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Staff Article 16-03

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June 2016

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CHANGES IN THE PACIFIC NORTHWEST ORDER'S CLASS I MARKET: 2000 - 2015

John Mykrantz ¹

Change is perhaps the only constant. Significant changes in the character of Class I market in the Pacific Northwest Order over the last 15 years illustrate this point.² The Class I market is essentially milk sold as a beverage. Using a variety of perspectives, this article attempts to illustrate the changes in the Class I market from 2000 through 2015. Data used in this analysis include Class I producer milk utilization and route sales in the Pacific Northwest marketing area of fully regulated handlers, and route sales in the marketing area by producer-handlers and other handlers. Different groupings of data are used to highlight different aspects of the changes.

General Changes

Between 2000 and 2010, Class I producer milk and Producer-Handler in-area routes, the primary categories of Class I sales, fluctuated between 2.3 and 2.4 billion pounds.^{3 4} From 2010 to 2015, this same measure showed a significant decline from 2.3 billion to just under 2.1 billion pounds, or about 12 percent. Since 2000, the average number of plants associated with these Class I sales decreased by a little less than half from 30 to 17, while the average plant size, measured on a monthly basis, increased from about 6.5 million pounds of Class I sales to just over 10 million pounds per month.

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² The marketing area of the Pacific Northwest Order consists of Western and Central Oregon and Washington and Northern Idaho. Population estimates are drawn from US Census Bureau State data. Adjustments for Eastern Oregon Counties (subtracted) and Northern Idaho Counties (added) were estimated by interpolation for 2001-2009 and 2011-2014.

³ Class I producer milk and producer-handler routes reflect Class I milk sourced primarily from dairy farms in the marketing area.

⁴ One aspect of the changes in the Class I market of the Pacific Northwest Order that may be evident in the simple statistics, but not obvious, is a regulatory change that occurred in April 2006. In April 2006, the Pacific Northwest Order was changed after a hearing and a vote of producers to fully regulate all handler's whose routes exceed 3.0 million pounds and who meet the criteria of a pool distributing plant. This change caused a shift in the regulatory status of certain handlers.

Table 1: Basic Characteristics of the Class I Market: 2000-2015

Year	Average No. of Plants *	Class I Producer Milk	Producer-Handler In-Area Routes	Average Per Plant Per Month †	Tests ‡			
					Butterfat	Skim	Protein	Other Solids
		----- Million Pounds -----			----- Percent -----			
2000	30	2,099.8	227.3	6.5	1.79	98.21	3.14	5.93
2001	28	2,097.8	228.4	7.0	1.79	98.21	3.15	5.92
2002	27	2,114.3	219.2	7.2	1.81	98.19	3.16	5.93
2003	26	2,104.6	211.1	7.5	1.83	98.17	3.15	5.91
2004	24	2,153.5	193.6	8.3	1.85	98.15	3.17	5.91
2005	24	2,128.3	230.2	8.1	1.84	98.16	3.17	5.93
2006	23	2,234.6	126.1	8.5	1.81	98.19	3.18	5.92
2007	22	2,256.4	84.4	8.8	1.79	98.21	3.19	5.93
2008	22	2,276.1	80.1	9.1	1.77	98.23	3.20	5.92
2009	20	2,267.3	83.4	9.6	1.78	98.22	3.22	5.91
2010	20	2,236.0	102.2	10.0	1.76	98.24	3.22	5.93
2011	19	2,231.9	86.4	10.3	1.77	98.23	3.25	5.96
2012	19	2,189.3	86.0	10.0	1.79	98.21	3.28	5.96
2013	19	2,120.4	86.4	9.9	1.83	98.17	3.30	5.96
2014	18	2,021.4	83.8	9.8	1.89	98.11	3.30	5.96
2015	17	1,979.6	83.7	10.0	1.94	98.06	3.29	5.98
Change §	-42%	-6%	-63%	54%	0.14	-0.14	0.15	0.05

* Plants include pool distributing plants and producer-handlers.

† Average plant size equals Class I producer milk plus producer-handler routes divided by the average number of plants.

‡ Tests of Class I producer milk. Skim is Protein, Other Solids and water. Protein and Other Solids have been converted to a skim basis by dividing the test by the result of one minus the butterfat test.

§ Percent change from 2000 to 2015. Columns reflecting percentages are percentage point changes.

Changes in In-Area Sales: Sources, Per Capita, and Product Mix

The sources and product mix of Class I sales has changed. The source of Class I products sold in the marketing area has fluctuated somewhat between fully regulated pool distributing plants, and producer-handler and other plants.⁵ Other plants include: plants that are partially regulated; plants that are fully regulated under another order; and exempt plants. In 2000, in-area sales of fully regulated plants represented 89 percent of sales while plants not fully regulated under the order represented 11 percent. The vast majority of non-fully regulated plant sales were from producer-handlers. In April 2006, the Pacific Northwest Order was changed after a hearing and a vote of producers to fully regulate those handlers whose routes exceed 3.0 million pounds and who meet the criteria of a pool distributing plant. This regulatory change resulted in a noticeable shift in the source of in-area sales of about 5 percentage points between the two groupings. After a period of relative stability between 2006 through 2011, the share of sales represented by fully regulated handlers began to decline with the grouping of non-fully regulated plants gaining relative share. By comparing producer-handler in-area routes and in-area routes by all other plants, it is evident that the increased share comes from a combination of declining volumes of in-area sales from fully regulated plants and increases from other plants that are not producer-handlers (See Tables 1 and 2). A list of plants associated with the Pacific Northwest Order can be found at: <http://fmmaseattle.com/plantshandlerslist.html>.

