This past year saw the beef cattle industry begin to bounce back from the COVID pandemic and the subsequent implications on supply and demand. Although the cattle market continues to deal with burdensome levels of market -ready finished cattle, strong consumer demand has kept a floor on fat cattle prices. Decreasing feeder cattle numbers, coupled with strong consumer demand for beef, has kept feeder cattle prices relatively high given the high feed costs and lower than expected pen space availability. As the industry prepares for 2022, concerns regarding high feed prices and the impacts on feeder cattle and fed cattle prices remain relevant.

## Drought

The northern plains and western third of the United States saw increasing drought conditions through August. Although September has seen some relief for areas of Wisconsin, Minnesota and Iowa, the USDA reported topsoil moisture was at least one-third very short in all midwestern states except Wisconsin, which had only 11% rated as very short. Lingering impacts from summer drought has left 63% of Minnesota's pastures in very poor to poor condition as of September 12. Wisconsin's pasture condition was rated at 60% good to excellent.

The seven states with 50% of the nation's beef cows that calved in 2020 have varying percentages of pasture conditions rated as poor or very poor. For example, Missouri and Oklahoma have only 9% and 19%, respectively, of pastures rated poor or very poor, while Montana and South Dakota have 88% and 81% of pastures rated poor or very poor.

## Herd size and cycles

Cattle cycle length is measured by comparing peak (or trough) cattle inventory to peak (or trough) cattle inventory. Cycles can last from 4 to 18 years, with the average at just over 12 years. Each cycle has different phases: a liquidation phase, where cattle numbers decrease, and an expansion phase, where cattle numbers increase. The most recent cattle cycle began expansion in 2015, following 7 years of contraction. The industry began contraction in 2019 with modest liquidation; however, the 2021 drought has accelerated liquidation. Areas hit hardest by the drought are seeing greater liquidation. How large this liquidation will be isn't currently clear and won't be known for certain until 2022. Nonetheless, the sale of lower weight feeder cattle, and percentage of heifers sold helps indicate the extent of liquidation.

For the August to September 17 time period, the percentage of feeder cattle sold weighing less than 600 pounds increased to 60% compared to 59% for the same period in 2020. The relative increase in marketings of animals weighing less than 600 pounds indicates early weaning, which is a common practice in drought years. Additionally, the larger volumes of lighter animals being marketed are in northern and western regions of the country, where the drought has hit hardest and forage is limited.

The percentage of heifers in USDA's feeder cattle sale reports, sold through auctions, direct sales, and video sales, from August through September 17 is higher this year than 2020. Heifers sold through all venues during this time period were 40% of receipts versus 38% in August 2020. Video and internet sales saw significant increases in heifer sale percentage for this time period, increasing form 35% in 2020 to 38% in 2021. This seven week time period saw the percent of heifers sold that was greater than those seen in the previous drought year of 2012 and similar to those seen in 2010 and 2011. The increase in heifers being sold into the meat supply chain as opposed to being used as replacements is especially seen in the north and west. The increase in heifers being sold is an indication that pastures are exhausted, and hay prices are too burdensome to maintain the herd size.

Regional hay prices also communicate a part of the drought story. California and Oregon hay prices are over \$220 per ton, with some trading close to \$300 per ton. Prices decline when moving further east and south, with areas in the Southeast seeing hay below \$100 per ton. South Dakota saw prices of \$160 per ton for grass hay, while Wisconsin is seeing prices between \$91 and \$131 per ton for Grade 2 and 3 hay.

Although the cattle industry is currently in the liquidation phase of the cycle, and the typical cyclical price pattern would be to expect increasing feeder cattle prices over the next few years, the heightened liquidation will increase the short-term supply of feeder cattle effectively creating a short-term ceiling for prices. On the other hand, the smaller calf crop that has occurred since 2019 will create a price floor for feeder cattle. Where will prices gravitate? As of September 12, calf prices have not seen significant price pressure as Iowa 500-to-600-pound calves sold for around \$180 through most of August and into September. Lighter calves weighing 400-to-500 pounds were still higher in August and early September than they were in June and averaging above \$190 per cwt. in Iowa. Current prices suggest feeder cattle prices will stay toward the top of the price range.

## Cattle slides

Calf movement will continue to increase over the next few weeks as the fall run picks up pace. As the calf run increases, the question to consider is what weight calves cattle feeders should buy. Relative weights are the largest