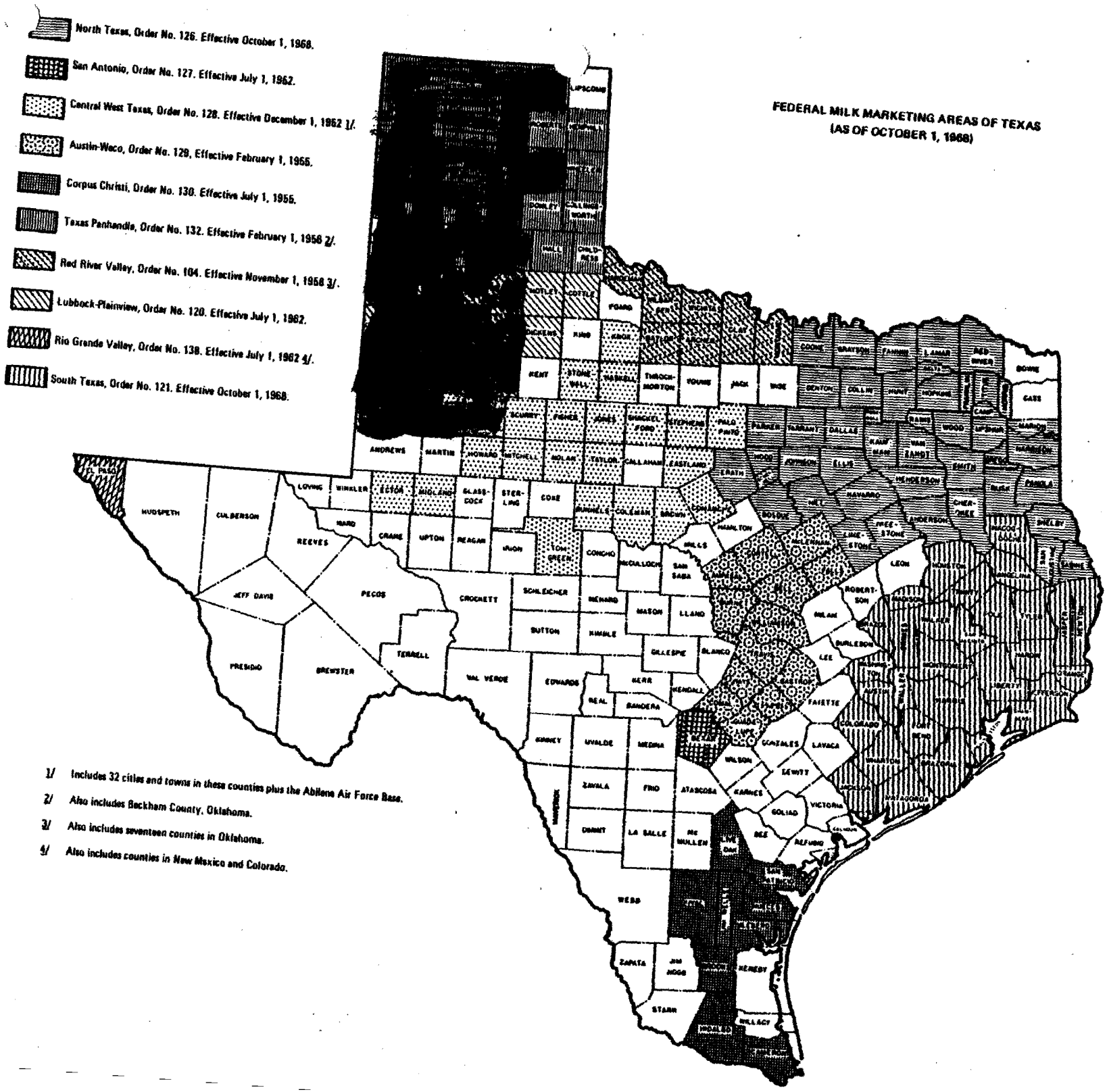
DESCRIPTION OF THE HIGH PLAINS

The Texas High Plains comprises an area of 33 counties in the upper northwestern corner of the State. It spans about 275 miles, in north-south length, and around 115 miles east to west, Figure 1. That is equivalent to about 31,625 square miles, or 20,240,000 acres of land. Gentle height undulations occur in the terrain creating a rolling plain. Elevation is between 3,000 to 4,000 feet compared to Dallas-Fort Worth in north-central Texas which is only about 500 feet. Given that height, together with an average rainfall of only about 15 to 20 inches per year, the area is one of a high,dry and often cool climatic environment. These factors are important to the market development potential addressed in this report.

