



# Ag Decision Maker

## A Business Newsletter for Agriculture

Vol. 25, No. 5

www.extension.iastate.edu/agdm

March 2021



### An early glimpse at the 2021 marketing year

By Chad Hart, extension economist, 515-294-9911, chart@iastate.edu

At the Ag Outlook Forum each year, USDA provides its projections for the agricultural year ahead. The 2021 Forum reflected the ongoing challenges with COVID as all of the sessions were virtual and much of the discussion hinged on agriculture's rebound from the physical and economic impacts from the pandemic. In general, the view for agriculture in 2021 is positive. Most agricultural markets, including the major ones for Iowa, have recovered nicely from the depths of the price declines that struck the markets in 2020. And the outlook builds upon the improvement in the latter half of 2020, providing projections of better agricultural returns in 2021.

2020 was a challenging year, with COVID, a drought, and a derecho impacting the crop sector. For corn, the 2020 crop started out with huge potential, as early projections had the crop as the first 15 billion bushel crop on the strength of increased corn plantings. But the drought and

derecho reduced yield potential enough to bring corn production below 14.2 billion bushels. Thus, the 2020 corn crop was larger than the 2019 crop, but by a much smaller amount than originally projected. The COVID impact to crops mainly came through biofuels, as biofuel consumption was reduced via the stay-at-home orders to reduce the spread of the virus. Given the timing of the pandemic, the biofuel usage decline appeared in the spring and summer of 2020, showing up in the corn grind for ethanol for the 2019 crop. Total corn usage for the 2019 crop was lower than previous years because of that drop, along with a fall in exports. However, this past fall, ethanol production partially recovered and export sales have surged to a record pace. For the 2020 crop, USDA has outlined a significant increase in corn usage, with exports leading the way. The growth in usage reduces projected ending stocks and the corn market has seen a sizable improvement

*continued on page 2*

#### Handbook updates

For subscribers of the handbook, the following updates are included.

**Historical Corn Yields by County**  
– A1-12 (6 pages)

**Historical Soybean Yields by County**  
– A1-13 (6 pages)

**Corn and Soybean County Yields**  
– A1-14 (4 pages)

**2021 Iowa Farm Custom Rate Survey**  
– A3-10 (5 pages)

Please add these files to your handbook and remove the out-of-date material.

*continued on page 6*

#### Inside . . .

A trip through the science of a warming planet ..... Page 3

Ag Decision Maker unveils new look for 25th anniversary .... Page 4

Ground beef demand remains strong ..... Page 6

An early glimpse at the 2021 marketing year, continued from page 1

in prices, with the 2020 season-average price estimate holding at \$4.30 per bushel, nearly 75 cents above the 2019 estimate. For 2021, USDA outlines a major acreage battle among the major row crops, but projects a 1.2 million acre increase in corn plantings. That, combined with a trend yield of 179.5 bushels per acre, leads to a projection of corn production above 15 billion bushels once again. However, the growth in expected production is fairly well matched by continued growth in usage, as USDA sees higher feed and residual usage, a larger ethanol grind, and another record for exports. With a small increase in projected ending stocks, the 2021 season-average price estimate remains nearly steady, at \$4.20 per bushel.

Many of the storylines for corn are in play for soybeans as well. However, the trade effects are more amplified for beans, given the market's relative dependence on exports. The 2020 soybean crop statistics reflect a general, but partial, recovery for the crop from prevented planting problems and trade disruptions that hit the 2019 crop. Acreage and production increased, but the drought and derecho limited the growth in supplies. Export sales this past fall provided a significant boost to the soybean market. The growth in exports is expected to reduce 2020 ending stocks to 120 million bushels and raised the 2020 season-average price estimate to \$11.15 per bushel. For 2021, soybean area is projected to leap again as soybeans are expected to see the largest gains in acreage, to 90 million acres. Given trend yields, the combination pushes expected production to over 4.5 billion bushels. But as with corn, soybean usage is expected to match production. Domestic crush for livestock feed and biofuel usage is projected to rise once again. And even though the export segment declines slightly, soybean exports still hold at 2.2 billion bushels. The 2021 season-average price estimate for soybeans improves to \$11.25 per bushel.

