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FOOD TECHNOLOGY FACT SHEET

Refrigerated/Frozen Doughs, Batters and Bakery Products: Industry Status and Trends

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Introduction

Some of the fastest growing segments of the food processing industry are frozen and refrigerated dough and bakery products. The items included in these processing categories include canned refrigerated biscuits, canned refrigerated croissants and sweet rolls, frozen breads and rolls, and frozen sweet goods and pastries. Additionally, this category includes those refrigerated and frozen dough products that are used in the manufacturing of other items or used in institutional food services, the best example of which is pizza crusts. These and other items have grown in popularity due to their ease of preparation, similarity to "homemade" products, and the time and cost savings these items provide to restaurants and other institutional outlets.

Wheat producer groups in North and South Dakota, Minnesota, Kansas and Oklahoma have shown a particularly high interest in refrigerated and frozen dough markets. The number of varying products, the potential for market growth in all dough areas and the current lack of competition have suggested opportunities for producers to get involved in refrigerated/frozen dough processing as a means to collect a larger share of the profits between the farm gate and the retail store. This report provides market and industry overviews for refrigerated and frozen dough products and bakery items.

Market Trends

Possibly the largest growth area for value-added wheat-based products includes such items as yeast-raised and chemically (baking powder) leavened doughnuts, sweet rolls, cakes and other pastries. Rolls and sweet goods are predicted to show annualized market growth of 9.6 percent and 16.8 percent, respectively, between 1993 and 2000 (Faridi and Faubion, 1995). One factor influencing the increased demand for rolls and sweet goods may be the various forms in which they can be purchased by consumers and easily baked at home such as refrigerated, frozen, par-baked and brown-and-serve.

In a 1997 report, FIND/SVP (1997a), a market research company for consumer products, indicates that biscuit dough accounts for 41 percent of refrigerated/frozen dough product sales. Biscuit dough sales are expected to have an increase of 6.5 percent annually, with forecasted sales of $2.2 billion by the year 2000. The popularity of refrigerated biscuit dough products is apparent in the number of facings (units on a shelf) in a supermarket's refrigerated counters dedicated to various kinds of biscuits.

The wide range of dough products demanded for both institutional purposes (e.g., retail delis, restaurants and fast food outlets) and for direct sales to consumers suggests room for market entry by one or more new firms. Fewer than 15 marketers compete in frozen and refrigerated dough products on a natioal level, and most dough market segments are dominated by fewer than five players.

The top four firms in this industry are Rich Products Corp., Country Home Bakery, Inc., Hazewood Farms Bakeries and Pillsbury Co. These firms only control 24 percent of the overall market for all refrigerated/frozen dough and bakery products, indicating less entry resistance than most segments of the bakery industry (Lou and Wilson, 1998). However, the technological requirements for refrigerated/frozen dough processing, along with the generally higher costs of handling refrigerated/frozen products, result in high market-entry costs.

Population growth in the southwestern United States, combined with the growing national demand for dough products, provides for market proximity. Because refrigerated/frozen dough products are less perishable than other "fresh" wheat-based products (e.g., flour and bread), the timing of product transports is not as crucial. However, even frozen dough products have limited storage life. Frozen storage of more than 60 days will generally kill off all yeasts in dough products, thereby preventing the dough from rising when thawed and baked (except pre-proofed frozen dough).

Industry Statistics and Trends

The U.S. Department of Commerce, Bureau of the Census, is probably the best source of secondary information on the nation's manufacturing and processing activities. The Census of Manufactures has been performed on the "2" and "7" years (for example, 1982 and 1987) since 1967. In the late 1970s, the Census Bureau also began performing annual surveys of most of these activities (Annual Survey of Manufactures). These surveys, which estimate business activity based on a sampling of firms (as opposed to a complete census), act as a way of "filling in the gaps" between census years. By doing so, they allow for rough year-to-year comparisons of industry activities. The time needed to compile and verify data, aggregate data for the many categories, generate tables to present results and print these two government publications is extensive, usually taking about two years.

