

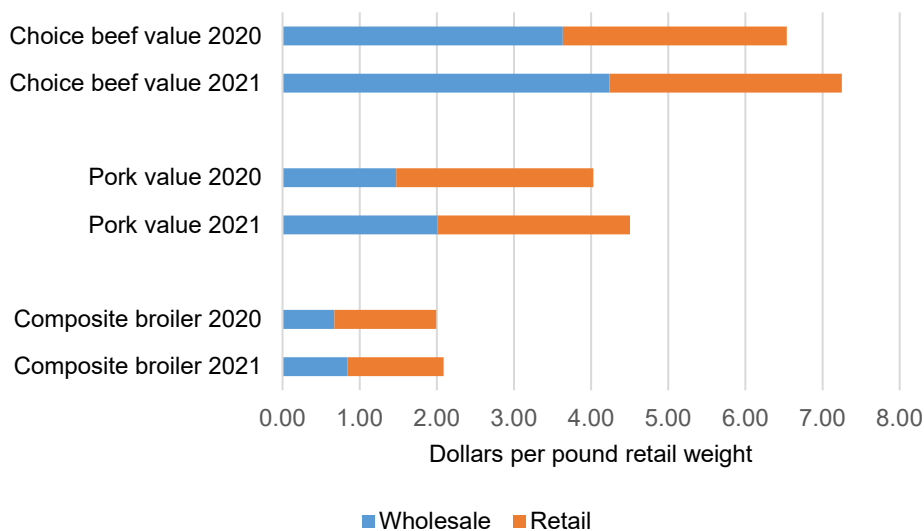


Livestock, Dairy, and Poultry Outlook: February 2022

Wholesale and Retail Prices Higher in 2021 Than 2022 for Beef, Pork, and Poultry

The Economic Research Service publishes estimates of the wholesale and retail values of beef, pork, and poultry on its Meat Price Spreads data page. The graph below compares annual average values for composite Choice beef and pork, and broilers for the years 2020 and 2021. The wholesale value of Choice beef increased 61 cents per pound, while the retail value increased 71 cents. Pork and broiler retail values increased less than their wholesale values; pork’s wholesale value increased 54 cents per pound while the retail value increased 48 cents. The wholesale broiler value increased 17 cents per pound and its retail value 10 cents.

Wholesale and retail values for beef, pork, and broilers increased in 2021



Source: U.S. Department of Agriculture, Economic Research Service data.

Summary

Beef/Cattle: The total number of cattle and calves on January 1, 2022, was estimated at 91.9 million head, down 2 percent from a year ago. The forecast for 2022 commercial beef production was raised by 210 million pounds from last month to 27.375 billion pounds on higher expected fed cattle slaughter and heavier carcass weights. Fed and feeder steer prices were raised for 2022. December's beef imports totaled 273 million pounds, up 30 percent from a year ago. The 2022 annual forecast for beef imports was raised 105 million pounds from last month to 3.370 billion pounds. December's beef exports were up 288 million pounds, 1 percent over the previous year. The beef export forecast for 2022 was unchanged from last month at 3.270 billion pounds.

Lamb/Sheep: The estimated total number of sheep on U.S. farms on January 1, 2022, was 5.065 million head, 2.0 percent below the 2021 inventory. Strong prices in the early part of this year lead to upward revisions in the lamb price forecasts for the first two quarters of 2022.

Dairy: The milk production forecast for 2022 has been lowered as fewer milk cows are expected. The forecast for the average number of milk cows has been lowered because of recent declines in milk cow numbers, higher projected feed prices, a low inventory of replacement heifers, and higher expected cull-cow prices. Dairy export forecasts have been lowered as U.S. prices are expected to become less competitive. The all-milk price forecast for 2022 has been raised to \$23.55 per hundredweight, \$0.95 higher than last month's forecast.

Pork/Hogs: Price forecasts of live equivalent 51-52 percent lean hogs are raised in each quarter of 2022 on tighter-than-expected supplies of slaughter hog numbers early in the year and expectations of continued strong consumer demand for pork. Strong seasonal factors are expected to amplify first-quarter increases, carrying hog prices higher into the fourth quarter of this year. Quarterly pork export forecasts are reduced on lower-than-expected December trade data and expectations for continued recovery of China's swine sector from disease problems. Total 2022 pork exports are expected to be 6.8 billion pounds, about 3 percent lower than exports last year.

Poultry/Eggs: The 2022 broiler production forecast was adjusted down from the previous forecast but is still expected to increase by 2 percent over 2021. Broiler ending stocks were lower than expected at the end of 2021, so 2022 ending stocks were also revised down. The broiler export forecast was revised down in 2022 but is still expected to increase slightly from the 2021 total. The annual average broiler price forecast was adjusted up by 1 cent in 2022 on higher expected feed costs. The table egg production for 2022 was revised down across all quarters based on current trends in flock indicators and expectations of higher feed costs, while wholesale egg prices were revised up due to strong trends in January and early February. The egg and egg-product export forecast for 2022 was revised down based on current trade data, while the import forecast was revised up. The 2022 turkey production forecast was adjusted down but is still expected to increase by 1 percent over 2021. Forecast turkey exports were adjusted down by 20 million pounds in 2022. Turkey prices were adjusted up by 1 cent in 2022 on higher expected feed costs.

Special Article: State Animal Welfare Policies Covering U.S. Pork Production

Several States have passed farm animal welfare regulations restricting the use of gestation crates in pork production over the past two decades. Regulations are concentrated in States with relatively small pork industries; these policies currently cover 3 percent of U.S. pork production. In addition, two States passed retail sales restrictions that will prohibit the sale of pork originating from animals from gestation crate systems. With relatively low pork production but large populations, these States' regulations are likely to impact pork production in other States. This special article details the current state of farm animal welfare production and sales regulations in U.S. States and the coverage of these policies relative to the national pork industry.

Beef/Cattle

Christopher G. Davis, Russell Knight, and Hannah Taylor

U.S. Cattle Inventory Down Fractionally

In the USDA, National Agricultural Statistics Service (NASS) semiannual *Cattle* report released on January 31st, the total number of cattle and calves on January 1, 2022, was estimated at 91.902 million head—2 percent, or nearly 1.888 million head lower than the previous year. In 2019 the cattle and calves inventory was 94.805 million head, but over the last 3 years, it has declined to its present level. Most of the decline can be attributed to fewer cows and heifers having calved, down by 2 percent or 786,000 head, especially beef cows, which were 719,000 head—or 2.3 percent—lower than a year ago. States with the largest reductions in beef cows included South Dakota (-189,000), Texas (-160,000), Missouri (-94,000), and Montana (-90,000 head). Poor pasture and range conditions were the primary causes of this contraction in the West and Plains regions. Hay stocks on December 1, 2021, were also down 6 percent from a year ago, and tight supplies in parts of the country may have influenced producers' ability to maintain cow herds.

Compared to last year, beef cattle producers are indicating their intentions to retain 3 percent fewer heifers for beef cow replacement, with the largest reductions in Texas (-110,000 head) and Montana (-50,000 head). The number of heifers expected to calve during the year is also down 3 percent. The lower number of heifers retained implies that the national herd is unlikely to expand. A similar pattern is reflected on the dairy side, with milk cow numbers down 1 percent and heifers for milk-cow replacement down 3 percent.

The calf crop for 2021 was estimated at 35.085 million head, or about 410,100 head lower than 2020. The total number of cattle on feed was estimated at 14.7 million head on January 1, 2022, relatively unchanged from 2021. The lower 2021 calf crop and relatively stable cattle on feed numbers contributed toward fewer cattle outside feedlots at the beginning of the year, which totaled 25.5 million head or 3 percent below January 1, 2021, indicating supplies of cattle for placement during the year are likely to be constrained.

Beef Production Up Fractionally in 2022

The 2022 annual forecast for commercial beef production was raised by 210 million pounds to 27.375 billion pounds from last month due to expected strong fed cattle slaughter and heavier average dressed weights. More feeder cattle entered the feedlots than initially expected late in the fourth quarter, and placements in the first part of 2021 are expected to reflect tight forage supplies and conditions in winter pasture areas. This will lead to higher fed cattle marketings and slaughter during 2022. While fed cattle slaughter is expected to rise in the second-half, cow slaughter is forecast slightly lower due to fewer cows being available for slaughter and expectations that producers will retain cows to rebuild their herds in the face of improved returns and favorable pasture and forage conditions. Average carcass weights are raised in second-half 2022, reflecting a large number of fed cattle and fewer non-fed cattle slaughtered in the second-half 2022.

Fed Steer Price Raised in Second-half 2022; Feeder Steer Price Forecast Up Annually

In January 2022, the average price for all grades of live steers sold in the 5-area marketing region was reported at \$137.27 per hundredweight (cwt), up 24 percent, or \$26.62, from January 2021. The fed steer price for the week ending February 6 was \$139.76 per cwt, up 23.0 percent, or \$26.13, from a year earlier. The first-half forecast for the fed steer price was left unchanged. However, the third-quarter forecast was raised \$1.00 to \$135.00, while the fourth-quarter forecast was revised up \$2.00 to \$140.00 per cwt. The 2022 annual price forecast for fed steers was increased by \$0.75 to \$137.50 per cwt from last month on expected strength in packer demand.

Prices at the Oklahoma City National Stockyards for feeder steers sold in January weighing 750-800 pounds had an average price of \$157.78 per cwt, up 17.8 percent, or \$23.84 per cwt from a year ago. Feeder prices averaged \$160.46 per cwt for February 6, up \$29.40 above the price recorded the same week a year ago. The first-quarter forecast was lowered by \$1.00 to \$158.00 per cwt from last month. The feeder steer 2022 forecasts for the second, third, and fourth quarters were all raised by \$2.00 to \$158.00, \$162.00, and \$167.00 per cwt, respectively. The annual forecast for the feeder steer price was increased by \$1.25 to \$161.25 per cwt from last month in support of expected demand for a tighter supply of calves.

2021 Beef Exports Conclude on a Record Note

In December, U.S. beef exports set a record for the month at 288 million pounds, about 1 percent above a year earlier and more than 9 percent above the 5-year average. With the aid of larger year-over-year shipments to other markets, exports to China, South Korea, Canada, and Taiwan more than offset reduced purchases from Mexico, Hong Kong, Japan, and Vietnam. For 2021, exports tallied a record 3.447 billion pounds, up almost 17 percent from a year ago and about 18 percent above the 2016–2020 average.

U.S. beef sales to Japan were 6 percent lower in December than in 2020, bringing 2021 shipments just shy of 2020 levels. As shown in the table below, Japan was responsible for less of the export share than in 2020 but remained the top destination at 826 million pounds. Shipments to South Korea, the number two destination, set a record for the month of December at 58 million pounds, a rise of 17 percent from 2020. Total 2021 beef sales to South Korea set a record at 786 million pounds, and it was one of two major destinations with an expansion in the share of U.S. beef exports over 2020.

U.S. beef exports: Volume, January–December 2020 and 2021

Country	Annual exports				Export share	
	2020	2021	Year-over-year change		2020	2021
	<i>Million pounds</i>	<i>Million pounds</i>	<i>Million pounds</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Top 5 largest foreign markets						
Japan	827.5	826.4	-1.1	-0.1	28.0	24.0
South Korea	666.7	785.8	119.1	17.9	22.6	22.8
China	119.1	541.1	421.9	354.1	4.0	15.7
Mexico	319.8	316.1	-3.7	-1.2	10.8	9.2
Canada	286.1	278.8	-7.3	-2.6	9.7	8.1
World	2,951.2	3,447.1	495.9	16.8	100.0	100.0
Additional foreign markets of note						
Taiwan	197.7	196.0	-1.7	-0.8	6.7	5.7
Hong Kong	221.0	124.9	-96.0	-43.5	7.5	3.6
Other markets	313.4	378.0	64.6	20.6	10.6	11.0

Note: Largest markets are based on 2021 export volumes.

Other markets collectively refer to countries other than Japan, South Korea, China, Mexico, Canada, Taiwan, and Hong Kong.