Over the last three or four decades a marked shift occurred in West Texas agriculture. Previously, West Texas was known almost exclusively as cattle ranching territory. But with the advent of irrigation it was transformed into one of the most productive agricultural sections of Texas--one where high technology agriculture is readily applied. As a consequence, within recent years agricultural cash income for the 33 High Plains counties has accounted for about 30 to 35 percent of the total for the entire State, 254 counties, Table 1. Clearly the High Plains is of critical importance to Texas agricultural total income.

In the northern portion of the High Plains, crop irrigation is possible from replenishable underground reservoirs. The southern portion, on the contrary, depends primarily on water from the Ogallala Acquifer, which so far as is known, is a non-replenishable underground water source. Wells in that area have had to be periodically deepened, which further raises irrigation costs. Recently rising energy costs to operate the well pumps have compounded

FEDERAL MILK MARKETING AREAS OF TEXAS
(AS OF OCTOBER 1, 1968)



1/ Includes 32 cities and towns in these counties plus the Abilene Air Force Base.

2/ Also includes Beckham County, Oklahoma.

3/ Also includes seventeen counties in Oklahoma.

4/ Also includes counties in New Mexico and Colorado.

the cost increases. Thus, it is increasingly difficult to produce cotton, corn, wheat, and grain sorghum on the High Plains and compete successfully with supplies grown in the Mississippi-Ohio River plains under adequate rainfall.

THE CHALLENGE AND RESEARCH OBJECTIVES

In view of the above noted developments, Texas High Plains agricultural leaders have requested an overview assessment to identify specialized, new, or expanded markets which might assist them in adjusting to, and profiting from, the changing economic conditions before them. Therefore, the objective of this study is to provide an initial evaluation of several market potentials. The market opportunities identified must possess realism in terms not only of High Plains area profitable crop production capabilities and alternatives, but also with respect to the establishment of suitable market delivery systems.

This particular research phase is confined to a market-scan analysis. A market-scan is a preliminary assessment of the size and trends in current markets. It seeks information about present or latent market demands which apparently are not being adequately served or for which Texas may have a competitive advantage. A market-scan preceeds a detailed production/marketing system feasibility study by identifying in which areas the latter, more extensive costly studies should be made. For guidance of the market-scan research phase a set of general objectives was formulated.

1. Identify product needs and specifications primarily in Texas and the Southwest among the following market segments: fresh fruit and vegetable market buyers, food processors and fast food establishments.

2. Determine the information sources guiding buyers' purchase decisions.

3. Identify existing market development groups and activities in West Texas for agricultural products.

4. Prepare recommendations to implement long range market research and development programs for West Texas High Plains agriculture.

RESEARCH PROCEDURE

Research procedures generally followed seven steps.

First, it appeared desirable to document the growth of the Southwest market, of which the High Plains is a part. Southwest as used here comprises Texas, Oklahoma, Arkansas, and Colorado. Louisiana and New Mexico were not included simply because neither appears to have substantial potential as a market for the High Plains area.

Step two examined the size and composition of the total food manufacturing segment of the economy in the Southwest. Food and fiber processing has been on the rise in Texas, a factor that may be of considerable importance to the High Plains.

Step three concerned identification of the geographic location in the State of the food processing establishments and their product specialization. Fourth, on the basis of step three, major market segments offering a potential for the High Plains were selected.

In stage five, key agribusiness processing of marketing firms were designated as a selective sample, for executive interviewing by the research

team, as phase six. Part seven was an evaluation of the size of those markets exhibiting potential for High Plains agriculture. On the basis of the foregoing research stages, conclusions and recommendations were formulated.

