Value of Information in a Whole-Chain Traceability System for Beef Cattle: Application to Meat Tenderness

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How can each agent be rewarded to provide tenderness attributes, overcoming information asymmetry?

**METHODS**

Principal-agent model from Resende-Filho & Buhr is expanded to 2 agents in 3-stage supply chain:

Principal (meat-processor) minimizes cost subject to agents (cow-calf producer and feedlot) maximizing utility

**PROBLEM**

- In the beef marketing system – a fragmented supply chain – credibility attributes such as beef tenderness are difficult to identify and reward
- Beef tenderness can be increased with:
  - Genetic improvement (from cow-calf producer)
  - Optimal feeding (by feedlot)
- How can each agent be rewarded to provide tenderness attributes, overcoming information asymmetry?

**OBJECTIVES** – In a Whole-Chain Traceability System (WCTS), determine:

- Optimal payment from meat processor to feedlots for feeding to optimize tenderness
- Optimal payment from meat processor to cow-calf producers for tenderness genetics
- Benefits and costs of value-added opportunities for an individual beef producer in a WCTS

**PRELIMINARY RESULTS**

- In a WCTS, information and payments can skip over one or more stages to achieve desired goals (e.g., processor can directly pay cow-calf producer for info about genetics).
- Optimal payment depends on the costs of actions agents take.
- With WCTS, there is $71.80/head extra profit for improved tenderness. Of this, $16 should go to the cow-calf producer, and $37.83 should go to the feeder

**REFERENCE**