On a per capita basis these changes in Class I in-area sales for Pacific Northwest handlers showed a decrease of about 6 gallons from 26.7 gallons per person per year to just over 20 gallons, or 24 percent (See Table 2). Between 2000 and 2006, per capita sales showed an average decrease of a little over a quart per year. Between

⁵ The marketing area of the Pacific Northwest Order consists of Washington, Northern Idaho and Central and Western Oregon (§1124.2).

2007 and 2012, per capita sales held steady at about 24 gallons. Between 2012 and 2015, the rate of decrease of per capita sales was about 1 gallon per year. For comparison purposes, US per capita fluid milk consumption was about 18 gallons in 2014.⁶

The product mix of in-area sales has changed as well. The period can roughly be divided into four sub-periods: 2000-2006, 2006-2010 and 2010-2015, and 2014-2015. Between 2000 and 2006, the share of sales of Whole and Reduced Fat suggest a switching from Reduced Fat to Whole, with other products' shares holding steady. Between 2006 and 2010, all products' shares appear to have held roughly steady. Beginning in 2010, a shift in shares appears to occur between Whole and Fat Free. In 2010, the share of Whole milk sales represented about 20 percent of the total. By 2015, the share of sales represented by Whole milk increased to about 25 percent. During 2006 through 2010, the share of in-area sales represented by Fat Free milk appears to mirror the changes in Whole milk sales, holding steady at about 15 percent up until 2010, and then dropping from about 16 percent to about 10 percent by 2015. During the last sub-period, 2014 to 2015, in-area sales for Reduced Fat and Lowfat products have a similar mirror relation, with Reduced Fat decreasing and Lowfat increasing.

Table 2: Class I In-Area Sales: 2000-2015

Year	Pool Plants		Producer-Handler & Other Plants		Total In-Area Sales	Population *	Average Per Capita †	Percent Share by Product Type				
	- Million -	- % -	- Million -	- % -				Whole	Reduced Fat	Lowfat	Fat Free	Flavored & Buttermilk
2000	1,945	89.2%	235	10.8%	2,180	9.459	26.7	16.8%	44.1%	15.3%	17.1%	6.7%
2001	1,939	88.8%	245	11.2%	2,184	9.576	26.5	17.2%	43.7%	15.1%	16.7%	7.2%
2002	1,941	89.2%	234	10.8%	2,175	9.692	26.0	17.5%	43.4%	14.8%	16.6%	7.8%
2003	1,919	88.9%	240	11.1%	2,159	9.781	25.6	18.0%	43.0%	14.8%	16.2%	7.9%
2004	1,921	89.0%	238	11.0%	2,158	9.881	25.3	18.5%	42.2%	15.2%	16.0%	8.0%
2005	1,885	87.7%	264	12.3%	2,150	10.007	24.9	19.0%	41.3%	15.2%	16.3%	8.3%
2006	2,001	91.9%	176	8.1%	2,177	10.182	24.8	19.7%	40.0%	15.8%	16.4%	8.1%
2007	1,994	93.4%	140	6.6%	2,134	10.328	24.0	19.3%	40.2%	16.1%	16.4%	7.9%
2008	2,030	92.7%	161	7.3%	2,191	10.478	24.3	18.8%	40.8%	15.8%	16.5%	8.0%
2009	2,057	92.3%	171	7.7%	2,228	10.627	24.3	19.1%	40.5%	15.7%	16.2%	8.4%
2010	2,030	91.2%	196	8.8%	2,226	10.734	24.1	18.8%	40.6%	15.9%	16.2%	8.5%
2011	2,036	91.9%	178	8.1%	2,214	10.847	23.7	19.3%	40.6%	16.0%	15.7%	8.4%
2012	1,998	91.2%	193	8.8%	2,191	10.956	23.2	19.9%	40.6%	16.2%	14.8%	8.5%
2013	1,916	90.4%	203	9.6%	2,119	11.066	22.2	20.9%	40.7%	15.9%	13.7%	8.8%
2014	1,813	89.4%	216	10.6%	2,029	11.199	21.0	22.4%	40.2%	15.8%	12.2%	9.4%
2015	1,781	88.9%	223	11.1%	2,004	11.370	20.4	24.5%	37.5%	17.1%	11.1%	9.8%
Change ‡	-8%	-0.3	-5%	0.3	-8%	20%	-24%	7.7	-6.6	1.8	-6.0	3.1

* Population estimates are drawn from US Census Bureau State data. Adjustments for Eastern Oregon Counties (subtracted) and Northern Idaho Counties (added) were estimated by interpolation for 2001-2009 and 2011-2014.

