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Agriculture By the Numbers

December 2021

NDSU Extension Agribusiness and Applied Economics

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NDSU EXTENSION

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Backgrounding May Boost Profits for North Dakota Beef Producers

By Bryon Parman, NDSU Extension Agricultural Finance Specialist

2021 has been a strong year for crop prices across the U.S. as the major commodities including corn, wheat and soybeans have sustained much higher prices than years immediately preceding the pandemic. Additionally, North Dakota and much of the northern Plains spent much of the growing season of 2021 locked in a major drought.The combination of high crop prices and major regional drought has strained forage supplies at a time when feed costs were higher than they had been in recent years. This put a burden on North Dakota's beef producers where many were facing the choice to either haul expensive hay and grains to their operation and feed their cattle, ship their cattle to where forage and feed supplies were more available, or sell-off all or a portion of their existing cow herd.

With fall becoming winter in North Dakota, farmers and ranchers have asked what profitability looks like for those who may want to background calves.The first thought some may have is that backgrounding calves when feed prices are high cannot possibly generate a profit. However, feed prices are only one component of a set of several considerations when it comes to the profitability of backgrounding. Other major considerations are the value of lightweight calves, the value of heavyweight calves, the price difference between heifers and steers at similar weights, and the value of fat cattle. While other costs such as yardage, marketing, veterinary expenses and labor are also important, they are typically not as susceptible to the swings that cattle and feed/crop prices have, which can quickly impact overall profitability. North Dakota State University (NDSU) Extension evaluated six different calf backgrounding scenarios using November cattle and feed prices as well as NDSU's cattle backgrounding budget to evaluate the profitability of backgrounding calves from fall of 2021 to spring of 2022 (Table 1). Table 1 shows six different scenarios for backgrounding heifers and steers. The weight column shows the starting weight and the finished or sale weight. The ADG column shows the average daily gain (ADG) in weight in pounds for each scenario. The number of days on feed illustrates how

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long it will take to achieve the desired weight and the total and daily profits and losses are shown in the final two columns.

As would be expected, a higher ADG generally has a higher cost per day due to greater feed input. However, higher ADG's typically show greater profits as there are fewer days of yardage fees being accumulated.The fewer days that an animal is on feed, the risk of dramatic price changes is reduced as they are in the feedlot less time. Generally, backgrounding heifers tends to be more profitable than steers as the price gap between heifers and steers narrows from 500 to 800 pounds.For instance, the difference between heifers and steers at 550 pounds might be $20 per hundredweight with heifers being the lesser of the two, but at 800 pounds the difference might be within $5 per hundredweight. Closing this gap alone could add more than $100 per head in profits for heifers.

In general, backgrounding lightweight heifers up to 800 to 850 pounds is the most profitable, especially at 2.8 pounds of gain per day. Steers on the other hand require nearly 3 pounds of gain per day to be profitable with anything less than 2 pounds per day actually losing money.This is partially because of the strong 550 weight steer prices this fall as well as the eventual accumulation of yardage costs eating into profits when daily gains are less than 2 pounds per day.Feeding to finish at around 3.6 pounds per day also is profitable and will give the highest overall profit for steers since putting on weight is profitable right now. However, the profit per day in the finished steer scenario is lower due to the high value of both 800 to 900 weight steers and heifers. A full presentation on this topic detailing each assumption and scenario may be found online at: **www.ndsu.edu/agriculture/ag-hub/ag-topics/livestock/beef/production/backgrounding-cattle**

While a lot of attention is paid to feed costs as producers try and make decisions on backgrounding cattle, it is important to keep in mind that feed costs are only a component of many variables that impact profits. Other major considerations are the cost of light weight calves, the price of backgrounded calves, and price slide of heifers and steers.

The way these variables, among others, have evolved in the fall of 2021, backgrounding calves shows a strong possibility of being profitable for North Dakota producers. Especially with respect to heifers on a generous ration as both putting on weight and closing the price gap with steers collectively may result in around $100 per head additional revenue in a relatively short time.

Table 1: Six Calf Backgrounding Scenarios with Total Profit/Loss and Daily Profit/Loss

	Weight Range	ADG	Days on Feed	Profit/Loss	$/Day Profit
Steer	500-800	1.8	167	-$7.95	-$0.05
Steer	575-855	2.8	100	$65.04	$0.67
Steer	575-1275	3.6	195	$85.43	$0.44
Heifer	450-756	1.8	170	$36.18	$0.21
Heifer	550-850	1.8	170	$99.14	$0.58
Heifer	525-805	2.8	100	$101.07	$1.01

Another Look at Chinese Feed Demand

By Frayne Olson, NDSU Extension Crop Economist/Marketing Specialist

Strong U.S. export sales for corn and soybeans have been helping to support futures market prices and local basis levels in North Dakota for the past year. Near record-high hog prices in China and a rebuilding of their hog herd after the African Swine Fever (ASF) outbreak have been the driving forces behind this strong import demand for feed ingredients. However, a slowing Chinese economy and lower domestic hog prices are changing the outlook for Chinese imports of corn and soybeans.