Starting with the 1967 census, all industry activities were reported according to a Standard Industrial Code (SIC). The more precisely defined an activity, the more digits contained in the SIC code. For example, "Food and Kindred Products" manufacturing was listed as SIC 20, "Dairy Products" was a more closely defined segment of SIC 20 manufacturing listed as SIC 202, and "Ice Cream and Frozen Desserts" was a sub-sector of SIC 202 manufacturing listed as SIC 2024. However, the results of the 1997 census, which were released in late 1999 and early 2000, were classified according to a new system. This coding system, called the North American Industry Classification System (NAICS), is to become the common industry measurement system for the U.S., Canada and Mexico. Classifications of items beyond the old two-digit SIC level may be different for some industries; therefore, the data used for this overview includes the 10-year span leading up to the 1997 census (i.e., 1987-96).

Frozen bread and bakery products are reported in two different categories. Frozen bread and dinner roll items are combined with all other bread-like products under the category of SIC 2051, "Bread, Cake and Related Products." Unfortunately, SIC 2051 and its five- and six-digit SICs are not segmented by fresh and frozen. Therefore, none of the reported information for this category could be used in this industry overview. However, all non-bread frozen bakery products are combined and listed under SIC 2053, "Frozen Bakery Products, Except Bread." This category includes all yeast-raised and chemically leavened doughnuts, sweet rolls, cakes and other pastries, which have previously been alluded to as the fastest growing segment of the refrigerated/frozen dough and bakery products industry.

Frozen and refrigerated dough and batters are aggregated with prepared flour mixes by the Census Bureau. Because detailed information on more defined industry segments is

Table 1: Adjusted Value of Product Shipments ($ millions, 1992 dollars) for "Frozen Bakery Products, Except Bread" (SIC 2053), 1987-96*.

Year	SIC 2053[a]	Yearly Change (percent)
1987	1,652.7	----
1988	1,639.9	-0.8
1989	1,713.7	4.5
1990	1,648.2	-3.8
1991	1,575.2	-4.4
1992	1,864.0	18.3
1993	1,981.0	6.3
1994	2,119.5	7.0
1995	2,446.4	15.4
1996	2,448.0	0.1

* Source: 1987 and 1992 *Census of Manufactures*, 1988-91 and 1993-96 *Annual Survey of Manufactures: Value of Product Shipments.* Dollar terms adjusted using the GDP price deflators published in the January 1999 *Survey of Current Business.*

[a] SIC 2053 represents frozen bulk dough and bakery items.

not publicly reported, this report relies on the combined information for mixes, dough and batters. SIC 20415 represents "Flour Mixes, Refrigerated and Frozen Dough, and Batters," but only those products made by grain millers using their own flour. SIC 2045 is titled, "Prepared Flour Mixes and Dough," but these are products made from purchased flour, not flour from an establishment's own milling operations. In fact, all of the mixes and dough listed under SIC 2045 are also sub-listed under SIC 20450, "Flour Mixes, Refrigerated and Frozen Dough and Batters," which represents those products made by establishments that are not flour millers and must therefore purchase the flour used in their processing activities.

The Census Bureau's annual series includes a volume titled, "Annual Survey of Manufactures: Value of Product Shipments." This volume provides only the values of product shipments, but it does so for most industries at the five-digit SIC level. A comparison of SIC 2053 product shipments from 1987 to 1996 is shown in Table 1, while SIC 20415 and SIC 20450 product shipments are reported in Table 2. The dollar figures have also been adjusted for inflation using the Gross Domestic Product (GDP) price deflator, with all amounts being reported in 1992 dollars. These numbers serve as indicators of year-to-year "real" shipment growth. Unlike the Census of Manufactures series, the Annual Survey of Manufactures series does not report the number of establishments, thereby disallowing a comparison of average shipments per establishment across years.

As shown in Table 1, shipments of frozen non-bread bakery products realized some negative volatility before experiencing considerable growth in the 1990s. From 1987 to 1996, industry growth in real terms was 48.1 percent, most of which occurred after 1991. Conversely, SIC 20415 shipments declined by 17.2 percent over the 10-year period. This may be in part due to companies such as Pillsbury, which chose to divest themselves of their flour milling operations. In the case of Pillsbury, flour-milling operations were sold off and resources were redirected to more profitable ventures, such as refrigerated/frozen dough products. Large flour millers like ADM, which bought the Pillsbury mills, to date have not entered these value-added markets.