**Table 1. US corn supply and use (Source: USDA)**

Marketing Year (2020 = 9/1/20 to 8/31/21)		2019	2020	2021
Area Planted	(million acres)	89.7	90.8	92
Yield	(bushels/acre)	167.5	172	179.5
Production	(million bushels)	13,620	14,182	15,150
Beginning Stocks	(million bushels)	2,221	1,919	1,502
Imports	(million bushels)	42	25	25
Total Supply	(million bushels)	15,883	16,127	16,677
Feed & Residual	(million bushels)	5,903	5,650	5,850
Ethanol	(million bushels)	4,852	4,950	5,200
Food, Seed, & Other	(million bushels)	1,430	1,425	1,425
Exports	(million bushels)	1,778	2,600	2,650
Total Use	(million bushels)	13,963	14,625	15,125
Ending Stocks	(million bushels)	1,919	1,502	1,552
Season-Average Price	(\$/bushels)	3.56	4.30	4.20

**Table 2. US soybean supply and use (Source: USDA)**

Marketing Year (2020 = 9/1/20 to 8/31/21)		2019	2020	2021
Area Planted	(million acres)	76.1	83.1	90
Yield	(bushels/acre)	47.4	50.2	50.8
Production	(million bushels)	3,552	4,135	4,525
Beginning Stocks	(million bushels)	909	525	120
Imports	(million bushels)	15	35	35
Total Supply	(million bushels)	4,476	4,695	4,680
Crush	(million bushels)	2,165	2,200	2,210
Seed & Residual	(million bushels)	105	125	124
Exports	(million bushels)	1,682	2,250	2,200
Total Use	(million bushels)	3,952	4,575	4,534
Ending Stocks	(million bushels)	525	120	145
Season-Average Price	(\$/bushels)	8.57	11.15	11.25

Thus, USDA's projections reveal that the healthy market recovery that already occurred for Iowa crop agriculture will continue. Even with projections of record supplies for corn and soybeans, crop prices are expected to roughly hold steady. The price strength is supported by strong international demand and steady domestic use. The surge in export sales in 2020 has continued as the calendar turned to 2021 and USDA indicates it will continue. While COVID did reduce activity in many parts of the US and global economies, it did not hamper agricultural trade and US agriculture is enjoying the benefits of that.

An early glimpse at the 2021 marketing year, continued from page 2

The futures markets for corn and soybeans have remained bullish on the outlook for the 2021 crops. Even after the release of the latest USDA projections, the markets have maintained prices above the USDA projections. USDA's 2021 price projections are \$4.20 for corn and \$11.25 for soybeans. Futures at the end of February projected season-average prices for the 2021 crops of \$4.50 for corn and \$11.70 for soybeans.

For more market outlook through the month, the latest outlook presentation is always available on the [Ag Decision Maker Outlook page](http://www.extension.iastate.edu/agdm/outlook.html), [www.extension.iastate.edu/agdm/outlook.html](http://www.extension.iastate.edu/agdm/outlook.html).

**Figure 1. 2021/22 projected season-average prices (derived from futures)**



## A trip through the science of a warming planet

By Don Hofstrand, retired extension value added agriculture specialist

Reviewed by Dr. Eugene Takle, retired professor emeritus Iowa State University

*This article is the first in a series focused on the causes and consequences of a warming planet*

Is the earth getting warmer? If it is, what is causing it to warm? Moreover, if it is getting warmer, what impact will it have on the earth's climate? Most important, how will a changing climate impact us?

Many people believe that the planet is getting warmer and the warming is caused by human activity. Moreover, they believe that the warming is causing the earth's climate to change in ways that are a threat to us and future generations. Some prefer to believe that the planet is not warming. Others believe the world is warming but don't believe it is caused by human activity. Many people are somewhere in the middle and aren't sure what to believe.

Join me for a trip through the current scientific evidence of a warming planet and the resulting changes in the planet's climate. This series is an attempt to clarify these issues based on science from leading institutions around the world.

Examples include the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the Intergovernmental Panel on Climate Change (IPCC) among others.



The series is also an attempt to help you understand these concepts by using common, everyday examples. Although the earth and its climate are complex, many of the forces that drive the world's climate are familiar to us because they are the same ones we experience in our everyday lives.