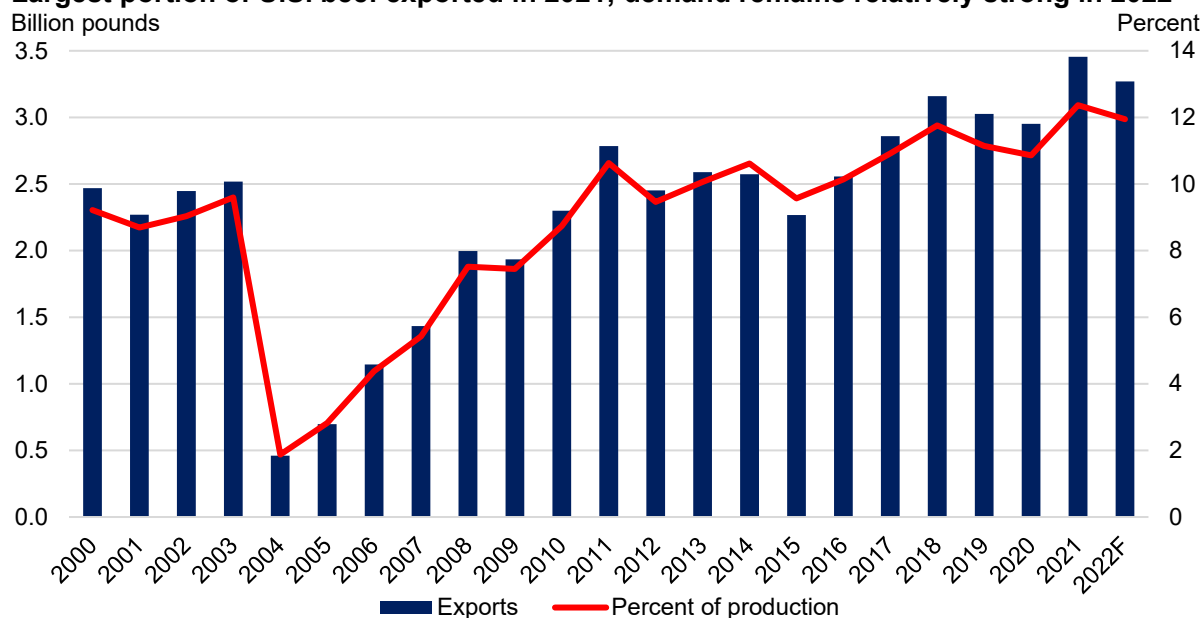
Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census.

The third-largest destination, China, bought almost 50 million pounds in December for a total of 541 million pounds in 2021. Driven by China's demand for animal protein, U.S. beef exports to China in 2021 topped 541 million pounds, equal to nearly 91 percent of the volume of U.S. beef exports to North America. Although U.S. beef exports to China made significant gains in 2021, based on China's import data, the United States was just the sixth largest supplier to China with only 6 percent of market share.

U.S. exports to Canada and Mexico consisted of shipments in December up 19 percent and down 44 percent, respectively, from a year ago. In aggregate, both destinations purchased slightly less beef from the United States in 2021 than in 2020.

A number of other markets, beyond the seven countries listed in the table above, collectively consumed a greater share of U.S. beef in 2021, up 21 percent, or 65 million pounds, from 2020 and 9 percent above the 5-year average. Member countries of the Dominican Republic-Central America Free Trade Agreement collectively purchased 64 percent more U.S. beef than in 2020 and 48 percent above the 5-year average. In addition, 2021 exports to Indonesia and the Philippines had a gain of 32 and 9 percent, respectively, from 2020.

Largest portion of U.S. beef exported in 2021; demand remains relatively strong in 2022



Note: 2022F = Annual forecast for 2022.

Source: USDA, Economic Research Service calculations using data from the U.S. Department of Commerce, Bureau of the Census.

Exports were greater than those expected at the start of 2021, with global demand pulling a record portion from U.S. domestic production despite historically elevated beef prices. As the chart shows, exports as a share of production reached more than 12 percent. This suggests that global beef demand recovered quite well in 2021. Although demand is expected to remain relatively strong in 2022, U.S. beef exports are forecast to decline 5 percent to 3.270 billion pounds because of greater expected exportable supplies from Oceania and South America. Further, U.S. exports are expected to pull almost 12 percent from production in 2022, second only to 2021.

Strong December Beef Imports Lead to Annual Year-Over-Year Increase; 2022 Import Forecast Raised

Beef imports totaled 273 million pounds in December, up 30 percent year over year. Imports from Mexico and Brazil set record highs for the month. Imports from Mexico were 56 million pounds, a year-over-year increase of 63 percent. Imports from Brazil were up 160 percent year over year at 51 million pounds. Other notable increases came from Argentina with a year-over-year increase of over 7 million pounds and Canada, up 11 percent year over year at 64 million pounds. December imports from Australia were down 19 percent compared to 2020.

Fourth-quarter 2021 imports totaled 863 million pounds, 25 percent higher year over year. This was the second-highest fourth-quarter import level, behind 2004. While cumulative imports lagged behind the previous year for most of 2021, strong fourth-quarter imports led to an annual year-over-year increase of just under 6 million pounds.

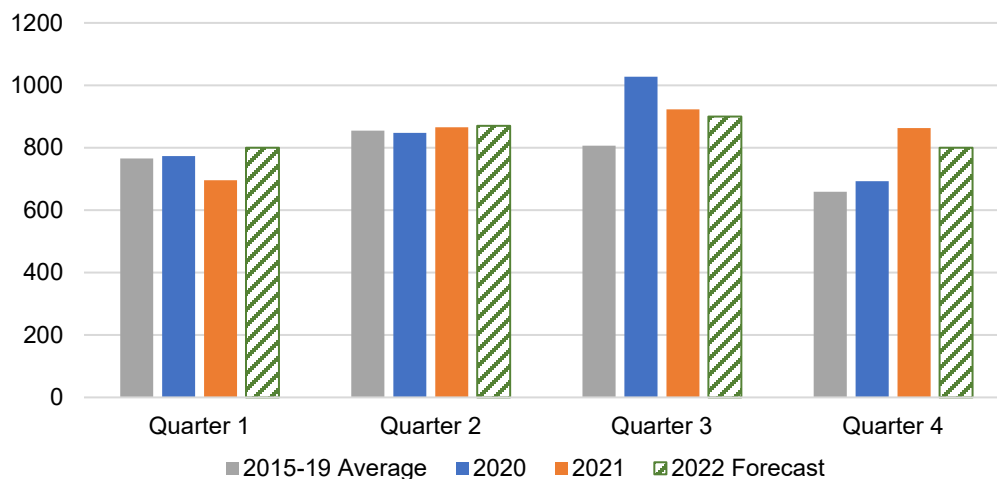
Import levels for the first half of 2021 fell below 2020 and the 5-year average, partly due to declines in imports from Australia. Australia was historically one of the top two suppliers of beef imports to the United States, but recent drought caused a contraction in inventories. Throughout

2021, the country showed signs of herd rebuilding as they retained more animals for breeding, resulting in limited exportable supplies.

Imports in the second half of 2021 began to pick up, especially from Canada, Mexico, and Brazil. Fourth-quarter imports from Mexico and Brazil were record highs for the quarter. Imports from Mexico increased by 59 percent year-over-year, while imports from Brazil increased nearly 78 percent. A U.S. ban on fresh imports from Brazil was lifted in 2020, and the rapid import growth continued throughout 2021.

Quarterly beef imports

Million pounds



Source: USDA, Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census.

By the end of the year, increases in imports from Canada, Mexico, Brazil, and other smaller traders more than offset the decrease from Australia. Total beef imports for 2021 were 3.35 billion pounds, a slight increase from the previous year. This was the largest annual import level since 2015. Mexico, Brazil, and Nicaragua set annual records at 647, 369, and 193 million pounds, respectively.

U.S. beef imports: Volume, annual 2020 and 2021

Country	Annual imports				Import Share	
	2020	2021	Year-over-year change		2020	2021
	<i>Million pounds</i>	<i>Million pounds</i>	<i>Million pounds</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Top 5 largest suppliers						
Canada	825.4	942.3	116.9	14.2	24.7	28.1
Mexico	651.3	674.8	23.4	3.6	19.5	20.2
New Zealand	515.6	503.1	-12.5	-2.4	15.4	15.0
Australia	662.9	413.3	-249.6	-37.7	19.8	12.3
Brazil	221.0	369.3	148.3	67.1	6.6	11.0
World	3341.6	3347.5	5.9	0.2	100.0	100.0
Additional suppliers of note						
Nicaragua	189.4	193.4	4.0	2.1	5.7	5.8
Uruguay	147.2	133.9	-13.3	-9.1	4.4	4.0
Argentina	62.3	62.7	0.3	0.6	1.9	1.9

Source: USDA, Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census.

Canada remained the largest supplier of beef imports for the fifth year in a row, accounting for 28 percent of annual imports. Total imports from Canada increased 14 percent year over year. Mexico was the second-largest supplier of beef imports to the United States, with a 20-percent share. Imports from New Zealand, the third-largest supplier, were down 2 percent compared to 2020 but accounted for a share of 15 percent, relatively unchanged from the previous year. Annual imports from Australia were down 38 percent year over year, accounting for only 12 percent of the total imports but making Australia the fourth-largest source of beef imports. Total annual imports from Brazil increased by 67 percent year over year, raising the share of imports from Brazil to 11 percent in 2021.

Based on sustained strong domestic demand, the annual forecast for 2022 beef imports was increased by 105 million pounds to 3.37 billion pounds, a year-over-year decrease of less than 1 percent. The first-quarter import forecast was raised 50 million pounds on increased supplies from Latin America. Increased availability of exportable supplies from Oceania will support continued strong imports in the latter half of 2022.

January 1, 2022 Sheep and Lamb Inventory Report Released

William Hahn

The U.S. Department of Agriculture, National Agricultural Statistics Service (NASS) released its 2022 *Sheep and Goats* report on January 31, 2022. This report shows NASS estimates for the inventory of sheep and goats on U.S. farms on January 1. The table below shows the inventories in 2020, 2021, and 2022 for all sheep and lambs and by classes of sheep and lambs.

January 1 sheep and lamb inventory, thousand head

	January 1 inventory for			Percent change 2021 to 2022
	2020	2021	2022	
All sheep and lambs	5,200	5,170	5,065	-2.0
Breeding sheep and lambs	3,810	3,780	3,710	-1.9
Replacement lambs under 1 year old	660	650	640	-1.5
Ewes – 1 year old and older	2,980	2,960	2,910	-1.7
Rams - 1 year old and older	170	170	160	-5.9
Market sheep and lambs	1,390	1,390	1,355	-2.5

Source: U.S. Dept. of Agriculture, National Agricultural Statistics Service, *Sheep and Goats*.

All sheep and lambs declined by 2.0 percent between 2021 and 2022. Sheep and lamb inventories often show year-over-year declines. The 2.0 percent decline between 2021 and 2022 is the largest percentage decline since 2014. Between 2013 and 2014, the total inventory changed from 5,360 thousand to 5,235 thousand, a decline of the 2.3 percent.

The 2022 report also provides an estimate of the 2021 lamb crop, which was 3,160 thousand head, 1.6 percent lower than the 2020 lamb crop of 3,210 thousand head. The 2021 lamb crop is lower than 2020 because both the number of ewes and the number of lambs born per ewe declined. NASS estimated that there were 108 lambs per 100 ewes in both 2019 and 2020; this dropped to 107 lambs per 100 ewes in 2021.

Changes to Sheep and Lamb Forecasts

Forecasts for lamb and mutton are included in the red meat and poultry tables toward the end of this report. Lamb and mutton trade data for the fourth quarter of 2021 are now available. The previous prediction was 114 million pounds. The preliminary number for the fourth quarter of 2021 was 103 million pounds.

Lamb prices were unusually high in the latter part of 2021. These higher prices have continued for the first weeks of 2022. The lamb price forecasts for the first two quarters of 2022 in this report are higher than those from the January 2022 report; both the first- and second-quarter 2022 forecasts are 5 dollars per hundredweight (cwt) higher. The first-quarter lamb price forecast is now 235 dollars per cwt; the second quarter forecast is 230 dollars per cwt.