Those establishments outsourcing for the flour to make mixes and dough increased the total shipments of mixes and dough by 25.4 percent from 1987 to 1996. The majority of this growth did not occur until the early 1990s, and the switch-over from SIC 20415 to SIC 2045 by an industry giant like Pillsbury could be responsible for some of that growth. As stated

Table 2: Adjusted Value of Product Shipments ($ millions, 1992 dollars) for "Flour Mixes and Refrigerated and Frozen Dough and Batters", 1987-96*.

Year	SIC 20415[a]	Yearly Change (percent)	SIC 20450[b]	Yearly Change (percent)
1987	409.9	----	3,397.1	----
1988	497.5	21.4	3,413.4	0.5
1989	476.1	-4.3	3,384.0	-0.9
1990	532.4	11.8	3,407.8	0.7
1991	503.1	-5.5	3,450.4	1.2
1992	345.9	-31.2	3,898.4	13.0
1993	359.0	3.8	4,257.7	9.2
1994	404.4	12.6	4,135.4	-2.9
1995	337.0	-16.7	4,458.2	7.8
1996	339.4	0.7	4,260.6	-4.4

* Source: 1987 and 1992 *Census of Manufactures*, 1988-91 and 1993-96 *Annual Survey of Manufactures: Value of Product Shipments*. Dollar terms adjusted using the GDP price deflators published in the January 1999 *Survey of Current Business*.

[a] SIC 20415 represents those mixes, dough and batters manufactured by processors using their own milled flour.

[b] SIC 20450 represents those mixes, dough and batters manufactured by processors that purchase flour as an ingredient.

earlier, the growth in these products' shipments is expected to continue at an increasing annual rate through 2000.

Table 3 gives a better picture of industry trends for frozen non-bread bakery products. The information on valued added by manufacture, cost of materials, value of industry shipments and new capital expenditures are from the 1987 and 1992 Census of Manufactures and the appropriate Annual Survey of Manufactures: Statistics for Industry Groups and Industries issues. It must be noted that "industry shipments" and the aforementioned "product shipments" may differ due to the inclusion of byproduct sales and possibly some classification adjustments made by the Census Bureau during the span between publication release dates.

As was apparent in the review of product shipment values, the frozen non-bread bakery products industry began growing rapidly following 1991. The "value-added" component of those shipments (i.e., the portion of the products' value associated with the manufacturing process) increased by 105 percent from 1991 to 1996.

This added value may be attributed to various new product offerings and the increased demand for conveniently prepared doughnuts, cakes and pastries. As the value obtained from processing rose during this time period, so did new capital expenditures for processing facilities, although this is a highly variable measurement of industry activity that is greatly affected by non-industry macroeconomic forces (e.g., interest rates).

Table 4 shows similar industry information for flour mixes and refrigerated and frozen dough and batters manufactured by non-millers (SIC 20450). The Annual Survey of Manufactures series reports this detailed information only to the 4-digit SIC level, so similar information for SIC 20415 could not be ascertained. Because most of the volume and values associated with SIC 2041 are due to various types of bulk flour, it would be difficult to distinguish any trends in refrigerated and frozen dough manufacturing using 4-digit SIC data. However, an analysis of SIC 2045 can be provided because SIC 2045 consists of only one 5-digit SIC code, SIC 20450.

Although declines were noted in 1989, 1994 and 1996, the "value added" segment of SIC 20450 has generally increased by a moderate rate from year to year. Throughout the 10-year period, the amount of value attributed to the manufacturing process increased by 41.8 percent, while the value of industry shipments during the same period increased by 41.9 percent. New capital expenditures for SIC 20450 processing facilities have been much more sporadic from year to year compared to non-bread frozen bakery items, but the data suggest this industry, like SIC 2053, is in an upswing.

