



USDA's 99th Annual Agricultural Outlook Forum

Hybrid
Event

U.S. Agriculture: Seeds of Growth Through Innovation

February 23-24, 2023

Dairy Outlook

Thursday, February 23, 2023

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OUTLOOK FOR U.S. DAIRY

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The U.S. dairy sector enters 2023 facing pressures from lower milk prices and relatively high input costs. After declining during the latter part of 2021, dairy cow numbers rebounded slightly in the first half of 2022 as the national average all milk price reached record high levels. However, despite high milk prices, higher feed prices and other operating costs and continued logistical constraints began to stress producer returns and set the stage for a gradual reduction in cow numbers during the second half of the year. Growth in milk per cow also lagged historical trends during much of the year as forage quality affected yields. Although recovering in the second half of 2022, for the year, average milk per cow averaged only about 0.6 percent higher than 2021 on a per day basis, the slowest rate of growth since 2016. With cow numbers slightly lower than 2021 and slow growth in milk per cow, total milk production in 2022 increased less than 1 percent in 2022.

Lower milk production early in the first half of 2022 more than offset relatively soft demand and supported prices at levels above 2021. Exports were a bright spot in 2022 with record high commercial exports on a skim-solids and fat bases, milk equivalent. However, while exports of products such as butter, lactose, and whey protein concentrate products increased from 2021, other products for which export markets are important, such as skim and whole milk powders and whey, saw declines in the face of softer international demand and increased competition with other exporting countries. Despite lower production, stocks for a number of products, notably, cheese, nonfat dry milk (NDM), and whey remained persistently high, which put downward pressure on prices to some extent. Prices for a number of products increased well above 2021 in the first part of the year but declined from their peaks in the face of relatively high stocks, or in the case of NDM and whey, increased competition in international markets. By January 2023, among the four products used in Class price calculations, only cheese remained above year-earlier levels.

Outlook for 2023: Fewer Cows, Continued High Feed Costs and Tight Forage Supplies.

Entering 2023, producers are facing the prospects of continued relatively high feed costs and uncertainty in forage supplies. Although milk prices are forecast to decline from 2022, they are expected to be the second highest since 2014. Yet, high feed prices and tight supplies of forage will make 2023 a challenging year for the sector. To some extent, these concerns have

manifested themselves in a decline in retained dairy heifers and higher levels of dairy cow slaughter thus far in 2023. Milk per cow is expected to increase at a more rapid rate than 2022, but the increase is expected to be only slightly above 1 percent.

On January 1, 2023, the dairy cow herd was 0.3 percent higher than 2022, but producers were retaining 2 percent fewer heifers for milk cow replacement. The number of heifers per 100 cows is at the lowest percentage since 2005. Equally telling, producers expected to have 2 percent fewer heifers calve during 2023. In addition, dairy cow slaughter in January was the highest for the month since 2020 and is expected to remain at or above historical levels during much of the year. Cow numbers in the first quarter are forecast average close to 2022. However, producers are expected to face weakening milk prices through much of the year and although feed prices are forecast to gradually moderate from their 2022/23 crop year highs, alfalfa prices are expected to reflect assumed impacts of lower 2022 production on stock levels ahead of this year's crop. With weaker milk prices squeezing margins, it is expected that the dairy herd will fall below year-ago levels during the second quarter and decline more rapidly in the second half of the year. For 2023, the dairy herd is expected to average 9.380 million head, 0.3 percent below 2022 and the lowest level since 2019.

Although milk per cow is expected to increase more rapidly in 2023 than in 2022, weaker producer margins may limit gains. Output per cow per day is forecast to increase just over 1.0 percent in 2023 compared to 0.6 percent in 2022 and 1.0 percent in 2021.

Domestic Use to Improve Slightly in 2023

In 2022, domestic use, on both a fat and skim-solids bases was below 2021 for much of the year, resulting in an increase in stocks. Among the major dairy products, commercial use of butter was generally below year-earlier levels during the first half of the year and declined more strongly in the second half, likely in response to high prices. Conversely, American cheese use was choppy; after averaging higher in the first quarter, use declined in the middle quarters before recovering in the fourth quarter. Other cheese use was generally above 2021 for most of 2022. On a skim-solids basis, domestic use of dry skim milk, dry whey and whey protein concentrates, and lactose were below year-earlier levels through most of the year. For the year, domestic commercial use on a fat basis declined one percent from 2021. On a skim-solids basis, domestic commercial use was about 0.6 percent below 2021. As a result, ending stocks increased from 2021 which is expected to place additional pressure on prices through much of 2023.

In 2023, domestic demand is expected to remain somewhat soft with slow economic growth expected to be a drag on demand. With higher stocks overhanging the market and increased supplies of milk moving into products, lower prices will be needed to balance the markets. Gains in fat tests are expected to increase levels of milkfat by a greater percentage than that implied by the modest increase in milk production. Thus, domestic commercial use on a fat basis is expected to increase less than one percent in 2023, but a further increase in fat basis stocks is expected as demand fails to keep pace with the increase in supplies. Domestic

commercial use on a skim-solids basis is expected to increase by just over one percent with increased supply pressure on domestic markets from weaker exports of NDM/SMP and dry whey. Despite modest gains in domestic use, skim-solids basis ending stocks are also expected to increase in 2023.

