

A *survey*

Of Spinach Markets

And Marketing in Eastern Oklahoma

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EXPERIMENT STATION

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More than 97 percent of the spinach grown commercially in Oklahoma comes from a six-county area in the eastern part of the state. The counties are: Sequoyah, LeFlore, Haskell, Muskogee, Wagoner, and Tulsa. This bulletin reports the results of a survey to determine the farm characteristics and spinach marketing conditions as they exist in that area. The 51 farms surveyed were the total number reporting spinach as a farm crop in a preliminary survey of vegetable production and marketing in eastern Oklahoma.***

Farm Characteristics

The average size of the farms growing spinach was 821.4 acres.† Spinach acreage per farm for the 1954-55 season ranged from 450 acres on the larger farms to 4 acres or less on the smaller farms, with an average for all farms of 85.3 acres. (Table 1). The average yield per acre was approximately 2 tons. Considerable variation was found in yield between farms and between areas, ranging from 5 tons per acre to less than one. On farms surveyed there were 4,349 acres of spinach harvested in the 1954-55 season, or 41.2 percent of all commercial vegetable acreage on these farms.

All farms were mechanized. As they increased in size, mechanization became more prominent and a higher degree of crop diversification was present. On the average, smaller farms were not so highly mechan-

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**The author was a member of the staff of this department at the time this survey was made. He is now on the staff of the Department of Agricultural Economics at the University of Missouri.

***Results of this survey are expected to be reported in another publication of the Oklahoma Agricultural Experiment Station.

† This includes land rented by the operator, as well as land owned.

TABLE 1.—Relationship of Spinach Acreage to Total Crop Acreage and Vegetable Crop Acreage on Farms Producing Spinach in 1955.

Ownership	Total Acres in Farm	Total Crop Acres	Total Acres in Vegetables	Total Acres in Spinach	Average Number of Acres in Spinach	Percent of Veg. Acres in Spinach
Owners	15,839	7,137	3,472	1,622	124.7	46.7
Owner and renter	17,171	11,855	3,565	1,516	72.2	42.5
Tenant	8,882	7,994	3,498	1,121	71.2	34.6
Total acres	41,782	26,976	10,533	4,349		
Average acres	821.4	528.9	206.9	85.3		

ized and were generally more specialized in the production of one or two vegetable crops.

Market Outlets

Almost 100 percent of the fall spinach crop goes for processing (canning, primarily) and also the larger portion of the spring crop. Results of the survey indicated that about 8 percent of the total spinach crop on farms surveyed was sold on the fresh market or about the equivalent of 350 acres of the 4,349 acre total. Based on these results, the fresh market outlets are handling approximately 70,000 bushels or 700 tons of Oklahoma spinach annually, which gives them considerable importance in the spinach market structure.

Canneries

The cannery is the chief market outlet for spinach. This market was utilized by 88 percent of the spinach producers in the area. There were 9 operating canneries in the surveyed area, although only 39 percent of the growers were marketing their crops to these 9 canneries. The remaining 49 percent of the growers were marketing to nearby canneries in Arkansas.

Canneries in the area are believed to be adequate in number and location, although 49 percent of the growers said that they market to canneries outside of the state. These out of state canneries are all located in Arkansas and for the most part are just a few miles across the state line.

Two important factors seem to influence growers to seek markets at greater distances than would seem necessary under normal condi-

tions. These factors are: (1) Throughout the area, spinach is planted near the same date and therefore is ready for harvest at approximately the same time. The peak harvest season usually lasts about three weeks and during this time the markets become flooded, causing growers to seek a market at a greater distance than they would under normal conditions. (2) Canneries in the area have a tendency to delay the starting time for processing until they are assured of a full day's run. It was the opinion of the growers that if they could harvest their crop at the right stage of maturity it would be more profitable to haul a longer distance than to run the risk of lower prices and deterioration in quality by holding the crop for the local cannery.

It is felt by some that a better quality product as well as improved relationships between canneries and producers could be achieved if a field man were employed to work with the producers on problems of acreage, production, grading, fertilizing, insect and disease control, and aggregate supply and demand of the crop being produced and purchased.

Most canneries in the area are equipped to handle an average of 2.5 to more than 4 tons of spinach per hour of operation. It is estimated that the larger canneries in the area can handle approximately 50 tons of spinach in a 12 to 14 hour period of operation, and that the smaller plants can handle about 30 tons.