Before we start, we should clarify the commonly used terms of global warming and climate change. Although these terms are often used interchangeably, they have different meanings. **Global warming** is the increase in the average temperature of Earth's near-surface air and oceans. As the Earth warms,

*A trip through the science of a warming planet, continued from page 4*

it causes changes in the earth's climate. **Changes in the earth's climate** include rising sea levels, changing precipitation patterns, increasing severity and occurrence of extreme weather events such as droughts and floods, and many others.

### **Understanding the world of research**

Scientific research increases our understanding of the Earth and the environment in which we live. It requires careful investigation and analysis.

One research study does not make something a fact. The results of an individual research study often just raise questions for further investigation. To establish something as a fact requires a "body of research." Not until several studies, focused on a question from various perspectives, come to the same conclusion, do scientists conclude with reasonable confidence that something is a fact.

In this series, we will focus on "peer-reviewed" research. These are scientific research studies where other scientists (peers of the researcher) are anonymously called upon to review the research to see if it was done properly. This review doesn't mean that the research should show a predetermined result. Rather, it means that the research followed proper "scientific methods and procedures." If the reviewers find errors in how the research was conducted, the research study may be rejected and the reputation of the scientists who did the research may be questioned.

If the research is accepted by the reviewers and published in a research journal, other researchers will see if they can come up with the same results using different techniques or data sets. If the results cannot be replicated, the reputation of the researcher, along with that of the peer reviewers and the research journal, may be called into question.

Climate deniers often claim that climate researchers skew their research results to come up with findings that will promote themselves and increase their chances of obtaining funding for further research. But the process outlined above will cause researchers to be conservative in their findings because they do not want to suffer the consequences of being proven wrong.

Research concepts that are often misunderstood and used incorrectly are correlation and causation. **Correlation** is a relationship between two variables. For example, you may have put fertilizer on your garden during a rainy period and your garden plants grew larger. So you may conclude that there is a correlation between the fertilizer application and the growth of the garden plants.

With **causation**, a change in one variable causes a change in another variable. Although there is a correlation between fertilizer and plant growth, there is no proof that the application of the fertilizer was what caused the plants to grow bigger. Your garden may already have sufficient fertilization but was in need of water. So, although the garden plants grew larger when the fertilizer was applied, the fertilizer did not cause the larger plant growth. It was the rainfall that caused the plants to grow larger.

It is common for people to assume causation just because correlation exists. This mistake usually leads to faulty analysis.



# Ag Decision Maker unveils new look for 25th anniversary

By Ann Johanns, extension program specialist, 515-337-2766, aholste@iastate.edu

If you haven't noticed yet, we have a new and improved look to our website! The Ag Decision Maker, published by Iowa State University Extension and Outreach, unveiled a new design Jan. 16.

The new site offers the same timely information lowans and farmers across the Midwest have depended on for years, but in a more mobile-friendly format.

The site includes a wide range of resources for both crop and livestock producers, including whole farm resources, business development resources, information for cooperatives and the energy markets.

This has been a multi-year project to make the materials more accessible and mobile friendly. We cleared out some dated materials that weren't relevant anymore, with mobile friendly being our real goal.

The site continues to be updated monthly with some updates that occur more often, including market prices and farm business data.

