

Summary: Price Risk Management Contributions to Economic Sustainability in the Cattle Industry

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Sustainable beef production is categorized into environmental stewardship, economic opportunity and social diligence. By this definition, everyone within the beef value chain has a role to play in enhancing sustainable beef production. Environmental and social sustainability are probably the most familiar among the public. However, economic sustainability in the beef cattle industry is equally important. In general, economic sustainability is a farm's capability to survive and thrive over time. Thus, improving economic sustainability on an individual operation will not only influence the producer but also the surrounding community.

Cattle producers manage many forms of risk, but price risk has become prevalent due to events such as the Tyson Finney slaughter facility fire in 2019 and the COVID-19 pandemic in 2020. Several researchers have evaluated the effectiveness of tools to mitigate price risk (Burdine and Halich, 2014; Hall et al., 2003; Hill, 2015; Williams et al., 2014), but producers have been reluctant to adopt such tools (Hill, 2015). Providing cattle producers with information on how to utilize price risk management tools could contribute to producers making economically sustainable decisions and reduce the impact of economic shocks. The specific objectives of this paper are to:

1. Determine the positive attributes of currently available price risk management tools for beef cattle including futures contracts, options and livestock risk protection insurance;
2. Determine the attributes of currently available price risk management tools that lead to non-use or fail to mitigate risk; and
3. Provide discussion from producers about ways to improve risk management tools and strategies for cow-calf and stocker producers.

In order to achieve the stated objectives, a thorough literature review of price risk management research for cattle was conducted as well as focus group meetings with cattle producers in Tennessee. This publication summarizes the findings of those efforts while two companion publications detail the literature review and the cattle producer focus groups.

Though it is not an exhaustive list, Table 1 (next page) summarizes the attributes that lead to use and non-use of price risk management tools in the cattle industry given research findings and Tennessee cattle producer feedback.

Table 1. Summary of attributes leading to use or non-use of price risk management tools by cattle producers.

	Positive attributes	Attributes leading to non-use
Futures	<ul style="list-style-type: none"> • Can be used to lock in a profit • Initial cost is only commission • Can exit position at any time 	<ul style="list-style-type: none"> • Subject to large margin calls and thus capital intensive • Does not allow for gains if the price moves in an advantageous direction • Difficult to understand how the local cash price corresponds to the futures price (basis) • Contracts are not available for every month • Contracts for feeder cattle are too large for producers selling less than 50,000 pounds
Options	<ul style="list-style-type: none"> • Provides upside price potential when selling (i.e. put option) and downside price potential when buying (i.e. call option) • Flexible from the aspect that the position can be exited at any time • Can offset some costs with advanced methods 	<ul style="list-style-type: none"> • Expensive way of setting price floor or ceiling • Difficult to understand how the local cash price corresponds to the futures price (basis) • Contracts are not available for every month • Contracts for feeder cattle are too large for producers selling less than 50,000 pounds
LRP	<ul style="list-style-type: none"> • Idea of insurance is easy to understand • Exact value being protected is known and at an exact cost • Contract size is flexible • Contracts can be purchased for every month 	<ul style="list-style-type: none"> • Lacks flexibility in that the position cannot be exited after purchase • Difficult to obtain contract on the specific day cattle will be marketed • Expensive method of setting price floor

Sustainable Price Risk Management

It may be difficult to effectively utilize price risk management tools such as LRP, futures and options in the early stages of production since production is uncertain. Many cattle producers begin to manage price risk when they have a good idea of the number of cattle they will have to sell and a good estimate of sell weight. In other words, producers tend to start managing price risk when cattle are near the time of being sold. For example, stocker operators rarely manage price risk from the selling standpoint prior to purchasing cattle and a cow-calf producer might not use price risk management tools until calves are born and near being marketed.

However, U.S. cow-calf and stocker producers have made a long-term investment into land, pastures, facilities, fences and other inputs. Cow-calf producers have also made the investment into breeding livestock. Thus, these short-term price risk management strategies and tools likely do not provide producers with risk protection they need to remain economically sustainable in the long run. For example, cow-calf producers face particularly high risk due to the costly investments made in breeding livestock being very sensitive to changes in prices. This can significantly impact the long-term profitability of their operations. Stocker operators (cattle producers who purchase animals and grow them for 60 to 180 days) also face considerable marketing risk if markets move violently during the time they own the cattle. Producers must make investment and culling decisions considering the long-term price variability, but they really only have tools and strategies for short-term price risk management. The U.S. cattle production system results in many producers only managing price risk for a short period within a year (less than four months) and these periods change across production systems and regions.

In the case of COVID-19, stocker producers who have not purchased stocker cattle have the flexibility to not procure stocker cattle and skip their production. However, this would hurt their economic sustainability by eliminating cash flow needed to service debt and cover expenses. Additionally, if stocker producers were to decide to not purchase cattle or to purchase fewer cattle, prices for cattle being sold into the stocker segment

would decrease due to reduced competition. This would have a negative impact on the economic sustainability of cow-calf producers. A cow-calf producer, for example, who has pregnant cows and calves being born may be significantly affected by the reduction in value when prices drop. Providing stocker and cow-calf producers with a long-term price risk management tool would benefit these producers in making more profitable expansion and replacement decisions. This would also help them keep operating during economic shocks. Currently, the risk management tools offered to producers only provide price floor options for a select few producers.

It is clear that beef cattle producers face many challenges in providing consumers with the high-quality beef they enjoy. For the beef industry to sustainably operate in the future, innovative solutions must be developed to meet these challenges. This literature review seeks to take the first step to address some of the economic challenges that affect producers. By investigating previous research in price risk management, the positive and negative attributes as well as the effectiveness of currently available price risk management tools were examined. Furthermore, producer focus groups allowed real time feedback to be collected from those that are directly impacted by these challenges and risk management tools.

Companion Publications

Griffith, A.P., C.N. Boyer, I. Kane. 2022. Literature Review: Price Risk Management Contributions to Economic Sustainability in the Cattle Industry. University of Tennessee Extension Publication W1097-B.

Griffith, A.P., C.N. Boyer, I. Kane. 2022. Producer Focus Groups: Price Risk Management Contributions to Economic Sustainability in the Cattle Industry. University of Tennessee Extension Publication W 1097-C.

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