

Fed Cattle Flows: Demonstrative Scenario Examples

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As the meat-livestock sector continues to adapt to the situation presented by COVID-19 (novel coronavirus), a host of challenges around the ability to process market-ready animals have developed. One key component of understanding this situation is to consider the volume of market-ready cattle which may not be delivered during optimal marketing windows due to reduced operation rates in the beef packing industry.

The beef cattle industry has some flexibility to adjust cattle flows and timing at the calf and feeder cattle stages of production. The production and marketing windows for finished cattle are much narrower, as finished fed cattle are not readily storable. In a matter of days, market-ready cattle can go from having top market value to being over fed and over finished with often times a lower value. Maintaining the flow of fed cattle is imperative for not backing up the supply chain.

It is very challenging to project beef packing plant operating capacity in coming weeks. However, to provide context, this short report presents four demonstrative scenarios based upon currently available information.

Approach Overview and Economics of Market Currentness

There are two main sources of regularly reported information provided by USDA's National Agricultural Statistics Service (USDA NASS) that we utilize here—monthly Cattle on Feed (COF) reports and Weekly Slaughter Under Federal Inspection (FI) reports. The most recent COF report provides an estimate of feedlot inventories as of April 1, 2020. This combined with previous month's COF reports can be used to approximate the number of cattle which have been on feed over 150 days (yielding an estimate of cattle that ideally would be marketed in April) and over 120 days (estimate of cattle targeted for the combined April and May marketing window).¹ When one also presumes that 80% of cattle inventories are in feedlots with 1,000 or more head capacity², we approximate on April 1st the cattle on feed for over 120 days (150 days) inventory was 5.27 million (2.45 million) head.

¹ Although cattle on feed for more than 150 and 120 days is not published by USDA NASS in the Cattle on Feed report, it is easy to calculate using numbers from current and past reports. To do so, for cattle on feed for more than 150 (120) days, subtract the net placements figures from the previous five (four) months from the number of cattle on feed reported in the current month.

² USDA NASS monthly COF reports reflect feedlots with capacity of 1,000 or more head. In addition to the January monthly COF report, USDA NASS's biannual cattle inventory report, provides the cattle on feed inventory estimate for all feedlots.

Cattle on feed for over 120 days and over 150 days is useful when evaluating the currentness of cattle supplies in feedlots. Currentness refers to whether cattle are being marketed on a timely basis, or kept on feed longer. Keeping marketings current is generally positive to market prices. Currentness has implications, some short-run and some longer lasting, for price rebounds. Too many producers being forced to delay feedlot marketings can quickly cause an oversupply of both market-ready cattle and over-fed over-finished cattle and lead to an eventual market purge of heavy cattle at some point, which can drive prices down. It is important to remember that overall feedlot numbers are not burdensome; it is the supply of market-ready or near market-ready cattle that is burdensome relative to current slaughter capacity.

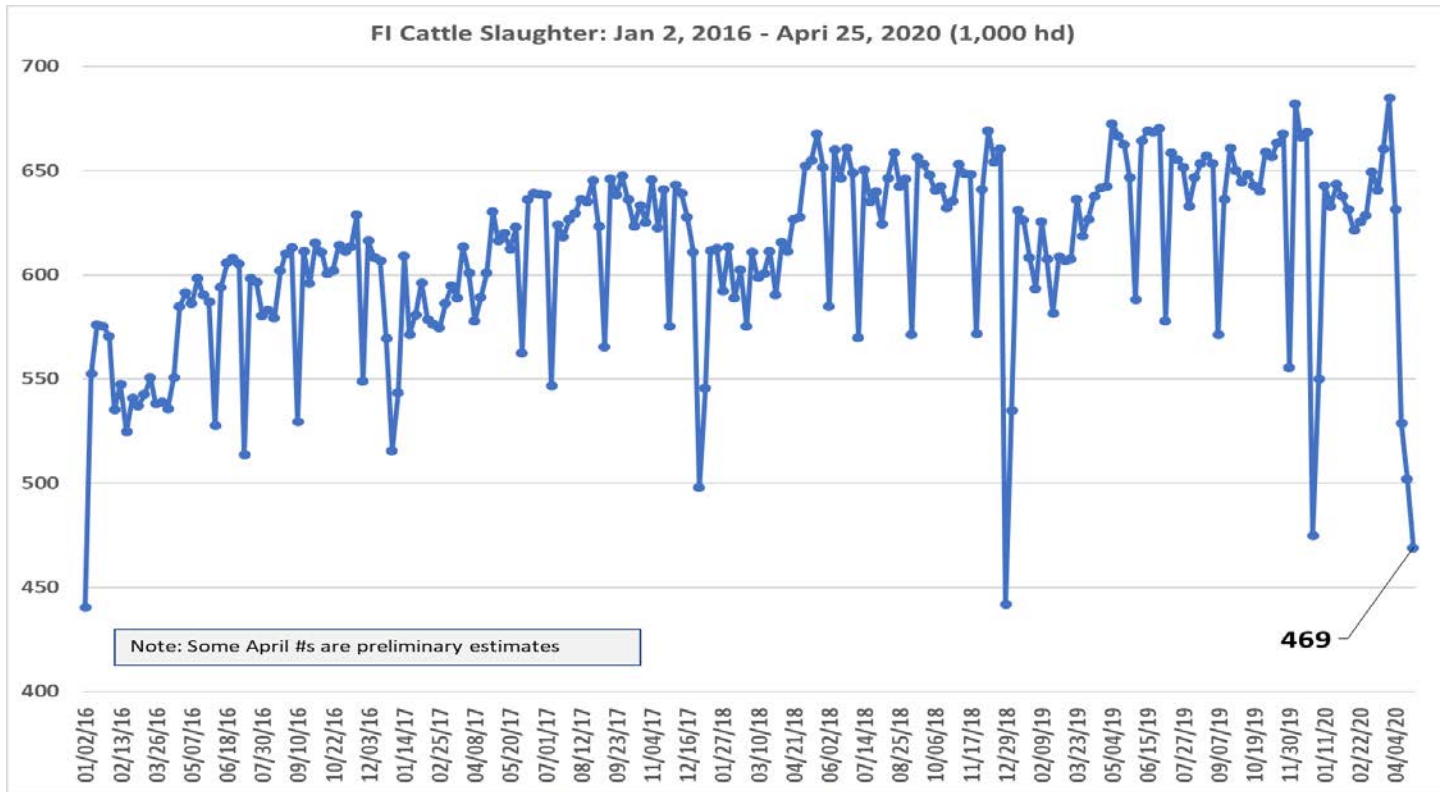
With delayed cattle marketings, a feedlot is also being compelled to trade animal performance on animals currently on feed for the costs of replacing inventories with new animals. Potential gains, if any, from this tradeoff are limited. Marketing cattle later will increase feed costs as total pounds of feed provided increases. Marginal cost of gain increases as cattle approach market weight. In addition to feed, interest and out-of-pocket yardage cost are also part of marginal cost. Marginal revenue is the change in income from marketing at a later time. There are additional pounds to sell, but heavier cattle may actually bring less if prices fall further while the cattle gain weight. Plus, carcass merit and value of the cattle can change with weight.

