Fresh-Market Link Alters Mexico's Competitiveness in Processed Tomatoes

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The processed tomato industry in Mexico is small but becoming more important, as the sector has grown faster than the fresh market sector. Exports to the United States have increased as well. But further expansion of the industry depends critically on several factors—particularly competition for tomatoes from the fresh market.

Fresh Market Dominates the Tomato Industry

Mexico's processing industry is located in Sinaloa and Sonora, which are also Mexico's premier fresh-market regions.

Over half of Mexico's tomatoes are destined for domestic fresh markets. The remainder is split about evenly between fresh exports to the United States and processing into paste.

The fresh market influences available supply and prices of tomatoes for processing, as processors depend on the fresh market for 40 percent or more of their raw supply. But these supplies are highly variable.

Unlike in the United States, which produces separately for either the processing market or the fresh market, Mexico's tomatoes are used in both markets. During periods of high prices for fresh market tomatoes, growers of processing tomatoes will ignore their contracts and ship to fresh markets. When fresh market tomatoes are in surplus or too mature for safe shipment, they are processed, which results in lower prices paid by tomato processors.

Tomato Paste Production and Exports Growing

Though much smaller than the fresh market sector, the tomato processing industry has expanded faster (fig. 1). Mexico is now the world's eighth largest producer of tomato paste (table 1).

Most of the processing output is paste and derived products, while very little canned tomatoes and related products are produced. Mexico's 1990/91 paste production was expected to reach 64,000 tons, up from 59,000 in 1989/90.

(All tons mentioned are short tons—2,000 pounds.)

