

Approved March 24, 1992
Date

MINUTES OF THE HOUSE COMMITTEE ON AGRICULTURE

The meeting was called to order by Representative Lee Hamm at
Chairperson

9:00 a.m. ~~p.m.~~ on Wednesday, March 18, 1992 in room 423-S of the Capitol.

All members were present except: Representative Garner and Representative Rock, who were excused

Committee staff present: Raney Gilliland, Legislative Research
Lynne Holt, Legislative Research
Jill Wolters, Revisor of Statutes Office
Pat Brunton, Committee Secretary

Conferees appearing before the committee: Richard Hahn, Director
Kansas Value Added Center

Al LeDoux
Committee of Kansas Farm Organizations

Hearings were opened on **SB 502** - concerning agricultural value added processing center.

Richard Hahn, Director, Kansas Value Added Center, appeared before the committee with a presentation on the Kansas Value Added Center. Mr. Hahn introduced to the committee his associate, Susan Goetsch. Mr. Hahn informed the committee of the services provided by the center. He further informed the committee that **SB 502** needs to be passed to allow KVAC to continue to operate. (Attachment 1).

Al LeDoux, Committee of Kansas Farm Organizations, testified in support of **SB 502** stating it is their belief that the Kansas Value Added Center continues to support existing agricultural value-added businesses, work toward the commercialization of new opportunities for our agricultural products and identify opportunities for new markets, crops and exports. (Attachment 2).

Discussion was held in regards to **SB 502**.

Representative Reinhardt made a motion to pass favorably **SB 502**. Seconded by Representative Heinemann.

Representative Rezac made a substitute motion to amend **SB 502** with a 5 year sunset clause. Representative Wempe seconded the motion. A division vote was taken with 8 in favor and 9 opposed. Motion failed.

The original motion to pass **SB 502** favorably carried.

The meeting adjourned at 9:36 a.m. The next meeting of the House Agriculture Committee will be held at 9:00 a.m., Thursday, March 19, 1992, in room 423-S, State Capitol.

PRESENTATION TO 1992 KANSAS LEGISLATURE

MARCH 18, 1992

HOUSE AGRICULTURE COMMITTEE

REPRESENTATIVE LEE HAMM, CHAIRMAN

✓ KVAC STATUS

- KVAC Fact Sheet
- KVAC Strategy
- Kansas Ag Value Added Team
- Evaluation of KVAC
- Case Studies
- Summary and Recommended Actions

✓ ATTACHMENTS

- Processing Food in Farm State: An Economy Development Strategy for the 1990's
- "FOCUS on Value Added Agricultural Products"

HS. AG.
3-18-92
ATTACHMENT 1

KVAC FACT SHEET

Established by 1988 Legislature as Agricultural Value Added Processing Center
Senate Bill 599 - Signed May 19, 1988 (76-481 to 5)

MISSION: To enhance the economy of Kansas through technical assistance to
Kansas agriculture processing industries

LOCATION: Suite 301 Umberger Hall, Kansas State University,
Manhattan, KS 66506

STAFFING: Director - Richard Hahn
Manager—Technical Services - Susan Goetsch
Executive Secretary - Mary Kay Gunnels
Graduate Assistant (½ Time) - Jim Parker

BUDGET: Funding Primarily Economic Development Initiative Fund
FY92 Budget \$ 650,170

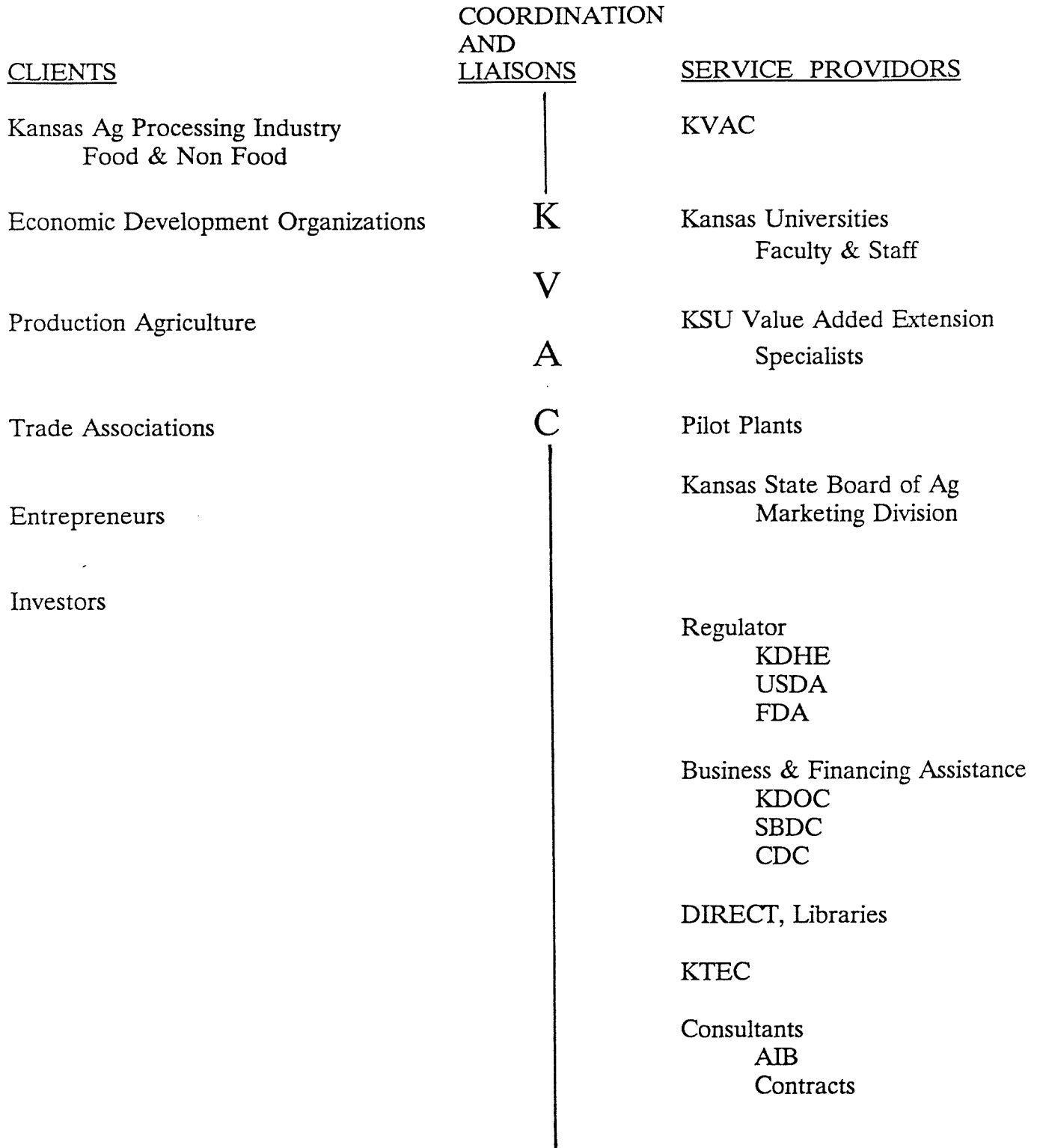
SERVICES PROVIDED:

1. Free consultant service to Kansas businesses. Provide information, problem solving, technical advice, and technical networking. Resources include: KVAC staff, KSU Value Added Extension Specialists, faculty from 5 regents universities, Board of Agriculture, Marketing Division, private consultants and contractors.
2. Product and process development and commercialization assistance. Includes product improvement and quality control, regulatory compliance, technical assistance, etc. Limited matching funding is available.
3. Making available pilot plant facilities for private use to scale up processes and prepare market test quantities. Limited matching funding is available.
4. Development of new technology and opportunities for Kansas ag processing industry. KVAC provides limited start up funding for promising ideas.
5. Training for Kansas industry. In cooperation with other groups, KVAC provides training grants, short courses and seminars, as well as individualized training in a wide variety of technical areas.
6. KVAC provides leadership and opportunities for coordination and acts as liaison among various groups interested in the Kansas agriculture value added industry.

K V A C S T R A T E G Y

1. Support existing ag based value added businesses.
2. Support commercialization of new opportunities.
 - food
 - non food
3. Through technology transfer, find opportunities for ag diversification, new crops, biotechnology and new markets including exports.

KANSAS AG VALUE ADDED TEAM



EVALUATION OF KVAC

Evaluation of KVAC by Leadership Council (November 8, 1991)

- Responsive, market focused, client oriented
- Good networking and cooperation has been established
- Providing valuable and needed services in all parts of the state
- Areas to improve:
 - ◆ increase awareness of KVAC
 - ◆ expand to larger businesses
 - ◆ increase emphasis on new technology
 - ◆ more plant visits

Evaluation of KVAC by clients

(Survey sent to 200 clients in October 1991)

- Size of businesses served
 - 45% have 1 or 2 employees
 - 17% have 10 or more
- Location of business
 - 33% rural
 - 33% cities under 5,000
 - 10% cities over 50,000
- Age of owner
 - 60% 35-49
- Business income
 - many businesses "not yet profitable"
 - 1/4 did not depend on enterprise for family income
 - for 40% it is only family income

Was KVAC helpful?

Was information useful?

How did KVAC impact your business?

CASE STUDIES

Work With Industry Groups (not KVAC only!)

- (1) Jam and jelly producers (also includes fruit producers).
 - Evaluation of product quality (chemical & sensory analysis).
 - Training course on processing techniques and quality control.
 - Processing workshop -- juice production.
 - "Better Process Control School" -- FDA.
 - Individual process assistance, plant expansion, new equipment.
 - Individual new product development.
 - Pilot plant production of market test quantities.
 - Nutrition labeling/packaging assistance.
 - Marketing assistance.
 - Articles in "FOCUS on Value-Added Agricultural Products".
- (2) Small Retail Bakers
- (3) Meat Processors

Work With Individual Companies (not KVAC only!)

- ▶ Information
- ▶ Troubleshooting
- ▶ Packaging, labeling
- ▶ Business plans and financing
- ▶ Plant and process design and improvement
- ▶ Marketing assistance
- ▶ Product development (from concept through test market quantities)

New Technology

- (1) Beef blood by-products as animal feed.
- (2) Utilization of beef fat as a diesel fuel.
- (3) Starch based plastic materials.
- (4) Bio-plastic composites using hides, straw, etc.
- (5) Low fat meat products.
- (6) Grain based snacks.

