



HORIZONS

Insights on Today's Global Dairy Business from the Hoogwegt Companies



Market Matters

Demand for Low-Spore Milk Powders Erupts

Demand for low-spore milk powders continues to increase in markets without an adequate fresh milk supply. To supply these markets with long-shelf-life drinking milk, low-spore milk powders are primarily reconstituted using water and other ingredients, such as flavorings, near the point of sale. While some have a shelf life of up to two years, the norm is closer to one year. In Europe, where fresh milk is plentiful for producing long-shelf-life ultra-high temperature (UHT) milks, recombined milks are limited to a maximum shelf life of three months.

Bacterial spores are highly resistant, dormant structures that form under challenging environmental conditions to help bacteria survive. These spores cannot be fully killed during processing even at temperatures above 248° F (120° C). In standard milk powder production, these spores can affect the final product by growing in reconstituted milk, potentially causing spoilage issues. Thus, the best way to ensure a long shelf life for recombined milks is to make them with milk powders that are low in spores.

Three Key Suppliers

New Zealand first introduced low-spore milk powders sometime around 2005, and the country remains the largest producer of these products. However, since buyers prefer to be able to source product from multiple regions so as to be less exposed to seasonal and weather-driven supply, Europe, the second-largest supplier, began producing low-spore milk powders several years later, and production in the United States began in about 2010.

Lone Star Dairy Products, one of the newest U.S. powder plants, is now producing and delivering low-spore milk powders to the global dairy marketplace. Located in Canyon, Texas, the plant is a 50/50 joint venture between Hoogwegt U.S. and Lone Star Milk Producers, a dairy cooperative that supplies the plant with the high-quality milk necessary to meet exacting low-spore finished product specifications. LSDP preserves the high quality of the incoming milk by leveraging a sophisticated process design that received the 2018 Breakthrough Award from the American Dairy Products Institute for its ability to “consistently and routinely produce high-quality, low-spore milk powders.” Through this special design, the plant is able to meet the demanding and

widely varying spore content specifications of its customers on demand, achieving finished product characteristics that are tailored to each customer’s unique needs and applications. LSDP is also capable of producing standardized or non-standardized powders, the full range of heat treatments, and heat-stable finished products in combination with its low-spore offerings. In general, the trend for companies making low-spore milk powders is toward stricter specifications.

Lone Star Dairy Products’ milk receiving station



Source: LSDP

Demand for recombined long-shelf-life milks is particularly strong in regions without a cold chain or where the cold chain is still in the development stage. Buyers of low-spore milk powders do business in markets that tend to lack an adequate supply of fresh milk but where consumers have enough money to buy milk. Southeast Asia and China are the largest markets for low-spore milk powders followed closely by the Middle East.

When looking at reconstituted long-shelf-life dairy products, all of which are made with low-spore milk powders, 58% of global market introductions since 2013 have occurred in Asia. The two key applications for low-spore powders in Asia have been flavored and unflavored milks, which combined account for 80% of new milk products there.

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Hoogwegt Forecast

| | U.S. Average Prices | | | EU Average Prices | | | Oceania Average Prices | | |
|----------|---------------------|-------|--------|-------------------|-------|--------|------------------------|-------|--------|
| | \$/ton | \$/lb | Trend | \$/ton | \$/lb | Trend | \$/ton | \$/lb | Trend |
| SMP | 2.315 | 1,05 | Firm | 2.360 | 1,07 | Firm | 2.500 | 1,13 | Firm |
| FCMP/WMP | 3.680 | 1,67 | Stable | 3.430 | 1,56 | Stable | 3.300 | 1,50 | Stable |
| Butter | 5.465 | 2,48 | Firm | 4.725 | 2,14 | Stable | 5.600 | 2,54 | Firm |
| Cheddar | 3.860 | 1,75 | Firm | 3.500 | 1,59 | Firm | 4.400 | 2,00 | Firm |
| SWP | 905 | 0,41 | Stable | 1.125 | 0,51 | Stable | | | |
| Lactose | 770 | 0,35 | Stable | 1.070 | 0,49 | Stable | | | |

U.S. prices stated ex-works / incl. expected CWT subsidy where applicable; world prices stated FOB main port; EUR/USD: this week 1,12

World Comment

Milk production growth in the main production areas continues to be negative. March 2019 compared to same period last year varies between 0% in the European Union and USA to minus 13% in Australia. New Zealand is down 8% compared to March 2018. Global imports of dairy products continuous to be strong. Increased demand is mainly coming from China and the rest of Asia. Although we are in the seasonal peak of milk production in the Northern Hemisphere, both US and EU NFDM / SMP prices have moved up in the last weeks and the gap with NZ SMP is narrowing. With Cheese prices firming and limited milk availability it seems unlikely that commodity skimmed milk powder availability will increase significantly in the coming months. As well futures markets are showing a forward premium, so downside on SMP prices seems minimal. WMP market is quiet and prices stable, mainly due to very little activity in Algeria, the second biggest importer in the world. It is uncertain when Algeria will come back to the market. In general market for most dairy products has been fairly calm in the last weeks and a bit more activity could easily cause significant price changes.

Bring it Home

Low-Spore Powder Output Begins on the Farm

Producing low-spore milk powders begins on the farm. Spores can be found in feed and soil and result from less-than-ideal milking practices. For a plant, procuring high-quality milk is the first step toward producing low-spore milk powders. Lone Star Dairy Products sources milk from a small group of qualified dairy farms supplying milk delivered in single-load, single-farm deliveries.

However, not all plants are equipped to produce these products. Plant design and stringent practices must focus on preventing the growth of bacteria and formation of spores. Because some bacteria develop quickly during processing in a temperature zone between 113–140° F (45–60° C), the production process must maintain temperatures outside this temperature zone.

Lone Star Dairy Products maintains its production processes at sufficiently low temperatures, and when higher heating is required, the temperature is raised and lowered quickly so as to minimize the time spent in the bacterial-growth and spore-

forming temperature zone. Cleaning protocols are also developed to specifically manage and prevent the possibility of bacterial growth and spore formation.

Production practices, standards, and expectations for low-spore powders have evolved rapidly. Not long ago, what was considered low-spore powder is now considered medium-spore. While some companies, including Lone Star Dairy Products, have proven they can produce powders with virtually no detectible spores, products are sold as having spores below a certain limit.

Looking ahead, low-spore milk powders provide a way to bring safe and nutritious milk to consumers in a large part of the developing world where fresh milk is hard to come by. As the market evolves, low-spore milk powders will continue to command a premium over standard products as demand for reconstituted long-shelf-life products outweighs supply.

Did You Know?

In some markets, such as China, both fresh and reconstituted long-shelf-life milks compete for consumer share. In these markets, price is typically a determining factor.

The number of market introductions containing low-spore milk powder has rapidly increased over the last five years, whereas the total number of food introductions has dropped by 25%.

Sales of reconstituted long-shelf-life milks have stabilized in China, and future growth in this market is expected to be limited to about 1% per year. But demand in Southeast Asia is growing rapidly at about 4-5% per year.

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