



BUILDING EXPORTS
FOR WHEY INGREDIENTS

The Perfect Protein

Once a waste product in need of disposal, whey products have become a valuable component of the milk stream.

The domestic market can consume just two-thirds of the whey produced in the United States each year, so U.S. suppliers have successfully sought out overseas markets. Exports have risen 13 percent per year over the last decade, creating profitable outlets for milk solids that enable the U.S. dairy industry to expand.

Whey is prized worldwide for its excellent nutritional and functional characteristics. A key ingredient in a wide range of applications, whey is often considered the “perfect protein.”

Why Whey?

In the last 20 years, U.S. cheese production has grown from 5 billion lbs. per year to more than 9 billion lbs. per year. In fact, more farm milk goes into cheese production today than in any other use.

For every pound of curd that cheesemakers skim out of the vat to make cheese, they leave behind roughly nine pounds of liquid whey. A generation ago, that whey stream was considered a waste product, a cost to manufacturers and farmers who had to dispose of it. Today, however, whey is regarded as a co-product of cheesemaking. It is refined at the plant into a valuable ingredient with many uses in food formulating and animal feed.

The U.S. Challenge

As the world's largest cheese producer, the U.S. dairy industry makes more than 1 billion lbs. of dry, sweet whey each year, plus another 350 million lbs. of whey protein concentrate (WPC) and nearly 30 million lbs. of whey protein isolate (WPI). In fact, we produce considerably more whey proteins than the U.S. market can consume.

Finding New Uses

Food formulators understand that whey and its components bring a wealth of nutritional and functional benefits to a variety of products. Whey is often called "nature's most perfect protein" for its proven beneficial effects on intestinal health, blood pressure regulation, immunity enhancement, muscle building and recovery, cholesterol reduction, weight management and other nutritional advantages. Further links between whey and wellness are constantly being researched.

Whey's versatility and functionality makes it a sought-after ingredient in nearly any product in the supermarket. Major applications include sports nutrition (drinks and bars), functional beverages, dairy products, infant nutrition, baked goods, confectionery products, processed meats and nutritional foods for the elderly.

Finding New Markets

In recent years, U.S. suppliers have successfully developed overseas markets for whey proteins. From 1998-2004, U.S. sweet whey export volume rose 63 percent, to 356 million lbs. Exports of high-value WPC and WPI more than doubled to 99 million lbs.

Rising consumer incomes and improved sophistication in product development overseas are driving the demand for whey. Leading markets for U.S. whey are China, Southeast Asia, Canada, Mexico, Japan, South Korea and South America. The United States is the leading supplier of whey to most of these markets.

USDEC Programs

Over the last decade, the U.S. Dairy Export Council has conducted dozens of applications seminars, trade missions and trade servicing activities around the world to help build demand for whey in overseas markets. USDEC programs are designed



THE 'WHEY GOOD' BAR

With its excellent functionality and nutritional characteristics, whey-derived ingredients play a critical role in the formulation of nutrition bars. Whey protein provides the proper texture and mouthfeel to the 'Whey Good' bar, as well as an enhanced nutritional profile.

Fitness enthusiasts have helped drive the demand for whey products over the past decade. Whey provides easily digestible, high-quality protein and calcium, and high levels of branched-chain amino acids, which provide additional energy.

to grow both usage and U.S. share, to diversify the user base and to target higher-value whey applications.

Bottom-line Impact

Manufacturers produce about 50 percent more whey proteins than we use in the United States. Building demand in overseas markets has kept this excess from depressing the U.S. dairy market. It has made U.S. milk more valuable, enhancing returns to farmers.

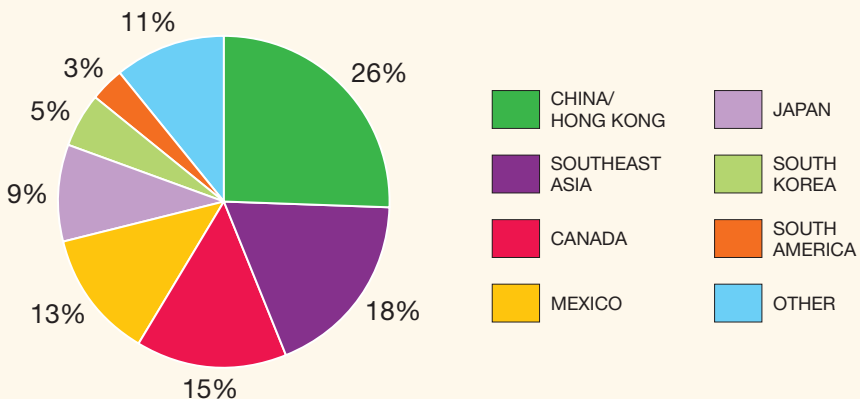
The Federal Milk Marketing Orders recognizes this value. In Federal Order price calculations, every penny increase in the whey price adds 6¢ to the Class III milk price. (It also adds 6¢ to the Class I price in months when the value of skim milk powder is higher in cheese manufacture than