SUMMARY AND RECOMMENDED ACTIONS

1. KVAC is effective in providing technical support to the ag processing industry. We are customer and market oriented and dedicated to serving customer needs.
2. KVAC is known and utilized by a broad segment of the Kansas food processing industry. Most of our clientele is small businesses and more emphasis needs to be directed toward larger enterprises.
3. Cooperation and coordination has been established between state agencies, universities, and others serving the ag processing industries. Continued effort must be made to expand and improve this coordination.
4. Only limited progress has been made in developing new technology for Kansas Ag processing. This will require increased manning and funding. New technology will soon become critical for growth in ag processing. While we have some areas of excellence in the state, we must address our long term commitment on a broader basis if this industry is to grow. KVAC Leadership Council is evaluating what needs to be done and will be making recommendations in the future. For FY93 KVAC has designated 20% of its budget (\$120,000) to new technology development. This is primarily for seed funding for new ideas, but is a very small amount compared to what is required.
5. Senate Bill 502 needs to be passed to allow KVAC to continue to operate. I see no need for changes in our authorizing legislation at this time.
6. We need favorable action on the KVAC portion of SB525. The funds requested are adequate for KVAC to continue to operate in FY93 as currently envisioned by the Leadership Council.
7. I want to call your attention to the Non Food Initiative currently being formulated by KTEC, Board of Agriculture, KVAC, and KSU. This is in response to a new USDA initiative "Alternative Agriculture Research and Commercialization" act (AARC). The initiative could provide Kansas significant opportunities for non food value added processing in the future.

Processing Food in Farm States: An Economic Development Strategy for the 1990s

By Alan D. Barkema, Mark Drabenstott, and Julie Stanley

Officials in farm-dependent states are turning to the food processing industry as a critical source of economic growth in the 1990s. Many of these farm states—found mostly in the western Corn Belt and northern Great Plains—have yet to replace jobs lost in the deep farm recession in the 1980s, despite three years of strong farm recovery more recently. The 1980s farm downturn is strong evidence that farm production alone is no longer a sufficient engine for farm state economies. Consequently, turning farm products into food products is viewed as a key to stronger economic growth in the 1990s.

What can farm states do to encourage food processing activity in the 1990s? They face an uphill battle in expanding food manufacturing, but a strategy of developing food products suited to farm output and consumer markets will pay some dividends. The first section of this article identifies seven farm states with the greatest

potential to expand food processing activity: Arkansas, Idaho, Iowa, Kansas, Minnesota, Nebraska, and Wisconsin. The second section examines how these states can develop food products to encourage growth in food processing and identifies four products best suited to the seven states. The third section considers the outlook for these four food products in the 1990s. The article concludes that a successful food processing strategy will depend on investments in emerging food technologies that could offset the distance separating the farm states from major consumer markets.

I. Farm States with Food Processing Potential

All farm states are interested in developing more food processing, but not all share the same prospects for success. Comparing the location of farm and food production is a useful first step in assessing development prospects. All farm states face a location disadvantage—they are a long way from major population centers. Nevertheless, farm states that are closer to major popu-

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Table 1
Average Hourly Earnings in Various Industries, December 1989

<u>Industry</u>	<u>Average hourly earnings</u>
Manufacturing	\$10.66
Durable goods	\$11.18
Electrical equipment	10.52
Motor vehicles and equipment	14.50
Nondurable goods	9.95
Food and kindred products	9.47
Beverages	13.36
Grain mill products	11.26
Bakery products	10.69
Dairy products	10.34
Fats and oils	9.94
Sugar and confectionery products	9.61
Preserved fruits and vegetables	8.99
Meat products	7.82
Textile mill products	7.86
Apparel	6.45
Paper and allied products	12.11
Printing and publishing	11.07
Leather and leather products	6.73
Transportation and public utilities	12.70
Wholesale trade	10.62
Retail trade	6.66
Finance, insurance, and real estate	9.76

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, February 1990.

lution centers or have a base of food processing companies already established are more likely to succeed in expanding the food industry.

Why is food processing important to farm states?

Farm states have linked their economic futures to food processing because it can boost economic activity arising from their abundant farm production. Food processing is a manufacturing industry that inherently increases the economic activity attached to farm products. It combines labor, machinery, energy, and technology to convert bulky farm products into packaged, palatable foodstuffs (Connor 1988, p. xxiii). Thus, food processing allows farm state economies to increase employment and income before farm products are shipped to distant markets.

The food processing industry is a big industry to target. Food processing shipments totaled \$388.4 billion in 1989, ranking first among the 20 key types of U.S. manufacturing during the year. The industry employs nearly 1.7 million people, making it the fourth-biggest manufacturing jobs category, after electrical machinery, nonelectrical machinery, and transportation equipment (Bureau of Economic Analysis 1990).

Targeting the food processing industry is desirable for farm states because the industry is so stable. The economies of farm states were highly cyclical in the 1980s. Historically, food manufacturing has been very steady and much less cyclical than many other types of manufacturing.¹

Food processing jobs also generally pay attractive wages and thus have a welcome impact on state incomes. At \$9.47 an hour, food wages are not the highest among manufacturing industries, yet they are high relative to other types of nondurable manufacturing often found in rural areas—such as textiles, apparel, and leather goods (Table 1). Even so, wages paid in the food

industry range widely—from \$7.82 an hour in meat products to \$13.36 an hour in beverage products.

Which states depend on farm production?

The first step in identifying states where a food processing strategy will be important is to define farm states. There is no accepted definition of a farm state in common usage. For the purposes of this article, a farm state is a state where farm output is significant to its overall economy. States that depend on agriculture have a sizable stake in adding economic value to their farm output.²

Specifically, farm states can be defined as states where farm output as a share of gross state output (GSP) is at least twice the national average.³ Nationally, farm output is 2.2 percent of the total output of goods and services. The farm share of GSP is at least double the national average in just ten states: South Dakota, North Dakota, Nebraska, Iowa, Idaho, Kansas, Arkansas, Montana, Minnesota, and Wisconsin (Chart 1 and Table 2).

These ten farm states can expect stiff competition for the nation's food processing activity. The primary competition will come from other states that produce a large volume of farm products. The ten biggest include only half of the ten farm states—Iowa, Minnesota, Nebraska, Wisconsin, and Kansas. The five other states that lead the nation in agricultural production have large, diversified economies including strong food processing industries. The food processing industries in these larger, more diversified states are the primary competition for food processing initiatives in the farm states.⁴

Where is food processed?

How successful can the ten farm states be in developing more food processing? One way to begin answering this question is to compare

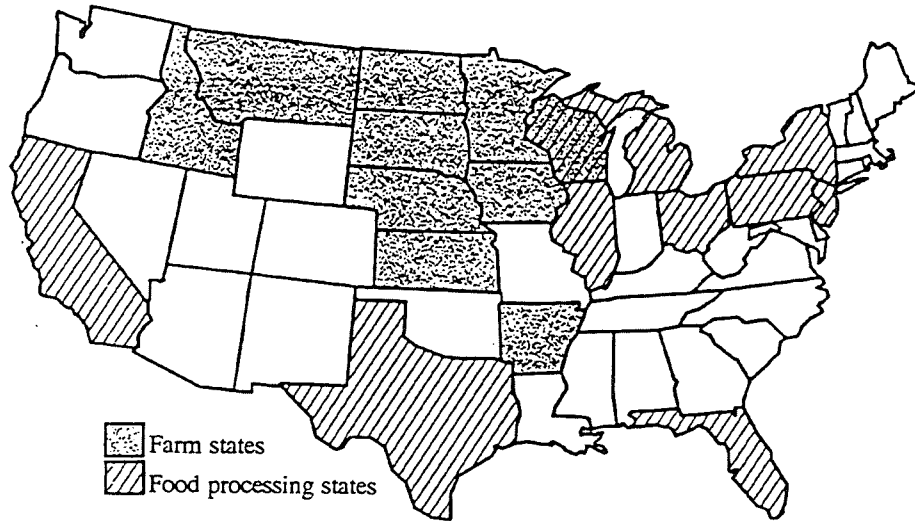
Table 2

The Importance of Farm Production in the 50 States, 1984-86 Average

Farm share of gross state product					
Rank	State	Share (percent)	Rank	State	Share (percent)
1	South Dakota	17.48	26	Delaware	2.17
2	North Dakota	14.51	27	Illinois	2.06
3	Nebraska	13.85	28	New Mexico	2.01
4	Iowa	11.25	29	Arizona	1.93
5	Idaho	10.11	30	California	1.88
6	Kansas	6.77	31	Texas	1.77
7	Arkansas	6.34	32	Wyoming	1.71
8	Montana	5.55	33	Utah	1.63
9	Minnesota	5.02	34	Maine	1.51
10	Wisconsin	4.46	35	South Carolina	1.41
11	Kentucky	4.18	36	Ohio	1.37
12	Mississippi	4.14	37	Michigan	1.34
13	Oregon	3.54	38	Pennsylvania	1.22
14	Oklahoma	3.26	39	Virginia	1.16
15	Vermont	3.15	40	Louisiana	1.06
16	Indiana	3.01	41	Maryland	.93
17	Washington	2.94	42	Nevada	.74
18	Missouri	2.82	43	West Virginia	.70
19	North Carolina	2.71	44	New Hampshire	.52
20	Colorado	2.59	45	New York	.50
21	Alabama	2.54	46	Rhode Island	.45
22	Hawaii	2.44	47	Connecticut	.42
23	Florida	2.29	48	New Jersey	.39
24	Tennessee	2.24	49	Massachusetts	.30
25	Georgia	2.18	50	Alaska	.11
				National average	2.17

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, May 1988, and unpublished data.

Chart 1
The Leading Farm and Food Processing States



Source: See Table 3.

the location of farm production and food production. Are the farm states already processing a lot of food? If not, are they near regions that do? The answers to these questions will describe the amount of food processing activity already occurring in the farm states and reveal the major source of competition the farm states face in further developing their food processing industries.

In general, farm states account for a relatively small share of the nation's total food processing output (Table 3). Some overlap exists in the location of the nation's farm production and food processing activities, but the overlap is relatively small.

The nation's food processing activity is con-

centrated in two regions, the Sun Belt and the industrial states spanning the Great Lakes and the Northeast. As shown in Chart 1, the top ten food processing states include three Sun Belt states (California, Florida, and Texas) and seven industrial states in the Great Lakes and Northeast regions (Wisconsin, Illinois, Michigan, Pennsylvania, New York, and New Jersey). These seven industrial states form a major food processing belt that accounts for more than a third of the nation's food processing activity.