The research team field operations were organized toward specific research phases. The Texas Tech group assumed responsibility for field surveys in the High Plains to determine the presence and organization of current marketing and development activity and processor facilities. The TAES-Texas A&M group assumed responsibility for assembling and organizing basic market data for the Southwest region. Both groups participated in the field interviews with agribusiness marketing and processing executives in the Dallas-Fort Worth area. Texas A&M was assigned Houston and San Antonio. Within these three metro areas the greater portion of the State's agribusiness marketing and processing firms are headquartered.

A considerable number of contacts were also made with out-of-state food processing firms. Industry associations knowledgeable about food markets were contacted on a selected basis nationwide to gather further information pertinent to market size estimates.

After particular commodity marketing opportunities were identified by the market-scan, interviews were held with TAES and USDA crop production specialists as to the general feasibility of production systems to support market development of the identified opportunities. As in all market-scan research some professional judgments are required, particularly concerning data interpretation and market share potentials that the Texas High Plains might acquire. We turn now to the general findings of the study, beginning with a brief overview of growth of the Southwestern Region market.

GROWTH OF THE SOUTHWEST MARKET

Emphasis upon the Texas and Southwestern Region occurred for two reasons. One is the rapid population growth in Texas along with other sunbelt states. The other is the potential impact of rising energy costs, which it would seem, will inevitably lead to a reassessment of processing plant locations and supply procurement arrangements. Both mean potential market expansion opportunities for Texas agriculture.

Population growth of Texas, Oklahoma, Louisiana, Arkansas, Colorado, and New Mexico has been significant from 1970 through 1979. Texas now ranks third largest in the nation in population. Growth, by the U.S. Census count, has been from 9.6 million in 1960 to 11.2 million in 1970. A December 31, 1978 total of 13.2 million was estimated by Sales Management. The gain therefore has been running at the substantial rate of about 2 million persons per decade. From April 1970 to the close of 1978, Texas population jumped by 17.8 percent. The U.S. Census projection for 1990 is 15.3 million, another 2 million person increase. That means that Texas will continue among the top three states nationally in population growth, Table 2.

For the Texas, Arkansas, Oklahoma, Colorado, and New Mexico area, the gain is forecast at nearly 4 million persons per decade. Much of the growth is to come in the major metro markets. Houston, Dallas-Fort Worth, San Antonio, and Denver are among the expected big gainers. Dallas-Fort Worth and Houston, according to the 1979 Survey of Buying Power are already among the top 10 markets nationwide in terms of population, income, and retail sales.

Continued growth of the Texas market will be supported especially from large energy supply resources. Further industrial growth is almost inevitable because of this highly important asset. Some of the area's coal deposits, for example, are only beginning to be tapped. These are over and above the oil and gas reserves of the State.

Whereas Houston, during the past decade, has attracted a number of large national corporations, now Dallas-Fort Worth also is a focal point for relocation of national corporate headquarters. Many factors are behind these significant growth trends, which are expected to continue, but they lie beyond the need of further treatment here. The significance to this study is that growth markets inevitably offer new opportunities. The agricultural sector of the Texas economy should stay closely attuned to the situation and capitalize on the inherent food and fiber processing and marketing opportunities.

FOOD MARKET AND PROCESSING TRENDS

The food market in Texas, Oklahoma, Arkansas, and Colorado totaled 24.7 billion dollars in 1978, Table 3. Of that amount 72 percent was through food stores and the other 28 percent was in eating and drinking establishments. Texas alone represents two-thirds of that four-state market. Growth in dollar sales between 1968 and 1978 was 17 billion dollars or 239 percent. On an actual dollar basis corrected for price level changes the gain was [illegible] billion dollars and [illegible] percent.

Published figures regarding food processing reach only as far as 1976 on a state basis. Value added by food processing in Texas was 2.6 billion

dollars in 1976, up 1.6 billion dollars or 160 percent over 1963 in current dollars. The net growth, after allowance for inflation, was 0.3 billion and 27 percent. Food store sales meanwhile jumped from 4.7 to 14.2 billion dollars for a rise of 202 percent, Table 4.

