Status of Wisconsin Agriculture & Agriculture Outlook Forum

COLLEGE OF AGRICULTURAL & LIFE SICENCES - UNIVERSITY OF WISCONSIN

January 19, 2017
Union South
Madison, WI

2017 Wisconsin Agricultural Outlook Forum Presentation Summaries

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Condensed Situation & Outlook for Dairy—2016-2017

Domestic Demand for Dairy Products

The U.S. dairy industry has had a number of high-impact trends over the last several decades. One of these has been the increase in per capita consumption of major product categories such as cheese, yogurt and more recently, butter. Both cheese and butter consumption was up about 8 percent per capita in 2016 and we anticipate continued growth in the year ahead. Cheese consumption hit a milestone at more than 35 pounds per capita—more than double what we were eating four decades ago. We should have opportunity for continued growth. When compared with other countries like France and Germany, consumption is more than 50 pounds per capita.

Not all consumption numbers have been positive. Fluid milk consumption has been on a downward trend for as long as cheese has been going up. Per capita consumption is today one third less than it was 40 years ago. Ice cream and frozen products have also declined.

On an all-products basis, per capita consumption of milk has been increasing at a rate of about 2 pounds per person per year in the U.S. We are also adding almost 3 million people to the U.S. population every year. Combining population and per capita consumption growth, we will need about an extra 2.5 billion pounds of milk to satisfy domestic demand growth in 2017.

U.S. unemployment rate is below 5 percent and at levels that are considered to be full employment. And, in the last quarter of 2016 we have begun to see wage growth again. There are in fact very few statistics that suggest anything but steady growth in the U.S. economy. This will support continued growth in the domestic sale of dairy products in 2017.

Domestic Supply Factors

Another high-impact trend in the dairy industry is the growth in the efficiency of milk produced per cow. This has been a very linear trend of about 284 pounds of increased milk per cow per year. Given this growth in productivity the math would suggest that we only need the milk from a little more than 8 million cows to satisfy our current domestic needs. However we have more than 9.3 million cows in the U.S. herd. The rest of the sales are a result of export demand. Exports have become important to the growth of the U.S. industry since about 2004. While exports have supported growth, the last 5 downturns in milk prices have been accompanied by declines in export sales. The relative success of the domestic dairy industry is related to what is happening in other countries—both the demand for dairy products from importing countries but also the competition for sales from other exporting nations.

Dairy farms react to changes in farm profitability. High profits are the signal from customers that the market wants more milk. The additional profit provides not only the message but also the wherewithal to produce more milk. Low profits are just the reverse. As margins contracted from

the highs of 2014, milk production growth has also declined but we have seen an increase in growth in the last half of 2016.

Although milk prices are well off their peak in 2014, feed costs are also well below their highwater mark in 2012-13. As farm profit has begun to improve, farms are cautiously responding with greater milk production. The 2016 year began with very modest increases in milk production but it ended with the U.S. milk supply up about 2.5 percent above year earlier levels in the last two months. I expect continued higher-than-average growth in milk production throughout 2017 but probably no more than the 2.5-3.0 percent levels.

World Supply of Milk

The only way that our domestic milk supplies can continue to grow at this rate is because the rest of the milk exporting countries of the world are producing less than they did in the previous year. While U.S. All Milk Prices have been depressed in the $16-17 range in 2016, the largest exporter—the European Union—has had prices in the $13-14 range and the next largest exporter—New Zealand—has had prices in the $10-12 range. These very low prices have caused producers in those countries to contract milk production. Australia and Argentina, two additional exporters, have also contracted milk production even more significantly.

The farm milk price difference between the U.S., the EU and New Zealand has been much larger that is typical. Normally, arbitrage would cause dairy product buyers to look for less expensive sources of supply and drive the prices closer together. U.S. exports have declined significantly during 2015-16 but our relatively robust economy has absorbed most of those products into domestic consumption and somewhat higher stocks of cheese and butter. The EU prices were supported at a higher than New Zealand because the EU intervention policy purchased a good deal of skim milk powder and has also paid for private storage costs of dairy products. They also implemented a temporary program to directly pay farmers for milk that they did not produce. New Zealand simply let the milk price fall to market clearing levels.

By June of 2016, milk production from the major exporting countries was below year earlier levels and has continued to decline through the remainder of the year. In fact, the U.S. is the only significant exporter with growth in milk production. This contraction in the world supply is helping to pull down on stocks of dairy products and has encouraged prices to rise. The Global Dairy Trade Index has shown improvement for the last three quarters of 2016 and should continue on into 2017.

Implications for U.S. Milk Price in 2017

The major exporting countries of the southern hemisphere (New Zealand, Australia, Argentina, Uruguay) are primarily grazing dairies with seasonal calving. Their production decisions are largely locked in until the next milk production year which won't begin until July-August of 2017. The exporting countries of the European Union are not homogeneous with regard to their production practices, but many of the major exporters (Germany, Netherlands, France and Ireland) also have reasons holding back their supply response in light of improved milk prices.