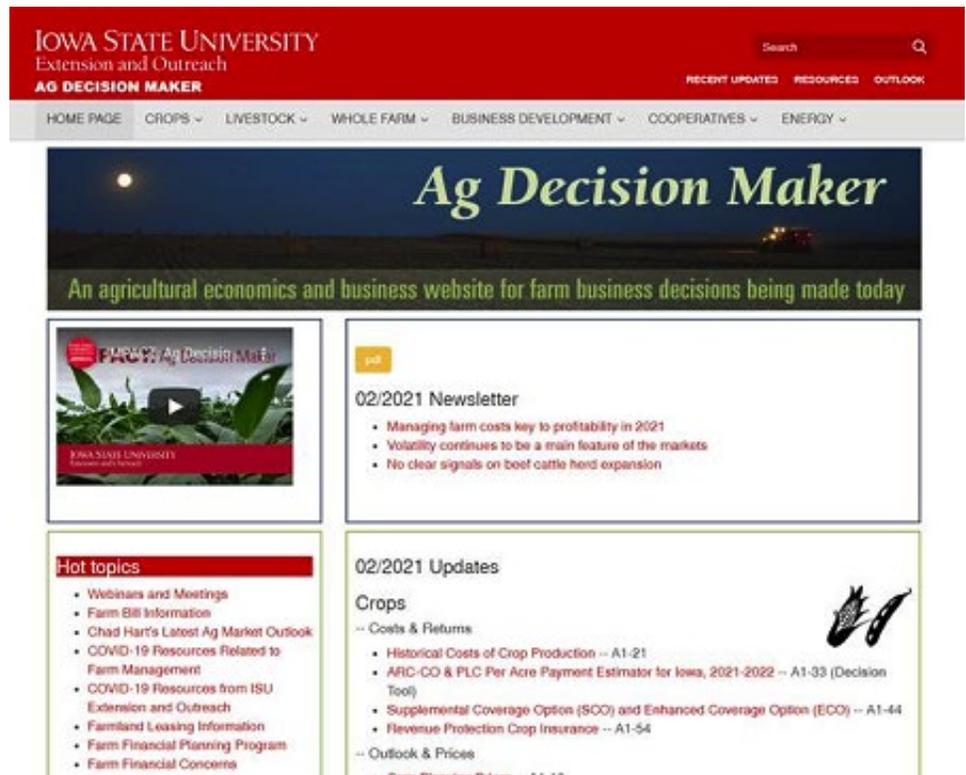
The goal of Ag Decision Maker is to keep producers and the industry informed, so they can make timely decisions for their operation.

Links to [videos and current webinars](#), [www.extension.iastate.edu/agdm/info/meetings.html](http://www.extension.iastate.edu/agdm/info/meetings.html) are also available, including farm bill information, farmland leasing information, the [Farm Financial Planning Program](#), [www.extension.iastate.edu/farmanalysis/](http://www.extension.iastate.edu/farmanalysis/), at Iowa State and much more.

The website improvements wouldn't have been possible without the help of Liisa Jarvinen, who has been involved in numerous website projects at Iowa State.

Another addition are recorded presentations on Ag Market Outlook with Chad Hart, with changes or reports impacting the markets. These videos and more can be found on the [Ag Market Outlook page](#), [www.extension.iastate.edu/agdm/outlook.html](http://www.extension.iastate.edu/agdm/outlook.html)

Since its launch, Ag Decision Maker has supported the efforts of the Farm Management Team, and we look forward to continuing that virtual presence along with going back to more in-person events.





## Ground beef demand remains strong

By Lee Schulz, extension livestock economist, 515-294-3356, lschulz@iastate.edu

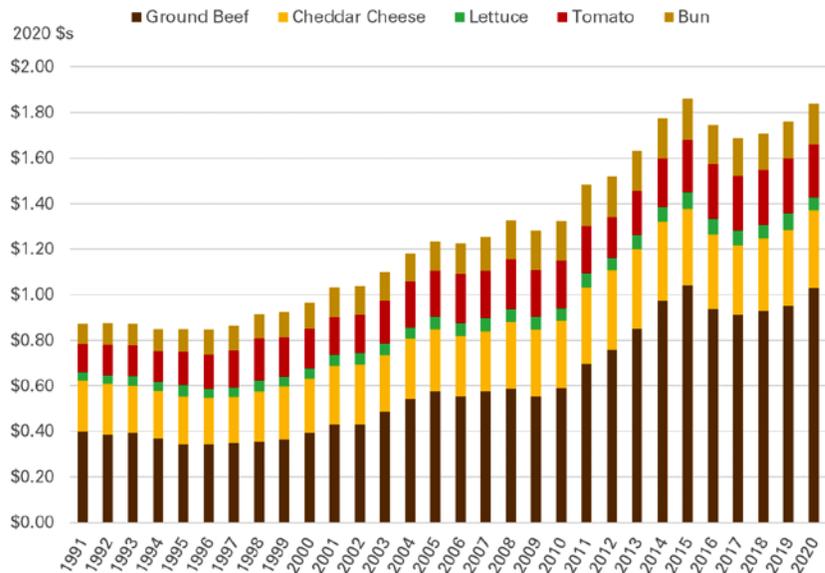
In 2020, the ingredients for a home-prepared, quarter-pound cheeseburger totaled \$1.84 per burger (Figure 1). This is based on US Department of Agriculture, Economic Research Service calculations using data from the US Bureau of Labor Statistics. Ground beef made up the largest cost at \$1.03 and cheddar cheese accounted for \$0.34. The lettuce, tomato and bun were \$0.06, \$0.23, and \$0.18, respectively. In real terms, i.e., 2020 dollars, this same cheeseburger would have cost \$1.76 to prepare in 2019. Higher ground beef prices accounted for all of the increase between 2019 and 2020. Ground beef prices rose 8%, translating into a \$0.08 per burger hike.