In January 2022, the forecast for lamb and mutton production implied annual commercial production of 135 million pounds of lamb and mutton. The new 2022 forecast is 136 million pounds, implying a 2- percent reduction in production between 2021 and 2020. The forecast production for Quarters 1 and 3 are the same in this report as they were in the last one. For 2022, Quarter 2 production is 1 million pounds lower and quarter 4 production 2 million higher.

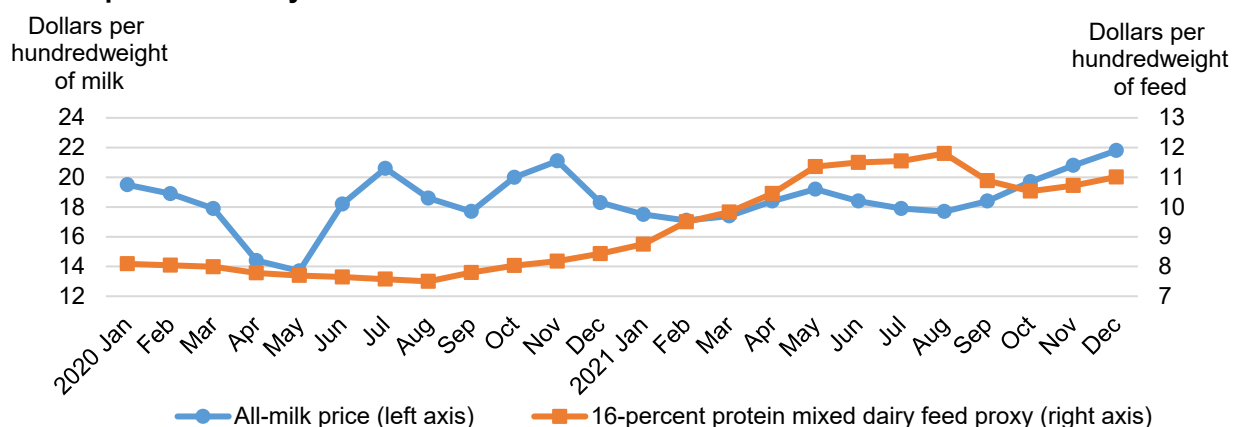
Dairy

Jerry Cessna and Angel Teran

Recap of 2021 Dairy Situation

The all-milk price in 2021 averaged \$18.69 per hundredweight (cwt), \$0.45 higher than 2020. While the prices that dairy farmers received in 2021 were generally higher than in 2020, profits were reduced by higher input costs. The average annual dairy feed value proxy used by USDA, National Agricultural Statistics Service (NASS) to calculate the milk-feed ratio increased by 35 percent from 2020 to 2021. Average prices paid by farmers for labor and machinery increased year over year by 5.7 percent and 6.9 percent, respectively, based on indexes published by NASS.¹

All-milk price and dairy feed value



Note: The price of commercial prepared dairy feed is based on current United States prices received for corn, soybeans, and alfalfa. The modeled feed uses 51 percent corn, 8 percent soybeans, and 41 percent alfalfa.
Source: USDA, National Agricultural Statistics Service.

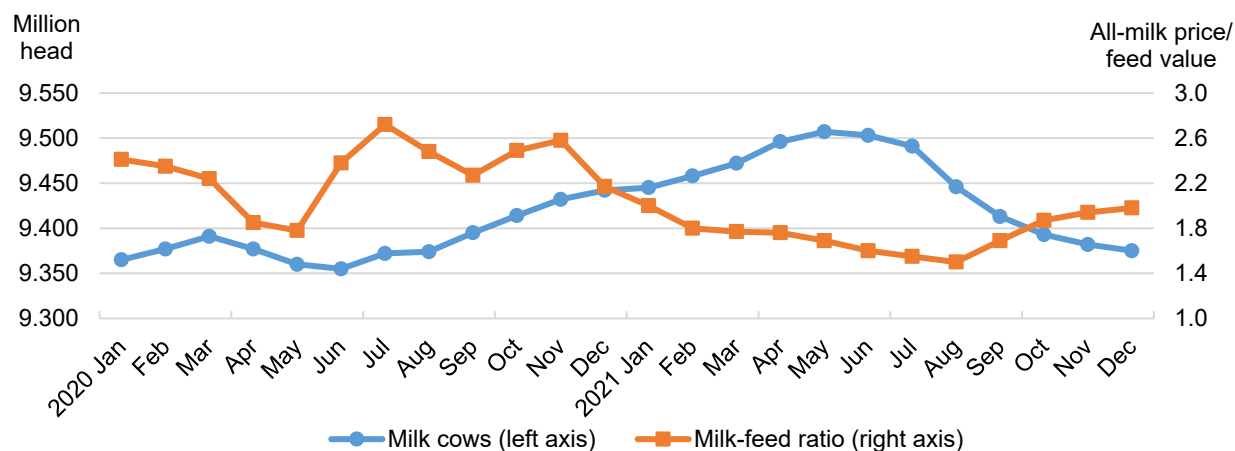
Milk production in 2021 totaled 226.3 billion pounds, an increase of 1.6 percent from 2020 (adjusted for leap year). In the first part of the year, milk cow numbers continued an upward climb that began in the last half of 2020. Milk cow numbers peaked at 9.507 million head in May 2021 and then declined each month to 9.375 million head in December. Milk per cow averaged 23,950 pounds in 2021, 1.0 percent higher than 2020 (adjusted for leap year). Milk per cow in the first half of 2021 was relatively high compared to the first half of 2020. However, heat and drought likely had effects on milk per cow in the late summer, bringing down year-over-year growth in milk per cow in the second half of 2021.

Milk production usually responds to changes in input costs with a lag of several months. Feed is typically the largest cost for a dairy farm. From July through November 2020, the milk-feed ratio averaged 2.51. It declined the following months, sinking to a low for the year of 1.50 in August 2021. The ratio thereafter increased monthly, reaching 1.98 in December 2021. The decline in

¹ The prices-paid indexes used for the calculations are for all farmers, not specifically dairy farmers. The base year of the indexes is 2011.

milk cows in May 2021 began 7 months after the beginning of the decline in the milk-feed ratio in November 2020.

U.S. milk cows and milk-feed ratio



Source: USDA, National Agricultural Statistics Service.

Domestic demand for dairy products generally increased in 2021. A stronger economy and an increase in foodservice activity likely contributed to higher domestic use compared to 2020. On a milk-fat milk-equivalent basis, 2021 domestic use increased by 1.8 percent over the previous year, substantially higher than the 1.0 percent increase in 2020. Domestic use on a skim-solids milk-equivalent basis increased by only 0.1 percent in 2021, but in 2020 it declined 1.3 percent from the previous year. In 2021, domestic use for butter and cheese increased substantially from the previous year. Domestic use for products high in skim solids, including dry skim milk products, dry whey, and lactose, decreased. An exception was the increase in domestic use of whey protein concentrate. While complete 2021 data are not yet available for fluid milk sales, January–November sales were down 4.2 percent from January–November 2020.

Domestic use of milk and major dairy products

Product	Units	2019	2020		2021	
		Quantity	Quantity	Percent change from previous year	Quantity	Percent change from previous year
Milk in all products						
Milk-fat basis	Billion pounds	215.2	217.4	1.0	221.4	1.8
Skim-solids basis		182.0	179.7	-1.3	179.9	0.1
Dairy products						
American type cheese		5,128	5,147	0.4	5,324	3.4
Other-than-American type cheese		7,541	7,518	-0.3	7,679	2.1
Butter	Million pounds	2,026	2,091	3.2	2,140	2.4
Dry skim milk products		925	876	-5.3	665	-24.0
Dry whey		639	485	-24.1	437	-10.0
Whey protein concentrate		286	203	-28.8	236	16.1
Lactose		396	266	-32.8	238	-10.7

Sources: USDA, National Agricultural Statistics Service; USDA, Farm Service Agency; USDA, Foreign Agricultural Service; U.S. Dept. of Commerce, Bureau of the Census; and USDA, Economic Research Service (ERS) calculations. Numerous sources were used for conversion factors. For more information, see the ERS Dairy Data Documentation webpage.

Dairy exports were very strong in 2021, increasing by 25.4 percent from 2020 on a milk-fat basis and by 8.3 percent on a skim-solids basis. Notably, exports were up 109.7 percent for butter and 13.9 percent for cheese. Exports of dry skim milk products, the category accounting for the largest volume of dairy exports, increased by 10.2 percent.

Exports of milk and major dairy products

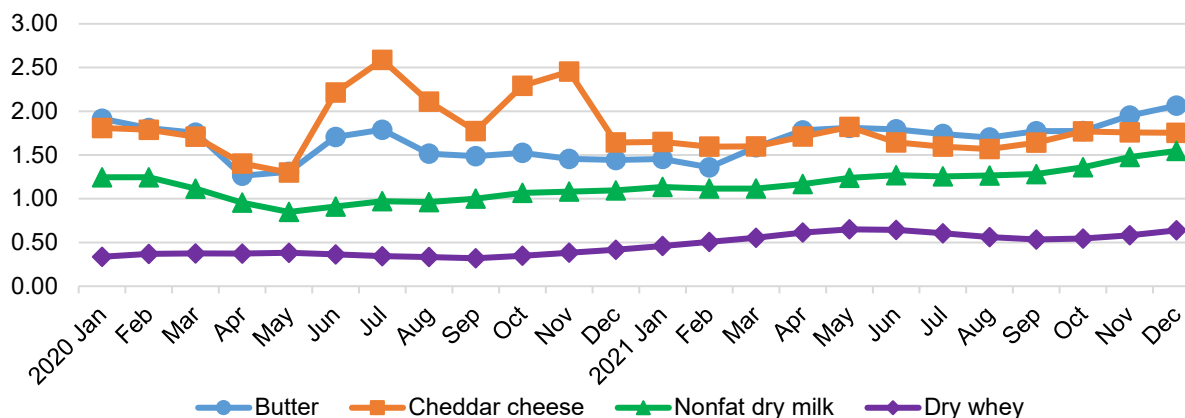
Product	Units	2019	2020		2021	
		Quantity	Quantity	Percent change from previous year	Quantity	Percent change from previous year
Milk in all products						
Milk-fat basis	Billion pounds	9.1	9.3	1.8	11.6	25.4
Skim-solids basis		41.5	47.2	13.7	51.1	8.3
Dairy products (million pounds)						
Cheese		786	784	-0.3	892	13.9
Butter		41	47	14.6	98	109.7
Dry skim milk products	Million pounds	1,545	1,786	15.6	1,968	10.2
Dry whey		338	472	39.5	497	5.2
Whey protein concentrate		274	324	18.2	299	-7.6
Lactose		833	831	-0.3	866	4.2

Sources: USDA, National Agricultural Statistics Service; USDA, Foreign Agricultural Service; U.S. Dept. of Commerce, Bureau of the Census; and USDA, Economic Research Service (ERS) calculations. Numerous sources were used for conversion factors. For more information, see the ERS Dairy Data Documentation webpage.

Annual average wholesale prices for butter, nonfat dry milk, and dry whey increased from 2020 to 2021, but the annual average wholesale price for Cheddar cheese declined. Cheese prices were boosted at times in 2020 and the first part of 2021 when the Government made purchases of dairy products through the Farmers to Families Food Box Program (FFFBP) and other purchase programs. Although Government purchases of some dairy products continued into 2021, they were less due to the end of the FFFBP in May 2021. Increased manufacturing capacity for cheese likely contributed to greater cheese supplies in 2021. It is notable that most of the major wholesale dairy product prices were highest in the fourth quarter of 2021 (2021 Q4). Slower growth in milk production in the second half of the year, relatively strong demand (domestic and foreign), and relatively low stock levels contributed to the higher dairy product prices in 2021-Q4.

Dairy wholesale product prices

Dollars per pound



Source: USDA, Agricultural Marketing Service.