in butter/powder manufacture, which has occurred more than three-quarters of the time from 2003-2005.) In other words, the price of whey has directly affected the price of almost 70 percent of the milk produced by U.S. dairy farmers in the last three years.

Thanks to rising global demand for whey, the value of whey both in the United States and around the world climbed near historic highs in 2005. In the United States, where sweet whey averaged less than 20¢/lb. from 1985 to 2003, prices hit 30¢ in the fall of 2005. That extra dime on the whey price added 60¢/cwt. to the Class III price each month, and to the Class I price in most months as well.

Markets for U.S. Whey

(2004)



The United States exported 455 million lbs. of whey proteins in 2004. Major destinations include China/Hong Kong, Southeast Asia, Canada and Mexico.



MILK MINING

Sweet whey is just one part of the whey stream. By separating and refining the stream further, suppliers can come up with a laboratory full of components with a host of specific benefits. For instance:

Whey protein concentrate: Through membrane separation/ultrafiltration, sweet whey is concentrated to a desired level of protein for specific applications. Protein levels range from 34 percent (WPC-34) to 80 percent (WPC-80).

Whey protein isolate: Through membrane separation/ultrafiltration or ion exchange, sweet whey is concentrated to at least 90 percent protein.

Lactose: Milk sugar which is removed during whey concentration, provides dietary energy for a variety of food applications and as a filling agent in pharmaceuticals

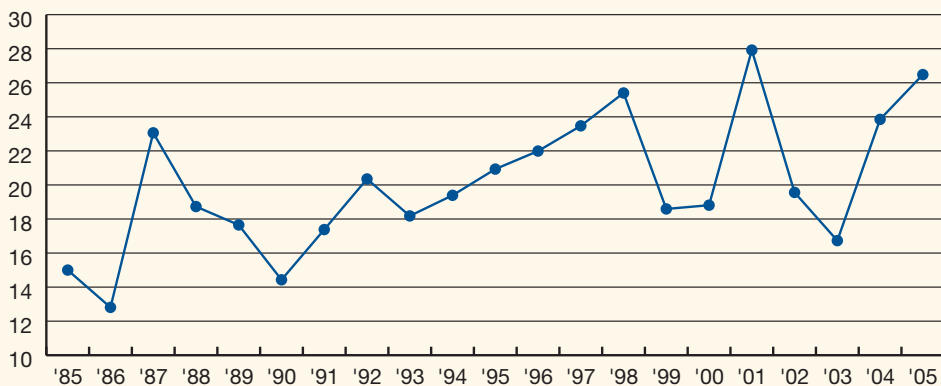
Lactoferrin: A protein that has antibacterial effects

Lactoperoxidase: An enzyme that has antibacterial effects

Alpha-lactalbumin: A protein used in infant formula because it is structurally and compositionally similar to the major protein in human breast milk

Glycomacropeptide: A peptide that may suppress appetite and prevent cavities

U.S. Whey Price (annual average in cents per lb.)



Thanks to rising global demand for whey, the value of whey in the United States climbed to near historic highs in 2005. The 2005 price is an average through October.



The U.S. Dairy Export Council (USDEC) is a non-profit, independent membership organization that represents the export trade interests of U.S. milk producers, proprietary processors, dairy cooperatives, and export traders. Its mission is to enhance international demand for U.S. dairy products and assist the industry to increase the volume and value of exports. USDEC accomplishes this through market development programs that build overseas demand for U.S. dairy products, resolving market access barriers and advancing the industry's trade policy goals. USDEC activities are supported by staff in Mexico, Japan, South Korea, China, Taiwan, Southeast Asia, South America, Middle East and Europe.



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