The only time the cost of an at-home cheeseburger was higher was in 2015. Then a cheeseburger cost \$1.86 with ground beef at \$1.04 and the other ingredients similar to recent values. Last year's 27.153 billion pounds of US commercial beef production was a sizable 15% increase compared to 2015. But insatiable retail demand held ground beef prices near 2015's level.

Ground beef consumption was estimated at just over 27 pounds per capita in 2020. That's more than 46% of total US retail beef consumption.

Ground beef comes from beef trimmings – portions of the carcass that are “trimmed away” when the carcass is broken down into meat cuts such as steaks, roasts and various other items. Ground beef typically comes from a combination of two different products – 50% lean trimmings from finished steers and heifers and 90% lean trimmings from cull cows and bulls. Processors typically blend custom mixes of 50s and 90s to achieve lean-to-fat ratios of 73-27, 80-20, 85-15, 90-10, 96-4, etc. Ground beef offerings have expanded in recent years. We now routinely see ground beef labeled as ground chuck, ground round, ground sirloin, and there is even ground brisket and ground prime rib.

**Figure 1. Cost of cheeseburger ingredients, 1991-2020**



Notes: Costs based on annual average prices. Prices adjusted for inflation to 2020 dollars.

Source: USDA, Economic Research Service using US Bureau of Labor Statistics price data.

With ground beef so popular, why not grind the entire carcass? The math does not work. Many muscle cuts command prices way above beef trimmings in both domestic and export markets. Trimmings account for about 16% of the carcass for finished steers and heifers. For cull cows and bulls it's much higher. Processors are always looking for ways to optimize the value of the carcass and will grind muscle cuts when economically advantageous.

### Current lean beef supplies are adequate

Lean beef is a result of regular culling of both beef and dairy breeding animals. Culling decisions in part reflect the productive life cycle of animals and are also affected by feed availability and profit outlook for cow-calf producers and dairy producers.

Cow and bull beef production through 2021's first eight weeks was up 0.3% from a year earlier. This is actually pretty impressive as weather-related closures and shift cancellations hampered beef production at many processing plants, especially in

Ground beef demand remains strong, continued from page 6

the southern plains, as well as interrupted shipments of beef supplies and cattle. For the week ending February 20, 2021 dairy cow slaughter was down 9% compared to a year ago, while beef cow slaughter was down 26% and bull slaughter was down 49%.

Year-to-date, total cow slaughter has been down 0.9% from a year earlier, yet average cow carcass dressed weights were 1.8% heavier. Minimal year-over-year changes in cow slaughter suggests the current cattle inventory is fairly level. However, 2021 could be another volatile year. Feed costs are expected to erode margins, especially for dairy producers. Pricy feed may encourage stricter culling and bringing cattle to market at lighter weights.

### Imports aid blending

Enormous US ground beef demand drives beef imports, which are mostly lean beef. Without lean imports to blend with trimmings to make ground beef some of those fed cattle trimmings would have, at best, value as tallow rather than as ground beef. USDA projects 2021 beef imports to be down 10.1% compared to 2020.

Over 86% of all 2020 US beef imports came from Canada, Australia, Mexico, New Zealand and Brazil. Australia is the most likely country to curtail beef exports. Australia's herd is in a major herd rebuilding

phase after being decimated by the severe impacts of a two-year drought in 2018 and 2019. Lower imports from Canada and Mexico would also likely be needed to hit the decline in total beef imports in 2021 forecasted by USDA.