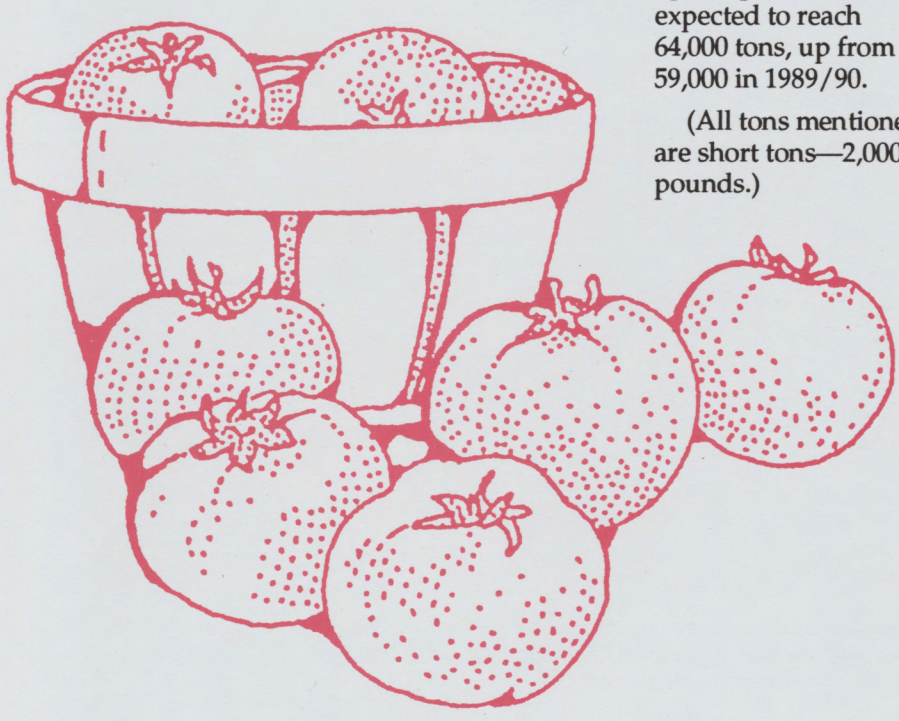

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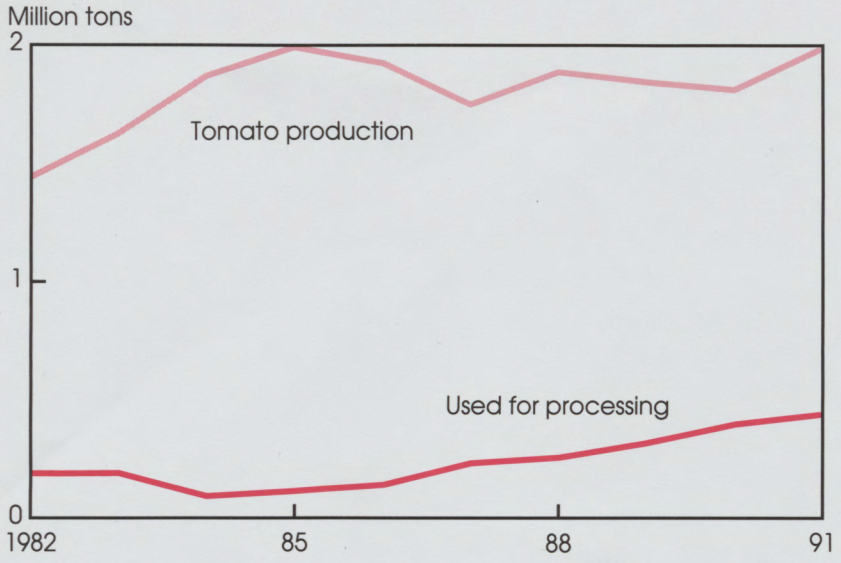
Figure 1
Processing Is Taking an Increasing Share of Mexico's Tomatoes



This level of production was less than one- fifth of that produced by Italy, the leading producer outside the United States. The size of Mexico's tomato processing industry relative to the United States is harder to measure, as the U.S. industry no longer reveals production levels.

But, we can estimate the size of the U.S. industry. If the relationship of paste production to total tomato production in California has not changed since 1983-85 (California grows approximately 90 percent of the U.S. tomatoes used for processing), U.S. paste production would be about 852,000 tons, 14 times as large as Mexico's. Another indication of the relative size of tomato processing in each country is the volume of tomatoes delivered to processors in 1990: 402,000 tons in Mexico and 9.2 million tons in California.

The United States is Mexico's most important export market for tomato products. Mexico's exports of processed tomato products to the United States grew steadily from 14,875 tons in 1986 to 29,018 tons in 1990. This growth paralleled the expansion in Mexican paste production during the same period. Mexico's share of U.S. imports of processed tomato products has ranged between 8.8 percent and 16.5 percent during the past 5 years (table 2).

Table 1
Mexico Is the Eighth Largest Producer of Tomato Paste

Country	1989/90 preliminary estimates	1990/91 forecast
	1,000 tons	
United States[1]	NA	NA
Italy	367	375
Turkey	276	276
Greece	246	201
Portugal	122	154
Spain	88	139
Chile	66	88
Mexico	59	64
France	52	54
Israel	26	25
Taiwan	17	18

[1]The United States is the world's largest producer of tomato paste. While actual data are not available, the author estimates U.S. production at 852,000 tons. Source: USDA, FAS, *Horticultural and Tropical Products Review*, Jan. 1991.

Export Expansion Possible, But Limited

The proposed North American Free Trade Agreement (NAFTA) calls for an immediate reduction in the U.S. tariff on tomato paste from 13.6 percent to 11.5 percent, and then a uniform phase-out of that tariff over a 10-year period. This tariff reduction could provide an opportunity for Mexico to increase its U.S. market share.

But for Mexico to expand exports, it first must increase paste production. Such expansion will depend on costs relative to U.S. and other foreign producers, competition for tomatoes from the domestic fresh market, management skills, and adoption of appropriate technology.

Tomato Paste Costs

The before-duty value, at the border, of Mexican paste imported into the United States averaged 27.4 cents per pound in 1986-88 and 36.6 cents per pound in 1989-90 (table 2). Comparable costs in California probably averaged 38 cents (or less) per pound, with some specialized operators producing at 32-34 cents.