Exports to Reflect Soft International Demand, Increased Competition

In 2022, the United States exported about 6 percent of milk production on a fat basis and about 23 percent on a skim-solids basis. In 2022, exports grew as U.S. prices were competitive compared to other exporters for a number of products. Butter and butterfat products exports were 42 percent higher than 2021, which more than offset gains in imports and the United States became a net exporter of butter and milkfat. Cheese exports also increased 12 percent, with higher sales to a number of countries including Mexico, Japan, and South Korea. Shipments of whey and lactose also increased by 7 percent and 15 percent respectively. Conversely, nonfat dry/skim milk powder (NDM/SMP) exports declined 6 percent, reflecting weaker sales to Vietnam, Algeria, and Egypt.

For 2023, the U.S. is expected to face increased headwinds from both generally slow economic growth among importers and increased competition from several key exporters, especially in the second half of the year. However, a slightly weaker U.S. dollar in 2023 may help limit the loss of competitiveness as international dairy prices are likely to decline as international demand stagnates. Exports of butter, dry whole milk, and lactose are expected to be subdued during the year. Cheese exports are expected to be stronger as production growth among competitors, namely the EU, is expected to be muted. Whey product exports are expected to be slightly higher as weaker dry whey exports are more than offset by higher exports of other whey products. NDM/SMP exports are expected to be close to last year's levels as weaker forecast SMP production among the major competing exporters is expected to be largely offset by demand weakness. For the year, exports on a fat-basis are expected to reach 13.1 billion pounds; about 2 percent below 2022, largely on declines in butter and dry whole milk. On a skim-solids basis, exports are forecast to be about 52.1 billion pounds, almost one percent less than 2022, as weaker lactose and dry whole milk exports are partly offset by higher nonfat dry milk and aggregate whey exports. As a share of milk production, these milk equivalent exports levels would be about the same as 2022.

Large Stocks are Reflecting Weak Demand

Weak domestic demand during 2022 was likely reflected in a buildup of stocks. With the exception of American cheese, stocks of all major products were higher than year-earlier at the end of the year. Although American cheese stocks declined in the latter part of the year, total cheese stocks finished the year above 2021 on higher stocks of Swiss cheese and other cheese. Butter stocks were below 2021 for almost the entire year before jumping in December as buying interest to secure supplies ahead of the holiday faded. Nonfat dry milk stocks were also lower

early in the period but increased relative to 2021 as the year progressed. Fat basis stocks at the end of 2022 were about 14.4 billion pounds, about one-half percent above 2021. On a skim-solids basis, stocks were almost 7 percent higher, at just over 11.8 billion pounds the highest level for the series reported by USDA, Economic Research Service, which begins in 1995

Stock levels in 2023 are expected to build as domestic and export demand remains weak. Fat basis ending stocks are expected to increase just over one percent from 2022 as demand for cheese and butter is more than offset by increased production. With weaker forecast exports, on a skim-solids basis, ending stocks are expected to be 12.3 billion pounds, almost 4 percent above year-earlier levels.

Prices to Average Lower in 2023

With lower milk production during the first part of 2022, butter, cheese, and NDM prices averaged higher. In addition to domestic demand, international prices during that period were supportive for exports which helped support higher domestic prices. However, after peaking during the first half, international prices declined, and as U.S. products lost their competitive edge, exports fell, increasing supplies which had to be cleared in the domestic market. Coupled with generally soft demand, domestic prices began to decline in the second half although, with the exception of dry whey, generally remained above 2021. A further exception was the butter price where concerns about supply availability for the holidays and diminishing stocks kept prices high through the end of the year.

Despite a rather slow rate of growth in milk production, only modest increases in use and high carry-in stocks are expected to pressure prices. In the first weeks of 2023, butter, NDM, and whey prices are under pressure from larger supplies and weak export demand, but the cheese price remains close to last year. With stocks expected to remain relatively large through the year, butter and cheese prices are forecast to decline through most of the year. For 2023, cheese prices are forecast to average \$1.86 per pound, and butter will average \$2.33 per pound. Although these are 25 cents and 54 cents per pound below last year, they would be the second highest prices since 2020, and 2017, respectively.

For skim milk powders and whey, which are heavily export oriented, softness in international demand is expected to place further downward pressure on prices. With the weakening of export demand, prices for those products began declining in the second half of 2022 and prices are expected to fall through 2023 as the U.S. strives to remain competitive in the export market. For the year, NDM prices are forecast to average \$1.225 per pound, 46 cents below 2022. Whey prices are forecast to average 36.5 cents per pound, almost 24 cents below last year.

With weaker product prices, the 2023 all milk price is forecast to decline to \$20.70 per cwt. Although this is a \$4.86 decline from 2022, it would be the second highest price since 2014. The Class III price is expected to decline to \$17.90 and the Class IV price is expected to average \$18.25 per cwt.

Additional information about the 2023 dairy forecasts is available at:

World Agricultural Outlook Board (WAOB)
World Agricultural Supply and Demand Estimates
www.usda.gov/oce/commodity/wasde/index.htm

Economic Research Service (ERS)
Livestock, Dairy, and Poultry Situation and Outlook
<https://usda.library.cornell.edu/concern/publications/g445cd121?locale=en>

Foreign Agricultural Service (FAS)
Dairy: World Markets and Trade
<https://www.fas.usda.gov/data/dairy-world-markets-and-trade>