Food processing appears to have located in the Sun Belt and Northeast primarily because these regions are close to the nation's major population centers. Nine of the ten leading food

Table 3

**Population and Food Processing Activity in the Major
Food Processing States and the Farm States**

Major food processing states	Population ¹		Share of U.S. food processing output ²		Food processing share of Gross State Product ²	
	Thousands	(Rank)	Percent	(Rank)	Percent	(Rank)
California	29,063	(1)	11.90	(1)	1.67	(22)
Illinois	11,658	(6)	7.32	(2)	2.54	(10)
New York	17,950	(2)	5.90	(3)	1.23	(33)
Texas	16,991	(3)	5.86	(4)	1.31	(31)
Pennsylvania	12,040	(5)	5.34	(5)	2.12	(16)
Ohio	10,907	(7)	4.72	(6)	1.92	(19)
New Jersey	7,736	(9)	4.38	(7)	2.14	(15)
Wisconsin	4,867	(17)	3.56	(8)	3.27	(6)
Michigan	9,273	(8)	3.37	(9)	1.60	(24)
Florida	12,671	(4)	3.37	(10)	1.45	(30)
Farm states						
Wisconsin	4,867	(17)	3.56	(8)	3.27	(6)
Iowa	2,840	(29)	2.57	(13)	4.04	(2)
Minnesota	4,353	(21)	2.56	(14)	2.42	(13)
Nebraska	1,611	(36)	1.49	(22)	4.01	(3)
Kansas	2,513	(32)	1.48	(23)	2.50	(11)
Arkansas	2,406	(33)	1.47	(24)	3.35	(5)
Idaho	1,014	(42)	0.80	(32)	4.31	(1)
South Dakota	715	(45)	0.35	(39)	2.60	(9)
North Dakota	660	(47)	0.23	(42)	1.45	(29)
Montana	806	(44)	0.13	(48)	0.77	(42)

¹ 1989.

² 1984-86 average.

Sources: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, *Population Estimates and Projections, State Population and Household Estimates: July 1, 1989* (population data); Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, May 1988, and unpublished data (Gross State Product data).

processing states—all except Wisconsin—rank among the ten most populous states in the nation. More than half of the nation's population resides in the ten leading food processing states (Table 3). Unlike the three Sun Belt states, which are leaders in both farm and food production, all of the states of the northeastern food processing belt—except Illinois—produce a comparatively small volume of farm products.

In contrast to the high concentration of food processing activity in the Northeast and Sun Belt states, such activity in the ten farm states is limited. The ten farm states account for only 15 percent of the nation's total food output. Only one of the ten farm states, Wisconsin, is among the ten leading food processing states. Food processing activity in the ten farm states generally diminishes in states further removed from the food processing belt. For example, each of the westernmost farm states—Idaho, Montana, North Dakota, and South Dakota—processes only a small fraction of the nation's food. On the other hand, the three farm states adjacent to the food processing belt—Iowa, Minnesota, and Wisconsin—are the leading food processors among the ten farm states.

The food processing industry is nonetheless a vital part of the economy in farm states. Food processing accounts for an average 1.7 percent of GSP for the 50 states as a whole. Eight of the ten farm states exceed that average by a considerable amount (Table 3). By contrast, both food processing and farm production play a relatively small role in the large, well-diversified economies of the major food processing states. The clear challenge for farm states wishing to boost food processing activity is to find ways to compete effectively with the location advantages of the major food processing states.

Which farm states can expand food processing?

Which farm states appear most able to

expand food processing in the 1990s? Two criteria define a farm state's ability to expand. The first is the distance from the state to major population centers. All farm states face a location disadvantage, but some are farther from major markets than others. The second is the presence of a viable food processing base from which to grow. States that have little or no food processing already established probably have little likelihood of successfully entering the competitive, capital-intensive industry.

One indicator of a farm state's food processing base is the amount of food processed in the state compared with the amount of farm products produced there. Put another way, the ratio of farm output to food processing output in each farm state approximates how much of the state's farm output is already processed before it is shipped elsewhere. A high farm-food output ratio indicates relatively little food processing activity and points to only a small base from which to expand. Conversely, a low farm-food output ratio indicates a much stronger food processing base that can be expanded more readily. In short, farm states do not share the same capacity to expand food processing. Those with more favorable location and with a food industry base already established have better prospects to expand.

Two groups of states emerge from examining the farm-food output ratios of the farm states. All ten farm states have farm-food output ratios above the national average of 1.25 (Table 4). But of more importance, the ten states appear to fall into two groups representing high and low potential for expanding food processing. The two groupings appear consistent with the location of the states relative to population centers:

High-potential farm states. The seven high-potential states have relatively low farm-food output ratios and are within striking distance of major consumer markets. The farm-food output ratios range from 1.36 in Wisconsin to 3.45 in Nebraska. The range of ratios indicates a big-

Table 4 - Continued

Panel B—Low-Potential States				
Major farm products	Farm-food output ratio	Product share of state farm cash receipts (percent) ¹	Major food processing industries	Industry share of state food employment (percent) ²
<i>South Dakota</i>	6.73			
Meat animals		57	Meat products	63
Feed grains		13	Dairy products	16
Oil crops		10	Bakery products	10
<i>Montana</i>	7.20			
Meat animals		52	Meat products	15
Food grains		24	Dairy products	29
Feed grains		13	Grain mill products	16
			Bakery products	21
<i>North Dakota</i>	9.98			
Meat animals		26	Meat products	11
Food grains		30	Dairy products	14
Feed grains		14	Preserved fruits and vegetables	17
Oil crops		12	Sugar and confectionery products	17

¹ Average 1986-88.

² 1987.

Sources: U.S. Department of Agriculture, Economic Research Service, *Economic Indicators of the Farm Sector, State Financial Summary, 1988* (product share of state farm cash receipts); U.S. Department of Commerce, Bureau of the Census, *County Business Patterns, 1987*, various issues (industry share of state food employment).

ger food processing base in some states than others. Nevertheless, each state in the high-potential group—Wisconsin, Arkansas, Minnesota, Idaho, Kansas, Iowa, and Nebraska—has a strong food processing base from which to grow.

The seven high-potential states face different

challenges in terms of their location. Wisconsin, Minnesota, and Iowa are along the western fringe of the northeastern food processing belt. Arkansas is well-positioned to serve the Sun Belt population centers. Idaho, Kansas, and Nebraska are somewhat further removed from consumer markets. Despite their location differences, all

Table 4
Major Farm Products and Food Processing Industries in the Farm States

Panel A—High Potential States				
Major farm products	Farm-food output ratio	Product share of state farm cash receipts (percent) ¹	Major food processing industries	Industry share of state food employment (percent) ²
<i>Wisconsin</i>	1.36			
Dairy products		60	Dairy products	32
Meat animals		20	Meat products	23
			Preserved fruits and vegetables	14
<i>Arkansas</i>	1.89			
Poultry and eggs		45	Meat products	62
Meat animals		13	Preserved fruits and vegetables	12
Food grains		13		
Oil crops		13		
<i>Minnesota</i>	2.07			
Meat animals		30	Meat products	31
Dairy products		20	Dairy products	17
Feed grains		16	Preserved fruits and vegetables	12
Oil crops		15		
<i>Idaho</i>	2.35			
Meat animals		29	Preserved fruits and vegetables	61
Vegetables		21		
Dairy products		13		
Food grains		10		
Feed grains		10		
<i>Kansas</i>	2.71			
Meat animals		62	Meat products	50
Food grains		15	Bakery products	11
Feed grains		13	Grain mill products	11
<i>Iowa</i>	2.78			
Meat animals		50	Meat products	50
Feed grains		22	Grain mill products	20
Oil crops		20		
<i>Nebraska</i>	3.45			
Meat animals		63	Meat products	56
Feed grains		22	Grain mill products	14

of the high-potential states face a distinct challenge in overcoming the high shipping costs that result from their distance to population centers.

Low-potential farm states. Low-potential states have a weak food processing base and are a long way from consumer markets. Farm-food output ratios in the low-potential states range from 7.0 to 10.0, significantly higher than in the high-potential states. Farm output is generally smaller in Montana, North Dakota, and South Dakota than in the other farm states. Nevertheless, farm output far outweighs food production in these northern Great Plains states. These states lack a dominant farm commodity to spark food processing development. In addition, these three sparsely populated states are a long distance from population centers, a strong negative factor for expanding food processing activity. Given the limited potential for expanding food processing in these three states, the remainder of this article will focus on the seven states with high potential for expanding their food processing industry.

II. The Challenge for Farm States: Developing Successful Food Products

States with high potential for expanding their food processing industry already have a food processing base from which to grow; but how can they expand that base? The answer lies in developing successful food products. Product development is a combination of four steps: choosing, where possible, food products in growing demand; assessing the competition in food product markets; developing promising technologies; and adding value to farm state products. In brief, the farm states must target markets carefully, choosing to compete in markets where prospects for growth are bright, where competition is less concentrated, and where technological developments may open new market niches. But

these steps must be taken within the overall constraint of using the states' own farm products. This section examines the factors affecting each of the four product development steps and concludes by identifying four promising food products farm states can target to boost food processing activity.

Choosing growth markets

Farm states should target food products that promise to be in growing demand. Demographic trends in the consumer population are likely to play a strong role in determining patterns of growth among various food products. By anticipating the influence of these demographic trends on patterns in food demand, farm states can improve their chances of success in expanding their food processing activity.

The major trend likely to characterize the U.S. food market in the years ahead is clear: the consumer will demand more food products offering greater convenience with high nutritional value. Spurring the demand for such food products is a changing U.S. lifestyle that will limit the time available for meal preparation. More than four-fifths of all U.S. households now have a single parent or two wage earners. Within five years, two-thirds of all households will contain just one or two persons; two-thirds of all women will be in the work force; and three-fourths of all households will own microwave ovens (U.S. Department of Commerce 1990). With meals on-the-run becoming the national norm, continued growth in the consumer's demand for convenient food products can be expected.

At the same time, consumers are becoming increasingly concerned about the nutritional value of processed food products. As a result, consumers will demand—and be willing to pay for—a growing variety of food products that provide a high level of convenience without sacrificing nutritional quality. This strong trend in consumer food demand is almost certain to play a

major role in determining prospects for growth in the food processing products of greatest importance to the farm states.

Assessing the competition

Farm states are most likely to succeed by targeting food products with markets that can be entered easily. Thus, states must promote food products that can compete in a crowded national food market. Economic incentives—gains in employment and income—resulting from increased food processing activity range widely across the many food industries. Farm states can expect stiffer competition in those food industries where economic incentives are greater. Some of the food industries that offer the largest economic payoffs are already highly concentrated and thus are virtually closed to entry by the farm states. Futile efforts to enter those industries would simply deplete scarce development funds. Instead, farm state strategies should target those food industries where the probability of successfully entering the market is reasonable, even if the potential rewards are somewhat smaller.