But closer analysis of Mexican paste production reveals wide variation in costs among processors. Costs vary due to differences in

Table 2
United States Is an Important Market for Mexico's Processed Tomato Products [1]

Year	U.S. Imports from Mexico			Total Import values	Mexico share
	Volume	Price[2]	Value		
	Tons	*$US/cwt*	*Thousand $US*	*Thousand $US*	*Percen*
1986	14,875	27.49	8,177	77,619	10.5
1987	16,851	27.31	9,203	69,630	13.2
1988	21,210	27.52	11,675	133,328	8.8
1989	23,237	36.61	17,012	161,050	10.6
1990	29,018	36.61	21,243	129,123	16.5
1991	31,077	29.19	18,141	81,723	22.2
1992	9,672	33.27	6,436	69,158	9.3

[1]Includes dried tomatoes. [2]Average customs value, excluding import duties, freight, insurance, and other charges incurred in moving the commodity to the U.S. port. Value may include intra- and intercompany transfer prices that may differ from observed market prices. Source: USDA, ERS, *Foreign Agricultural Trade of the United States*, various issues.

raw product prices paid (the greatest portion of total costs), plant efficiencies, and accounting methods.

Eight estimates of Mexican paste production costs were derived from information provided during interviews conducted in 1991. Other processing costs (other than raw product) ranged from 9 cents to 14 cents per pound, with an average of 12 cents per pound (table 3).

Because of their dependence on large quantities of fresh market tomatoes, processors are subjected to large price swings for tomatoes. For example, one processor reported paying from $73 to $91 per ton for tomatoes in 1990 (when a freeze in Florida drove up fresh prices in Mexico). When fresh market supplies were plentiful the next year, the processor paid from $39 to $45 per ton. Another reported that prices were $14 per ton less in 1991 than in 1990.

Based on the 1991 average price paid for raw tomatoes of $45 per ton (2.25 cents per pound) and other average processing costs of 12 cents per pound, the Mexican cost for producing tomato paste is estimated to be 28 cents per pound. After transportation and duty fees,

Table 3
The Largest Cost of Processing Tomato Paste Comes From the Raw Product

Mexican firm[1]	Raw product costs		Other processing costs		Total costs	
	Per ton[2]	Per cwt	Per ton	Per cwt	Per ton	Per cwt
			$US			
1	353	17.64	282[3]	14.10	653[3]	31.75
2	363	18.14	272	13.61	635	31.75
3	394	19.68	247	12.34	640	32.02
4[4]	446	22.31	193	9.66	639	31.97
5	273	13.65	272	13.61	545	27.26
6	297	14.83	184	9.21	481	24.04
7	254	12.70	211	10.57	465	23.27
8	286	14.29	247	12.34	473	26.62
Average	317	15.86	239	11.93	572	28.59

Note: 1991 data. [1]Sources are coded to protect their identity. [2]Based on a conversion ratio for raw product to paste of 7 to 1. [3]Respondent said that costs were less but did not specify the level. [4]R. Robles Soto. "Planta procesadora de pasta de tomate, para la UAR del sur de Tamculipas," *Frutos: Fomento Agraindustrial*, Nov.1990. This firm's raw product price was excluded from the average, because 1990 prices were much higher than 1991.

Source: Interviews conducted in Sinaloa, Mexico, April 1991.

Mexican paste at the U.S. border would cost an estimated 35 cents to 36 cents per pound, just under the estimated costs for average California processors. Since freight charges from the Mexican border are approximately the same as from California to midwestern and eastern markets, delivered costs for Mexican paste would be similar to those for California paste.

In 1992, costs for some efficient California paste processors appeared as low as 32-34 cents per pound, although the industry average is probably closer to 38 cents per pound.

Without the duty fees, Mexican paste would then enjoy a 4- to 5-cent-per-pound advantage. The advantage could become greater if Mexico's raw tomato prices were to fall below their relatively low level of 1991.

But the advantage could be offset if prices increase to earlier levels. Each $10-increase (0.5 cent per pound) (decrease) per ton in tomato price raises (lowers) the paste cost by 3.5 cents per pound (based on raw product converted to paste at a ratio of 7 to 1). Therefore, prices near the $90 per ton (4.5 cents per pound) paid by some processors in 1990 would mean a cost disadvantage of over 10 cents per pound before any duty is levied.

