

RISE IN CASEIN PRICES PRESSURING ADHESIVES

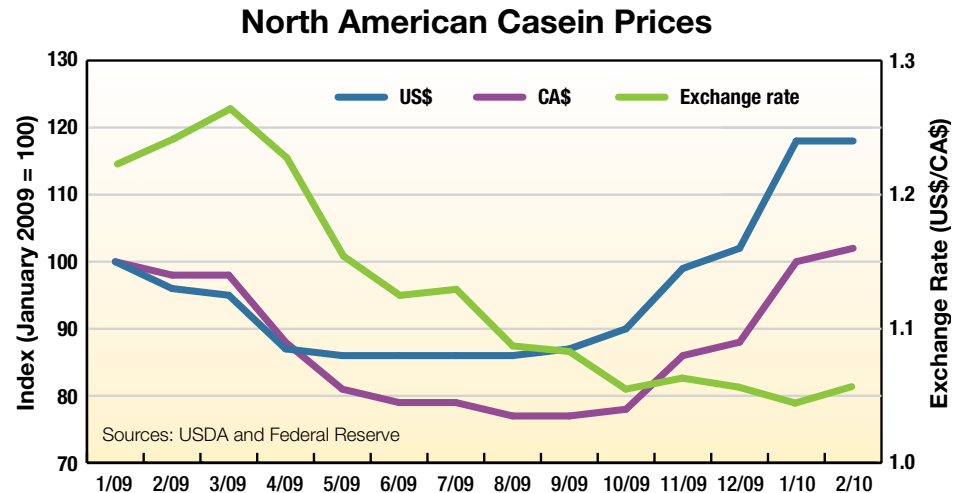
Dairy prices are on the rise and will impact a key raw material used in the formulation of waterborne labeling adhesives.

The economic issues affecting world dairy markets might seem far removed from those impacting adhesives — but they're not. The link is casein.

Casein is a dry protein derived from cow's milk. It plays an important role in labeling adhesives, especially those used by the bottling industry. Casein's unique chemical structure allows the formulation of an adhesive that maintains its bond, even when immersed in a cooler full of ice. Yet the labels can be easily removed when washed with a mild caustic solution. Casein adhesives facilitate the recycling of glass beverage bottles.

Recently, an unexpected supply shortage moved dairy prices sharply higher. Casein prices rose in tandem and, since their lowest point in 2009, are now up 37.5% in the U.S. and 29% in Canada (the difference is due to the mitigating effect of the Canadian exchange rate). "This sharp recovery [in dairy prices] appears to suggest that import demand is staging a comeback and was probably not as negatively affected by the global recession as initially anticipated," the USDA said in a recent report. Analysts expect prices to continue to rise this year.

Demand, especially from developing nations, is improving. Whole milk powder imports to China grew almost



Casein is priced in U.S. dollars. The exchange rate accounts for the difference in current pricing levels — the Canadian dollar has gained strength against the U.S. currency in the past 12 months.

260% in 2009 over 2008, according to the USDA, due to growing demand from a burgeoning middle class and the Chinese melamine scandal, which undermined confidence in locally produced milk. Imports are expected to achieve similar levels in 2010. At the same time, analysts are forecasting lower global milk production in 2010, which could result in tighter markets for dairy products.

Last year's drop in dairy prices took a toll on farmers around the world and set the stage for many of the economic problems facing the dairy industry this year. Dairy farms are closing. Farmers are shrinking herd size and switching to lower-cost