Recent Developments in Dairy Markets

From the week ending January 8 to the week ending February 5, all wholesale dairy product prices reported in the USDA *National Dairy Products Sales Report* (NDPSR) increased. Prices for butter, nonfat dry milk (NDM), and dry whey were \$2.6661 (+34.5 cents), \$1.6944 (+8.6 cents), and \$0.7504 (+7.8 cents) per pound, respectively. Cheddar cheese prices for 40-pound blocks and 500-pound barrels (adjusted to 38 percent moisture) were \$1.9351 (+0.9 cents) and \$1.8429 (+13.8 cents) per pound, respectively.

Dairy wholesale product prices

from USDA *National Dairy Products Sales Report* (dollars per pound)

	For the week ending		Change
	January 8	February 5	
Butter	2.3215	2.6661	0.3446
Cheddar cheese			
40-pound blocks	1.9262	1.9351	0.0089
500-pound barrels*	1.7049	1.8429	0.1380
Nonfat dry milk	1.6085	1.6944	0.0859
Dry whey	0.6729	0.7504	0.0775

*Adjusted to 38-percent moisture.

Source: USDA, Agricultural Marketing Service, *National Dairy Products Sales Report*, February 9, 2022.

Recent dairy product spot prices reported by the Chicago Mercantile Exchange (CME) have been high. The butter price climbed through December and most of January, reaching \$2.8744 for the trading week² ending January 21, the highest weekly average since December 2015. The butter price declined the following 2 weeks and averaged \$2.4855 for the trading week ending February 4. Prices of Cheddar cheese 40-pound blocks and 500-pound barrels for the trading week

² While the end of each week for NDPSR average prices falls on a Saturday, the trading week for CME usually ends on a Friday.

ending February 4 averaged \$1.8695 and \$1.8325 per pound, respectively. For the same week, prices of nonfat dry milk and dry whey averaged \$1.8160 and \$0.8550 per pound, respectively.

Generally, the United States has remained price-competitive in international markets. Dry whey appears to be an exception, with recent U.S. domestic prices higher than Western Europe export prices. All Oceania and Western Europe average export prices reported by USDA *Dairy Market News* rose substantially from December to January.

In the most recent *Milk Production* report published by NASS, the estimate for December U.S. milk production was 18.825 billion pounds, down 0.1 percent from December 2020. NASS estimates that the number of milk cows in December averaged 9.375 million head, 7,000 lower than November and 67,000 lower than December 2020. The milk per cow estimate for December was 2,008 pounds, 11 pounds above December 2020.

Dairy product export prices for Oceania and Western Europe

(Dollars per pound)

Product	Region	December 2021	January 2022	Change
Butter	Oceania	2.6440	2.7519	0.1080
	Western Europe	2.8721	3.0581	0.1860
Cheddar cheese	Oceania	2.3832	2.5310	0.1479
Skim milk powder	Oceania	1.6933	1.7826	0.0894
	Western Europe	1.7055	1.7921	0.0866
Dry whey	Western Europe	0.6001	0.6391	0.0390
Whole milk powder	Oceania	1.7862	1.8380	0.0517
	Western Europe	2.1251	2.2453	0.1202

Source: USDA, Agricultural Marketing Service, *Dairy Market News*.

According to the recent NASS *Cattle* report, the January 1 milk cow inventory was 9.375 million head, matching the December average from the *Milk Production* report. The milk replacement heifer inventory for January 1 was 4.451 million head, 3.4 percent lower than January 1, 2020. The ratio of replacement heifers to milk cows was 47.5 percent. Milk replacement heifers expected to calve totaled 2.836 million head, 2.7 percent below January 1, 2020.

Dairy exports on a milk-fat basis totaled 865 million pounds in December, 101 million higher than December 2020. On a skim-solids basis, December exports totaled 3.433 billion pounds, 229 million below December 2020. While December exports remained strong compared to December 2020, it is notable that exports of several major products declined from November to December. Exports of dry skim milk products,³ cheese, and dry whey declined to 127.0 million (-41.5 million), 68.4 million (-5.4 million), and 31.8 million pounds (-7.8 million), respectively.

Dairy imports on a milk-fat basis totaled 545 million pounds in December, 30 million lower than December 2020. On a skim-solids basis, December imports totaled 461 million pounds, 41 million below December 2020. Notably, imports of butter in December totaled 9.9 million pounds, 6.0 million higher than December 2020.

For 2021-Q4, domestic use was relatively strong. On a milk-fat basis, it totaled 57.716 billion pounds, 1.8 percent higher than 2020-Q4. On a skim-solids basis, domestic use was 45.383 billion pounds, 2.0 percent higher than 2020-Q4.

³ Dry skim milk products include nonfat dry milk, skim milk powder, and dry skim milk for animal use.

With relatively low milk production accompanied by relatively high domestic use and exports in 2021-Q4, ending stocks for 2021 were relatively low. On a milk-fat basis, ending stocks totaled 14.359 billion pounds, 1.255 billion lower than the end of 2020. Ending stocks on a skim-solids basis totaled 10.816 billion pounds, 62 million lower than at the end of 2020. Notably, 2021 ending stocks for butter were 199.1 million pounds, 74.8 million lower than 2020, and 2021 ending stocks for dry whey were 58.3 million pounds, 7.3 million below 2020.

Outlook for Feed Prices

The 2021/22 corn price projection is \$5.45 per bushel, unchanged from last month's projection. The 2021/22 price projection for soybean meal is \$410 per short ton, \$35 higher than last month's forecast.⁴ For more information, see *Feed Outlook*, published by USDA, Economic Research Service. The alfalfa hay price in December was \$213 per short ton, \$3 higher than November and \$47 higher than December 2020. The 5-State weighted-average price for premium alfalfa hay in December was \$253 per short ton, \$7 higher than November and \$50 higher than December 2020.

Dairy Forecasts for 2022

Due to declines in milk cows in recent months, higher projected feed prices, a low inventory of replacement heifers, and higher expected cull-cow prices, milk cows are projected to average 9.360 million head in 2022, 25,000 lower than last month's forecast. Milk per cow is projected to average 24,265 pounds per head in 2022, unchanged from the previous forecast. As a result, the milk production forecast for 2022 has been adjusted to 227.2 billion, 0.5 billion pounds lower than last month's forecast but 0.9 billion pounds above 2021.

With U.S. dairy prices expected to be less competitive in international markets, the 2022 export projections are adjusted downward. Lower exports are expected for whey products, dry skim milk products, butter, and cheese. The forecast for 2022 dairy exports on a milk-fat basis has been adjusted to 11.0 billion pounds, 0.2 billion lower than last month. On a skim-solids basis, the 2022 dairy export forecast has been adjusted to 51.2 billion pounds, 0.6 billion lower than last month's forecast.

Dairy import projections for 2022 have been raised to 6.9 billion pounds on a milk-fat basis (+0.1 billion) and 5.7 billion pounds on a skim-solids basis (+0.1 billion). Higher imports are expected for butter, milk protein products,⁵ and several other miscellaneous dairy products.

The forecast for 2022 ending stocks on a milk-fat basis is adjusted to 14.1 billion pounds, 0.4 billion lower than the previous forecast, mostly due to lower-than-expected beginning stocks and lower projected milk production. On a skim-solids basis, the forecast for ending stocks is unchanged at 10.6 billion pounds, as the higher-than-expected beginning stocks are largely offset by lower projected milk production during the year. The projection for 2022 domestic use on a milk-fat basis is 222.2 billion pounds (-0.2 billion). On a skim-solids basis, the forecast for domestic use is 180.8 billion pounds (+0.5 billion).

Due to relatively high domestic and international dairy product prices in recent weeks, lower projected milk production, and relatively low beginning stock levels, wholesale price forecasts have been raised

⁴ The marketing year begins September 1 for corn and October 1 for soybean meal.

⁵ Milk protein products include milk protein concentrate, milk protein isolate, and casein products.

for all major dairy products. For 2022, price forecasts for Cheddar cheese, dry whey, butter, and NDM are \$1.900 (+2.5 cents), \$0.705 (+6.0 cents), \$2.390 (+9.0 cents), and \$1.665 (+11.5 cents) per pound, respectively. With higher dairy product prices expected across the board, Class III and IV milk price forecasts for 2022 have been raised to \$20.30 per cwt (+\$0.65) and \$22.30 per cwt (+\$1.40), respectively. The all-milk price forecast for 2022 is \$23.55 per cwt, \$0.95 higher than last month's forecast.

Pork/Hogs

Mildred Haley

Smaller Animal Numbers and Robust Pork Demand Are Likely To Support 2022 Hog Prices

January 2022 estimated federally inspected (FI) hog slaughter numbers, at almost 10.4 million head, were about 12 percent lower than numbers of January 2021 after accounting for the additional slaughter day this year. The year-over-year reduction in January's estimated FI slaughter numbers was greater than that suggested in the heaviest weight category of the December 2021 *Quarterly Hogs and Pigs* report. The 180-pounds-and-over weight category of that report indicated 6 percent fewer heavy-weight animals would be ready for slaughter between December 1 and the end of January. The difference in the January FI slaughter numbers not captured by the lower summer 2021 pig crop is likely accounted for by ongoing operational problems at the processing end of the pork supply chain, which often combined with harsh Midwestern winter weather conditions to limit January processing numbers.

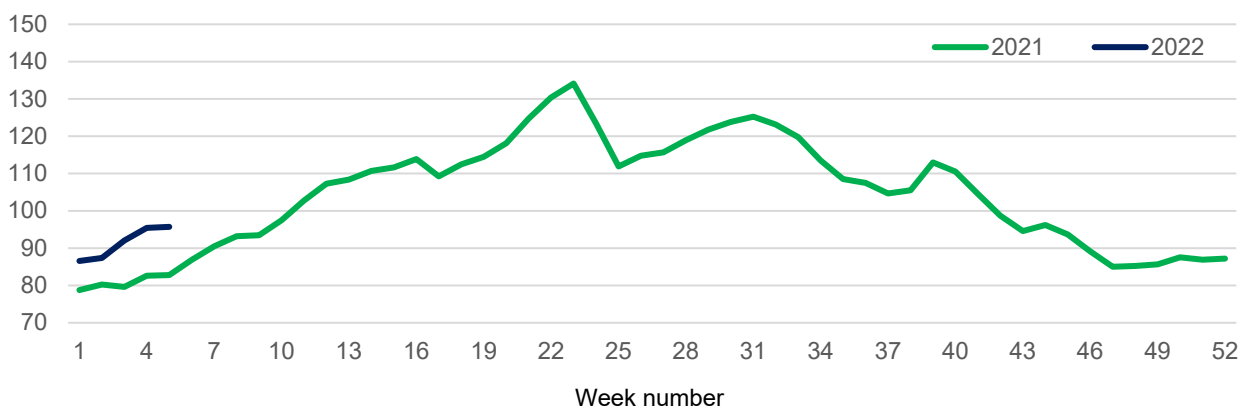
First-quarter pork production for 2022 is revised lower to account for lower January hog slaughter numbers and the possibility of continued processing-sector turbulence. This was slightly offset by expectations that the slower pace of slaughter would result in slightly higher carcass weights into the second quarter. These factors result in a first-quarter pork production forecast of about 6.9 billion pounds, about 5 percent lower than in the same period last year, and a second-quarter forecast of 6.5 billion pounds. The production forecast for the third quarter was also lowered by about 55 million pounds. Moderate increases in porcine reproductive and respiratory syndrome case detections—reported in the Swine Health Information Center's January Domestic Disease Monitoring Report—may be reflected in available slaughter animals in the summer months.⁶ Average dressed weights were reduced in the second half of the year, resulting in a slight reduction in fourth-quarter production. The annual production forecast is increased to almost 27.4 billion pounds, about 1 percent below production in 2021.

Lower availability of slaughter hog numbers was likely one important factor that drove hog prices higher in January. Live equivalent prices of 51-52 percent lean hogs averaged \$56.03 per cwt in January, more than 18 percent higher than the January 2021 average. In line with higher January hog prices and seasonal trends, the first-quarter forecast for live equivalent 51-52 percent lean hogs is raised to \$63 per cwt, about 13 percent above prices a year ago. The higher first-quarter price forecast combines with strong seasonal trends to drive the following upward revisions in 2022 quarterly hog price forecasts: second- and third-quarter prices are raised to \$70 per cwt and \$67 per cwt, respectively. Revised second- and third-quarter prices remain below year-earlier prices by more than 13 percent and 12 percent, respectively, when compared to the same periods last year when record wholesale prices supported hog prices. Fourth-quarter hog prices in 2022 are expected to be \$60 per cwt, almost 7 percent higher than the same period a year ago. For 2022, hog prices are expected to average \$65 per cwt, more than 3 percent below prices last year.