The economic boost likely to accompany increased food processing ranges widely across food products, depending on the value added to raw farm products and the number of jobs created. Food products associated with higher levels of value added and increased employment naturally attract strong competition. Thus, farm states targeting such food products face a low probability of successful entry into these markets.⁵ In addition, production of many high value-added products is dominated by a few large, well-entrenched firms. If farm states target those products, they must recruit branch plants of large companies. Studies show that recruiting out-of-state manufacturers is less effective than fostering indigenous businesses (Smith and Fox 1990). Processing activity in some food markets is also highly concentrated geographically. Farm states are likely to have difficulty promoting

products whose production and distribution are based elsewhere, unless ways of overcoming locational disadvantages are found. Farm states are more likely to boost activity in food industries that are more diffuse geographically, especially those industries that use locally produced farm products.

Developing new technologies

Farm states should focus additional effort on emerging food technologies that offer great promise for boosting local processing activity. New methods in both production and distribution will help farm states capitalize on their abundance of raw food products, while effectively minimizing the distance from their fields to major food markets.

Emerging technologies with the greatest promise for farm states are developments in weight-reducing processes, packaging, and biotechnology. Weight-reducing processes reduce shipping costs. For example, in recent years meat packers have cut beef into frozen portions and shipped them in boxes, rather than shipping the much heavier carcasses. The development of boxed beef has helped encourage the meat packing industry to move from urban centers to the southern plains states. In the future, similar innovations in other food products could offset the distance from farm states to consumer markets.

Two other new types of packaging promise to extend product shelf life and allow shipment to distant markets. Controlled-atmosphere packaging involves placing a food product in a sealed package with low levels of oxygen and high levels of carbon dioxide to maintain freshness. Retort pouch packaging replaces the customary can or jar with a paper-foil pouch in which food is sealed and heated under pressure. The pouch packaging weighs less than conventional packaging materials, which reduces shipping costs and helps farm states overcome their locational disad-

vantage. In addition, the method leads to a high-quality product because the heating time required to ensure sterility is reduced (Labuza 1985, p. 74).

Advances in biotechnology may also open new food frontiers to farm states by developing new farm products and creating new uses for existing farm products. Genetic engineering may enable plant and animal scientists to develop crops and animals with more desirable food qualities. For example, wheat varieties may be developed with protein characteristics suited to a particular bakery product. Or, cattle may be genetically altered to reduce particular types of fat. Genetic advances such as these may not lead immediately to greater food processing activity; yet they may enhance cooperation between farm producer and food processor, a link that may lead to more economic activity in the farm states.

Biotechnology may also lead to fermentation techniques that would convert farm products into enzymes with useful properties. Worldwide, the food processing industry uses \$445 billion of enzymes in producing its products (Hopper and Lund 1990). For example, producing the artificial sweetener aspartame requires the use of an enzyme reaction. New research may find ways to produce these enzymes from current crops, enhancing the opportunity to add value to raw farm products.

Adding value to farm state products

Market growth, market access, and technology will be important factors in successful food product development. But farm states must build their food processing strategies on the farm and food product strengths they already have. A readily available supply of certain farm products provides food processing industries in the farm states one competitive advantage to help offset the disadvantage of being far from consumer markets. But to take advantage of their cheap supply of farm products, compatible food prod-

ucts must be developed. Farm and food production activities differ markedly among the farm states. Nevertheless, the farm states are similar in that the food processing activity already underway in each state is based on its leading farm products (Table 4).

The seven high-potential farm states—Wisconsin, Minnesota, Arkansas, Idaho, Iowa, Kansas, and Nebraska—have successfully built strong food processing industries around a diverse set of homegrown farm products. The dairy industry is a leading industry in Wisconsin and Minnesota. Wisconsin's dairy industry generates about three-fifths of all farm product sales in the state and about a sixth of all dairy farm sales in the nation. The dairy processing industry, in turn, is Wisconsin's dominant food processing industry, employing nearly a third of the state's food processing workers.⁶ Dairy production is also a leading industry in Minnesota's farm economy, but the state's livestock, grain, and soybean production yield a farm economy that is more diverse than that of Wisconsin. Meat and poultry dressing plants and the dairy processing industry are the leading food processing employers in the state, accounting for nearly half of the state's food processing employment.

Arkansas and Idaho are similar in that each has successfully exploited a relatively narrow food market niche. In Arkansas, broiler production generates 45 percent of the state's farm product sales. In turn, the state's huge broiler industry supports a poultry dressing and processing industry that accounts for more than 60 percent of the state's food processing employment. In Idaho, more than 60 percent of the state's food processing workers are employed in the vegetable processing industry, which is spawned by the state's substantial vegetable production.

The three remaining high-potential farm states, Iowa, Kansas, and Nebraska, produce a broad range of similar farm and food products. Huge grain and soybean crops support large livestock feeding industries, the dominant farm

enterprise in each state. Together, Iowa, Kansas, and Nebraska account for about 30 percent of the nation's livestock sales, a volume that has given rise to the region's large meat products industry. The meat products industry—primarily meat packing plants—employs at least half of all food processing workers in each of the three states. In addition to providing ample feed for livestock in these states, grain production serves as the raw material for a number of grain and bakery products. These grain processing industries are the second leading food processing employers in the three states.

In sum, the seven farm states with high potential for developing additional food processing activity have already established a base in four key industries: meat products, dairy products, preserved vegetables, and grain products. The challenge facing the farm states is determining how to unlock even more value from these homegrown farm products before they are shipped elsewhere.

III. Prospects for Key Food Products in the Farm States

As farm states grapple with strategies for developing their food products, what are their prospects for succeeding in the 1990s? Put another way, when farm state officials combine all elements of food product development—growth in consumer markets, access to markets, and new technology—what is the outlook for each of the four key food products?

Meat products

Large livestock production has already allowed the farm states to establish a strong beachhead in the meat products industry. Growth in the industry will be strongly influenced by the consumer's growing appetite for convenient food products. Favoring the industry's growth are emerging packaging technologies that mesh

with growing demand for processed meat and poultry products requiring little preparation time.

The demand for all meat products has trended higher in recent years, largely due to a surge in poultry consumption. Rising poultry consumption, however, has been accompanied by a sharp drop in red meat consumption. After cresting in 1976, per capita consumption of red meat has fallen about 21 pounds (16 percent). More than offsetting the slump in demand for red meat has been a 23-pound (63 percent) surge in per capita poultry consumption (Putnam 1990).

The shift in consumption from red meat to poultry is due in part to the consumer's acceptance of the poultry industry's numerous offerings of innovative, competitively priced food products. Although the red meat industry has lagged behind in developing new product offerings, the industry has begun to add more value to its products before shipping. For example, about 86 percent of the nation's total beef production is now shipped as boxed beef (U.S. Department of Commerce 1990).

Looking ahead, the red meat industry's ability to curb the consumer's shift to poultry will depend on whether it can develop new convenience products to meet consumer demands. New packaging technologies may play a major role in determining the balance between the demand for red meat and poultry. Meat packers already ship beef and fresh turkeys to processing plants under controlled-atmosphere storage. Further innovations in controlled-atmosphere packaging might expand meat markets by extending the shelf life of meat products. Retort pouch packaging could be used for meat products, reducing weight and shipping costs relative to shipping boxed beef. Thus, further packaging innovations may allow farm states to add more value to meat products before shipping.

Favoring further development of the meat products industry in the farm states is the relative ease with which farm states can enter meat prod-

Table 5
Characteristics of Farm State Food Processing Industries

	Four-firm concentration ratio ¹ <hr/> (percent)	Four-state concentration ratio ² <hr/> (percent)	Value ratio ³ <hr/> (percent)
<i>Food and kindred products</i>	n.a.	28	39
<i>Meat products</i>	n.a.	26	21
Meatpacking plants	29	37	17
Sausages and other prepared meats	19	32	22
Poultry dressing plants	22	45	34
Poultry and egg processing	22	41	20
<i>Dairy products</i>	n.a.	35	29
Creamery butter	41	63	5
Natural and processed cheese	34	60	22
Condensed and evaporated milk	35	53	42
Ice cream and frozen desserts	22	33	27
Fluid milk	16	27	32
<i>Preserved fruits and vegetables</i>	n.a.	35	50
Canned fruits and vegetables	21	46	46
Dehydrated fruits, vegetables, and soup	42	83	41
Frozen fruits and vegetables	27	57	46
<i>Grain mill products</i>	n.a.	31	44
Flour and grain mill products	40	31	31
Cereal breakfast foods	86	55	97
Blended and prepared flour	58	43	30
Wet corn milling	74	76	36
Dog, cat, and other pet food	52	36	60
Prepared feeds	20	30	24
<i>Bakery products</i>	n.a.	31	73
Bread, cake, and related products	34	32	76
Cookies and crackers	59	40	67

¹ 1982.

² 1987.

³ 1986 ratio of value added in processing to value of product shipments.

Sources: U.S. Department of Commerce, Bureau of the Census, *1982 Census of Manufactures, Concentration Ratios in Manufacturing* (four-firm concentration ratio); U.S. Department of Commerce, Bureau of the Census, *County Business Patterns, 1987*, various issues (four-state concentration ratio); U.S. Department of Commerce, Bureau of the Census, unpublished data (value ratio).

uct markets. This article uses two gauges of market competition to measure this ease: 1) the four-firm concentration ratio, or the share of the market in a given product controlled by the four largest firms, and 2) the four-state concentration ratio, or the share of jobs found in the four dominant states for each product. The four-firm concentration ratio in meat products is relatively low, ranging from only 19 percent in sausages and other prepared meats to 29 percent in meat packing plants (Table 5). Similarly, at 26 percent the four-state concentration ratio is the lowest among the four major food industries of importance to the farm states. The low concentration ratios indicate that competition in meat product markets is relatively diffuse. Although more recent data may reflect a more concentrated industry, the market for meat products is more open to the farm states than markets for many other food products. Thus, there appears to be an opportunity to build on the existing meat processing activity the farm states already enjoy.

Economic activity generated by the meat products industry is smaller than that generated by many other food processing industries, however. The amount of value added to raw farm products in meat processing is relatively low. One measure of the amount of value added to raw farm products in various food processing industries is the ratio of value added in processing to the total value of food shipments. A high ratio indicates a substantial amount of economic activity generated by the processing industry. Only 21 percent of the value of the meat products industry's total shipments is added in processing plants, well below the average 39 percent added by all food processing industries. On the other hand, the meat products industry is relatively labor intensive, promising the creation of many jobs. But the industry's average wage is relatively low (Table 1). Still, with new technologies promising to boost the amount of value added in the industry's plants, and with a strong farm state presence in the industry already in

place, the meat products industry is a likely target for farm state development efforts.

Dairy products

Prospects for further developing the dairy products industry in the farm states are relatively bright. Although new entrants to the industry will face well-entrenched competition, two of the farm states, Minnesota and Wisconsin, are already among the industry's leaders. Moreover, technological advances could boost milk processing activity in the farm states.

