 50 cents a pint.

Obviously this market segment is small and would not be a major factor in large acreage. It is interesting in that it indicates a stronger demand for fresh blueberries than would be expected from experience with other fruits and vegetables.

#### SPECIALTY MARKETS

Texas blueberries have been produced at Overton without any chemical spraying program. Other producing areas have production programs that require as many as seven insecticide applications each season. Cultural practices are not a portion of this study, but since high quality, fresh market berries can be produced without pesticides until spraying is required, this offers a market competitors cannot supply.

Growing consumer interest in fresh fruits and vegetables has been shown. Growing consumer concern over pesticide levels has arisen. It would be possible to market fresh Texas blueberries clearly identified as having no pesticide residual and no pesticides used in their production as a superior product. With no other producing area supplying (or able to supply) this product, the entire North American market would be open.

Such a product could be clearly identified on the clear plastic covering on each pint container, with no extra production costs other than those experienced in fresh berry sales. In addition to a larger market, these berries could command a premium of up to 30 percent over regular fresh blueberries and a more stable market.

Since both Texas fresh blueberries and those sold as health food would be the identical physical product, except for the over wrap and the price, rigid control of this marketing would be essential to capture and maintain the premium from no pesticide blueberries, which could be safely eaten directly from the box.

A similar premium market may be available for consumer packages of frozen blueberries, which Texas could supply.

During the third and fourth weeks of the harvest, when production is at its peak, approximately 25 percent of the total crop should be frozen. Freezing operations will last only two weeks. In all probability, commercial freezing and cold storage will be utilized.

Pick yourself operations may be used to complete the harvest in the final two weeks.

Orderly marketing is dependent upon cooling capacity to remove field heat, cold storage for fresh berries, and freezing and frozen storage capacity. Naturally, this will vary among producers, but for the entire production of East Texas blueberries the above will hold.

It is estimated that a crop marketed under the above marketing program would net to growers 55.7 cents per pound after packing, container, freezing, cooling, transportation and storage costs were deducted. Income (net) from a twenty-five acre planting is estimated to be in excess of \$100,000 per year before taxes after the planting reaches full production in the sixth year based on a yield of 12,000 pounds per acre, mechanical harvesting and a following of the linear programming developed marketing plan.

Without mechanical harvesting, it is estimated income for a 25 acre plantation under the marketing plan would fall to \$55,000 if the entire crop could be harvested. It is doubtful, based on the experience in the Overton planting, that the crop could be harvested by hand in a manner dependable enough to meet the demands of a reasonable market plan and could quite possibly result in continuing losses to the grower.

#### RECOMMENDATIONS

It is recommended that an expansion of East Texas blueberry production be undertaken only after provisions for adequate investment in orderly marketing are made.

It is recommended that Texas producers take advantage of their early production and concentrate on the fresh market. It is further recommended that producers recognize that highest quality is necessary for long run profitability and collectively (at the very least) establish

APPENDIX

Destinations:  
Fresh Market During Week:

Linear Program

Sources:  
Percent of  
Total Production

1 2 3 4 5 6 7 8 9 Frozen U-Pick

Week	Percent	1	2	3	4	5	6	7	8	9	Frozen	U-Pick	
1	6.5%	6.5 .95	0 .70	0 .59	0 .48								= 6.5
2	18.75%		12.1 .75	4.0 .60	0 .49	2.4 .48							= 18.5
3	25.0%			7.5 .65	0 .50	0 .49	0 .48				17.5 .41		= 25.0
4	25.0%				11.2 .55	0 .50	4.1 .49	0 .38			9.7 .41		= 25.0
5	18.75%					8.5 .55	0 .50	0 .39	0 .38		0 .41	10.0 .44	= 18.5
6	6.5%						6.5 .55	0 .40	0 .34	0 .33	0 .41	0 .44	= 6.5

Demand      ≤13    ≤12.1    ≤11.5    ≤11.2    ≤10.9    ≤10.6    ≤10.4    ≤10.2    ≤10.1    ≥ 0    ≤10

Sources:  
Percent of  
Total Production

1 2 3 4 5 6 7 8 9 Frozen U-Pick

Week	Percent	1	2	3	4	5	6	7	8	9	Frozen	U-Pick	
1	6.5%	6.5 .95	0 .70	0 .59	0 .48								= 6.5
2	18.75%		12.1 .75	0 .60	0 .49	6.4 .48							= 18.5
3	25.0%			11.5 .65	0 .50	0 .49	0 .48				13.5 .41		= 25.0
4	25.0%				11.2 .55	0 .50	4.1 .49	0 .38			9.7 .41		= 25.0
5	18.75%					4.5 .55	0 .50	0 .39	0 .38		0 .41	14.0 .44	= 18.5
6	6.5%						6.5 .55	0 .40	0 .34	0 .33	0 .41	0 .44	= 6.5

Demand      ≤13    ≤12.1    ≤11.5    ≤11.2    ≤10.9    ≤10.6    ≤10.4    ≤10.2    ≤10.1    ≥ 0    ≤15