⁶ January Domestic Disease Monitoring Report, Swine Health Information Center, January 3, 2022.

Continuing robust domestic consumer demand for pork may be another important factor contributing indirectly to higher hog prices. Because demand for hogs is a derived demand, it is likely that strong hog prices in January derive in part from the strong wholesale pork prices in January. Wholesale values averaged \$90.56 per cwt in January 2022, an increase of 13 percent from values in January 2021.

Wholesale pork carcass cutout, weekly



*cwt=hundredweight.

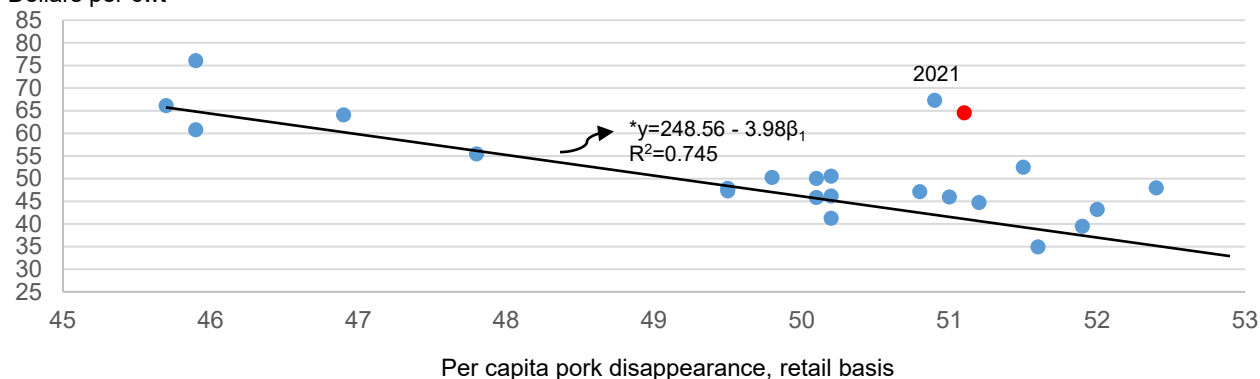
Source: USDA, Agricultural Marketing Service.

Combining revised hog price and pork production forecasts with price and production data from 2000–2021 yields the pork demand relationship shown below. Between the years 2000 and 2020, the relationship between hog prices and real per capita pork disappearance is represented by the dark line. Consumer demand appears to have changed, however in 2021, likely due to factors connected with the pandemic. It is expected that the relationship between hog prices and pork disappearance in 2022 will retain some similarity to that of 2021. Hog price forecasts in 2022 remain high relative to other years in the 2000–2022 sample period, as consumers reflect robust demand for pork through wholesale pork prices. Given current higher relative prices of protein substitutes—beef and chicken in particular—it is likely that pork consumption habits acquired in 2021 will continue this year, providing support for higher hog prices. It is notable that the disappearance is slightly higher in 2022, likely due to lower net exports—the result of lower 2022 quarterly pork export forecasts and higher quarterly import forecasts compared to last year.

Reduced form demand, U.S. pork, 2000–2022*

Wholesale carcass cutout value

Dollars per cwt**



* $y=248.26-3.98\beta_1$; y =per capita pork disappearance, β_1 = 51-52 percent lean, live equivalent hog price. $R^2=0.745$

**cwt=hundredweight.

***Forecast.

Source: USDA, Economic Research Service calculations with USDA, World Agricultural Outlook Board data.

December Weakness in China Demand Signals Further Export Decline in 2022

U.S. pork exports in December were 532 million pounds, more than 16 percent below a year ago. Lower shipments were led by those to China\Hong Kong, whose reduction of more than 115 million pounds compared to last year could not be offset by increased exports to Mexico and other South and Central American nations. This dynamic characterized much of 2021, particularly the second half of the year. Since July of 2021, declining shipments to China\Hong Kong more than offset year-over-year larger exports to Western Hemisphere nations, dragging total U.S. exports below year-earlier levels. The year-earlier percent changes set out in the summary tables for the 10 largest destination countries for U.S.-exported pork in December and for 2021 (below) illustrate the dynamic that dominated 2021.

U.S. pork exports: Volumes and export shares of the 10 largest foreign destinations in December 2020 and 2021						
	Country	Exports	Exports	Percent change	Export share	Export share
		December 2020	December 2021	(2021/2020)	December 2020	December 2021
		(Million pounds)	(Million pounds)		Percent	Percent
	World	636	532	-16.5		
1	Mexico	169	198	17	27	37
2	Japan	102	98	-4	16	18
3	Canada	43	46	6	7	9
4	South Korea	44	45	1	7	8
5	China\Hong Kong	157	42	-73	25	8
6	Colombia	21	28	29	3	5
7	Panama	11	19	71	2	4
8	Dominican Republic	12	15	29	2	3
9	Honduras	11	11	-4	2	2
10	Australia	17	5	-70	3	1

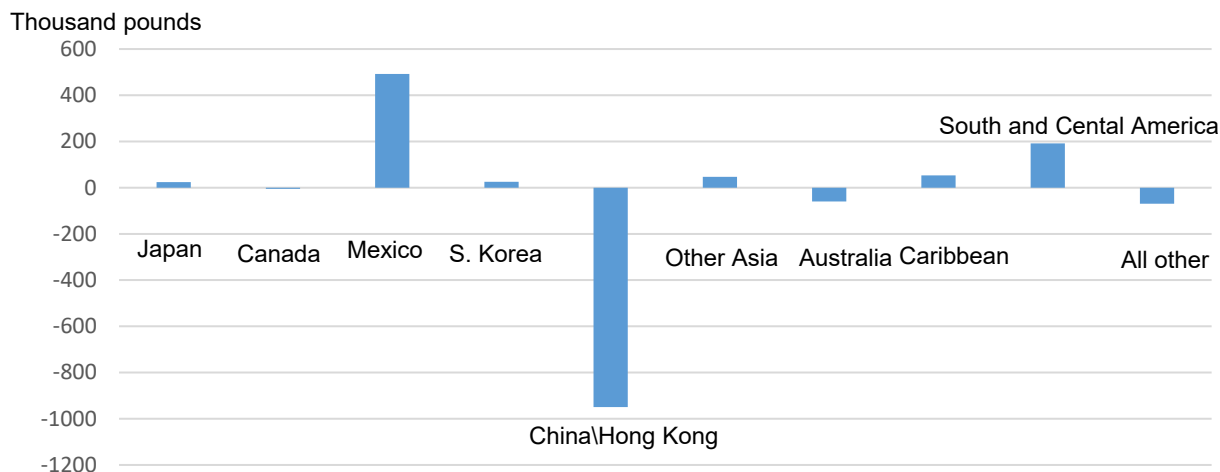
Source: USDA, Economic Research Service.

U.S. pork exports: Volumes and export shares of the 10 largest foreign destinations in 2020 and 2021						
	Country	Exports	Exports	Percent change	Export share	Export share
		2020	2021	(2021/2020)	2020	2021
		(Million pounds)	(Million pounds)		Percent	Percent
	World	7,280	7,030	-3.4		
1	Mexico	1,566	2,059	31	22	29
2	Japan	1,200	1,224	2	16	17
3	China\Hong Kong	2,134	1,185	-44	29	17
4	Canada	580	575	-1	8	8
5	South Korea	486	511	5	7	7
6	Colombia	189	304	61	3	4
7	Philippines	110	202	83	2	3
8	Australia	234	174	-26	3	2
9	Dominican Republic	120	173	44	2	2
10	Honduras	108	144	33	1	2

Source: USDA, Economic Research Service.

The figure below breaks out differences in 2020 and 2021 export volumes for major trading regions. The volume of China\Hong Kong's decline in 2021 (-949 million pounds) was larger than all other regional changes combined. Increases to Mexico (+492 million pounds) and to South and Central America (+192 million pounds) in particular, stood out last year. U.S. exports declined by almost 250 million pounds in 2021 compared with 2020.

Year-over-year difference of exports to major foreign markets: 2021–2020



Source: USDA, Economic Research Service.

Lower-than-expected December export data, combined with expectations for continued recovery of China's pork sector from African Swine Fever foreshadow lower U.S. export volumes in 2022. Revised quarterly export forecasts for 2022 are as follows: first-quarter exports are lowered to 1.62 billion pounds, almost 16 percent lower than a year earlier. Second-quarter exports are reduced to about 1.67 billion pounds, 12.4 percent below the same quarter in 2021. For the third quarter, exports are reduced to 1.62 billion pounds, almost 5 percent above a year earlier, and for the fourth quarter, exports are lowered to 1.9 billion pounds, about 15 percent above same period in 2021. Total 2022 exports are expected to be 6.8 billion pounds, about 3 percent below volumes in 2021.

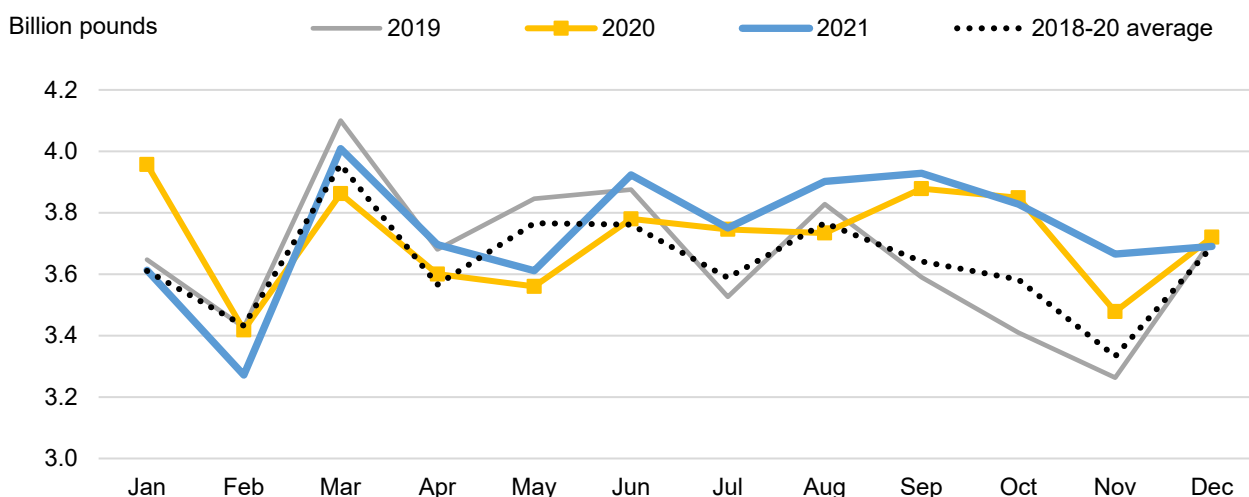
Poultry

Grace Grossen, Adriana Valcu-Lisman, and Margaret Cornelius

Broiler Production in 2021 Increased Over 2022; Cold Stocks Fell

December broiler production totaled 3.691 billion pounds, a decrease of less than 1 percent from last December. This was a result of slight year-over-year declines in both head slaughtered and average live weights. Total 2021 production is estimated at 44.890 billion pounds, an increase of less than 1 percent from 2020. Based on weak preliminary January slaughter data and winter weather that caused multi-day plant shut-downs in early February, the first-quarter production projection was adjusted down by 100 million pounds to 11.15 billion pounds. The outlying quarters of 2022 were adjusted down as higher forecast feed costs temper growth. Total projected production for 2022 is 45.485 billion pounds. This would be a year-over-year increase of just over 1 percent from 2021.

