



# Cattle Markets, Price Discovery, and Emerging Issues

PD-2022-01

January 2022

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## Alternative Marketing Agreement Use and the Supply/Demand Balance in the Fed Cattle Market

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Alternative Marketing Agreements (AMAs) have historically been referred to as “captive supplies.” This was a label heading used in a USDA Grain Inspection Packers and Stockyards Administration publication where the activity was first reported. The term stuck and also took on the implication that cattle were under the control of the packer. But in this sense, “captive supplies” is an inappropriate description: fed cattle marketed through AMAs are not controlled by the packer. AMA cattle are committed to the packer in mainly a contractual relationship where the animals are valued based on a formula. However, feedlots control the marketing of formula animals. Feedlots determine the week the animals will be slaughtered, and the packer only then determines the day of the week. The primary reason for this is that most formulas have a premium/discount structure for meat quality. Marketing cattle early would result in lost premiums and pounds sold while marketing the cattle late would result in substantial discounts to the cattle owner. Ongoing communication between the feedlot and packer keeps the packer informed about placement and feeding performance of animals in anticipation of future AMA marketings, part of the arrangements that help both feedlots and packers manage the total volume and variability in the timing of marketings (which are particularly impacted by feeding performance as related to weather).

The prices for both negotiated cash and formula priced cattle are, after adjusting for quality, equivalent for all practical purposes. Both sides of formula arrangements forego the negotiation of the base price. Both sides want to trade fed cattle, and both sides express a clear interest in having that trade take place at the market price. This has been repeatedly communicated in interviews with both cattle feeders and packing entities: their interest is in trading cattle “at the market.”

The markets for formula and negotiated cash cattle are not separate markets. The base price in market formulas is similar, if not equivalent, to the negotiated cash price. USDA Agricultural Marketing Service reported negotiated cash prices for the region where the arrangement is in place are commonly used as the base price in AMA formulas. The main common practice is to use the prior week’s average negotiated cash price for the region (e.g., TX-OK-NM, Kansas, or Nebraska) as the base price. The prior week price is known when animals are shipped the current week. The structure of premiums and discounts within the grid are negotiated but relatively infrequently. Premiums and discounts may be determined by the product end market – USDA Quality Grade or Yield Grade – that is being targeted by the packer. Base price arrangements have changed over time. Early formulas used a plant-average

price paid by the packer. Packers were willing to trade cattle through a formula at the value at which that packer was securing all other negotiated fed cattle purchases for the plant to which the cattle were sold. Over time, formulas have transitioned to using the USDA AMS reported price.

Opponents of AMAs and some academics often use the following argument to illustrate the potential negative impact of AMAs on the negotiated cash market. Supplies of captive cattle allow the packer to refrain from bidding in the cash market, thereby reducing demand in the cash market and depressing cash prices. This argument has been used with policy makers and in legal settings to support a mandate for negotiated cash trade and claims for damages. It was one of the arguments in the *Picket v. Tyson Fresh Meats* from 2004. *But this is an incomplete argument as it ignores the supply side of the market.* If the packer does not have to bid on cattle procured through an AMA, then it also is true, and on a one-for-one head basis, that the cattle feeder does not have to offer those AMA cattle for sale. AMAs do not change market fundamentals – that is, they do not change the total supply nor total demand within the entire market or region. AMAs only change the channel in which animals are marketed.

Table 1 attempts to illustrate how to think about AMA cattle in a manner accounting for both the demand and supply side of the market. The top three rows, after the row headings, are the feedlot sector's availability of animals from an illustrative region. Round numbers are used for simplicity. In the first column, the cattle feeding sector in this region has 100,000 head of fed cattle available in a given week. Cattle feeders will market 40,000 head through formulas and 60,000 head through negotiated cash trade. The last three rows are the packing sector's needs for a given week in this example region. Also, in the first column, the packers need 100,000 head and by definition will procure 40,000 head through formula and 60,000 head through negotiated cash. It is by definition because the transaction methods are agreed upon and used by both the cattle feeding businesses and packing businesses. Whatever the packers' formula purchases are, they must match the formula marketings from feedlots. Formulas cannot be used to depress demand as formula cattle are also pulled from feedlot availability.

The first column illustrates a low-AMA scenario, and the second column illustrates a high-AMA scenario. The total availability of cattle is the same – 100,000 head. In the second scenario, packers procure 80,000 head per week through formula and the cattle feeders will market exactly that amount through formula. The remaining purchases are 20,000 head through negotiated cash trade. In these two scenarios, the market is in balance, as the availability of cattle from feedlots is equal to packer needs. This illustrates that AMA use does not change market fundamentals. High versus low AMA use does not create a disadvantage or advantage for either buyers or sellers.

The issue in understanding any impact emerges when supply and demand are out of balance. This is when cattle availability is low relative to packer demand or when cattle availability is high relative to packer demand. These two examples are illustrated in the third and fourth columns. In the third column, the packer has incentives to purchase 100,000 head that week, but only 90,000 head are available. Competitive pressure across packing firms would likely cause one or more packers to bid aggressively to secure a larger portion of 10,000 head that is available to satisfy a demand for 20,000 head. This scenario is similar to the actual fed cattle and beef market conditions in many years prior to 2016. Formula use was high and the demand for the remaining cash cattle was aggressive. That period was characterized by excess capacity in the packing industry along with increasing returns to size. Packers bid aggressively for cash fed cattle, and this impact spilled over into the valuation of formula cattle. In that period, it was perceived the cattle feeders had market leverage. The key point is that

high or low use of AMAs does not create this market scenario or the leverage. It is the supply/demand imbalance.

