

Cattle Industry's COVID19 Economic Damage Assessment

Glynn Tonsor (gtonsor@ksu.edu)

Kansas State University Department of Agricultural Economics – March 2020

This past week has presented one of the most challenging experienced for many throughout the nation, including the agricultural sector. To provide some context on economic impacts involved with COVID19 (coronavirus), this article presents two broad approaches for approximating damages incurred at this point for the U.S. cattle sector. While the current situation seems very likely to change in coming days, the goal of this report is to provide big-picture guidance on the extent of economic damage.

Approach 1

The Livestock Marketing Information Center (LMIC) has provided economic information concerning the livestock industry since 1955. The center is widely respected and utilized nationally by Extension personnel for a range of purposes, including projected prices. Here it is useful to compare LMIC's projected prices before the U.S. COVID19 experience, dated January 7, 2020, with those released this past week. As shown in table 1 below, calendar year average prices projected on January 7th were \$119/cwt for fed cattle, \$148/cwt for feeder cattle, and \$170/cwt for calves. Fast forwarding to this past week and LMIC now projects \$110/cwt, \$135/cwt, and \$159/cwt, respectively.¹ Presuming representative weights of 1,400 lbs, 750 lbs, and 550 lbs for each class this reflects a decreased sales value per head of \$126, \$98, and \$58 respectively for the year – with again much bigger effects occurring for sales during the second quarter.

Moving from damages per head to an economic impact estimate requires an inventory impacted number. USDA NASS estimated the total beef cow inventory to be 31.32 million head in their January Cattle Inventory report. If we approximate that for every 100 cows we ultimately have 92 offspring sold, this for a full calendar year would suggest that 28.81 million calves will be sold by the cow-calf sector. Proceeding forward presuming 2% death loss rates for subsequent sectors results in 28.24 million feeder cattle and 27.67 million fed cattle being sold subsequently.

Multiplying out these per head damage and volumes impacted approximations results in damage estimates of \$3.63 billion for those selling fed cattle (1,400 lbs), \$2.75 billion for those selling feeder cattle (750 lbs), and \$1.60

¹ Of course these annual average price changes mask the much larger effects that apply in the second quarter given COVID19 impacts are being realized at the conclusion of the first quarter.

billion for those selling calves (550 lbs). In sum, this implies a combined cattle industry damage estimate of \$7.98 billion dollars.

Table 1. LMIC Implied Per Head Damages

| <i>LMIC Price Projections: As of 3/19/20</i> | | | | | |
|--|------------|-----------|-----------|-----------|-----------|
| | Q1 | Q2 | Q3 | Q4 | YEAR |
| Fed Cattle, 1400# | \$ 117.00 | \$ 103.50 | \$ 107.00 | \$ 114.50 | \$ 110.00 |
| Feeder Cattle, 750# | \$ 140.50 | \$ 124.50 | \$ 129.00 | \$ 137.50 | \$ 135.00 |
| Calves, 550# | \$ 170.00 | \$ 149.50 | \$ 157.00 | \$ 164.50 | \$ 159.00 |
| <i>LMIC Price Projection As of 1/7/20</i> | | | | | |
| | Q1 | Q2 | Q3 | Q4 | YEAR |
| Fed Cattle, 1400# | \$ 124.00 | \$ 121.50 | \$ 113.00 | \$ 118.50 | \$ 119.00 |
| Feeder Cattle, 750# | \$ 145.50 | \$ 148.00 | \$ 148.50 | \$ 151.00 | \$ 148.00 |
| Calves, 550# | \$ 166.00 | \$ 169.50 | \$ 172.00 | \$ 171.00 | \$ 169.50 |
| <i>Implied Price Damage, Per Head</i> | | | | | |
| | Q1 | Q2 | Q3 | Q4 | YEAR |
| Fed Cattle, 1400# | \$ 98.00 | \$ 252.00 | \$ 84.00 | \$ 56.00 | \$ 126.00 |
| Feeder Cattle, 750# | \$ 37.50 | \$ 176.25 | \$ 146.25 | \$ 101.25 | \$ 97.50 |
| Calves, 550# | \$ (22.00) | \$ 110.00 | \$ 82.50 | \$ 35.75 | \$ 57.75 |

Approach 2

As an alternative approach, one can leverage the existence of feeder cattle and fed cattle futures contracts to obtain a damage estimate. Here, changes within the month of March, as of March 21st are considered.

The cow-calf sector is comprised of herds that sell calves either in the fall or spring, with perhaps 75% being spring calving/fall weaning operations. Hence considering price impacts for projected calf sales in April and October, given CME feeder cattle contracts exist for those months, is useful. The April and October feeder cattle contract settlements declined by \$15.55/cwt and \$20.23/cwt between March 2nd and March 20th. Presuming representative, 550 lb calves are worth 1.17 times the value of animals in the CME Feeder Cattle Settlement Index², this indicates per head damages of \$100.06 for those to be sold in April and \$130.18 for October. Given predominance of spring

² To-date in 2020, USDA AMS reported 5-600 lb calf prices in KS were 17% higher on average than the CME Feeder Cattle Settlement Index.

calving, the more frequent calf sales of October leads to a sector-wide estimate of \$122.65 per head. Using the above noted 28.81 million calves to be sold estimate, results in a calf seller damage estimate of \$3.53 billion.

Unlike calves, 7-800cwt feeder cattle are sold more throughout the year given the array of backgrounding and stocker sector enterprises that add weight to calves before they ultimately are placed into feedlots. Accordingly, it is more appropriate to average the April and October feeder cattle contract settlement changes in assessing damages for feeder cattle sellers. Presuming representative, 750 lbs this results in per head damages of \$134.18. Using the above noted 28.24 million head to be sold estimate, results in a feeder cattle seller damage estimate of \$3.79 billion.

To consider damage to the feedlot sector it is worth noting the animals on feed, that may not have been marketed before this event. To approximate this, the USDA Cattle on Feed estimated placement of 12.16 million head spanning September 2019 through February 2020 can be used. Per head damages can be approximated by averaging the decline in April and August CME fed cattle futures prices between March 2nd and March 20th. This amounts to per head damage of \$174.48. Combined, this suggests a fed cattle seller damage estimate of \$2.12 billion. In sum, this implies a combined cattle industry damage estimate of \$9.44 billion dollars.

Summary

Nobody would doubt that recent market developments have resulted in substantial economic loss for the U.S. cattle industry. This fact sheet is comprised not to be the most accurate and final-say on these economic losses, but rather to provide a timely broad approximation for context as the industry proceeds forward. Actual losses will certainly vary widely across operations within each industry sector. In the future with the benefit of hindsight, more refined assessments will be feasible and are accordingly encouraged.

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K-State Agricultural Economics | 342 Waters Hall, Manhattan, KS 66506-4011 | (785) 532-1504 | Fax: (785) 532-6925

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