Growing Costs Influence Long-Term Competitiveness

The cost of growing processing tomatoes is an important determinant of Mexico's long-term competitiveness with California. With lower labor costs, Mexico has a per acre cost advantage over California (table 4). However, Mexico also has lower yields, so its per ton cost for raw tomatoes is higher than California's.

Based on the full cost estimate of $61 per ton for growing processing tomatoes in table 4, Mexican processors could produce paste for about 33 cents per pound and deliver it to the U.S. border for about 37 cents per pound. At this cost, and in the absence of a tariff, Mexico would be competitive with California in supplying tomato paste to midwestern and eastern U.S. markets.

But changes in Mexico's fresh market tomato supply and prices would affect competitiveness. With excess supply and low prices, Mexico would gain a cost advantage. With low supply and high prices, Mexico would be at a cost disadvantage.

Table 4
Costs for Growing Processing Tomatoes Are Higher in Mexico Than in California

Activity	California[1]		Mexico
	Sacramento County	Imperial County	
	Dollars per acre, 1989		
Field preparation	20	55	59
Planting and materials	147	30	196
Fertilization	38	183	167
Pesticides	236	196	251
Cultivation	145	135	91
Irrigation	67	225	26
Cultivating materials	6	0	2
Total preharvest	659	824	792
Harvesting	201	560	238[2]
Other (overhead)	451	129	53
Interest/rent	31	200	200
Total cost	1,342	1,713	1,283
	Tons		
Yield per acre	28	32	21
	Dollars		
Cost per ton	48	54	61

[1]Counties with the most recent cost-of-production budgets. [2]Based on personal interviews. Source: Adapted from the following: "Sample Costs to Produce Processing Tomatoes" (Sacramento County) and "Processing Tomato Projected Production Costs, 1989-90" (Imperial County), University of California — Davis,1990; and *Attaché Report*, MX 0232, USDA, FAS, Dec. 1990.

Other Factors Affecting Long-Term Competitiveness

Plant Capacity

Mexico's annual capacity for paste production is approximately 800,000 tons of tomatoes (based on a 90-day season and a 24-hour per day operation). Allowing for equipment maintenance, adverse weather, and scheduling problems provides a more realistic capacity of 550,000 tons.

In 1990 and 1991, Mexico processed between 400,000 and 450,000 tons of tomatoes. Therefore, Mexican paste production can increase 25 percent before additional plants would have to be built. However, this is a small increase compared with the 9.2 million tons of tomatoes processed in California.

The ability to build additional processing plants depends on the availability and cost of money. Since these factors vary considerably in Mexico, the investment environment is uncertain. For example, interest rates, as measured by the interest paid on treasury bills by the Mexican Government, varied from a high of 103 percent in 1987 to 13 percent in 1992.

Mexico's efforts to stabilize the economy should improve the investment climate and encourage investment in industry expansion when paste prices are rising.

Access to Markets

Mexico's paste industry has good access to U.S. markets because of proximity to the border and the links of at least two major processors (Sinaloapasta and Productos Industrializados del Fuerte) with U.S. processors. While this article does not evaluate the marketing programs of Mexican processors, the recent growth in paste exports indicates that market access is not a problem.

Management Skills and Technology

Good management generally leads to the adoption of appropriate technology. While plant management and processing technologies in Mexico appear to be good, the management of tomato production is less certain. The persistence of lower yields than California's, despite the availability of irrigation and modern cultural practices, indicates that production management and use of technology could improve.

For efficient plant operations, raw product needs to arrive daily. There have been problems coordinating plantings so tomatoes arrive at processors according to schedule throughout the season.

Improvements would lower raw product costs, increase capacity utilization, and lower per unit processing costs.

Where Opportunities Lie

Lack of dedicated markets for fresh and processing tomatoes impedes the development of the Mexican processing industry, because it creates supply and pricing instability. Increased specialization in producing tomatoes for the processing industry would probably stabilize costs, stimulate adoption of efficient processing varieties, and improve management of raw product supplies. If this were to occur, Mexico would become more competitive in the U.S. market and could take market share from other suppliers.

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