The FI slaughter reports provide estimates on the volume of cattle processed each week.³ It is these values in the coming weeks which are of central concern and are directly responsive to packing plant closures, slowdowns, and partial re-openings relative to the volume of market-ready cattle supplies.⁴ For the week ending Saturday, April 25th, cattle slaughter was estimated at 469,000 head. This was down 33,000 head or 6.6% from the same period last week and down 173,000 head or 26.9% from the same period last year. This is reflected in the following chart, showing weekly FI cattle slaughter since January 2, 2016. The unique current circumstances are highlighted by this past week's 469,000 volume being similar to holiday-shortened weeks.

The presumption of 80% is marginally conservative here estimates range from 17-20% over the last 20 years of the share feedlots under 1,000 head capacity represent.

³ FI cattle slaughter includes steers, heifers, dairy cows, beef cows, and bulls. FI steer and heifer slaughter averaged 79% of total cattle slaughter in 2019 according to USDA NASS's Livestock Slaughter Annual Summary report.

⁴ It also should be noted that initial, preliminary estimates are provided and later final, perhaps revised estimates are provided by USDA.



Demonstrative Scenarios

It is certainly beyond our ability to project the likelihood, duration, and extent of the collective beef packing and processing industry to operate at particular levels.⁵ Nonetheless, we consider here for demonstrative purposes, four example scenarios consistent with reduced beef packing plant capacity. For a historical perspective, May 2019 had four weekly FI cattle slaughter volumes over 645,000 head.⁶

- **Scenario 1: 450,000 head constant until May 30th**
- **Scenario 2: 425,000 head constant until May 30th**
- **Scenario 3: 450,000 head until week-ending May 9th and then 500,000 head until May 30th**
- **Scenario 3: 425,000 head until week-ending May 9th and then 450,000 head until May 30th**

⁵ Furthermore, packer capacity is not an average annual concept, it’s how close the industry is to capacity at peak harvest times. Peak fed cattle slaughter typically occurs in the summer.

⁶ May 2019 contained 23 weekdays (including 1 holiday) and 4 Saturdays.

Considering these four scenarios, the carryover of fed cattle on May 1st that feedlots would have intended to market in April ranges from 485,000 to 510,000 head reflecting the 25,000 head difference in presumed FI slaughter for the week ending May 2nd.

Demonstrative Possible May 1st, Fed Cattle Overflow Situations (1,000 hd)		
	<i>Scenario Description</i>	<i>Overflow</i>
Scenario 1	450k constant week-ending 5/2 to 5/30	485
Scenario 2	425k constant week-ending 5/2 to 5/30	510
Scenario 3	450k constant week-ending 5/2 to week-ending 5/9 and then 500k to 5/30	485
Scenario 4	425k constant week-ending 5/2 to 5/9 and then 450k to 5/30	510

Looking out across the month of May and these four scenarios, the carryover of market-ready fed cattle on June 1st ranges from 1.07 million to 1.34 million head reflecting differences in presumed FI slaughter for the next five weeks.

Demonstrative Possible June 1st, Fed Cattle Overflow Situations (1,000 hd)		
	<i>Scenario Description</i>	<i>Overflow</i>
Scenario 1	450k constant week-ending 5/2 to 5/30	1,219
Scenario 2	425k constant week-ending 5/2 to 5/30	1,344
Scenario 3	450k constant week-ending 5/2 to week-ending 5/9 and then 500k to 5/30	1,069
Scenario 4	425k constant week-ending 5/2 to 5/9 and then 450k to 5/30	1,269

Summary

This report aims to provide a timely overview to help guide the “fed cattle are stacking up” discussion. We have no concrete ability to project fed cattle marketings given challenges presented by COVID-19. It should immediately be appreciated that any positive developments that lead to increased and persistent operation of packing plants will reduce cattle carryover, backup, and related impacts—which is a scenario the entire industry would welcome!

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