Consumer demand varies widely across the range of dairy products. Per capita consumption of all dairy products has grown slowly in recent years, edging up only 7 percent during the 1980s to 582 pounds in 1988 (Putnam 1990). The market for fluid milk and cream has been one of the weakest segments of the dairy market, with per capita consumption falling sharply in the 1970s and edging down further in the 1980s. Similarly, consumption of frozen dairy products has stagnated since the early 1970s. Sales of low-calorie frozen desserts, however, are expected to be relatively strong in the years ahead, as makers of ice cream and other frozen desserts recognize the consumer's growing nutritional concerns. The cheese market is expected to be the strongest in the dairy industry, spurred by increased use of cheese in convenience foods and other food products (U.S. Department of Commerce 1990).

This array of prospects for various dairy products suggests that dairy processing strategies in the farm states—especially Minnesota and Wisconsin—have successfully targeted the strongest segments of the dairy products market. A strong position in butter, condensed milk, and cheese production has placed Minnesota and Wisconsin among the four leading dairy processing states. Thus, the industry's relatively high four-firm and four-state concentration ratios do not necessarily preclude additional dairy process-

ing activity in the farm states (Table 5). Still, Minnesota and Wisconsin lag behind other states in fluid milk processing, largely due to their distance from major consumer markets.

Recent advances in milk processing techniques, however, may bolster prospects for fluid milk processing in these two farm states. Much of the fluid milk produced in Minnesota and Wisconsin is processed into other products because milk, which is 87 percent water, is heavy and costly to transport long distances to major consumer markets. Although processing milk into other products adds value and economic activity, milk supplies in these two states are so large that further gains are available from shipping more milk to other parts of the country.

Two new technologies may eventually boost milk shipments from the farm states. Newly emerging membrane filtration techniques remove the water from milk through a series of fine filters while retaining nutritional and taste qualities. Milk could be transported in concentrated form and then reconstituted near the point of final sale (Fleming and Kenney 1989).⁷ A second new technique is freeze concentration, the same process used to concentrate fruit juices, which would provide a milk concentrate to be sold in the frozen food case. In sum, these new food packaging technologies could significantly enhance dairy processing activity in the farm states by shrinking the locational disadvantage.

Preserved fruits and vegetables

Prospects are mixed for bolstering food processing activity in the preserved fruits and vegetables industry, the dominant processing industry in Idaho. A relatively high value added rewards successful entrants into this market. A handful of states—including Idaho—have captured a substantial share of the market, however, and will be formidable competition for new entrants to the industry. Advances in food technology should continue the industry's record

of success in meeting the consumer's demand for convenient, highly nutritious products. But the new technologies are likely to offer only marginal gains to the industry's activity in the farm states.

The consumer's increasing appetite for food products that provide both convenience and nutrition has had a major impact in the preserved fruits and vegetables industry. Many of the industry's product offerings are microwavable, spurring demand among a consumer population with limited time for meal preparation. For example, per capita consumption of frozen vegetables increased a fourth during the 1980s, to nearly 18 pounds, and per capita consumption of frozen potatoes increased two-thirds since the early 1970s, to about 22 pounds in 1988. The consumer's increasing concern for nutritional value—as well as for convenience—promises to maintain the market's growth. In addition, the rapidly increasing number of elderly Americans provides another source of growth for easily prepared, highly nutritious product offerings (U.S. Department of Commerce 1990, and Putnam 1990).

Successful new products in the rapidly growing market would likely be rewarded with a substantial boost in economic activity. Processing activity in the preserved fruits and vegetables industry accounts for half of the value of product shipments, the second highest among all food processing industries (Table 5).

New activity in the farm states, however, will meet strong competition from established market players. Although firm concentration ratios are relatively low, geographic concentration ratios in the industry are high. Nearly 60 percent of the nation's employment in the frozen fruits and vegetables industry and over 80 percent of employment in the dehydrated fruits and vegetables industry are located in just four states (including Idaho, a high-potential farm state).

New food packaging technologies further enhance the prospects for the preserved fruits and vegetables industry and might allow farm states

some additional diversification of their crop bases into fresh produce. Some food companies are already using controlled-atmosphere packaging to ship lettuce plants (complete with roots) in a package infused with carbon dioxide. Such "living plants" arrive at retail markets in better condition and have a longer shelf life than lettuce packaged more conventionally. Similarly, the retort pouch can be used to boost the quality of processed vegetable products. These new technologies may allow farm states to make additional inroads into the fruits and vegetables processing industry. But the new technologies will benefit the industry's established players as well, and farm state gains are likely to be limited.

Grain mill and bakery products

Further processing of huge, locally grown grain crops appears to be a natural method of stimulating additional economic activity in farm states. The value added in selected grain processing industries is among the highest of all food processing industries. But the market for these highly desirable industries is also highly concentrated among a few large firms, potentially limiting farm state gains.

Demand for flour and cereal products has risen in recent years, a positive factor for farm state milling and baking industries. Wheat flour is the dominant product in this food group, accounting for three-fourths of total flour and cereal product consumption. Driving the increase in consumption is a strong demand for fresh baked goods, crackers, pasta products, and breakfast cereals. Consumption of cereal and bakery products is larger in older households, indicating the demand for flour and cereal products will remain strong as the large baby-boom generation ages (Putnam 1990, and U.S. Department of Commerce 1990). With demand strengthening for flour and cereal products, the grain and bakery products industries would seem a natural source for adding value to the huge

grain crops produced in the farm states.

In addition, these industries offer substantial economic benefits. For example, in the cereal breakfast foods industry, the value added in processing is 97 percent of the value of product shipments, the highest percentage among all food processing industries (Table 5).

Farm states may have difficulty tapping these markets, however. Markets for many grain-based products tend to be dominated by a few large well-capitalized firms in a few states, posing an effective barrier to entry by farm states. For example, 86 percent of the market for cereal breakfast food is controlled by four firms, one of the highest concentration ratios in the food industry. More than half of the breakfast food industry's jobs are found in just four states. Similarly, four-firm and four-state concentration ratios are relatively high for flour, wet corn milling, and cookies and crackers. Thus, these markets appear difficult to enter unless farm states chase branch plants of major food companies, a costly and difficult approach to development.

Although the grain product markets appear to be natural avenues for using farm state grains, the cost of shipping farm state grain to distant processing points is relatively inexpensive. In addition, technological advances that would enhance grain processing activity in the farm states by reducing the cost of shipping finished grain products or by some other means do not appear likely. In sum, a large portion of the farm states' huge grain crops are likely to remain a ready supply for processing industries elsewhere.

IV. Conclusions

Officials in farm states are turning to food processing as an engine for economic growth in the 1990s. The food industry is an attractive target for economic development because adding value to abundant farm production creates jobs and boosts incomes. Yet the ten farm states are

not major food processing states. To the contrary, a corridor of states spanning from the Great Lakes to the East Coast processes more than a third of the nation's food supply. Based on a comparison of farm output relative to food output, the seven farm states with the greatest potential to expand food processing are Arkansas, Idaho, Iowa, Kansas, Minnesota, Nebraska, and Wisconsin.

Overall, farm states face an uphill battle in becoming major centers for processing the nation's food supply. They have a huge supply

of farm products to process, but they are removed from the nation's population centers. Thus, farm states may need help from new technology to offset their locational disadvantage. In the past, farm states have made enormous investments to boost the productivity of agriculture through the funding of research at agricultural experiment stations and land grant universities. Adding value to farm production may require that more of the research effort be focused on the development of new food processing and transportation technologies.

Endnotes

¹ One piece of evidence indicating the stability of food processing is the pattern of growth in the food processing component of the nation's aggregate gross state product (GSP). The food processing component of manufacturing has grown more slowly than other manufacturing industries, but food processing has been more stable. Based on a regression from 1972 to 1986, the manufacturing component of the nation's GSP grew 2.27 percent a year with a standard error of 0.35 percent. Food processing grew 2.18 percent a year, with a standard error of 0.21 percent. Non-food manufacturing grew 2.27 percent a year, with a standard error of 0.38 percent.

² The farm state definition used in this article is similar to the U.S. Department of Agriculture's definition of a *farm-dependent* county. A farm-dependent county is one in which agriculture accounts for more than 20 percent of the county's total personal income. In addition, the Agriculture Department defines a *farm-important* county as a county where farming accounts for 10 to 20 percent of the county's total personal income.

An alternative definition of farm state is a state that produces a large quantity of farm production. But many of the states with large farm output have large, diversified economies and thus are much less dependent on a food processing strategy. California, the nation's largest producer of farm products, is a prime example.

³ The most recent gross state product data available are for 1986. This analysis is based on an average of the GSP

data for 1984 through 1986 to smooth variations in the data caused by changing weather, shifts in farm policy, and other short-term effects.

⁴ The ten states that lead the nation in farm output in descending order are California, Texas, Iowa, Illinois, Florida, Minnesota, Nebraska, Wisconsin, Kansas, and North Carolina. Thus, the five nonfarm states among the ten leading producers of farm products are California, Texas, Illinois, Florida, and North Carolina. Two of these five states (Texas and Illinois) are focusing some development effort on food processing, but the strategy is generally aimed at rural development rather than statewide development.

⁵ In essence, farm states must consider both the risks and the rewards of pursuing various food processing industries. A strategy designed to capture industries offering the greatest rewards—in terms of jobs and income created in adding value to raw farm products—may also face the greatest risk of failure. For example, the cereal breakfast food industry leads all food processing industries in the amount of value added to raw farm products. But the breakfast food industry is highly concentrated in the hands of a few well-entrenched firms. Thus, a potentially large economic payoff—the large value added—is offset by a very small chance of successfully capturing a piece of the industry. In contrast, the meatpacking industry offers a lower reward (in terms of value added) than the breakfast food industry. But since the industry is not as concentrated

as the breakfast food industry, the probability of boosting the industry's activity in the farm states is greater.

⁶ The analysis of farm production data in this section is based on an average of the three most recent years of data available, 1986 to 1988, to smooth variations caused by changing weather, shifts in farm policies, and other short-term effects. Food processing employment data are for

1987, the most recent data available.

⁷ Two filtration methods are now being tested, reverse osmosis and ultrafiltration. In reverse osmosis, milk is forced through a semipermeable membrane under pressure. The membrane allows water molecules to pass, but nothing else. Ultrafiltration is a similar technique, but the milk passes through a series of progressive membranes.

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New FDA Labeling Regulations to Affect Food Processors

Hopefully, most of you have heard something by now about the new Food and Drug Administration (FDA) labeling regulations. On November 8, 1991, FDA delivered to the food industry the suggested regulations for implementing the Nutritional Labeling and Education Act of 1990 (NLEA).