Table 3: Adjusted Industry Growth Measurements ($ millions, 1992 dollars) for SIC 2053, "Frozen Bakery Products, Except Bread", 1987-96.*

Year	Value Added by Manuf.	Yearly Change (percent)	Cost of Materials	Yearly Change (percent)	Value of Industry Shipments	Yearly Change (percent)	New Capital Expend.	Yearly Change (percent)
1987	600.1	----	565.4	----	1,165.4	----	31.8	----
1988	679.4	13.2	620.4	9.7	1,296.0	11.2	36.9	16.0
1989	751.9	10.7	635.7	2.5	1,386.0	6.9	26.4	-28.5
1990	672.4	-10.6	623.9	-1.9	1,298.6	-6.3	30.5	15.5
1991	660.4	-1.8	566.1	-9.3	1,238.3	-4.6	25.9	-15.1
1992	919.2	39.2	762.6	34.7	1,671.4	35.0	37.1	43.2
1993	1,007.0	9.6	806.0	5.7	1,809.6	8.3	38.6	4.0
1994	1,131.9	12.4	920.1	14.2	2,048.7	13.2	61.3	58.8
1995	1,322.9	16.9	1,130.0	22.8	2,444.8	19.3	93.7	52.9
1996	1,354.1	2.4	1,194.8	5.7	2,535.7	3.7	113.4	21.0

* Source: 1987 and 1992 *Census of Manufactures*, 1988-91 and 1993-96 *Annual Survey of Manufactures: Statistics for Industry Groups and Industries*. Dollar terms adjusted using the GDP price deflators published in the January 1999 *Survey of Current Business*.

Implications

The processed foods industry has grown in recent decades due to the demand for convenience in food preparation and the efficiencies in manufacturing resulting from recent technological advances. From 1987 to 1996, the shipments for non-bread frozen bakery items (SIC 2053) have grown at a rate greatly exceeding that for all food and kindred products manufacturing (SIC 20), 95.3 percent to 39.9 pecent, respectively. Refrigerated and frozen dough and batters (SIC 20415 and SIC 20450 combined, which includes prepared mixes) have not grown at a similar rate (20.8 percent over the 10-year period), but most of the growth realized by this industry has occurred since 1992.

The growing markets for easily prepared bakery items at home and in institutional markets will continue to drive growth in these industry sectors. The diversity of products in these categories, combined with low market shares for competing firms in the various product categories, should continue to serve as incentives for market entry by new firms for at least the next five years. Acquiring the technology to produce these products, along with the capital to support the development of processing facilities, are the greatest deterrents to entry at this time. An additional factor deterring industry entry may be the availability of qualified, experienced equipment operators and plant managers.

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Table 4: Adjusted Industry Growth Measurements ($ millions, 1992 dollars) for SIC 20450, "Flour Mixes, Refrigerated and Frozen Dough and Batters" (from purchased flour), 1987-96.*

Year	Value Added by Manuf.	Yearly Change (percent)	Cost of Materials	Yearly Change (percent)	Value of Industry Shipments	Yearly Change (percent)	New Capital Expend.	Yearly Change (percent)
1987	1,539.6	----	1,612.8	----	3,160.5	----	79.6	----
1988	1,626.8	5.7	1,647.6	2.2	3,255.8	3.0	78.2	-1.8
1989	1,434.6	-11.8	1,828.0	11.0	3,245.7	-0.3	112.7	44.1
1990	1,599.0	11.5	1,783.4	-2.4	3,371.3	3.9	115.7	2.7
1991	1,738.3	8.7	1,673.1	-6.2	3,392.9	0.6	106.5	-8.0
1992	1,821.7	4.8	2,040.3	21.9	3,865.7	13.9	160.6	50.9
1993	1,891.5	3.8	1,962.7	-3.8	3,846.7	-0.5	102.8	-36.0
1994	1,804.9	-4.6	2,054.5	4.7	3,852.6	0.2	112.1	9.1
1995	2,193.4	21.5	2,234.2	8.7	4,419.6	14.7	127.1	13.3
1996	2,182.5	-0.5	2,315.7	3.6	4,486.2	1.5	149.7	17.8

* Source: 1987 and 1992 *Census of Manufactures*, 1988-91 and 1993-96 *Annual Survey of Manufactures: Statistics for Industry Groups and Industries*. Dollar terms adjusted using the GDP price deflators published in the January 1999 *Survey of Current Business*.

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