† Average per capita is total in-area sales, divided by 8.62 pounds per gallon, divided by population.

‡ Percent change from 2000 to 2015. Columns reflecting percentages are percentage point changes.

Changes in Character of Class I Milk

The component character of Class I milk has also changed. Staff papers published by the MA office in recent years illustrate how the character of milk has changed in the milkshed and also how the character of milk used in Class I products has changed.⁷ Over the past 15 years, the average butterfat tests of Class I milk have ranged from 1.76 percent to 1.94 percent (See Table 1). Butterfat tests increased from about 1.80 percent in 2000 to 1.85 percent in 2004 before declining to a period low of about 1.76 percent by 2010. Since 2010, the butterfat

⁶ Dairy product data can be found at: <http://www.ers.usda.gov/data-products/dairy-data.aspx>.

⁷ Staff Paper 13-01: Analysis of Changes in Component Tests in Individual Herd Milk at the Farm Level: Pacific Northwest Order, 2000-2012 and Staff Paper 14-02: Component Tests of Class I Milk and Fluid Milk Products: Pacific Northwest Order: 2008-2013. Staff papers can be found at: <http://fimmaseattle.com/staffpapers.html>.

test of Class I milk has increased to almost 1.95 percent. The increase is primarily the net result of increases in Whole milk, Lowfat and Flavored & Buttermilk sales relative to declines in Reduced Fat and Fat Free milk sales (See Table 2). In addition to the increase in butterfat tests of milk products, the true protein and other solids tests of the raw milk arriving at fully regulated distributing plants have increased as well (See Table 1).⁸ To segregate changes in butterfat tests from changes in protein and other solids tests, the latter were converted to a skim basis. Unlike the butterfat test of Class I milk, skim protein tests have steadily increased between 2000 and 2015 by about 0.01 percentage points per year to 3.29 percent in 2015. While skim Other Solids tests have fluctuated over the period, test levels have shown a net average increase of about 0.004 percentage points per year to 5.98 percent in 2015. The increases can be understood in two different ways, relative to Federal order pricing assumptions and relative to nutrition content. Federal order's assume 3.1 percent protein and 5.9 percent Other Solids in skim milk. Comparing these standards to actual skim tests show that, in 2015, Class I milk under the Pacific Northwest Order exceeds these standards by 0.19 and 0.08 percentage points, respectively. With respect to nutrition, USDA maintains a database of nutrient values for selected milk products.⁹ USDA's information dates from the 1940's and suggests that skim milk contains 8 grams of crude protein per 8 ounce serving, or 7.76 grams after converting to a true protein basis. Current data for Class I milk pooled under the Pacific Northwest Order suggest that the average crude protein content of skim milk is 8.67 grams per 8 ounce serving or 8.20 grams on a true protein basis.

Changes in the Relative Contribution of Class I Milk to the Pacific Northwest Order's Pool

One last aspect of the changes in the Class I market is the value Class I milk contributes to the Pacific Northwest Order's pool. Under Federal orders, producer milk used in Class I is priced on the basis of skim and butterfat and includes a Class I differential.¹⁰ For the Pacific Northwest Order, Class I milk is valued using a Class I differential of \$1.90 per hundredweight in Western Oregon and Washington. In addition, Class I skim values assume a standard skim component content of 3.1 percent protein and 5.9 percent other solids. Since Class I contributes to the pool in part on the basis of butterfat, the contribution of butterfat used in Class I has been affected by the volume decrease in Class I sales by Pacific Northwest Order handlers, counter-balanced by the slight increase in average Class I product butterfat tests. Similarly, the contribution to the pool of the skim portion of Class I sales has been affected by the volume decrease and the decrease in skim tests. However, because Class I is priced in part on a skim basis, the value of the skim in Class I products has not been affected by the increase in component tests of protein and other solids of Class I milk. On average, pool handlers who purchase milk from producers in the Pacific Northwest are paying the same relative skim value into the pool for Class I milk that has become richer and more nutrient-packed.

Summary

Over the past 15 years, the character of the Class I market of the Pacific Northwest Order has changed substantively. And while total sales in 2015 are less than in 2000 and per capita consumption is down, consumers are choosing milk products with higher butterfat content and may be getting more protein than they may realize. It will be interesting to see what changes the next five years will bring.

⁸ Federal orders test and price milk to producers based on true protein and other solids. True protein is the same as crude protein minus non-protein nitrogen. Other solids is lactose, minerals, and non-protein nitrogen.

⁹ USDA National Nutrient Database for Standard Reference, per 100 grams: <http://ndb.nal.usda.gov/ndb/foods/show/78>.

¹⁰ For more information on Federal orders and Federal order pools, see: <https://www.ams.usda.gov/rules-regulations/moa/dairy>.