The same argument holds for the excess supply scenario in the fourth column of Table 1, but who benefits from the situation is reversed. This is a reasonable facsimile of the fed cattle and beef market since late 2016 and early 2017, and certainly through 2020 and 2021. The packer has incentives, or limitations, to purchase 100,000 head that week, but 110,000 head are available. There is little competitive pressure across packing firms and cattle can be secured with relative ease. Further, it is likely there would be additional formula cattle, for example, 90,000 head per week. Formula cattle are valued no differently than cash cattle. The negotiated USDA AMS regional price is most often used as the base. In the end, it is not the AMAs that create leverage for the packer, but it is that more cattle are available than are needed. The cause of the issue is this supply/ demand imbalance, not the use of formulas. In this market environment, more animals are available from cattle feeders than are needed, or recently can be processed, by packers. Cattle prices have to be lowered and packer margins increased so as to encourage the processing of the excess supplies through longer plant shifts and additional shifts per week. It is possible that negotiated cash trade feedlots may go weeks without a bid in this environment. But the problem is not how the available supply is split across marketing methods. Rather, the problem is that there are more cattle for which there is demand or more cattle for which can be processed in a given week.

**Table 1:** An Illustration of How Variation in AMA Volumes Do Not Impact Cattle Market Fundamentals.

	Low AMA Volume	High AMA Volume	Excess Fed Cattle Demand	Excess Fed Cattle Supply
Feedlot Availability:	100,000	100,000	90,000	110,000
Formula	40,000	80,000	80,000	90,000
Cash	60,000	20,000	<b>10,000</b>	<b>20,000</b>
Packer Needs:	100,000	100,000	100,000	100,000
Formula	40,000	80,000	80,000	90,000
Cash	60,000	20,000	<b>20,000</b>	<b>10,000</b>

This discussion helps address the question of AMA use and market power. It reveals, at least in part, why the impact of AMA use on fed cattle prices are found to be small in the research literature. AMAs do impart a cost on fed cattle markets, but it is not power related. The cost is related to the provision of information. The marketing of fed cattle through AMAs makes use of the price information discovered by those who negotiate in the cash market. Formulas are almost always based on a USDA AMS price reported in one or more of the five major regional markets. Likewise, forward contracts make use of basis information – the spread between cash and futures prices – where the underlying cash price is a USDA-reported price. Forward contracts are the other main AMA used in the cattle industry. Finally, almost all cattle feeding operations benchmark transactions against some reported USDA AMS price. Price discovery and the information provided through that process is a *public good*. (A public good is an economic phenomenon and not a description.) The many marketing methods that do not use the cash market make use of information provided by that process. Price discovery is work. Users of AMAs avoid that work. Users of AMAs make use of cash price information – saving the cost of negotiating as well as

the cost associated with the risk of the negotiation failing – and contribute little. This is the tragedy of the commons, and it is a market failure. However, market failures in the provision of information are very common and certainly not at all unique to fed cattle markets.

Public goods are underprovided in a market economy – this is the case with negotiated fed cattle cash price information – and it is made worse by AMAs. But the issue is not that the market failure exists. Under-provision of public goods is more or less a tautology. The examples of portions of our economy and society that benefit from the benevolence of others – without payment – are substantial and numerous. The issue at hand is whether or not the remaining and resulting cash market transactions are accurate. Are the transitions that take place in the resulting thinned cash market biased or inefficient? Are the resulting transactions systematically incorrect? There is no research-based evidence of this. Such a result cannot be concluded from in the scientific literature. Changes to marketing institutions that could improve market function – and also limit market power – are possible, but such changes would need to be more sophisticated than volume mandates.

The conclusion offered here is that AMAs do not create market power or price distortions, almost by definition, because AMA use does not change supply and demand fundamentals, nor do AMAs change control in the transaction process. AMA use does not create or dissipate leverage in market price negotiation – relative supply and demand does. AMAs do and only impact the provision of information, but there is no evidence that the resulting prices are somehow wrong. Market participants need to work to improve market function, but efforts to do so must maintain balance between innovation, cost-savings, efficiency, knowledge, and mandates. Changing the level of AMA use will not improve market prices for cattle producers, nor would it change the supply and demand picture; but it does have the potential to disrupt efficient operations and make market outcomes worse for producers.

Price discovery as about prices adjusting quickly to new market conditions – and that may be higher prices or lower prices. Some of the highest cattle market prices in history have been when the negotiated cash trade was the smallest. This is because of the supply/demand imbalance and not AMA use. Likewise, low cattle prices are due to the supply/demand balance or imbalance and not due the path by which cattle are marketed. Mandating levels of negotiated cash trade would not have changed the supply/demand imbalance in the 2020-21 period.

While it should be clear that AMA use does not impact fundamental supply and demand conditions in the fed cattle market, it should also be clear that valuing a week's worth of fed cattle transaction based on a very small number of animals that are actually negotiated is not without potential problems. The market power question (and potential problem) that has been the focus of so much recent discussion and debate within the industry is not the same as the question or problem of how thin is too thin in the fed cattle negotiated cash market. The discussion needs to move into determining how thin is too thin? This should be done in the context of objective measures of price discovery. This is a researchable question. It could also be addressed, in part, through communication within the cattle feeding and packing industries. Participants in today's fed cattle markets have an understanding of how thin is too thin – of how many cattle need to be traded for effective price discovery – and have considerable insight to offer solutions as an alternative to mandates. These ideas and alternatives should be explored.