Basically, the new law requires all food products under FDA jurisdiction and sold in a retail market to contain nutritional information according to strict guidelines, including 20 varieties of fresh fruit, vegetables and fish. It does not cover fresh meat and poultry, since they are covered by USDA regulations.

The proposed FDA regulations would exempt small businesses with less than \$500,000 in food and other merchandise sales or less than \$50,000 in sales of food alone.

The new guidelines will specify the format of required information such as total calories, calories from fat, total fat, saturated fat, cholesterol, carbohydrates, complex carbohydrates, sodium content, amount of fiber, protein, vitamins A and C, calcium and iron. Key descriptor words such as fresh, low-fat, cholesterol-free and lite/light have also been defined.

A 90-day response period for comments on the 1,100 page document is the next stage of the regulation approval procedure with November 8, 1992, the deadline for final ruling. By May 8, 1993 (less than 1-1/2 years away) "...all food products on the supermarket shelf must comply with the NLEA, unless special

hardship extensions are granted." More than a year might seem like plenty of time to make adjustments, but consider the time involved to relabel a single product:

nutritional analysis	2-3 months
label review and design	
process	1-2 months
printing new labels	1 month
Estimated total time	4-6 months

These times are fairly generous and are based on a normal workload. However, consider the volume of different products that will need analyses, all the labels to be reviewed and redesigned and the new printing jobs that will be necessary over the next 15 months. The same number of firms now providing these services will be asked to meet these new short-term deadlines.

Also keep in mind Murphy's Law on scheduling: "It always takes twice as long as you think" and this multiplies exponentially with the more products involved. From a budgetary standpoint, start planning for the expenses now and spread the costs over a longer period of time. If you wait, the consequences could be beyond your means, especially if FDA seizes your mislabeled product.

The new laws are going to happen, now it is a matter of making the transition as smoothly as possible. Here is where the Kansas Value-Added Center (KVAC) can assist. KVAC works with Alteca, a Manhattan-based laboratory, to analyze products and collect data necessary for

label information. From the information, KVAC coordinates its efforts with the Kansas State Board of Agriculture or the American Institute of Baking (AIB) to conduct label reviews.

The reviews include the principal display panel and placement of required information, nutritional information placement and terminology and ingredient statement. The cost of the label review and nutritional analysis for the first product will be deferred by KVAC. The cost of label reviews for more than one product will be negotiable, approximately \$30 to \$50 per label with additional costs for nutritional analysis.

Another important factor to consider ahead of time is any changes in formulation or processing can affect the nutritional analysis and thus the label. Therefore, any future process or product development changes

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Hot Dogs: A Value-Added Approach

Sausages are one of the most widely consumed meat products. Various sausage products are popular with different segments of consumers in the United States, occupying over 40 percent of total consumer expenditure spent on processed meats at \$5.7 million of \$13.3 million.

Processing methods allow these products to be extended with a variety of added ingredients to reduce cost of production and improve nutritional quality as well as palatability. The addition of non-meat protein additives in the production of sausages, frankfurters and beef patties is an active area of meat research.

As a result, a variety of low cost non-meat additives with high nutritional value were recommended and utilized in sausage production and well received by the consumers. Among the non-meat protein additives are: milk proteins such as nonfat dry milk, sodium caseinate, whey protein concentrate and plant proteins such as soy flour, soy concentrate, soy isolate and corn germ protein.

Plant proteins in sausages bring many

positive effects in the products. These proteins added at a level not more than 3.5 percent as prescribed by USDA have the ability to bind water and fat in the batter and thus contribute to improved product quality characteristics.

This capacity to bind water helps the manufacturer increase the level of added water and reduce the cost of production, without a compromise on quality. The storage stability of such products has also proven acceptable under recommended storage conditions.

The important advantages of plant proteins utilization in sausages, bologna, frankfurters and beef patties increased protein content and decreased fat and cholesterol levels in the finished products.

The Department of Foods and Nutrition at Kansas State University has an extensive food research program in the area of processed meats such as frankfurters and beef patties containing plant and milk proteins, with a large number of manuscripts published. Suitable curricular program, research equipment and a well developed Sensory Analysis Center

facilitate comprehensive research in utilization of new protein additives in food products.

Kansas shares over 8 percent of national cash receipts from marketing of meat animals. Having about 20 percent of cattle slaughtered in the nation and over 160 livestock slaughter plants, the state has put up an impressive show among forerunners in the meat business.

With such production potential and a convenient availability of technical expertise, the state has enormous prospects in this area of value-added processing and utilization of plant proteins such as soy, corn and wheat proteins in processed meat products.

The Department of Foods and Nutrition is always willing to collaborate with food processors looking forward to prospective business opportunities.

For more information on the subject, call Dr. J. F. Zayas, Department of Foods and Nutrition at (913) 532-5508. ■

Ravin Gnana and J. F. Zayas
Department of Foods and Nutrition
Kansas State University

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FDA Labeling

should be conducted before analysis. Extension specialists and other consulting experts are available to help you through these steps.

Your responsibility will be to schedule the work to be done on your products, realizing the time, manpower and facility limitations of the service organizations (AIB, Alteca, extension specialists, printers, etc.). Give KVAC a call at (913) 532-7033 to find out how, when and where your company can begin adapting to the new FDA labeling regulations. ■

The use of trade names and brand names is not intended as an endorsement nor is criticism of unnamed products or firms implied.

CLASSIFIED: WANT TO BUY Equipment Needed

1. Freeze drier for tray batches
2. Air drier, natural gas preferred.
Open to options and alternatives
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(913) 843-1409

To have your equipment needs or equipment available for sale listed free of charge in FOCUS, contact Dr. Rolando A. Flores, Extension Agricultural Engineering, Kansas State University, 237 Seaton Hall, Manhattan, KS 66506-2917. Telephone: (913) 532-5813, FAX: (913) 532-6944. ■

FOCUS

ON VALUE-ADDED AGRICULTURAL PRODUCTS

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Focus on Ingredients

Alternatives to Sulfites Have Been Developed

Two methods for extending the shelf-life of raw fruits, vegetables and juices have been patented by USDA scientists.

The first method is a time-release system that keeps raw fruits and vegetables from turning brown. For example, sliced apples, when treated under this system and stored at 40°F did not turn brown for two weeks.

When fruit or vegetable skin is pierced, oxygen speeds up a natural chemical breakdown in cells that causes browning. However, this time-release system uses compounds called "ascorbic acid esters" to protect those cut surfaces and inhibit the browning process.

These esters are made by combining two currently used browning inhibitors (ascorbic acid and phosphates) into what scientists describe as "a unique molecular compound." The fused compounds are more effective than ascorbic acid and phosphates added individually on produce.

The second method relies on similar browning inhibitors called "cyclodextrins" that use a "molecular shield" to protect fruit and vegetable juices from the browning process. As an example, apple juice that is mixed with cyclodextrins and stored at 39°F resisted browning for two months.

Cyclodextrins are prepared from corn starch and are used in many countries for other food and pharmaceutical applications.

Both patented techniques make use of natural browning inhibitors in liquid form to lengthen shelf-life. They can serve as replacements for sulfites.

While a number of sulfite substitutes were developed following the 1986 Food and Drug Administration (FDA) ban, those substitutes offer limited protection against browning. The new compounds are more effective. This is important because the FDA is considering new regulations banning the sulfiting of some fresh potato products.

Ascorbic acid esters and cyclodextrins

must be approved by the FDA. Several companies have expressed interest in obtaining regulatory approval. ■

USDA News Briefs, September 1991

Natural Coffee Oil

Pure oil of coffee is available for flavoring and aromatizing. Fresh roasted coffee beans are crushed, thus yielding a derivative oil that is 100 percent pure and all natural. Applications include the soft drink, confectionery, bakery and dairy industries. ■

Food Processing, August 1991

Flavors for Low-fat, Low-sodium Foods

In response to the consumer demand for low-fat, low-sodium foods, a variety of flavorings ideally suited for these applications have been introduced. Natural/artificial soybean oil flavor in an oil-soluble form can be used at levels of 0.05 percent in finished foods. Applications include low-calorie dressings, mayonnaise and oriental entrees. Natural cheese enhancers in Romano and Parmesan types do not contain any cheese, but are ideal for use in baked goods and snack items at levels as low as 0.1 percent.

Beef and chicken flavors offer the high impact of meat flavors, as well as bacon, pork and ham in no-MSG, no-HVP and low-sodium forms. Natural sauteed onion and natural sauteed garlic flavors offer the typical sauteed flavor without the caloric or cholesterol content which is associated with the natural cooking process. ■

Food Processing, November 1991

New Strain of Bacteria Improves Wine Quality

Aided by a newly developed strain of bacteria, researchers at Oregon State University have devised a method for controlling the fermentation process in wine that can improve the flavor and quality of the product and could have a significant impact on the industry, according to the American Society for

Microbiology. Central to this process is nisin, a protein with antimicrobial properties that is produced by one strain of lactic acid bacteria. Nisin is currently used in the food industry to prevent botulism in pasteurized cheese spreads. When added to wine, nisin inhibits other strains of lactic acid bacteria that cause malolactic fermentation (MLF).

The method can be used to adjust the acidity and sensory characteristics of particular types and vintages of wine by either promoting or inhibiting MLF. In MLF, natural occurring lactic acid bacteria digest the lactic acid in wine, thereby reducing its acidity and imparting wines flavor and aroma characteristics. ■

Food Processing, October 1991

White Wheat Fiber

White wheat fiber may be used in baked goods, diet beverages containing fiber, extruded snacks, salad dressings, noodles, pancakes, yogurt, diet nutrition bars and a variety of low-fat, low-cholesterol foods. The natural high-fiber ingredient is said to have a very bland flavor, a bright white color and an absence of aroma. Its water-absorption and retention properties are useful in reducing fat, cholesterol and calories. The fiber can also help create a creamy mouthfeel. ■

Food Technology, November 1991

Nut-Like Flavor

Nut-like flavor is provided by a new food ingredient made from the germ of corn kernels that are specially processed. The ingredient is said to impart a pleasant nutty taste and crunchy texture. It improves mouthfeel and provides a golden appearance in chips and extruded snacks. The ingredient also performs well as a peanut flavor extender. It has approximately 60 percent less fat than peanuts. ■

Food Technology, November 1991

For more information on any of these articles, please contact Extension Foods & Nutrition at (913) 532-5782.

Focus on Food Engineering: Going to Larger Food Processing Batches

Making way into the market with a new product is very hard for newcomers in the food processing industry. It is also difficult to keep that new product on the market. Food processors must assure customers that their product is safe to consume, has the quality the consumer is paying for, fulfills all state and federal regulations and has the same characteristics as the previous time the consumer purchased the product.

