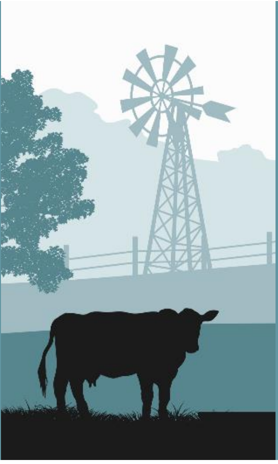

Cattle Markets, Price Discovery, and Emerging Issues

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Examining Fed Cattle Negotiated Trade Targets

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In an effort to voluntarily increase negotiated trade volume, the cattle and beef industry developed the 75 Percent Plan. This work evaluates the probability that the industry will successfully comply with the rules set forward in that plan and reviews the industry's performance to date.

Negotiated Trade Historic Performance

USDA groups fed cattle sales into negotiated and non-negotiated trades. Negotiated sales include negotiated cash and negotiated grid. Negotiated trade is defined as having a price determined through a bid and ask, with cattle scheduled for delivery to a plant within 30 days of the agreement. Non-negotiated fed cattle sales, also called alternative marketing arrangements (AMAs), include formula sales, non-negotiated grid sales, and contract sales.

Negotiated trade (i.e., the spot market) contributes to price discovery, the means through which an asset's price is set (discovered) by matching buyers bids and sellers asks according to a price. Prices are set in other ways in non-negotiated trades, like plant average price, a USDA Agricultural Marketing Service (AMS) regional price, or a futures price. There is not a bid and ask to negotiate price. Research has identified a significant relationship between historical cash market volumes and the strength of price discovery in each AMS regional market.

Since USDA begin recording the use of AMAs in fed cattle marketing, their share of total transactions has increased rapidly; in 2020, approximately 75 percent of fed cattle were marketed using AMAs. The greatest growth in the use of AMAs occurred in the Texas-Oklahoma-New Mexico (TX-OK-NM) area, where in 2020 approximately 89 percent of fed cattle were marketed using AMAs. A large share (80 percent) of fed cattle marketed in Kansas were also marketed using AMAs. As AMAs do not contribute to price discovery, the increased use of these tools has given rise to concerns in the cattle industry over market power, true price discovery, and market manipulation.

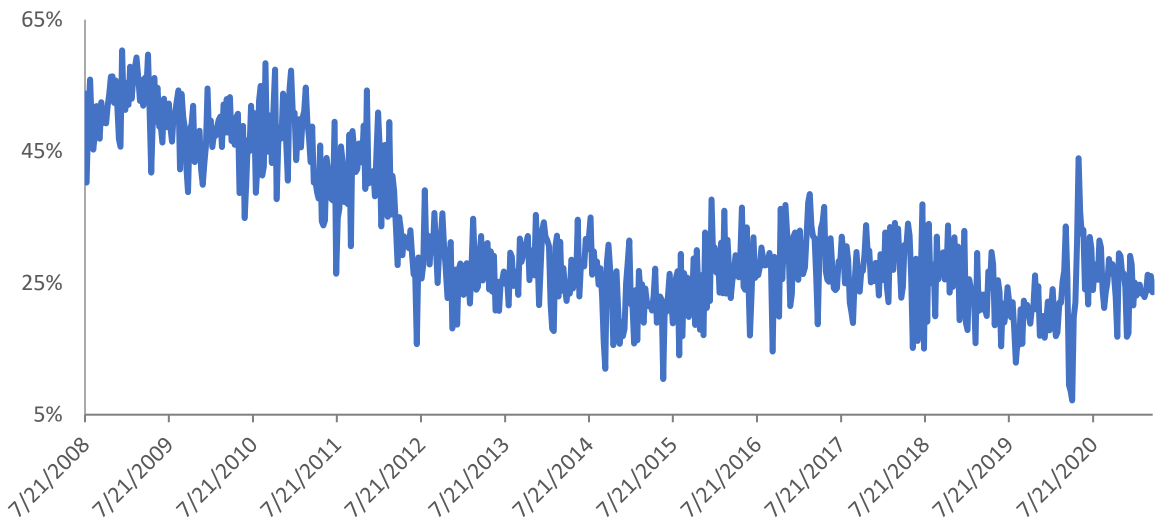

Figure 1: Five Area Direct Slaughter Cattle Negotiated Sales Volume as a Percent of Total Sales Volume