The Netherlands has implemented restrictions on phosphate application which could cull their dairy herd by 100,000-170,000 cows. Some producers in other countries began breeding dairy cows to beef bulls in their search for better profits. This practice will have a ripple effect on replacement animals for a few years. All-in-all, I don't expect world milk production to respond rapidly to improved prices but it will respond in time.

The U.S. is in a good position with increasing production to re-capture some of the export market share that was lost over the last two years. We may even be able to increase our

customer base. I am forecasting the U.S. All Milk Price to increase from $2.00-2.50 in 2017. I expect the trajectory of the price change to be steady through the first half to maybe the first three quarters of the year. After that, it will significantly depend on what the rest of the world does in response to the improved price.

I am forecasting that the milk powder that the EU has purchased during intervention will begin to come back on the market having a dampening effect on the price recovery. However, if world stocks of dairy products begin to feel tight, buyers could begin to panic-purchase product pushing prices even higher than I am forecasting. 2017 will be a much better year for dairy producers around the globe.

Dairy Highlights

- Domestic sales of dairy products have been very good in 2016.
- Cheese consumption exceeded 35 pounds per capita
- U.S. exports of dairy products have declined significantly over the last two years
- World prices for dairy products have improved to the point where U.S. prices are again competitive in export markets for cheese and butter sales
- Skim milk powder, whey and lactose prices remained competitive over the last two years but at low levels
- Major export competitors (the European Union, New Zealand, Australia, Argentina) have contracted milk supplies while the U.S. has increased
- Farm milk prices are forecast to improve by $2.00-2.50 in 2017 when compared to 2016 averages
- It is difficult to gauge the impact of the Intervention stocks of skim milk powder held by the European Union. The world markets may absorb them with little impact, but if world stocks begin to feel tight, prices could move significantly higher by the end of 2017.
- Wisconsin will achieve its goal of 30 billion pounds of milk production next year—well before the year 2020

Todd Hubbs

Corn and Soybean Outlook

Corn and soybean prices weakened considerably in 2016 from the record levels seen from 2010 to 2013. While 2016 halted a declining trend in both corn and soybean prices, this was due to a crop shortfall in South America. Large world stocks for corn and soybeans are building as massive crops are realized in this marketing year. The expectation of large production levels across the globe is building ending stocks in both the U.S. and the world. Continued price weakness should be expected without a production shortfall in one of the world's major producers. The following is an analysis of 2017 price prospects given a decent growing season.

Corn prices are currently suffering from the large stocks generated under four consecutive big crops in the U.S. Corn exports were strong through the latter half of 2016 due to a poor corn crop in South America, but export demand may weaken in the second half of the marketing year if corn production in South America meets current projections. Domestic corn demand growth is slow with some positive development occurring in ethanol production and potential higher feed use than in 2015-16. Ethanol production is running 2-3% above last year as gasoline demand maintains strength and lower corn prices improve ethanol crush margins. Strong ethanol production is also helped by the growth in ethanol exports due to strong sugar prices in Brazil. The potential exists to surpass the estimated 5.325 billion bushels of corn for ethanol use in the 2016-17 marketing year. Livestock production has expanded significantly in 2016 and may bode well for feed use. Strong wheat feed substitution and DDGS availability may put a damper on feed use numbers. Projected ending stocks of 2.355 billion bushels for the 2016-17 marketing year are the highest since 1987-88. This ending stock increase is a drastic increase from the low of 820 million bushels in the 2012-13 marketing year and a substantial bump from the 1.74 billion bushels estimated ending stock in 2015-16. The 2016-17 marketing year provides little support at this point for higher prices barring a crop shortfall in South America. Conversely, the possibility of weakening prices is low as well with significant support from ethanol production and export markets. Planted acreage for 2017 is expected to decline. This decline is driven by higher soybean prices relative to corn and lower costs of production for soybean acres. A three and a half million-acre reduction combined with a 169 bushel per acre trend yield would result in a 2017 crop greater than a billion bushels smaller than 2016. This reduction in production would result in smaller ending stocks for the 2017-18 marketing year. If world production and domestic demand unfold as expected, prices will average near $3.34 per bushel during the current marketing year and be near $3.65 during the 2017-18 marketing year.