Comparatively speaking, Texas is falling behind in serving its own food processing market needs. This will become even more critical because of the trend toward a greater percentage of all food being processed than in prior years. This represents one of the key determinations of the study. If Texas, as well as the High Plains, is to optimize its agricultural income it should promote further food processing in the State and the provision of commodity inputs to those markets. Though there is a lag in processing in Texas, processing still represents a substantial market. We turn now to a consideration of that market's magnitude.

One out-turn of market growth in the Southwest has been an increase in food and fiber processing. According to the U.S. Census of Business, Texas had almost 1,500 food processing firms in 1972. Total sales volume amounted to over 5.5 billion dollars. Value added by food processing in the State increased by 116 percent over the 1963 level, whereas wholesale food prices increased by 32 percent. The net increase in physical volume was therefore about 71 percent. The 1977 Census of Business figures have not been released as yet and according to the Department of Commerce Office in Washington will not be available until late in the fall of 1979.

Because the yearly report on manufacturing by the Census Bureau of the Department of Commerce is based upon a sample survey, annual figures are not available as to the total number of manufacturing plants. Consequently, we

must rely on the latest available U.S. Census information, 1972 data, on the subject. The number of food processing plants in Texas with over 20 employees declined to 1,493 plants in 1972 compared with 1,887 in 1963, a 21 percent drop. Numbers nonetheless were about 10 percent above the 1958 mark, Table 5.

Nationally, food processing plants numbered 37,512 and 28,183 in 1963 and 1972, a 25 percent decline. Thus the Texas reduction was less than that nationally.

The survey revealed that a number of the smaller size food processors had closed their doors in recent years. That trend was noted also in an earlier Market Center survey among confectionery plants. Movement to larger, more efficient plants is affecting the Texas situation as it is nationally. Despite the decline in plant numbers, 70 percent more dollar volume and 30 percent more discounting inflation price effects were turned out in 1972 than in 1963. That nonetheless is still behind Texas market growth in either food store sales or total market sales including those of eating and drinking establishments. The latter segment, of course, does include the cost of personal services.

Manufacturing industries in Texas include some part of most SIC categories (Standard Industrial Classification) used nationally for government data. Value added by manufacturing in Texas, according to major SIC lines, is summarized in Table 6 for the census years 1958, 1963 and 1972. Added in the final column is the annual survey estimate for 1976. Food processing ranked third in the State in manufacturing value added contribution in 1976. In 1972 food was ranked second only to the chemicals and allied products category.

Survey indications are that Texas has participated substantially in the fast food industry growth although it is not possible at this juncture to say

whether the Texas participation is in line with national market growth rates. National headquarters of several such chains are located within the State.

Table 1. Texas High Plains Counties, Cash Receipts from Marketings and Government Payments, As a Percent of the State Total, 1976 and 1977

County	1976	1977
	- - - thous. dollars - - -	
Armstrong	14,478	21,895
Bailey	40,689	53,194
Borden	10,549	14,473
Briscoe	18,123	29,902
Carson	37,412	44,154
Castro	142,573	156,272
Cochran	28,459	44,184
Crosby	57,717	53,168
Dallam	40,508	64,703
Dawson	80,974	55,822
Deaf Smith	169,201	209,403
Floyd	74,887	89,707
Gaines	84,718	80,337
Garza	21,856	19,453
Gray	36,812	37,775
Hansford	70,113	86,490
Hale	129,491	157,582
Hartley	64,079	83,105
Hockley	47,764	76,488
Hutchison	15,441	20,270
Lamb	97,611	112,368
Lynn	68,907	52,151
Lubbock	104,630	116,507
Moore	73,517	86,244
Ochiltree	45,107	45,971
Oldham	16,968	16,908
Parmer	152,214	164,232
Potter	5,532	8,197
Randall	51,112	69,990
Sherman	58,024	77,334
Swisher	87,626	110,059
Terry	48,726	64,145
Yoakum	16,905	28,239
Total High Plains(33 Counties)	2,012,723	2,350,722
Total for Texas(254 Counties)	6,319,592	7,116,586
High Plains % of Texas	31.85	33.03