Cold storage stocks also augment beef supply. Total Jan. 31, 2021 beef in cold storage was 6.3% higher than a year earlier. The Cold Storage report provides information on boneless and beef cuts. Both categories rose from 2020 levels at a rate of 5.7% and 14.6%, respectively. January levels of total beef and boneless beef in cold storage were the highest since 2017, while beef cuts were the highest since 2018. USDA does not tell us what kind of beef is in the freezer. Was it imported beef? Was it beef that was staged before going to export? Was it product that packers and processors found was slow to sell and thus accumulated in the freezer?

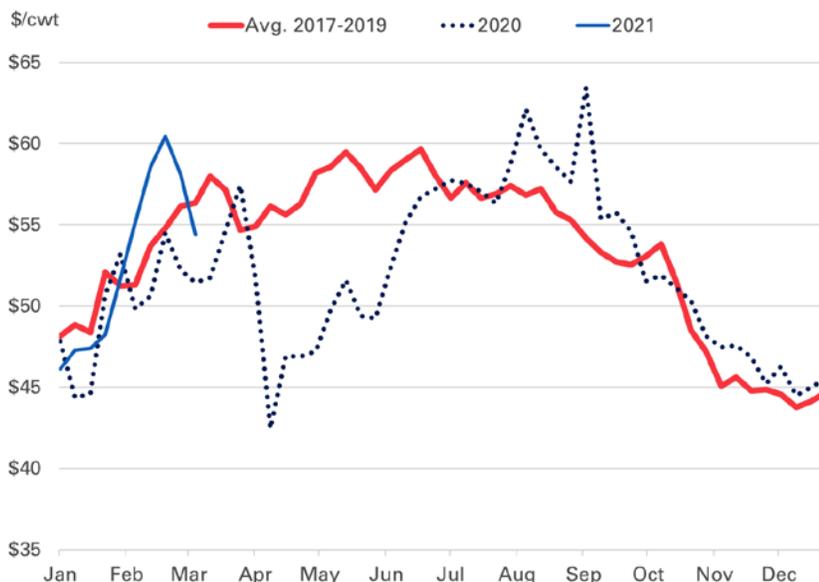
### Ground beef drives cull cow market

Wholesale lean beef trimmings prices best show consumer demand-pull for lean beef. Fresh 90% lean prices started the year 25 cents per pound lower than January 2020 levels. By March, they were 9 cents higher than a year earlier. These prices are similar to the values at the start of 2014, even though lean beef supplies are over 10% larger. On the live animal side, recent national, live equivalent, cutter 90% lean, slaughter cow prices averaged \$54.40 per cwt., up from \$51.46 a year earlier (Figure 2).

Cull cow price forecasts are much more limited than feeder or fed cattle price forecasts. USDA's Economic Research Service makes these forecasts. Cull cow values in 2021 are expected to be even lower than prices realized in 2020. An annual average of \$60.50 per cwt. is forecasted for 2021, with a second quarter average of \$62, third quarter average of \$64, and fourth quarter average of \$57.

These forecasts are pricing downside risk into cull cow values during the year ahead. Additional supply from larger slaughter rates and heavier carcasses and/or a weaker demand profile for ground beef would not be a good sign for cull cow values.

**Figure 2. Slaughter cow prices**  
National, live equivalent, cutter 90% lean



Data source: USDA-AMS-LPGMN, National Weekly Direct Cow and Bull Report - Negotiated Price (LM\_CT168)

Updates, continued from page 1

**Internet Updates**

The following [Information Files and Decision Tools](#) have been updated on [www.extension.iastate.edu/agdm](http://www.extension.iastate.edu/agdm):

2018 Farm Bill Payment Estimator by County for ARC-CO and PLC – A1-33 (Decision Tool)

**Current Profitability**

The following [profitability tools](#) have been updated on [www.extension.iastate.edu/agdm/info/outlook.html](http://www.extension.iastate.edu/agdm/info/outlook.html):

Corn Profitability – A1-85

Soybean Profitability – A1-86

Iowa Cash Corn and Soybean Prices – A2-11

Season Average Price Calculator – A2-15

Ethanol Profitability – D1-10

Biodiesel Profitability – D1-15

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