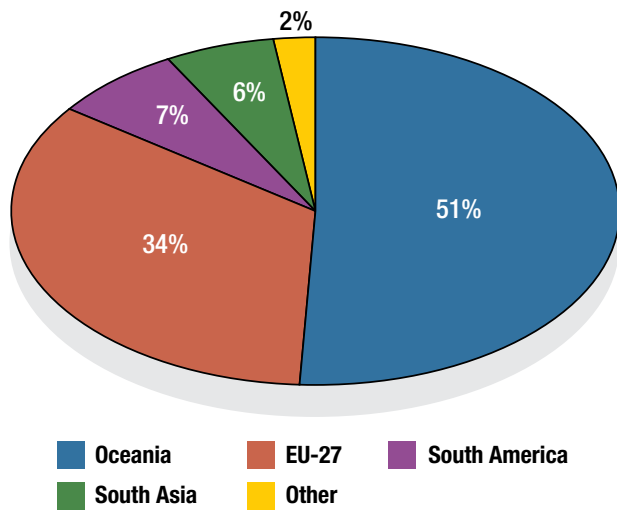
feeds, which reduce production. Tight credit markets make it difficult for farmers to borrow the funds they need to buy feed and fuel to keep their operations running. Meanwhile fuel and feed prices are increasing again. This means that less milk could be produced this year just as demand starts to rebound.

Because of the nature of the dairy market — demand, even at the low end, is relatively inelastic yet supply can be affected by a number of factors, including weather and disease — even small changes in supply can precipitate large fluctuations in price.

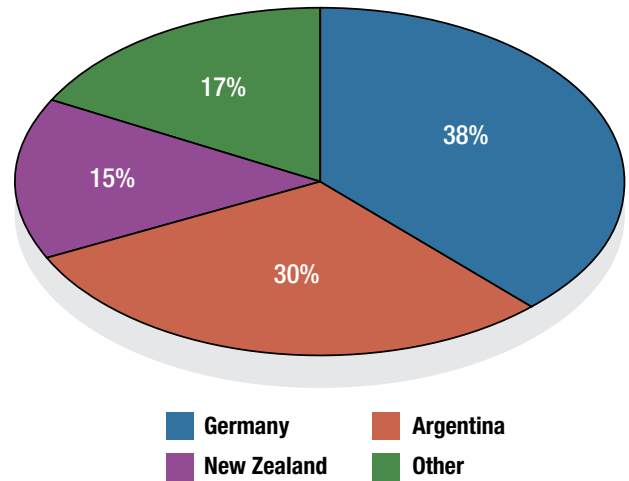
The relationship between production levels and demand has a ▶



U.S. Casein Imports 2009



Canadian Casein Imports 2008



Sources: USDA and Statistics Canada

direct impact on the supply of casein, which is produced at the expense of other dairy products, like cheese, yogurt and skim milk powder. With strong competition for milk supplies, dairy producers choose where to sell their milk to maximize returns. Casein must be priced competitively to pull milk away from other high-value products like specialty cheese.

Since casein is not produced in North America, it must be imported. In 2009, the USDA reports that the U.S. imported most of its casein supply from Oceania (51%) and the EU-27 (34%). In 2008, Canada's imported casein came from Germany (38%), Argentina (30%) and New Zealand (15%), according to Statistics Canada.

Local weather and economic conditions in these regions influence milk, and therefore casein, supply. Dry weather conditions related to El Niño are expected to limit dairy production in Oceania this year. Casein exports dropped almost 27% in the 12 months to January 2010, according to Statistics New Zealand.

The European Dairy Association reports that annual European casein production dropped 18% in 2009. Meanwhile, the European dairy season has only just begun but the Food and

Agriculture Organization (FAO) expects milk production to remain stagnant in the EU this year. Casein is currently being supplied from inventories, which are almost depleted. In the current market, casein prices must continue to increase to ensure supply.

Casein prices are clearly rising but the adhesives industry must contend with an additional level of cost inflation. It competes with other markets, including manufacturers of food products, binders, protective coatings and plastics, for casein supply. And, since adhesive formulation is particularly sensitive to casein's fat and protein profile, not all caseins on the market are of sufficiently high quality to be used

in adhesives. This means that adhesives suppliers must often pay a premium to secure the higher quality casein needed to meet their rigorous performance standards.

All of these factors make the casein market especially volatile and contribute to the higher prices paid by the adhesives industry to secure casein supply. This will continue to put pressure on the cost of waterborne labeling adhesives in the coming months. ■