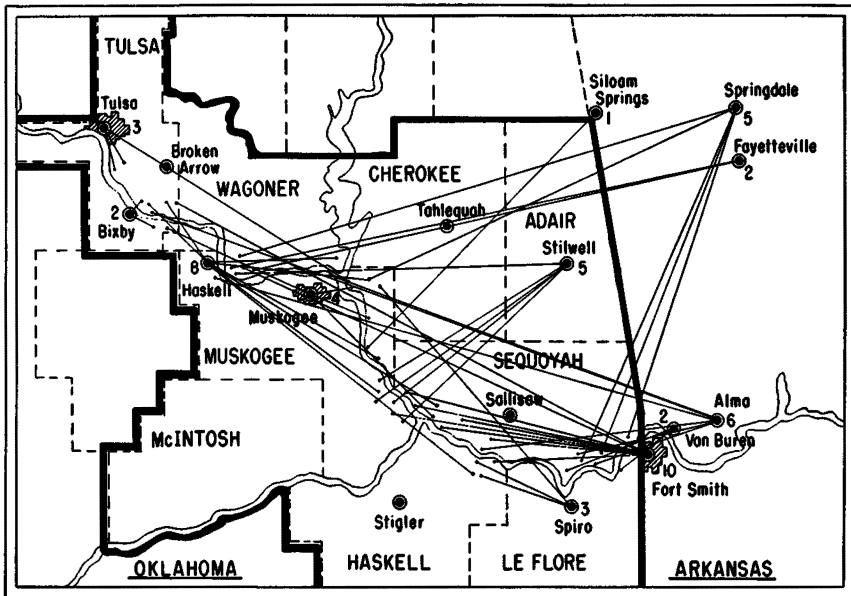
Fresh Market

About 12 of the producers interviewed were marketing all or a major portion of their spinach to fresh market outlets. Two of these producers ship to large terminal markets in the North and East. The wholesale markets in Tulsa are the major fresh market outlets for spinach in Oklahoma. Other urban areas in the state and neighboring states furnish only a small percent of the market for fresh spinach. In most cases, spinach was graded, sorted and packed in baskets or crates. In other cases it was pre-packaged and packed in crates before going on the fresh market.

Reasons for Market Used

The most frequent reasons given by producers as to why they used a particular market were computed for the entire sample. Often a producer would give two or more reasons; therefore an aggregate was computed. The most important single reason, given by 39 percent of the producers, was that the market or markets now used take all of the marketable crop produced. Other reasons given, and the percentage

FIGURE 1.—Locations of First Choice Markets Used by Spinach Producers Surveyed in 1955 and the Number of Farmers Preferring These Markets.



of the producers giving each reason, were: Best market available, 20 percent; takes crop when harvested, 18; convenient, 18; pays better price, 16; satisfactory producer-buyer relationship, 14; has contract, 8; and habit, 4 percent. Almost 6 percent of the producers reported they did their own shipping.

Circumstances Causing Producers to Change Markets

Producers were asked under what circumstances they would change from their present market to another. Sixteen producers answered that price alone was the major factor. The next factor named as second in importance was more dependable market as it relates to price, grade, and the quantity of the spinach crop. The aggregated percentages of reasons given were: Better prices, 52 percent; more dependable market, 24; take entire crop and take it when harvested, 21; location, 8; growers' association, 8; and contract with buyer, 4 percent. Nineteen percent said they would not change.

Communications and information are limited between markets and producers. Both growers and buyers voiced the opinion that the marketing of commercial spinach could be improved if more information were made available to both buyer and producer. Exchange of in-

TABLE II.—Average Distance to First- and Second-choice Markets Used by Spinach Producers, by Land Ownership.

Landholding Classification	Distance to Market (miles)	
	First Choice	Second Choice
Owners	43	51
Owner-renters	26	48
Tenants	39	55
All producers	34	51
Average of all distances	33.9	51.3

formation would help create an atmosphere of competition where both producer and buyer would feel that he is making a "fair" exchange.

Distance to Markets

The practice of producers of not marketing their spinach crop at the nearest market could not be explained by the growers interviewed. It is believed that personal relationships between the producer and buyer are the major factor, since the prices paid by the buyers differed only slightly or none at all.

Locations of the markets of first choice and the number of farmers preferring these markets are shown in Figure 1. Considerable overlapping of market areas exists. The average distances that producers move spinach to their first and second choice markets were 33.9 miles and 51.3 miles, respectively (Table II).