Source: 1977 Texas County Statistics, TDA, USDA

Table 2. Population of Southwestern States and Projections

State	Population		Projected Population		Forecast Increase
	1970[a]	1978[b]	1985[a]	1990[a]	1978-90
	million		million		million	%
Texas	11.2	13.2	14.3	15.3	2.1	15.9
Oklahoma	2.6	2.7	3.0	3.2	0.5	18.5
Arkansas	1.9	2.2	2.4	2.5	0.3	13.6
Colorado	2.2	2.7	3.1	3.4	0.7	25.9
New Mexico	1.0	1.2	1.4	1.5	0.3	25.0
Total	18.9	22.0	24.2	25.9	3.9	17.7

Source: [a]Bureau of the Census, U.S. Department of Commerce; [b]Sales and Marketing Management, Survey of Buying Power, 1979.

Table 3. Food Market Size Selected States

Market by States	1968			1978			1968-78 Growth			
	Food Stores	Eating & Drinking	Total	Food Stores	Eating & Drinking	Total	Actual Dollars		Net of Price Change	
	billion dollars						billions	%	billions	%
Texas	3.8	1.1	4.9	11.9	4.7	16.6	11.7	+239	3.1	+66
Oklahoma	0.8	0.2	1.0	2.2	0.8	3.0	2.0	+200	.4	+40
Arkansas	0.5	0.1	0.6	1.6	0.5	2.1	1.5	+250	.4	+67
Colorado	0.8	0.3	1.1	2.1	0.9	3.0	1.9	+173	.3	+27
Total	5.9	1.7	7.6	17.8	6.9	24.7	17.1	+225	4.2	+60

Source: Survey of Buying Power, Sales Management.

Table 4. Food Store Sales, Selected States and Food Processing in Texas

Market by States	1963	1976	1963-76 Change Actual Dollars		1963-76 Change Net of Price Change	
	billion dollars		billions	%	billions	%
Food Store Sales[a]						
Texas	3.0	9.2	6.2	+206	1.8	+55
Oklahoma	0.7	1.9	1.2	+171	.2	+25
Arkansas	0.4	1.4	1.0	+250	.4	+100
Colorado	0.6	1.7	1.1	+183	.3	+50
Total	4.7	14.2	9.5	+160	2.7	+53
Food Processing[b] (value added)						
Texas	1.0	2.6	1.6	+160	.3	+27

Source: [a]Survey of Buying Power, Sales Management.

[b]U.S. Census of Business, annual survey reports.

Table 5. Number of Food Processing Plants in Texas

Year	With 20 or more employees	Total
	number of establishments	
1958	608	1756
1963	723	1887
1967	724	1720
1972	669	1493

Source: U.S. Census of Manufacturing.

Table 6. Value Added by Manufacture in Texas

SIC Code	Industry	1958	1963	1972	1976
		million dollars			
20	Food & kindred products	711	1,000	1,716	2,646
	Wholesale food price index	95.1	92.4	121.8	179.2
22	Textiles	34	37	49	109
23	Apparel & other textiles	---	---	552	874
24	Lumber & wood products	79	109	369	503
25	Furniture & fixtures	67	77	199	201
26	Paper & allied products	114	150	342	598
27	Printing & publication	211	282	660	993
28	Chemicals & allied prod.	1,055	1,645	3,190	6,187
29	Petroleum refining	572	987	1,338	3,915
30	Rubber & plastics	63	100	349	570
31	Leather & products	---	---	---	51
32	Stone & clay & glass	236	306	611	921
33	Primary metal	298	381	785	984
34	Fabricated metal	239	309	1,090	1,837
35	Machinery, ecl. elec.	379	510	1,450	3,178
36	Elec. machinery	94	248	939	1,444
37	Transportation equip.	608	616	1,261	2,003
38	Instruments & products	47	44	177	345
39	Miscellaneous	---	---	146	212
Total		5,045	7,086	15,272	27,600
U.S. Wholesale Price Index		94.6	94.5	119.1	183.0

Source: U.S. Census of Manufacturing.