Figure 1 shows the past five years of daily hog prices in Chengdu, China, located in a major hog producing province. Please note the dramatic increase in prices after ASF forced the processing of millions of Chinese hogs. The hog numbers were dramatically cut and herd rebuilding limited the number of gilts and sows available for processing, resulting in extremely high prices. Also note the recent drop in prices as the Chinese economy began to slow from COVID-19 and increased pork supplies entered the market. Falling hog prices, combined with increased feed costs, are pressuring profit margins for Chinese hog producers .

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Figure 1: Daily Hog Prices in Chengdu, China

Data from JC Intelligence Co. Ltd. accessed from Reuters-Eikon

Another Look at Chinese Feed Demand

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Figure 2 shows the U.S. Department of Agriculture (USDA) estimates for annual meat slaughter levels in the U.S. and China. The solid lines represent the amount of meat, by species, supplied in China, while the dotted lines show the pounds of meat slaughtered in the U.S.

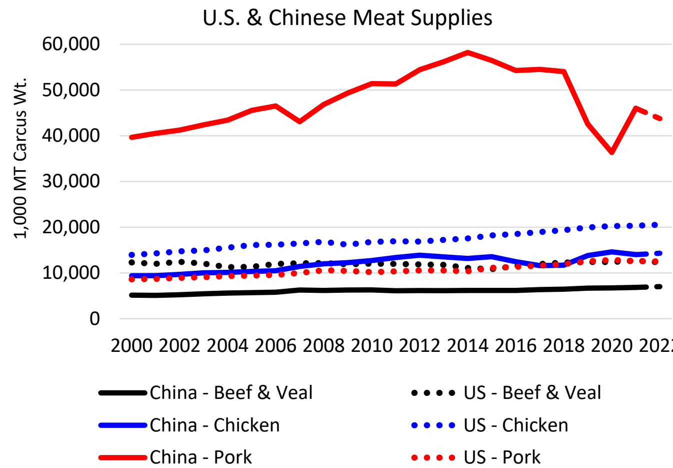
Three significant things stand out in Figure 2. First, the relative size of the Chinese pork supply, which was 4.5 times larger than U.S. pork supplies before ASF in 2018. The second is the dramatic reduction in pork slaughter from 2019 and 2020 due to ASF The reduction in Chinese hog slaughter from 2018 to 2020 is approximately 1.35 times larger than total 2020 U.S. pork slaughter levels. Finally, while the Chinese pork herd is rebuilding, the forecast for 2022 is still well below the pre-ASF levels. This is due to a combination of a slowing economy and lingering ASF outbreaks.

The smaller pork processing levels are being reflected in lower forecasted Chinese soybean and corn imports. Figure 3 shows the historical Chinese total imports of soybean and corn. Based on these figures, Chinese imports of soybeans have stabilized in the past two years and corn imports are projected to be slightly below the record levels seen in the 2020/21 marketing year.

Given record soybean production in both the U.S. and Brazil, near record corn production in the U.S. and projections for record 2022 corn production in Brazil, competition for exports into China are expected to be intense. In addition, very high ocean freight rates are increasing the cost of corn and soybeans delivered to Chinese ports.

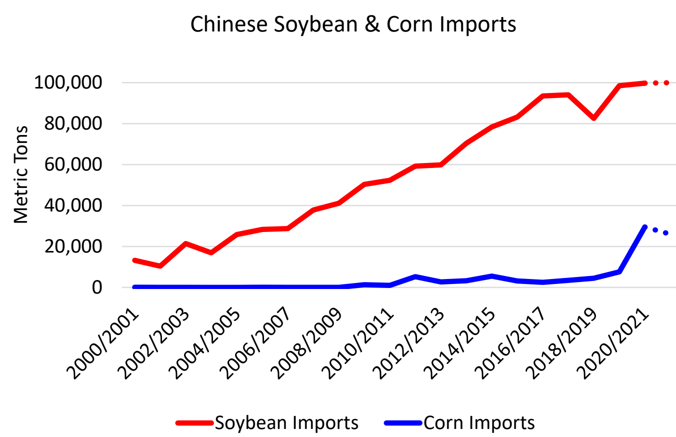
As of this writing, November 2022 soybean futures were trading at about $12.50 per bushel and December 2022 corn at about $5.50 per bushel. These futures market prices already have included the information regarding Chinese hog production and expected U.S. and Brazilian production levels. There is also a small risk premium built into the futures market prices because the size of the Brazilian crop is still unknown. Significant price increases are unlikely unless there are dramatic reductions in Brazilian soybean or corn yields, political tensions between China and Brazil restrict trade or Chinese meat production expands more rapidly than expected.

Figure 2: Meat Supplies by Species for the U.S. and China



Oct. 12, 2021 World Agricultural Supply and Demand Estimates & PSD Online custom query

Figure 3: Total Chinese Imports of Soybean and Corn



Dec. 9, 2021 World Agricultural Supply and Demand Estimates & PSD Online custom query

What Does USDA Say?