Once the recipe for a food product is determined and tested and its characteristics have been found optimal, it is in the best interest of the food processor to maintain the identity of that product. Food products have several possible sources of variability including raw materials, ingredients, processing parameters, operators, packaging materials, processing equipment, recipe or formulation and the product's intrinsic characteristics.

The source of variability addressed here is the processing parameters. Processing parameters are those processing indicators that define the conditions of the operations that are needed to transform the raw materials into a finished product. For example, when baking a cake the cooking parameters are the oven temperature and the cooking time. The processing parameters for a product to be air dried are: air temperature, air flow, air moisture, product rate and drying time.

The number of processing parameters to consider in a given operation depends on the type of process. More sophisticated processes require more parameters to control for each of the operations. Such is the case of canning where attention must be paid to retort pressure, steam line pressure and temperature, steam quality and processing time. In order to maintain a food product with constant quality characteristics, food processors must have a clear understanding of the significant processing parameters and how they change with variations in raw material characteristics.

Identification of the Processing Parameters

Identification of the processing parameters takes place when the product is being developed. The easier the process, the fewer processing parameters there are to take into consideration. For example, when working in the development of a certain sauce, the parameters could be cooking temperature and time.

Parameter Control

The control of the processing parameters requires their reading and recording. Different processing parameters demand the use of different instruments. For example, the most common instruments used in temperature observation are liquid-in-glass thermometers in which the mercury thermometer is the most common. It works very well for temperature ranges between -35°F and 950°F ; below -38°F other organic fluids, such as alcohol, are used instead of mercury.

Other thermometers commonly used in food applications are bimetallic, thermocouple and thermo-resistance thermometers. Coil springs and bellows similar to those used in temperature observation are used for pressure observation, the Bourdon tube being the most common.

The observation of the parameter and its control is mostly done manually in small and medium-sized operations. However, sensitive and/or larger processes have more sophisticated control systems for the processing parameters. The application of microprocessor-based electronics to process control is making computer-controlled systems common in food processing plants. The economic return obtained from the performance of applications of computer-controlled systems to food processing operations makes their acquisition and installation economically feasible. Computer-controlled applications have proved to be

valuable in canning processes by preventing overprocessing (longer processing times and higher temperatures) and keeping the process under the strict, mandated practices.

Scale-up of Processes

Changing the size of a batch requires reconsideration of the processing parameters. In small batches, the variations might not be as significant as they are when the change is from an experimental to a "commercial" batch. For example, there is more impact on the processing parameters when the batch to process goes from one gallon to 25 gallons, than when it goes from one gallon to two gallons. Going from an experimental batch to a commercial batch is called "scale-up process."

To understand the implications of scaling-up a process, let's look at the cooking of 20 gallons of barbecue sauce compared to a batch of 40 gallons. Let's assume that both batches are cooked in a 26-inch diameter 40-gallon steam jacket kettle at 212°F for 30 minutes. If the same steam pressure is used in both cases (assume 45 psig), theoretically the 40 gallons batch will heat up in 8 minutes and the 20-gallon in 4 minutes.

However, the heat transfer area of the kettle is the same in both cases, 7.4 ft^2 , which corresponds to the bottom of the kettle. The bottom volume of the kettle is about 20 gallons; therefore, the 20-gallon batch will be more exposed to heat transfer than the 40-gallon batch (the unit heat transfer ratio for the 20-gallon batch is $0.37\text{ ft}^2/\text{gal}$, while for the 40-gallon it is $0.18\text{ ft}^2/\text{gal}$). In order to obtain a uniform batch and to prevent over-cooking of the lower 20-gallon portion of the 40-gallon batch, the operator must provide for continuous agitation of the larger batch. Agitation is also needed in the 20-gallon batch, but the significance of each batch depends on other sauce characteristics such as viscosity, suspended solids and

Food Safety in Foodservice: Exploring Public Policy Options

The issue of food safety as it relates to away-from-home eating is a growing concern. Today 46 percent of the consumer food dollar is spent on meals away from home. Although the American food supply might be the safest in the world, nevertheless, foodborne illness does occur resulting in illness and death. Nearly 80 percent of reported foodborne illness outbreaks involve food prepared in foodservice establishments.

To address this issue, the Kansas State University Cooperative Extension Service is sponsoring a program, "Food Safety in Foodservice: Exploring Public Policy Options." This program, funded by a USDA grant, explores how to protect the consumer's health when eating food prepared away from home. Public policy education forums will be held throughout Kansas to bring together persons in leadership roles related to this issue and public policy formation. The purpose of the forums is to provide the

latest factual information on food safety in foodservice and to facilitate discussion and assessment of alternative public policy choices and their consequences.

The Kansas State University Cooperative Extension Service is recruiting managers of foodservice establishments including restaurants, schools, hospitals, nursing homes and day care centers; public health directors and sanitarians; supermarket managers; food processors; local government officials; leaders of such groups as civic organizations and farm organizations; Chambers of Commerce and Extension. If you fill one of these roles, the Extension Service invites you to participate in the local forums. For more information on how to participate, contact Alice Thomson, Extension Foods and Nutrition, Justin Hall, Manhattan, Kansas 66506-1407, (913) 532-5782. A small fee will be charged. Advance registration will be required. Lunch and printed materials will be included.

Listed below are the dates, locations and host counties of the forums to be held this year:

January 22	Salina (Saline)
January 28	Leavenworth (Leavenworth)
January 29	Kansas City (Wyandotte)
January 30	Overland Park (Johnson)
February 4	Dodge City (Ford)
February 5	Liberal (Seward)
February 6	Garden City (Finney)
February 11	Chanute (Neosho)
February 12	Pittsburg (Crawford)
February 13	Topeka (Shawnee)
February 19	Hutchinson (Reno)
February 20	Wichita (Sedgwick)
February 25	Manhattan (Riley)
February 26	Emporia (Lyon)
March 3	Colby (Thomas)
March 4	Hays (Ellis)

FOCUS Readers

Extension Foods and Nutrition has recently moved. Their new address and phone number is:

**244 Justin Hall, KSU
Manhattan, KS 66506
913/532-5782**

WE CAN HELP YOU

If you have questions related to the following:

- Ingredients and formulations
- Packaging materials and technologies
- Food safety and hazard analysis
- Laws and regulations
- Product development
- Quality assurance
- Net weight compliance
- Labeling requirements

Please contact Extension Foods & Nutrition, (913) 532-5782.

HELPFUL NUMBERS



If you need help in any of the following areas with value-added processed foods, please contact the following value-added specialists and agencies:

- 1) Karen L.B. Gast, KSU Extension Specialist, Post Harvest and Marketing
(913) 532-6173
- 2) Rolando Flores, KSU Extension Specialist, Food Engineering
(913) 532-5813
- 3) Fadi M. Aramouni, KSU Extension Foods & Nutrition Food Systems
(913) 532-5782
- 4) Kansas Board of Agriculture Marketing Division
Loreen McMillian
Topeka, KS
(913) 296-3737
- 5) Sharon Davis
Kansas Wheat Commission
Manhattan, KS 66502
(913) 539-0255
- 6) Richard Hahn
Kansas Value-Added Center
Umberger, KSU, Manhattan, KS
(913) 532-7033
- 7) Lisa Abeles-Allison
KSU, Extension Specialist
Agriculture Economics
(913) 532-5823
- 8) Kansas DIRECT Program
Kansas State University
Manhattan, KS 66506
(913) 532-7987

Focus on Marketing

Italian Foods Market Grows

The Italian foods market grew 11.2 percent in 1990, reaching almost \$8 billion in retail sales, according to a recent study by Packaged Facts, Inc. The \$3.6 billion pasta segment posted 16.1 percent growth. Sales of sauces surpassed \$1.5 billion, a growth in share of 10.3 percent. The pizza market gained 9 percent, reaching \$1.6 billion; however, the frozen prepared segment gained only 2.2 percent in its leap to \$1.1 billion.

Pasta remains at the top of the Italian foods segment, with 46.2 percent share of the market (more than twice the 20.6 percent share of pizza, its rival). Two subsegments of pasta, dried dinners (macaroni and cheese mix, etc.) and canned/jarred prepared pasta—hold second and third place, with a 31 percent and 21 percent share of total pasta sales. ■

Food Processing, September 1991

Food Trends

More snack foods and more processed foods aimed at kids are two of the trends that will continue on grocery store shelves. People will also be doing more cooking at home and choosing foods with less packaging or recyclable packaging. These were some of the predictions made by two speakers at a recent conference in St. Louis for nearly 200 nutritionists, public health officials, extension specialists and animal scientists on "Toward Better Health: Trends and Truths at the American Table."

According to Jim Dorsch, director of market research for Campbell Soup, a popular trend now is miniaturization. "That means when you make food bite-size, you can eat it without knives or forks," he said. Even with recent layoffs by the Frito-Lay company, a major producer of snack foods, the snack food business is getting stronger. Other miniaturized products include single-serving boxes of cereal and frozen food entrees and canned macaroni and cheese aimed at children.

Dorsch also said the food industry is starting to use more positive words on labels, rather than negative words such as "no cholesterol." For example, one company that produces jams and jellies, a product that has not been selling well in recent years, has added the words "simply fruit" on the label and sales are going up.

The most popular items in the grocery stores are frozen foods and deli selections. However, with good health continuing to be a priority among American families, Rebecca Mullis, a nutritionist with the Centers for Disease Control, predicts more people will cook at home as a way to provide healthy meals. ■

High Plains Journal, October 1991

Yogurt Consumption

A study by the U.S. Department of Agriculture found that yogurt consumption has increased by about 800 percent over the past 20 years. Recent sales figures total \$1.2 billion annually, with Americans consuming 1.3 billion pounds of yogurt each year - just over 5 pounds per person. ■

High Plains Journal, October 1991

Dietary Guidelines

With the government's stamp of approval, the produce industry is charging ahead with a nationwide promotion aimed at capitalizing on food consumption recommendations in the third edition of the Dietary Guidelines for Americans.

Known as "5 a Day—for Better Health!," the promotion is built around the government's suggestion that Americans eat at least five servings of fruits or vegetables a day to reduce the risk of cancer and other diseases.

Lending dollars and credibility to the produce industry effort is the National Cancer Institute (NCI), the government's cancer research entity and an arm of the National Institutes of Health.

NCI is jointly sponsoring the 10-year pilot promotion along with the Produce

for Better Health Foundation, a non-profit agency associated with the Produce Marketing Association.

Besides carrying the "5 a Day—for Better Health!" logo on point-of-purchase materials, including product packaging, in-store signs and grocery bags, the promotion will be featured in chain-wide advertising. Participating stores will offer consumers educational brochures, food demonstrations, recipes and other information about fruits and vegetables.