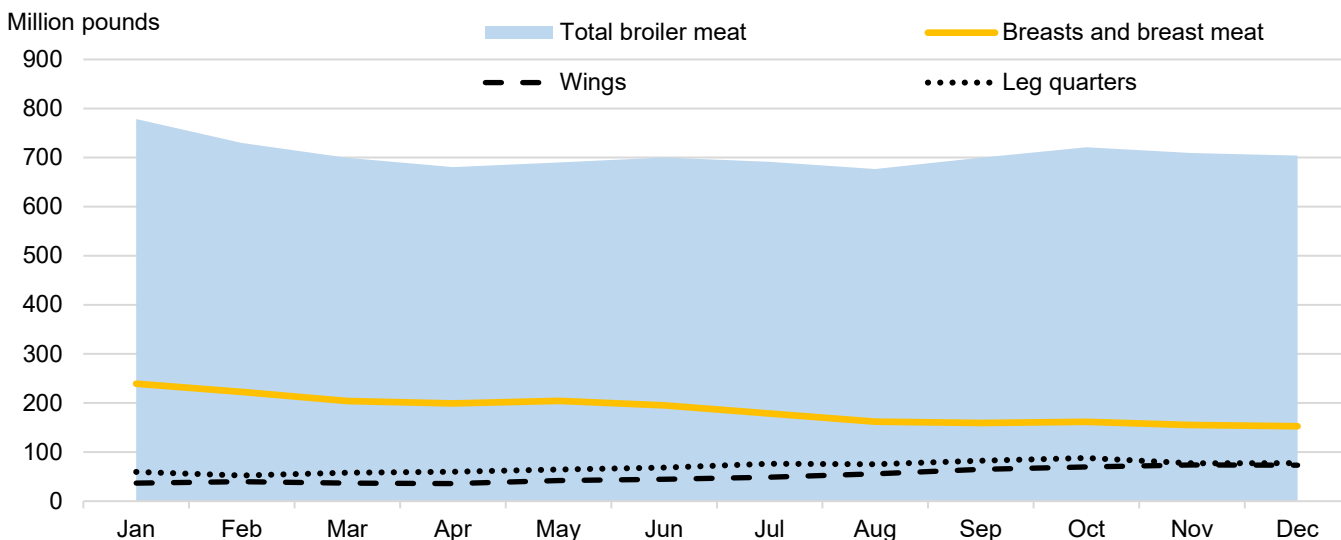
Monthly broiler production



Source: USDA, National Agricultural Statistics Service.

Broiler meat in cold storage fell to 704 million pounds at the end of December as production failed to keep pace with demand. This is a slight decrease from the end of November and 15 percent less than the end of 2020. Breast meat in particular saw a decline in cold storage stocks at the end of 2021, 104 million pounds lower than the end of 2020. Only chicken wings and leg quarters have seen increases in cold storage levels since the end of 2020, but these parts represent a small share of broiler meat in cold storage. With continued slow growth in production in 2022, projected broiler meat in cold storage at the end of 2022 was adjusted down by 30 million pounds to 755 million pounds.

Broiler meat in cold storage at the end of the month, 2021



Source: USDA, National Agricultural Statistics Service.

Broiler Exports Revised Down in 2022

U.S. broiler exports: Volumes and export shares of largest markets, 2020 and 2021

Country	Volume (million pounds)			Export share (percent)	
	2020	2021	Change in volume	2020	2021
Mexico	1,543	1,584	43	20.9	21.5
Cuba	375	678	303	5.1	9.2
China	683	382	-300	9.3	5.2
Taiwan	529	360	-170	7.2	4.9
Philippines	171	340	169	2.3	4.6
Angola	253	318	64	3.4	4.3
Canada	330	316	-14	4.5	4.3
Guatemala	259	300	41	3.5	4.1
Vietnam	324	213	-111	4.4	2.9
Colombia	181	194	13	2.5	2.6
Haiti	140	192	52	1.9	2.6
ROW	2,577	2,489	-88	35.0	33.8
World	7,367	7,367	0		

Note: Largest markets are based on 2021 total export volumes.

Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census.

December broiler exports totaled 618 million pounds, a year-over-year increase of 1 percent. This brings the 2021 total to 7.367 billion pounds, about even with the 2020 total. Mexico accounted for 21.5 percent of 2021 exports, a slightly greater share than in 2020 (20.9 percent). Other markets with increased shares year-over-year include Cuba, Angola, Guatemala, the Philippines, Haiti, and Colombia, which together accounted for 27.5 percent of shipments in 2021, up from 18.8 percent in 2020. The largest individual increase was in shipments to Cuba, which climbed from a 5.1 percent share in 2020 to 9.2 percent of shipments in 2021. Canada's total import level decreased year-over-year, but it accounted for a similar share of shipments in 2021 (4.3 percent) as it did in 2020 (4.5 percent). China accounted for 9.3 percent of broiler exports in 2020 but only 5.2 percent in 2021. Taiwan's share also decreased, from 7.2-percent

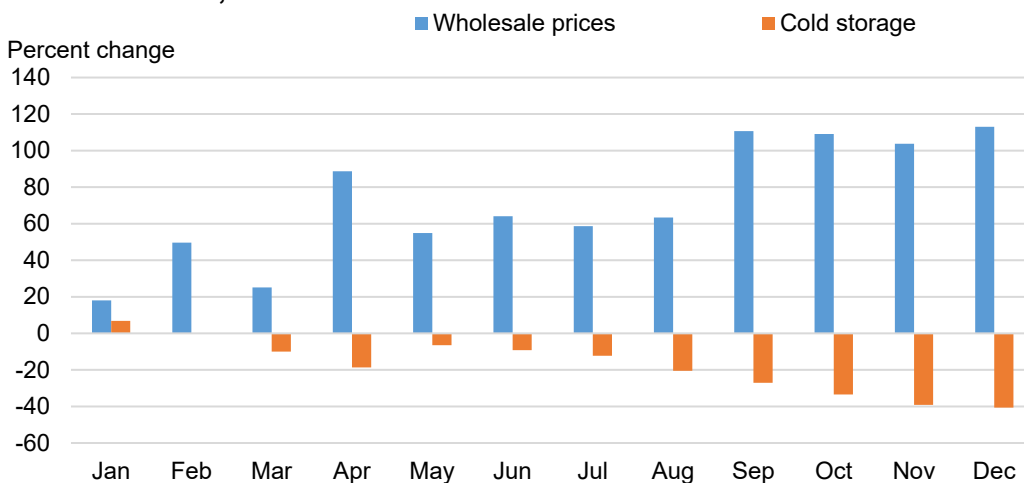
in 2020 to 4.9-percent share in 2021. For 2022, the export forecast was adjusted down, reflecting decreased production expectations and weakening demand from various markets. The 2022 forecast is 7.375, an increase of less than half-a-percent from the 2021 total.

Chicken Prices Increase With Decreasing Cold Stocks

Weekly national composite wholesale broiler prices ended an 11-week climb in January, peaking at 134.21 cents per pound in the week ending January 14th. January prices averaged 131.39 cents per pound, a year-over-year increase of 49 cents. However, prices declined from their peak and by the first week of February averaged 124.88 cents per pound. Based on recent prices, the first-quarter broiler price forecast was adjusted down by 1 cent to 127 cents per pound. The outlying quarterly price forecasts were adjusted up to 120 cents per pound in the second quarter, 106 cents in the third, and 98 cents in the fourth. This brings the 2022 average to 113 cents per pound, an increase of 12 cents over last year's average.

Some of the most high-demand chicken parts are wings and breasts. Breast meat can be found in sandwiches in various fast-food establishments, and chicken wings are popular additions to major sporting events such as the Super Bowl and March Madness. Rising wholesale prices for these parts has coincided with low levels in cold storage. Chicken breast meat in cold storage fell from 239 million pounds at the end of January 2021 to 152.6 million pounds at the end of December, a year-over-year decrease of 41 percent from the end of December 2020. In 2021, wholesale prices for boneless/skinless chicken breasts averaged 72 percent above year-earlier levels. The January average wholesale price for boneless/skinless breasts was 230.98 cents per pound, 122 cents above last January, the highest price since this climb began.

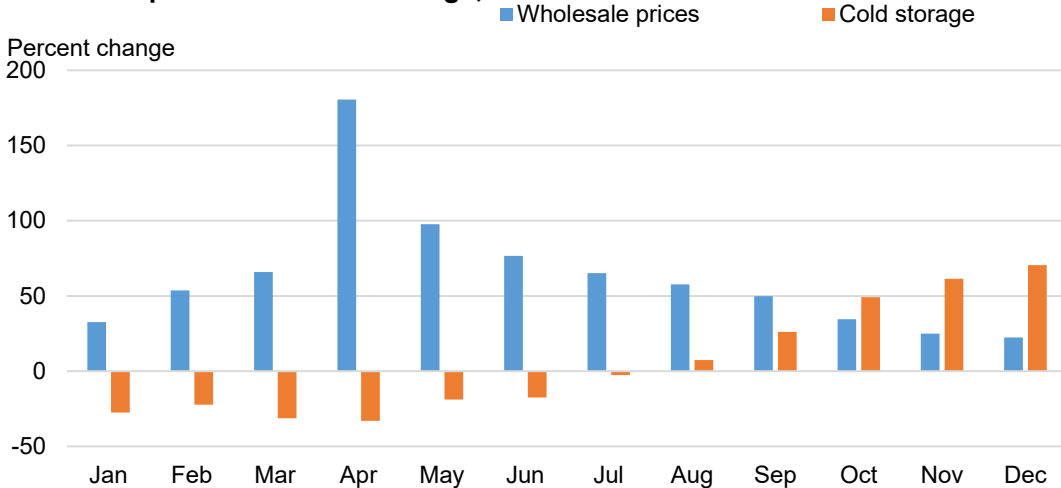
Year-over-year changes in monthly cold stocks and wholesale prices for chicken breasts, 2021



Source: USDA, National Agricultural Statistics Service and USDA, Agricultural Marketing Service.

For chicken wings, the story is similar. The largest year-over-year increase in wholesale wing prices was in April, coinciding with the largest year-over-year drop in cold storage levels. While wing stocks have recovered, the wing prices decreased but they are still well above year-ago levels. In January, wing prices averaged 267.93 cents per pound, an increase of 24 cents year-over-year, but down 49 cents from the 2021 peak.

Year-over-year changes in monthly cold stocks and wholesale prices for chicken wings, 2021



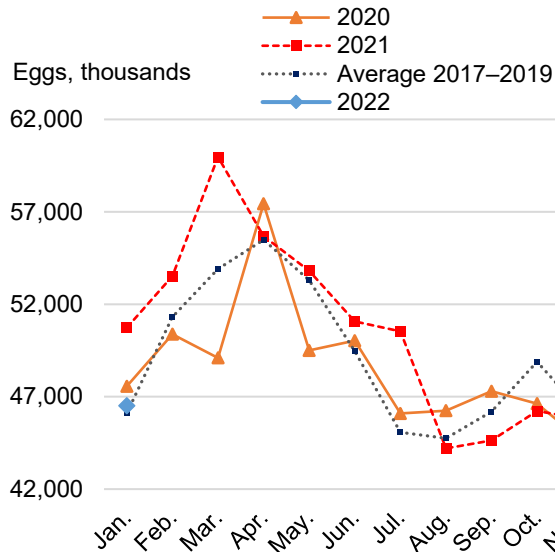
Source: USDA, National Agricultural Statistics Service and USDA, Agricultural Marketing Service.

2022 Table Egg Production Revised Down

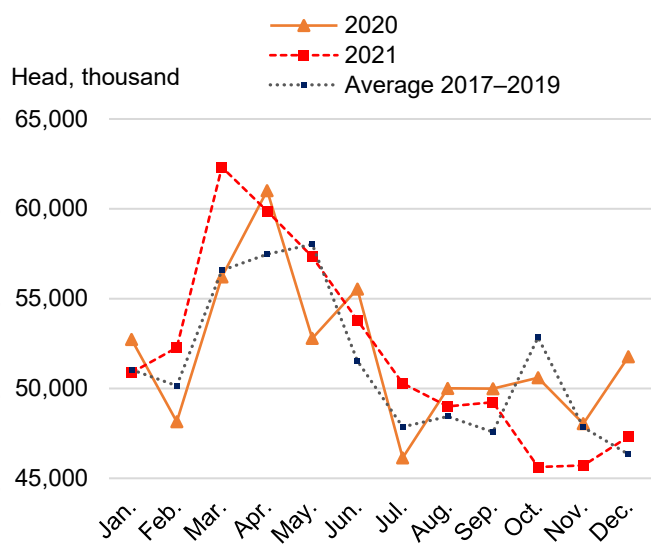
The table egg laying flock in December was 326.9 million hens and the lay rate per 100 layers was 82.7 eggs per day. Both indicators were close to December 2020 levels. December table egg production was estimated at 698.3 million eggs, almost unchanged from the year-ago levels. Estimates of the table-laying flock on January 1 indicate that the size of the table egg flock was below January 2021 while the lay rate was above that of a year ago. Table egg production in 2021 is estimated at 8,061.8 million dozen, 4.2 million dozen above the 2020 production.