The second choice market is highly important in respect to spinach in the area. As a rule, a few large producers in each area will sell to different processors, so as to keep from over-supplying any one particular plant. But if other areas are harvesting also at the same time, some of the canneries will become oversupplied and be forced to refuse spinach brought in. This is a critical period for the spinach producer. He has already harvested from 5 to 20 tons of spinach; and, since it is a highly perishable product, it must be sold in a matter of hours or that portion of the harvested crop is a complete loss. This forces the spinach producer to split his market, usually by contacting a buyer at a greater distance who is equipped to handle a large volume of the crop. Price no longer is the major consideration of the producer. Rather he is interested in a buyer who will take the crop as it is harvested, thereby preventing complete loss and giving a maximum return under the conditions.

Labor

Acquiring adequate labor at harvest is a major problem to the spinach grower. Producers, under present operating conditions, cannot compete effectively with industry in the nearby urban areas for the existing labor supply. This labor problem is being approached in several ways by the producers. In the Tulsa area, some producers are bringing in transient labor. In the eastern portion of the area, the harvesting and moving to market is let out to professional contractors by the producers. Neither of these methods, at present, is proving entirely satisfactory to the producer or the laborer. From the opinions voiced by many producers, mechanical harvesting of spinach will be the answer in solving this problem together with plant research in developing a variety of spinach better adapted to mechanical harvesting.

Cost of Harvest

The average harvesting cost paid by the commercial spinach producers interviewed varied from \$13.50 per ton to \$31.50 per ton. This cost included cutting, field grading, loading, and hauling to market. Two factors which are the major causes of the variation in cost are: (1) whether spinach is packed for fresh market or bulk loaded into trucks for the processor, and (2) the distance to market. The producer paid an average of \$17.84 per ton for cutting, field grading and loading of his spinach, plus an average charge of \$4.74 per ton for the haul to market. In those cases where the harvesting and marketing of the crop was done under contract, the producer had an estimated cost outlay of \$27.50 per ton.

Grading

Grading of spinach by the producer before marketing was practiced by 27 percent of the growers surveyed. Less than half of those who graded reported receiving a higher price for the graded product. In all cases except two, grading was carried out in the field while the crop was being harvested. The two exceptions to this method of grading were: (1) where producers sell to chain stores, local wholesalers, or retail merchants, and (2) where producers ship to a central market.

Where field grading is practiced, the cutter discards spinach infected with mold, insects, yellow leaves, and weeds. In many cases, the method was not very satisfactory, particularly in those cases where the grower was not present to see that the practice was carried out. The buyer objected strongly to loads brought in containing mold, weeds, and off-

color, and generally reacted by reducing the price paid or refusing to buy the spinach.

Alternative Enterprises

Alternative crops given by commercial spinach growers for acreage now in spinach were small grains, alfalfa, cotton, soybeans, and corn. Only in a few cases did livestock effectively compete with spinach. Most of the producers favored small grains as the chief alternative crop for spinach. Two growers said they had no alternative for spinach under their present conditions and would probably have to acquire more land before they could change to some other enterprise. Aggregated percentages for alternatives listed by growers were: Small grains, 53 percent; alfalfa, 31; cotton, 29; soybeans, 20; livestock, 16; corn, 13; and no alternative, 6 percent.

Summary and Conclusions

Commercial spinach production in Oklahoma is confined chiefly to the Arkansas River Valley in the eastern part of the state; primarily in the counties of Sequoyah, LeFlore, Haskell, Muskogee, Wagoner and Tulsa. The results of a survey of spinach growers in this area showed no precise system followed by the individual producers in the marketing of their crop. The split market was a characteristic of the spinach producing area. Several factors influence farmers to sell to markets from two to ten times the distance of that of their nearest market. Some of the major reasons are: (1) the grower looks for a market that will take all his crop, (2) he seeks the market where the greatest net returns can be realized and (3) he looks for a market that will take the crop at the date it is ready to be harvested.

Canneries are the most important market outlet in the area. The cannery markets are believed to be adequate in numbers. However, the spinach crop is harvested in a short period of time—the bulk in one to three weeks. Under this short harvesting season the capacity of the cannery markets relative to the large volume harvested appears to be deficient. The major problem is the lack of coordination between the planting and harvesting date of spinach by producers and the opening date or the beginning date of operation of the canneries for processing spinach.

Producers believe that the labor problem in harvesting commercial spinach would become less important with the advance of the mechanical harvester in the area.