The program's goal is to double the average American's fruit and vegetable consumption from the current level of 2 1/2 servings a day to 5 servings a day by the end of the decade. ■

Milling & Baking News, November 1991

Dried Meat Snacks—Beef Jerky and Beef Stick Products

Beef jerky and other similar dried meat snacks are value-added products receiving much attention from small meat processors. They are value-added because of the increase in value that occurs between the raw ingredients and the final dried meat snack, particularly when the products are produced from restructured meat trim. Trim has traditionally been processed into ground beef, valued at approximately \$2.00/lb., whereas a restructured beef snack may range from \$12.00-15.00/lb.

Whole muscle jerky, typically processed from top round, has also been produced, however, this is a more expensive cut of meat. At first the value increase seems to be very attractive, a processor must remember that fresh muscle contains approximately 72 percent water and more water is added in the marinade for these products. After drying, moisture content should be about 18 percent, resulting in a 54 percent loss in product weight. The price per pound ratios do not take into consideration this total weight loss or "concentrating" effect.

Consumer trends and production

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Food Engineering

density.

This is a very simple example in which it is necessary to compensate the scale-up process with an additional operation, the agitation one. Scaling-up processes are not as simple as purchasing a larger piece of equipment. There are analytical scaling-up techniques that food engineers follow to achieve the best performance of a process under the new conditions. Although the final test is the actual processing of larger batches, the scale-up estimation could represent significant savings for the processor in testing costs and capital investment.

When a food processor is confronted with the final alternative of testing a product in a larger batch, the alternative

of renting equipment or processing time from an established processor is the most appealing. There are several processors in Kansas willing to run specific batches for food processors, either to produce test market volumes or on a routine basis and under contractual agreements.

Kansas Value-Added Thermal Processing Laboratory

The Kansas Value-Added Center (KVAC) is providing funding to develop a thermal processing laboratory for foods in the Department of Agricultural Engineering at Kansas State University. This facility will be appropriate for testing scale-up processes and it will be equipped to run market test batches of low acid foods and products that need processing operations such as retorting

and canning. At this time, the equipment is being purchased and the Seaton Hall facilities are being remodeled for this purpose. In the future, value-added processors in Kansas will have access to this facility.

Value-added operators in the state can obtain technical assistance in food engineering from the Agricultural Engineering Extension office, when there is a need for scaling-up processes and when food processes require specialized applications of instrumentation and control. ■

Rolando A. Flores, Ph.D.
Extension Specialist
Food Engineering

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Dried Meat Snacks

volumes may give a clearer picture of the dried meat snack market. According to *Snack Food Magazine's* Annual Report (August 1991), sales in the dried meat snack category were up 1.5 percent for the year, generating an estimated \$491 million in sales. However, a decrease in volume produced, off 5 percent, resulted in production of 64.2 million pounds. Higher costs for raw materials forced meat snack producers to raise prices last year, which resulted in a slight rise in dollar sales and a 5 percent drop in pound volume. Since 1987, meat snack sales have decreased 1.3 million pounds.

Of the many different flavors used on dried meat snacks, 28.7 percent of sales were regular flavor, 32.5 percent hot and spicy, and the remaining 38.8 percent barbecue, teriyaki, hickory and other flavors.

Data specific for the West North Central Region, which includes Kansas, consisted of total snack sales (chips, pretzels, popcorn, meat snacks, etc.) of 422.5 million pounds. This was approximately 9 percent of snacks purchased by 7.5 percent of the national population.

Dried meat snacks totaled 1.1 percent

of the regional snack sales or 4.65 million pounds. The estimated Kansas share of the dried meat snack market was 625,000 pounds.

The national average for per capita consumption of dried meat snacks was 0.26 lbs. in 1990 for consumers most likely between 18-34 years. Per capita dried meat snack consumption for the Kansas region is 0.25 lbs. The New England region is the highest in per capita consumption at 0.46 lbs. with the East South Central and West South Central regions low at 0.18 lbs. and 0.14 lbs., respectively.

Other market information related to dried meat snacks includes leading producers. GoodMark Foods, Inc., (Raleigh, NC) has 45 percent of the market share in dry sausage sticks and a 31 percent share of the beef jerky market. Curtice Burns Meat Snacks, Inc. (Denver, CO) has strengthened its position as the #2 producer by merging its Smoke Craft and Lowrey's Meat Specialties companies. New products introduced last year by these companies and others include:

GoodMark Smokey Mountain Beef Jerky in three flavors.

Curtice Burns Denver Dan Natural Beef Jerky available in four flavors.

Curtice Burns Wild Wolf Pinch of Beef a shredded meat snack available in pouches and tins.

Hi-Country Beef Jerky a "Lite" beef jerky with less sodium than other meat snacks and no monosodium glutamate.

Jack Link's Snack Foods turkey, ham and beef sticks.

As an overall market analysis, the dried meat snack market indicates a domination by two or three very large firms with a large number of small regional producers. The market is difficult to enter, is decreasing and is price sensitive. Although many new products are introduced each year, per capita consumption is relatively low when compared to other snack foods. ■

Dick Hahn and Susan Goetsch
Kansas Value-Added Center

Cinda's Smoke Sauce and the Value-Added Foods Laboratory

Cinda's Smoke Sauce, Valley Center, Kansas, made more than 800 jars of smoke sauce in two days at the Value-Added Foods Laboratory at Kansas State University's Department of Foods and Nutrition last November.

Cinda Dienst didn't start making her smoke sauce with a business in mind. About 11 years ago she asked a friend how her mother made her sauce. Cinda took that recipe and decided that there were things about it she didn't like, so she started to experiment by leaving some ingredients out and added different ones.

She played with the recipe for several years and the recipe from which she makes her delicious smoke sauce has only been around 4 to 5 years.

She started giving away the sauce as gifts to her friends. She even had her sister, Pat, design a label. A lot of her friends told her that she should go into business and market her product. She never took them very seriously until one of her friends called the Kansas State Board of Agriculture and asked them to send her an application for membership in the "From the Land of Kansas," a trademark program for Kansas food companies. The program was established as a marketing service to create more awareness of the Kansas food processing industry. It offers Kansas food producers free marketing to increase visibility and sales.

Cinda let the application sit around for months before she got around to completing it and mailing it back to the Board of Agriculture. Once she sent in her name, the product was published in a directory

and she got a couple of calls from places who wanted to stock her product, but at the time it wasn't in production.

Fearing that this might not be a product that would sell, she made a sample batch of the product and took it to a few meat markets in her area and asked them to take it home and try it. She informed them that she would call them back in a few days for their comments.

She got a good response and the meat markets also wanted to carry her product.

It was at this point that she started calling around to see what needed to be done to start producing the product. She called the health inspector and tried to find a place to make the product since, by law, foods that are to be sold cannot be made in the kitchen of a residence. She had to find out about labeling laws, health codes, etc.

She rented a restaurant and used its kitchen facilities when it was closed. So she produced her first batch of Cinda's Smoke Sauce on November 15, 1990, approximately 4 to 6 weeks after she got her first order.

Cinda's Smoke Sauce is not a full time business for her. She works as an optometry technician four days a week.

Cinda says of her husband Jerry, who farms, "I couldn't have done this without him. He has been very supportive of this project."

There are almost 30 businesses throughout Kansas that sell her product. Cinda's Smoke Sauce can be used on hamburgers, chicken, turkey, brisket, deli sandwiches, as a dip for chicken/fish nuggets, baked beans and meatloaf.

One problem with using the restaurant

kitchen is that she must make smaller batches. She has to use the restaurant one to three times a month, depending on orders. Cinda came to the KSU facility because she wanted to see how larger batches were made and the kind of equipment used, since she and her husband, are looking into purchasing a facility for the production of their smoke sauce.



Cinda Dienst seals a jar from one of her batches of smoke sauce in the Value-Added Foods Laboratory at Kansas State University.

The Value-Added Foods Laboratory is available to Kansas food producers to use once or twice free of charge. It is equipped to cook large batches of food products and has a variety of processing equipment and analytical instruments. In addition, businesses will get help from extension specialists and assistants. ■

Calendar of Upcoming Events

March 20-22, 1992. The 35th National Association of Meat Purveyors Management Conference, Allis Plaza, Kansas City, MO. For more information contact Kaisha Halcli, 8365-B Greensboro Drive, McLean, VA 22102 or call 1-800-368-3043.

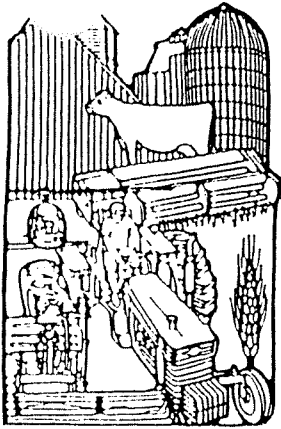


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Manhattan, Kansas**

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Committee of Kansas Farm Organizations

STATEMENT OF POSITION OF THE COMMITTEE OF KANSAS FARM ORGANIZATIONS

Al LeDoux
Legislative Agent
Route 1
Hollon, KS 66436
(913) 364-3219

RE: SENATE BILL 502

HOUSE AGRICULTURE COMMITTEE

March 18, 1992

Committee of Kansas
Farm Organization Members

Associated Milk Producers, Inc.

Kansas Agri-Women Association

Kansas Association of Soil
Conservation Districts

Kansas Association of
Wheat Growers

Kansas Cooperative Council

Kansas Corn Growers Association

Kansas Electric Cooperatives

Kansas Ethanol Association

Kansas Farm Bureau

Kansas Fertilizer and
Chemical Association

Kansas Grain and Feed Association

Kansas Livestock Association

Kansas Meal Processors
Association

Kansas Pork Producers Council

Kansas Rural Water
Districts Association

Kansas Seed Industry Association

Kansas Soybean Association

Kansas State Grange

Kansas Veterinary Medical
Association

Kansas Water Resources Association

Kansas Water Well Association

Mid America Dairymen, Inc.

Western Retail Implement and
Hardware Association

Kansas Grain Sorghum Producers

Kansas Association of Nurserymen

Mr. Chairman, Members of the Committee: My name is Al LeDoux. I am here today to speak on behalf of the Committee of Kansas Farm Organizations in their support of Senate Bill 502. We believe the strategies established by the Kansas Value Added Center are still meaningful and relevant to the development of Agriculture within our state.

It is our belief that the Kansas Value Added Center continues to support existing agricultural value-added businesses, work toward the commercialization of new opportunities for our agricultural products and identify opportunities for new markets, crops and exports.

We would therefore appreciate the committee's favorable action on Senate Bill 502.

Respectfully submitted,

Al LeDoux

Hs. AG.
3-18-92
ATTACHMENT 2