Several upstream production indicators show that the expansion trends in the first part of 2021 slowed or reversed in the second part of the year and suggest that producers intend to add fewer birds to the layer flock. For example, at the beginning of the month, data for egg-type eggs in incubators and the number of egg-type hatched—chickens that will be added to the flock 5 months later—have been mostly moving year-over-year lower since August 2021 (see charts).

Egg-type, eggs in incubators , first of the month



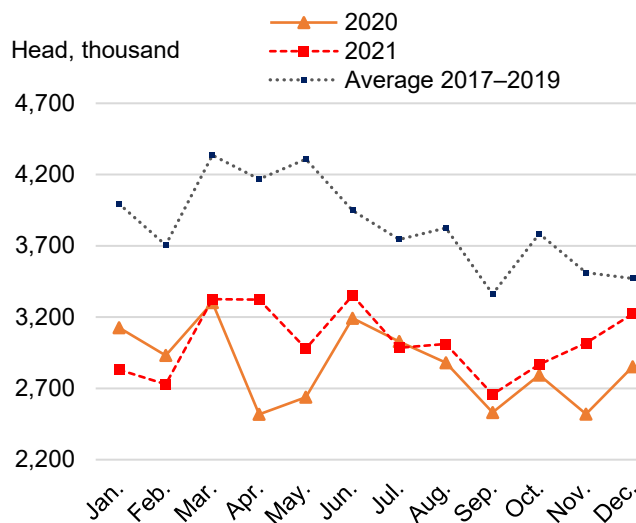
Egg-type, chicks hatched



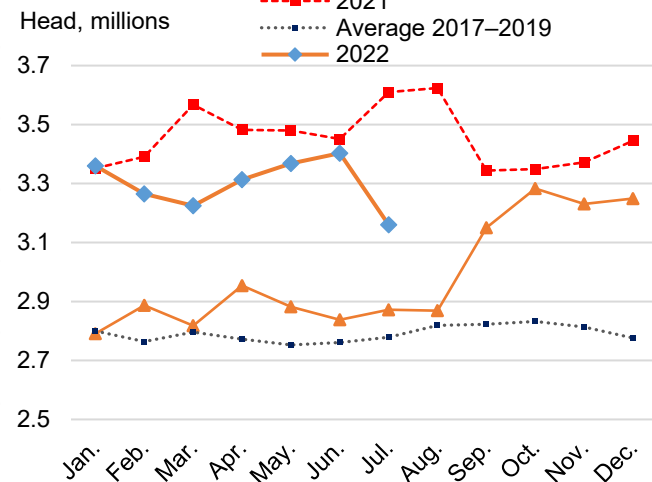
Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service.

Next, the slaughter of light spent hens (slaughter of spent table egg layer hens—one of the methods used to manage the size of the flock), although below the historical levels, has been moving counter-seasonally higher toward the end of 2021 (see chart). Finally, hatchery potential indicators—such as the monthly cumulative potential placements for egg-type pullets hatched—reinforce the producers’ intentions to add fewer layers to the flock in 2022. The cumulative potential placement for any given month is determined as the sum of the egg-type pullets hatched in the 7 to 18-month period preceding it (see chart).

Monthly slaughter of light spent hens



Hatchery supply flocks of egg-type pullets: Cumulative potential placements 7-18 months earlier



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service.

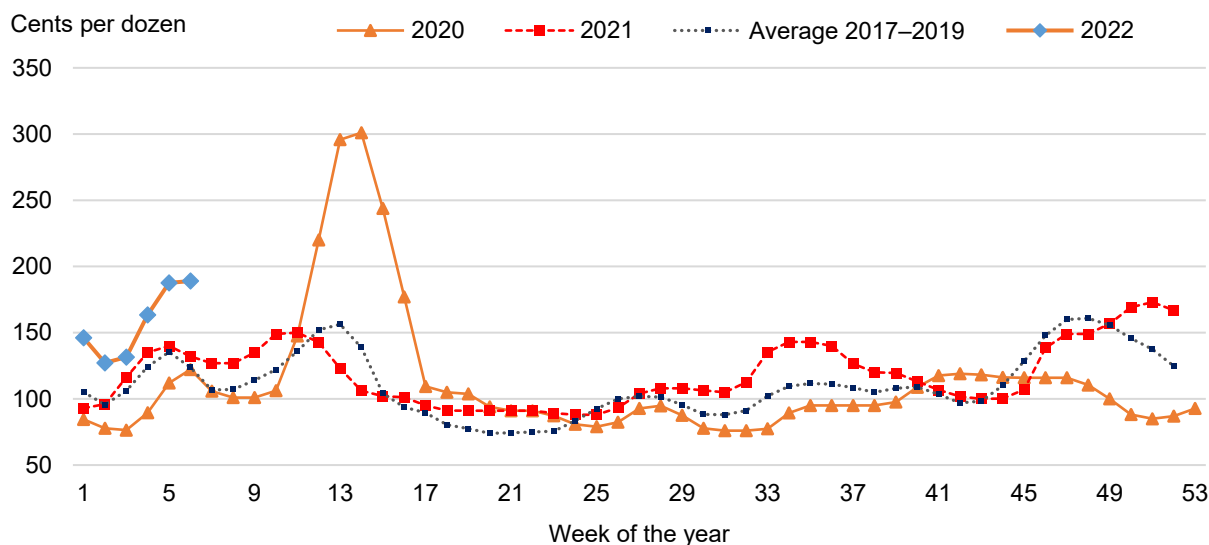
Higher feed costs—especially for soybean meal—together with recent production indicators show that the producers may be cautious in their expansion plans. Thus, the 2022 table egg production forecast was revised down for all outlying quarters as follows: first quarter, 10 million dozen; second quarter, 20 million dozen; third and fourth quarters 5 million dozen each. Table egg production for 2022 is forecast at 8,145 million dozen, 1-percent above 2021. Given expectations for slower growth in the table egg layer flock and broiler production, the 2022 hatching egg production forecast was revised down to 1,285 million dozen, about 1.5 percent higher than 2021.

2021 ending stocks are estimated at 18.7 million dozen egg equivalent, 23.8 percent below 2020 ending stocks. Given the lower-than-expected 2022 beginning inventory and lower production expectations, 2022 ending stocks are reduced to 19.5 million dozen equivalent.

Strong Wholesale Egg Prices in January and Early February

January wholesale shell-egg prices (New York, Grade A Large) averaged 144.7 cents per dozen, a 32.8-percent year-over-year increase. Although they followed the seasonal trend, January average prices were significantly higher than expected. The trend continued through early February, reaching a high of 189 cents per dozen. Reflecting the strong January and early February prices, the first-quarter price forecast was increased to 150 cents per dozen. Each subsequent quarter was increased as follows: second quarter to 125 cents per dozen, third quarter to 115 cents per dozen, and fourth quarter to 135 cents per dozen. These changes bring the wholesale egg price forecast for 2022 to 131.3 cents per dozen, a 10.8-percent year-over-year increase.

Weekly average midpoint prices for New York eggs (wholesale, large grade A)



Source: USDA, Economic Research Service using data from USDA, Agricultural Marketing Service.

December Exports Close 2021 on a Lower Note

December exports of egg and egg products totaled 30 million dozen shell-egg equivalent, an 8-percent year-over-year decrease. This decrease was driven by a 13-percent decrease in shell-

egg shipments that more than offset a 1-percent increase in egg product shipments. December export data puts an end to the 9-month trend of monthly year-over-year increases.

In 2021, exports of egg and egg products totaled 392.3 million dozen shell-egg equivalent, the highest value since 2015 and 14 percent above 2020 shipment levels. The top five market destinations (volume-wise) in 2021, covering about 85 percent of the shipments, were: Mexico, Canada, Hong Kong, Japan, and South Korea. The 2022 egg and egg products forecast was reduced to 355 million shell-dozen equivalent, a 9.5-percent year-over-year decrease.

Imports of egg and egg products for 2021 totaled 18.2 million dozen shell-egg equivalent, a 17.5-percent year-over-over increase. Based on recent import data, the 2022 import forecast is raised to 18 million dozen shell-egg equivalent, a 1.1-percent year-over-year decrease.

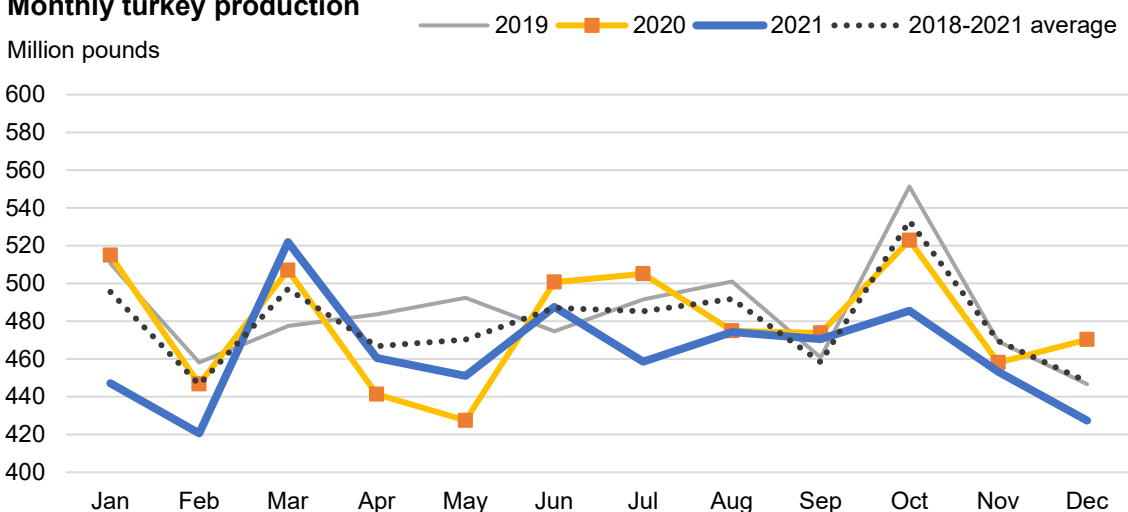
Both Turkey Production and Stocks Revised Down

Turkey production in the fourth quarter of 2021 totaled 1.37 billion pounds, 44 million pounds lower than expected last month. December production was down 9 percent, and fourth-quarter production was down nearly 6 percent year-over-year. Live weights were down 1.86 percent year-over-year. Projections for first-quarter production was revised down 10 million pounds to 1.38 billion, due to low weekly slaughter in January. Winter storms led to slaughter plant closures in early February, another damper on first-quarter production. Poultry placements were down slightly, and high feed costs may limit production growth. Thus, production also was revised down for the second, third, and fourth quarters of 2022, taking the annual production forecast to 5.62 billion pounds.

Tight turkey stocks in 2021 are expected to continue in 2022. Beginning stocks for 2022 were 171 million pounds, 19 million pounds below last month's forecast. Ending stocks for 2021 were 23 percent below ending stocks for 2020 and the lowest in over 20 years. Ending stocks for 2022 were revised down 20 million pounds to 180 million pounds.