The 75 Percent Plan

In response to concerns about declining negotiated trade volumes, the cattle and beef industry developed the 75 Percent Plan. Under the voluntary 75 Percent Plan, each region is expected to trade 75 percent of the negotiated volume, as defined by measurements developed by Dr. Stephen Koontz, needed to meet robust price discovery in a given week. Each region must achieve these volumes 75 percent of the weeks in a quarter, i.e., 10 weeks or more. Dr. Koontz's work establishes volumes of cattle needed to be sold on a negotiated basis in each region to achieve minimum and robust price discovery.

Table 1 lays out the estimated volume of negotiated trade needed each week in each region to achieve robust price discovery. Table 1 also provides NCBA's 75 percent of robust trade threshold. Failure to meet the obligations outlined in the 75 Percent Plan in a given quarter in a given region constitutes a minor trigger. Three or more minor triggers in the same quarter constitute a major trigger; though this study focuses on the feeder side of fed cattle marketing, the packer industry may also trip minor triggers. Two major triggers in a rolling set of four quarters will result in the NCBA Live Cattle Marketing Working Group recommending legislative measures to increase negotiated trade.

Table 1: Estimated Minimum Negotiated Trade Volumes to Achieve Robust Price Discovery

Negotiated Volume to Achieve:	TX-OK-NM	KS	NE-CO	IA-MN
Robust Price Discovery (Head/Week)	13,000	21,000	36,000	16,000
75% Robust Price Discovery (Head/Week)	9,750	15,750	27,000	12,000

Model/Simulation

This study evaluated the likelihood that each feeding region, and subsequently the nationwide cattle feeding sector, will be able to comply with the 75 Percent Plan. Using the Microsoft Excel plugin SIMETAR, a simulation of the plan using historic weekly AMS data forecast 500 distinct outcomes stochastically varying key variables. Trade volumes were indexed to historic volumes to account for seasonality and to account for documented negotiated volume changes up to mid-2021 as a result of the 75 Percent Plan. The trade volumes were subject to the 75 Percent Plan and probabilities of 'passing' or 'failing' the plan were collected.

Forecast and Performance to Date

The forecast of negotiated trade volumes yielded several important results. First, TX-OK-NM and Kansas are the regions most at-risk for tripping minor triggers in a given quarter. As of June 2021, TX-OK-NM had, on average by quarter, the highest probability of tripping a minor trigger. Second, the forecast revealed the quarters most at-risk for tripping minor triggers. As of June 2021, the data suggest that Q3 is the most at-risk quarter for tripping minor triggers; it is the most at-risk quarter for Kansas and the second most at-risk quarter for TX-OK-NM. A third key finding is that, on its own, the cattle feeding sector is highly unlikely to trip enough major triggers to cause legislative action. There is only a 3 percent chance of legislative action being pursued solely due to the cattle feeding sector.

Though it is unlikely the cattle feeding sector would trigger often enough to cause legislative action, TX-OK-NM and Kansas are much more likely (30-40 percent) to simultaneously trip minor triggers. This then means that tripping a single packer silo trigger in one of those quarters would constitute a major trigger. Given the lack of structured rules for the packer silo, evaluating the industry-wide probability of success is not possible, however, considering the probability of a simultaneous minor triggers in TX-OK-NM and Kansas and a theoretical 50/50 (unknown) outcome for the packer silo, as of June 2021 there was approximately a 49 percent chance that the industry will fail the rules of the 75 Percent Plan by Q4, 2025.

As of December 1, 2021, the cattle feeding sector tripped only one major trigger, during Q1, 2021. After Q1, negotiated cash and negotiated grid transactions increased to the point that no minor triggers were tripped during Q2 or Q3, with TX-OK-NM and Kansas both meeting 75 percent of the minimum necessary for robust price discovery 22 of 26 weeks during Q2 and Q3.