By Tim Petry, NDSU Extension Livestock Marketing Economist

Most days agricultural market news services refer to “according to the USDA…” or “USDA predicts…”. However, there are several U.S. Department of Agriculture (USDA) agencies that publish important livestock production and marketing information. Each agency has distinct responsibilities to provide different, unbiased information to all concerned.

The USDA National Agricultural Statistics Service (NASS) provides important supply related information.

Of major importance to the cattle industry are the semi-annual Cattle inventory reports published in January and July. Current and past reports are available at: **https://usda.library.cornell.edu/concern/publications/h702q636h**.

The January Cattle report provides a more detailed state-by-state breakdown, which allows regional comparisons and weather-related changes to be documented. The July report only provides total U.S. cattle inventory numbers.

The latest Cattle report released on July 28 reported the July 1 U.S. beef cow herd at 31.4 million head, down 2% from last year. That was the third straight year of liquidation from the 2018 cyclical peak.

NASS publishes an annual Sheep and Goats inventory report and quarterly Hogs and Pigs reports.

NASS also publishes a monthly Cattle on Feed report available at: **https://usda.library.cornell.edu/concern/publications/m326m174z**.

The Oct. 22 report showed cattle and calves on feed on Oct. 1 for the slaughter market down 1.4% from a year ago. September placements on feed were down 3% from last year as the declining beef cow herd results in fewer feeder cattle available.

The USDA Office of Chief Economist (OCE) publishes a monthly World Agricultural Supply and Demand Estimates report (WASDE) available at: **www.usda.gov/oce/commodity/wasde**.

The WASDE provides annual forecasts for supply use including exports and prices for major crops, oilseeds and livestock including cattle and beef, hogs and pork, and broiler chickens.

The November WASDE released on Nov. 9 forecasted record 2021 beef production at 27.88 billion pounds fueled by cleaning up the backlog of fed cattle from the pandemic in 2020, and high beef cow slaughter due to the drought. 2022 beef

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What Does USDA Say?

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production is forecast to retreat to 27 billion pounds with the smaller calf crops impacting slaughter numbers. Beef exports are projected at a new record high 3,455 million pounds in 2021.

2021 annual fed steer prices are projected at $122.56 per hundredweight up from last year's $108.51 per hundredweight pandemic-impacted prices. Fed steers for 2022 are forecast to continue the cyclical increase at $135.25, the highest annual price since 2015.

The USDA Economic Research Service (ERS) publishes a monthly Livestock, Dairy, and Poultry Outlook publication available at: **www.ers.usda.gov/publications/pub-details/?pubid=102399**

The report provides in-depth analyses of fundamental supply and demand factors affecting the U.S. and international markets for beef, pork, lamb, poultry and dairy products. Price projections from the WASDE are analyzed. Projected annual 750-800 pound feeder steer prices for 2021 at $144.80 per hundredweight are up from $135.45 in 2020. A further increase to $155.50 is forecast for 2022 with smaller supplies, which is the highest annual price since 2015.

Slaughter lamb prices for 2021 are predicted to be record high at $216 per hundredweight but decline to 208.75 in 2022.

The USDA Foreign Agriculture Service (FAS) publishes a quarterly (January, April, July, October) Livestock and Poultry: World Markets and Trade circular available at: **www.fas.usda.gov/data/livestock-and-poultry-world-markets-and-trade**

The circular analyzes the current situation among the major players in the world beef, pork and chicken trade. Top country summaries for production, consumption and exports are shown. The U.S. is the leading producer and consumer of beef and chicken in the world, and the second leading producer of pork only behind China. The U.S. is also the leading exporter of high-quality beef and pork, and second in chicken just slightly behind Brazil.

ERS and FAS jointly publish monthly U.S. livestock and meat trade data by country available at: **www.ers.usda.gov/data-products/livestock-and-meat-international-trade-data**

The latest report released on Nov. 5 confirms 2021 beef exports continuing at a record pace. Prior to 2020 China did not purchase beef from the U.S. But now China has rapidly moved up to our third best customer behind Japan and South Korea.

The USDA Agricultural Marketing Service (AMS) publishes weekly U.S. livestock auction market reports. North Dakota market reports are available for Mandan, Napoleon, Dickinson and a N.D. auction summary. Those reports are available at: **www.ams.usda.gov/market-news/feeder-and-replacement-cattle-auctions#North%20Dakota**

Current calf prices in the N.D. Summary are $30 per hundredweight higher than the previous two years.

The USDA Risk Management Agency (RMA) publishes Livestock Risk Protection (LRP) coverage prices, rates, and ending values for feeder cattle, fed cattle and hogs at: **https://public.rma.usda.gov/livestockreports/main.aspx**

RMA recently made changes to LRP including reduced premiums that make it much more appealing to farmers and ranchers. However, LRP for lambs has been discontinued.

So, what does USDA say? The cyclically declining beef cow herd will mean smaller calf crops and decreasing beef production for the next several years. That along with potential record beef exports will likely support 2022 cattle prices at the highest level since 2015. Lamb prices are expected to be record high in 2021 but decline slightly in 2022.