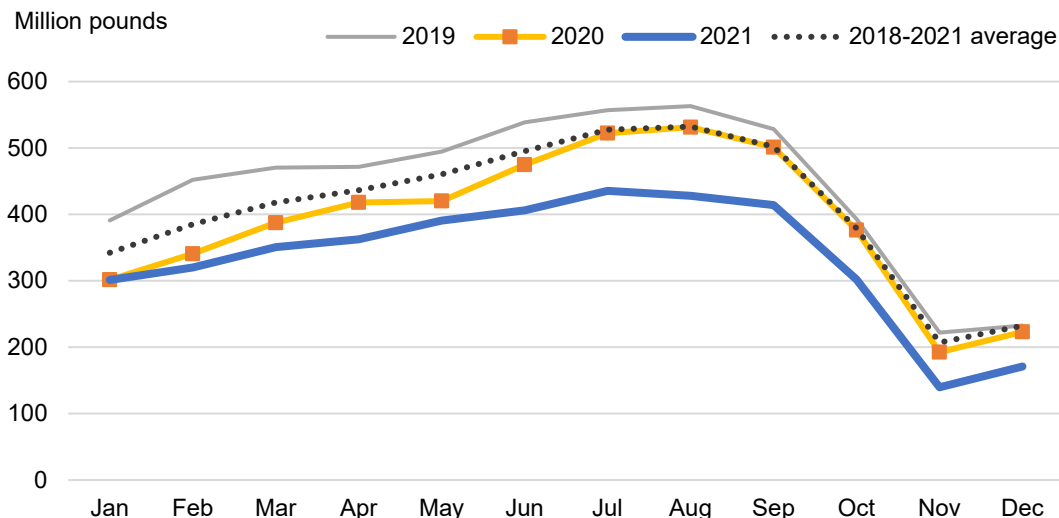
Monthly turkey production

Million pounds



Source: USDA, National Agricultural Statistics Service.

Turkey meat in cold storage at end of the month



Source: USDA, National Agricultural Statistics Service.

Exports Lowered for 2022

December turkey exports totaled 44 million pounds, a 5.5-percent year-over-year decrease. Total 2021 exports came to 549 million pounds, 1 million pounds below last month's projected export total and 3.9 percent lower than 2020 exports, although exports as a share of production were 9.9 percent in both 2020 and 2021. Mexico was the top destination for U.S. turkey exports in 2021. Canada, China, the Dominican Republic, Guatemala, Benin, and Panama were other top importers. The forecast for 2022 exports was reduced by 20 million pounds to 545 million pounds on higher prices.

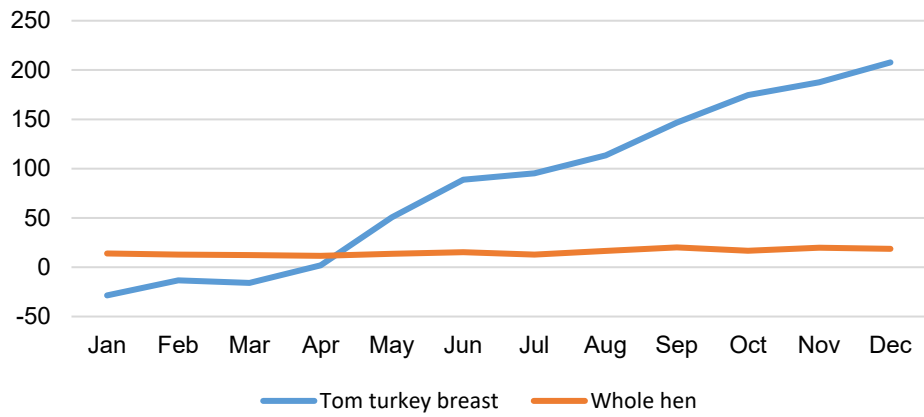
Prices Raised for All Four Quarters of 2022

The frozen whole hen turkey price was raised another cent, to 129 cents per pound, for the first quarter of 2022 after strong weekly prices throughout the month of January. Rising feed prices, along with low production, contribute to this increase. Prices also were raised 1 cent for the second, third, and fourth quarters of 2022, taking the yearly forecast to 126.5 cents per pound.

Prices for frozen tom turkey breasts, which are used primarily for processed turkey, have risen disproportionately compared to the rise in whole hen prices. At the start of the year the tom breast price broke four dollars per pound and rose to \$4.35 per pound by the end of the month. This is a 233-percent increase in price since January 2021.

Percent change in prices between 2020-2021, tom turkey breasts versus whole hens

Percent change in price 2020-2021



Source: USDA, Agricultural Marketing Service.

Special Article

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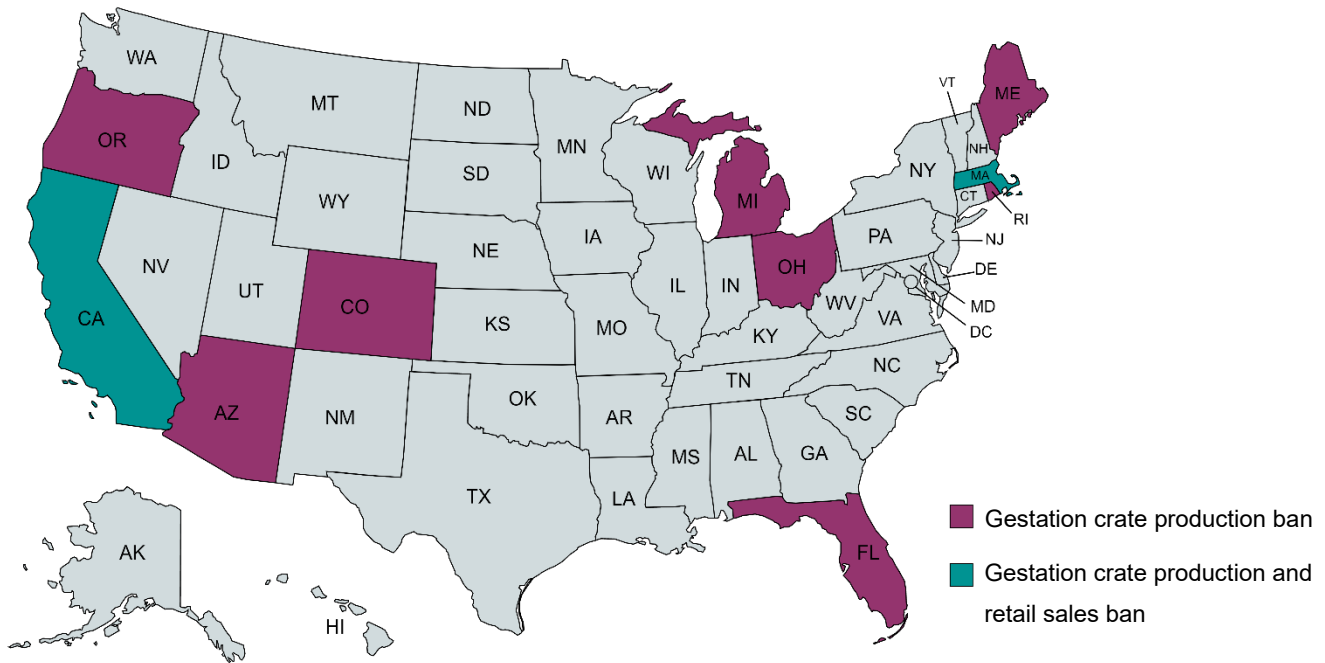
State Animal Welfare Policies Covering U.S. Pork Production

Several States have passed and begun implementing farm animal welfare regulations over the past two decades. In the pork industry, regulations have focused on the common practice of using gestation crates for housing pregnant sows. In 2002, Florida passed a constitutional amendment effectively banning the practice for in-State operations, the first State to do so. Since 2002, an additional nine States have passed similar laws (figure 1), either by ballot initiative or legislative action. The earliest of these laws only require that animals receive sufficient space to allow for covered behaviors such as lying down, standing up, fully extending limbs, and turning around freely.⁷ Later laws have more specific requirements. For example, California's 2018 measure requires a minimum of 24 square feet of usable floorspace per breeding pig, well above the typical 14 square-foot industry standard.⁸ In addition to production restrictions, two of these States, California and Massachusetts, passed retail sales restrictions that prohibit the sale of pork originating from animals kept in gestation-crate systems or their direct offspring. Most of the production restrictions were fully implemented prior to 2021 except in California and Massachusetts, where they go into effect in 2022, and Ohio, where they will be fully implemented by 2026. The retail sales laws for California and Massachusetts, as passed, are scheduled to go into effect in 2022.

⁷ These rules are broadly applied in long-term production circumstances, while several laws allow short-term exceptions that include veterinary procedures, transportation, exhibition, and defined periods of the breeding cycle.

⁸ Marchant-Forde, J. N. (2010). Housing and Welfare of Sows during Gestation. *Sow Welfare Fact Sheet, Fall 2010*. USDA-ARS-MWA Livestock Behavior Research Unit.

Figure 1
Gestation crate production and retail sales restrictions



Source: State legislative repositories.

These regulations are concentrated in States with relatively small pork industries. With the exception of Michigan and Ohio, each of them has produced, on average, less than 1 percent of total U.S. pork production (in pounds) since 2018. Before 2017, the combined number of hogs produced in States with fully implemented production restrictions totaled, on average, less than 1 percent of the national herd .⁹ The proportion of the national herd covered by gestation crate bans has increased to approximately 3 percent with the implementation of laws in Michigan and Colorado, and it will reach 6 percent once Ohio’s rule is fully implemented (table 1). Projected coverage of the total U.S hog herd, and the breeding herd is expected to remain below 10 percent of hogs and pigs in each case under current State regulations by 2026. State laws cover a larger proportion of hog operations than of total production due to a greater number of small-scale operations in States with bans. By 2026, current State laws will cover approximately 19 percent of all hog operations and 20 percent of all hog breeding operations in the United States.¹⁰

⁹ Based on average hog inventories since 2002 as reported by USDA, National Agricultural Statistics Service (NASS).

¹⁰ Operations as defined by USDA, NASS reporting more than \$1,000 in annual sales. Percentages are based on the most recent NASS census values (2017 for total operations, 2012 for breeding operations).

Table 1

Share of U.S. hog inventory and year of regulation implementation in States with gestation crate restrictions		
	Share (percent) of U.S. hog inventory	Year State law fully implemented
Arizona	0.18	2013
California*	0.12	2022
Colorado	0.79	2018
Florida	0.02	2008
Maine	0.01	2011
Massachusetts	0.01	2022
Michigan	1.63	2020
Ohio	3.32	2026
Oregon	0.01	2012
Rhode Island	0.00	2013

*California passed two separate measures, one in 2008 (fully implemented by 2015) and one in 2018 (due for full implementation in 2022). The 2018 rules further refined the regulations initially passed in 2008 and defined specific minimum requirements for compliance.

Note: Shares of U.S. hog inventories is based on values for December 2020.

Source: USDA, National Agricultural Statistics Service and State legislative documentation.

Interstate pork trade and the concentration of pork production in States without similar regulations mean retail sales bans will likely have impacts beyond a State's own borders. A combined total of less than 0.2 percent of the national pork herd is produced in the two States with retail sales bans, while an estimated 14 percent of the U.S. population resides in those States. In the past, similarly-structured retail sales bans have placed upward pressure on retail prices both in and out of State for hogs and other covered livestock products. These price impacts have arisen in response to production impacts. One effect is the reduction of national livestock numbers in the relevant industry, reducing supply and subsequently increasing prices. Another factor is increased production costs for the portion of the industry bringing its operations into compliance.¹¹ Several legal challenges to retail sales bans on pork have been attempted to delay or halt the implementation, but thus far most have not prevailed. The major exception is the January 2021 suspension of California's 2018 law until 6 months after rules have been defined and finalized.

Coverage of the national pork industry by State gestation crate bans is low and is expected to remain low under current rules through 2026. However, State gestation crate regulations have been increasingly passed over the last 15 years, with more States proposing more recent similar legislation. To the extent that these regulations limit retail sales, industries in States without regulations may face increased pressure to alter gestation crate conventions.

¹¹ Carter, C.A., K.A. Schaefer, and D. Scheitrum (2020). Piecemeal Farm Regulation and the US Commerce Clause. *American Journal of Agricultural Economics* 103(3):1141-63.

Malone, T., and J.L. Lusk (2016). Putting the Chicken Before the Egg Price: An "Ex Post" Analysis of California's Battery Cage Ban. *Journal of Agricultural and Resource Economics* 41(3):518-32.