Soybean prices remain relatively high in comparison to corn prices despite three consecutive years of large U.S. crops. The crop shortage in South American production in 2016 helped to maintain U.S. export levels at a record pace through the first four months of the 2016-17 marketing year. Chinese soybean imports have been impressive thus far. U.S. ending stocks for soybeans grew over the last three years from a low of 92 million bushels in 2013-14. The large crop in 2016 pushed ending stocks to 420 million bushels despite the lower production levels calculated in the final production estimates for 2016. South American production and Chinese imports are shaping up to be key drivers for the 2016-17 marketing year price outlook. Soybean crush is strong thus far in the marketing year, and the possibility of larger biodiesel production resulting from RFS mandates has the potential to support prices moving forward. The 2017-18 marketing year is dependent on acreage allocations for soybeans. Planted acreage is expected to increase substantially in 2017 due to lower corn and wheat prices and the lower cost of producing soybeans relative to corn. Recent soybean yields make it difficult to predict possible yield potential in 2017. Three consecutive years of yield substantially above trend creates a conundrum. A yield of 48 bushels per acre with 4.0 million more planted acres would result in a 2017 crop approximately 140 million bushels smaller than the 2016 crop. Despite the smaller crop, 2017-18 ending stocks would still increase even with strong demand potential in export markets and domestic crush levels. The potential for demand growth in export markets is present but requires negative developments in South American soybean production. Prices are expected to average around $9.40 during the current year and near $8.90 during the 2017-18 marketing year if world production unfolds as expected during 2017.

Weekly analysis of commodity market outlook is available at www.farmdocdaily.illinois.edu

James B Wood

Mr. Wood's presentation is focused on examining and understanding how specific demographic changes, most notably increases in Wisconsin's elderly population and shrinkage in its workforce, are affecting Wisconsin's economic capacity, quality of life, and its ability to educate, attract and retain the workforce it needs.

Matthew Kures

Contemporary economic development strategies recognize that regional assets are important drivers of economic growth. While Wisconsin is endowed with a breadth of economic assets, many of these are connected to food production, processing and consumption. In particular, Wisconsin is home to diverse agricultural producers; established food and beverage manufacturing enterprises; strong affiliated industry concentrations; nascent entrepreneurs; robust university resources; and a skilled labor force. However, the mere presence of these strengths does not guarantee future prosperity for the state's food manufacturing industry. In fact, Wisconsin state's food and beverage sector is facing a number of changes that create both opportunities and challenges for the state. This session explores some of these changes and how they may impact the future competiveness of the agriculture, food and beverage sector in Wisconsin.

For more information, visit:
http://madisonregion.org/wp-content/uploads/2014/11/MadREP_afb_analysis_final.pdf

Kent Weigel

The UW-Madison Department of Dairy Science has served as the primary research and development arm of Wisconsin's dairy industry for more than a century, and its scientists have played a role in most significant discoveries and technologies used on our dairy farms. However, critical mass and capacity has been lost as Wisconsin, like many other states, has reduced support for its land-grant university. Check-off funds are used by scientists working with other agricultural commodities, and for dairy products and marketing, but no mechanism exists for direct investment by Wisconsin dairy farmers in research and development related to dairy herd management, animal health, production efficiency, and other key subjects. Current efforts are focused on developing new and innovative strategies by which farmers, dairy-related agribusinesses, and university researchers can work together to develop new technologies, stimulate entrepreneurship, and reduce the timeline from discovery to product.

For more information, visit: http://dysci.wisc.edu/research/genetics/

Mark Garthwaite

Innovation in Wisconsin Agribusiness: Successes and Challenges for Craft Breweries

Wisconsin has a well-established brewing history, heritage and culture that has come full circle in returning to its local roots that pre-dated statehood. Beer is of course, an agricultural product and in Wisconsin the brewing industry contributes nearly $8 billion to the state's economy. In the late 19th and early 20th centuries, local breweries dotted the landscape and the raw materials used in brewing beer were largely locally grown and processed. To this day there are several malting facilities in Wisconsin that not only provide malted barley and other cereal crops to brewers but also for a variety of additional food processors. In the 1850's, Wisconsin rapidly rose to prominence as one of the largest producers of hops. Local growers provided for 226 local breweries by the late 1870's.

Following Prohibition, the brewing landscape was dramatically altered and industrial scale breweries became the model for brewery growth in the state and nationally. The natural outcome was a supply chain shift and market conditions that resulted in a more homogeneous product with ingredients optimized for industrial scale brewing. As large breweries consolidated, supply chain constraints squeezed out smaller breweries resulting in a pre-Prohibition decline from 165 local Wisconsin breweries, recovering to 88 breweries after Prohibition, and declining to as few as 8 in the 1970's.

Today, we see a resurgence of local Wisconsin breweries that began in the mid 1980's which has accelerated profoundly within the last 5 years numbering nearly 150 breweries and breweries-in-planning. Remarkably, Wisconsin trails other states with a brewery start-up rate ranking 4th lowest in the country since 2011.

Opportunities exist for locally grown raw materials used to produce Wisconsin beer but the bottom line for both brewers and consumers is quality. The raw materials for local beer must meet stringent quality parameters and growers will need to know what those quality parameters are and how to achieve necessary scale to meet brewery requirements.