



Insights on today's global dairy business from the Hoogwegt companies

## MARKET MATTERS

### From Rags to Riches

It wasn't that long ago that whey was considered an unfortunate byproduct of cheese production and disposed of to any swine farmer looking for an inexpensive feed source. Times have changed. Over the past 30 years, technology has been developed that has resulted in a wide range of whey products from simple dry whey to highly complex whey protein concentrates, isolates, and fractions. One of the outcomes of this technology has been the additional byproducts lactose and whey permeates.

The whey industry has grown significantly over the past decade. According to 3A Business Consulting, whey powder, whey proteins, and whey protein fractions represented a global market value of nearly \$5 billion (U.S.) in 2010 and are forecast to grow to \$6.4 billion by 2014. In addition, 3A Business Consulting pegs the lactose, pharmaceutical lactose, permeates and lactose derivatives market at \$1.6 billion in 2010 and expects it to grow to \$2.0 billion by 2014.

The EU-27 and the United States are the largest manufacturers of cheese in the world, and by default, they are also the largest manufacturers of whey and whey derivatives. While the EU-27 is the largest producer of whey and whey derivatives, in recent years, the United States has experienced a faster growth rate and is the largest exporter of whey and whey derivatives.

According to 3A business consulting, EU production of whey (not including lactose and permeates) in 2010 was approximately 2.3 million metric tons, up 10% from 2009. The majority of that production, 1.7 million metric tons, was whey powder. WPC in 2010 was approximately 180,000 metric tons, up about 2% from 2009 levels. WPC 80 accounts for approximately 20,000 metric tons of total WPC production and is growing at an annual rate of 5%. WPI production is growing faster, albeit from a lower base. Last year, WPI production grew 10% to 12,000 metric tons.

EU exports in 2010 of whey powder/WPC 35 and demineralized whey powder are estimated at 450,000 metric tons, up 5% from year-earlier levels. Exports of WPC80 and WPI are both stagnant and fairly low at about 4,000 metric tons, says 3A Business Consulting. There is definitely a trend toward the production of higher-valued whey proteins in the United States, especially in cheese manufacturing facilities that process more than 1,500 metric tons of milk per day. As a result, the production of WPC 50% to 89.9% protein and whey protein isolates (WPI) have experienced double-digit annual average growth rates of 12% and 16%, respectively, from 2003 to 2010.

In 2010, WPC 50% to 89.9% protein has increased from 38,970 metric tons in 2003 to over 83,270 metric tons pounds. During this period, WPI production has almost tripled from 10,130 metric tons in 2003 to 27,800 metric tons in 2010. Furthermore, year-to-date production in 2011 is up 6.7%, or 540 metric tons. Production of human-grade dry whey has actually decreased from 444,000 metric tons to 431,000 metric tons from 2003 to 2010.

In 2010, the U.S. exported 127,329 metric tons of WPC, an increase of 38% vs. the prior year. The largest market was China consuming 55,353 metric tons, an increase of 97% vs. 2009, followed by Mexico and Canada with imports of 26,340 and 17,907 metric tons, respectively.

As WPC production has increased so has the production of lactose and permeate. There is still untapped potential for additional lactose and permeate production as some liquid lactose and permeate is still being disposed of as animal feed. Nevertheless, lactose production in the United States totaled 411,650 metric tons in 2010, up 26% vs. the prior year. The majority of U.S.-produced lactose is exported as lactose and lactose blends. Together the two categories accounted for over two-thirds of total lactose production in 2010.

## HOOGWEGT FORECAST

	U.S. Average Prices			EU Average Prices			Oceania Average Prices		
	\$/ton	\$/lb	Trend	\$/ton	\$/lb	Trend	\$/ton	\$/lb	Trend
SMP	3.530	1,60	Weak	3.450	1,56	Weak	3.725	1,69	Weak
FCMP / WMP	4.365	1,98	Weak	4.350	1,97	Stable	3.700	1,68	Weak
Butter	4.750	2,15	Stable	5.900	2,68	Stable	4.700	2,13	Weak
Cheddar	4.630	2,10	Stable	4.850	2,20	Stable	4.400	2,00	Stable
SWP	1.435	0,65	Stable	1.450	0,66	Stable			
Lactose	1.365	0,62	Firm	1.675	0,76	Stable			

U.S. prices stated ex-works / incl. expected CWT subsidy where applicable; world prices stated FOB main port; EUR/USD: this week 1,43

## WORLD COMMENT

In the first 5 months of 2011 the northern hemisphere showed approx. 2% more milk; the southern hemisphere grew at more than twice that rate. Simultaneously imports grew strongly keeping the markets clean till today. SMP appears quite attractive to the industrial buyers whenever the price drops to approx. USD 3500 / MT FOB main port. With most of Q3 covered, buyers are now exploring Q4 offers and with heightened interest whenever the €/£ drops to below 1,42. The EU is still leading on SMP, with the large US producers conspicuously absent from the spot market. They have been successfully contracting longer term with the large buyers in the USA, Mexico and Asia. The Middle East is buying for post-Ramadan deliveries. The latest GDT results indicate a serious imbalance between FCMP returns on one end and SMP plus butterfat yields on the other side. This imbalance is also existing in Europe; FCMP is relatively cheap now. Butterfat is still expected to be in tight supply during this fall and winter in the US and EU. Where is Russia going to buy butter? Whey and lactose continue to sell rather easily whenever available. Overall 2011 is likely to end as another record dairy year.

## BRINGING IT HOME

## Market Prices, Demand to Remain Robust

The catalyst behind the growth in higher-valued, functional whey proteins is demand. Whey proteins are used in a variety of nutrition and wellness products, but are best known perhaps to the bodybuilding community.

Whey protein contains all of the essential amino acids. It is easily digested, which allows the high-quality protein to become quickly available to muscles after ingestion. This allows muscles to build mass after being broken down during an exercise or strength-training workout session. Whey also helps open blood vessels, which aids with nutrient distribution during exercise, thus helping repair and build muscles.

But whey protein is not just for body builders. Studies have shown that whey protein can help consumers maintain muscle mass and minimize muscle loss after the age of 40. It can also help people maintain weight when used as part of a high-protein diet, which helps dieters maintain a feeling of fullness longer.

Today whey protein can be found in numerous wellness and functional products, including powders, drink mixes, energy bars, yogurts, snack bars, and other foods. Whey protein powder can also be purchased in bulk to be

added to smoothies, cereal, oatmeal, yogurt, milk, or other foodstuffs.

With sports and nutrition drinks becoming more popular than sugary soft drinks and consumers paying more attention to nutrition, the world's largest food and beverage manufacturers are increasingly releasing products containing whey proteins. For instance, Pepsi's G Series products combine electrolytes with casein made from WPI to promote muscle recovery as well as electrolyte balance, and Kellogg's has launched protein water, meal bars, and snack bars, all fortified with whey.

Whey protein, which contains many components found in human breast milk, is a key ingredient in infant formulas. And because pregnancy increases a woman's protein needs, whey protein is considered an excellent protein choice for expectant mothers.

With its growing list of health benefits, it's doubtful whey protein, in all its various forms, will pile up on world markets anytime soon.

## Did you know?

- Animal Studies have shown that whey protein can inhibit the growth of certain cancerous tumors.
- Lower-quality proteins are often higher in fat and cholesterol than whey proteins, making them an excellent choice for people with heart disease.
- A Boston University study showed elderly people who consumed low levels of protein had a significant loss of bone density.
- Whey protein contains lactoferrin, which has been shown to have protective antimicrobial properties. Some mouthwash and oral-care products now contain this protective protein.

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