Livestock Insurance and LRP

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2020 KSU Crop Insurance Conference

Introduction

I’ve been in Manhattan for over 3 months and was most recently part of the faculty in the Charles. H. Dyson School of Applied Economics and Management at Cornell University.

I’m developing a KS-focused research, extension, and teaching program in agricultural policy. I previously led crop insurance extension activities for NY state and have conducted research on crop insurance and credit access, conservation practices, and marketing contracts.
Outline

- Overview of livestock products and local and state participation trends
- LRP overview and recent updates
- LRP example
  - Backgrounded feeder cattle under new provisions

Livestock insurance options by type of risk

Production Risk:
Events such as disease or weather that can lead to a decline in production/weight gain or mortality

Price Risk
Market price might drop, even to the point of not covering the cost of production

Feed Risk
If crop/forage yield decreases, feed may become expensive or difficult to purchase

Policies in red are never triggered by farm-specific losses. This can have some advantages but basis risk may be an issue.
Context

- KS had $9.7 billion in livestock receipts in 2019 (crops @ $6.7 billion)
  - Cattle & Calves: $8.4 billion
  - Milk: $666 million
  - Hogs: $549 million
  - Chicken eggs: $56 million

Livestock Gross Margin (LGM)

- Provides protection when gross margin decreases
  - Meat/milk prices drop or feed costs rise
  - Based on futures prices
- Enrollment occurs on the last business day of each month, covers 11 months
- Indemnities paid when total actual gross margins over the covered, 11-month period are less than the gross margin guarantee

Source: USDA Economic Research Service
Livestock Gross Margin (LGM) – Dairy 2011

Dairy Revenue Protection (DRP)

- Covers expected milk revenue on a quarterly (3-month) basis, up to five quarters (15 months) in the future.
- Expected revenue is based on futures market price and KS state-level* yields
- Two pricing options, both based on futures market prices:
  - Class pricing: combination of Class III and Class IV milk prices.
  - Component pricing: component milk prices for butterfat, protein and other solids used to calculate a price based on the producer’s individual butterfat and protein test percentages.

*Some states (Including NE, OK) use pooled/regional/multistate yields
Dairy Revenue Protection (DRP)

- KS DRP 2019
  - 19 policies at 95% coverage
  - 1.4 billion LB, $244 million liabilities
  - $2 million producer premium, $2.8 million indemnities
- KS DRP 2020
  - 26 policies, 95% coverage
  - 2.2 billion LB, $395 million liabilities
  - $3.9 million producer premium, $7.9 million indemnities
- For context: Total milk production in KS in 2019
  - ~3.8 billion LB milk produced
  - ~$666 million in milk sales

KS 2020 CWT milk insured under DRP
MPCI for silage

- Corn or sorghum grown as feed can be insured either as grain or silage
  - Silage-only varieties (i.e. BMR) generally must be covered under yield/APH policies*
- Corn insured as grain and chopped for silage requires an appraisal as grain before harvest and vice versa
  - Silage stored in an “ag-bag” cannot be appraised
- Losses for grain corn (grain yield) may be different than losses for silage corn (tonnage)
- With YP/APH policies, protection against high prices may be limited.

*Exception for mixed silage and grain varieties under revenue policy – this option is complicated, so talk to your agent if interested

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Silage Sorghum trends

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Photo: John Lillis via Flickr
Silage Sorghum enrollment in 2006

Silage Sorghum enrollment in 2020
Whole Farm Revenue Protection (WFP)

- WFRP insures the **whole** operation under 1 policy
  - All crops or livestock must be covered
  - Can be combined with MPCI
  - Expected revenue for animal (products) capped at **$2 million**
- More diversified farms benefit from **higher premium subsidies** and **lower premium rates**
- Schedule F tax records for farm activities over past 5* years are required
- So far, KS usage is low: 2020 has 8 total policies covering $4.8 million in liabilities (down from 11/$6 million in 2019)

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**WFRP experience in KS**

**2018 KS WFRP Liabilities by Crop, $1000**

![Map and chart showing WFRP experience in KS with crop data](Image)
Pasture, Rangeland, and Forage

- PRF insures livestock growers against lack of precipitation (rain or snow) relative to historic levels
  - Enables producers to buy feed when forage is limited
- Using a grid system, USDA tracks precipitation in an area, and sends payments automatically when levels are below guarantee
  - No record keeping required!
- Important consideration: if you experience low rainfall in your fields but the grid rainfall levels are different, there is a chance you may not receive an indemnity
- KS in 2020: 1.8 million acres, $95 million liabilities

Annual Forage

- 2020: 94,177 acres with > $16 million liabilities
- 2019: 48,472 acres with $9.7 million liabilities
- Annually planted acreage, used as feed and forage for livestock
- Indemnities are triggered by a rainfall index
- KS is eligible for "dual use" with small grains
- 2020: sub-state county base values calculating using methodology similar to PRF
PRF and AF trends

KS Annual Forage and PRF Acres Enrolled, 2009-2020
(Unit: 1,000 Acres)

Source: USDA Risk Management Agency

KS Annual Forage and PRF Liabilities, 2009-2020
(Unit: $1,000,000)

Source: USDA Risk Management Agency

PRF acres enrolled in 2020

KS Annual Forage and PRF Liabilities, 2009-2020
(Unit: $1,000,000)
Annual Forage acres enrolled in 2020

Livestock Risk Protection (LRP)

- Protects against declines in market prices
- Prices based on CME index for feeder cattle prices and AMS for fed cattle
- First apply for the policy (one time), then select an endorsement
- Premiums depend on expected final market prices of livestock and can change frequently
- Must be purchased in state where cattle are located
Livestock Risk Protection: state trends

Use of LRP is currently low

Feeder cattle participation highest but variable

Livestock Risk Protection: State Trends

Use of LRP is currently low

Feeder cattle enrollment peaked in 2004
2017 LRP Feeder Cattle – head covered

LRP details

• Length of endorsement
  • 13-52 weeks, at 4-5 week intervals
• Coverage level (70-100)
• Head, type of cattle, weight
  • Feeder: under 600 and 600-900
  • Fed: 1000-1400
• File for indemnity within 60 days, cannot sell cattle more than 30 days before end of coverage period with approval
  • But not required to sell by end of coverage period
Livestock Risk Protection 2021 CY updates

- For feeder cattle, fed cattle, swine
- Increased premium subsidy
- Increased head limits
  - For cattle up to 6000 per endorsement, 12,000 annually
  - Modifying ownership requirements for last 60 days
  - Unborn livestock can be insured

<table>
<thead>
<tr>
<th>Coverage Level (Percent)</th>
<th>Previous Subsidy Rate (Percent)</th>
<th>Revised Subsidy Rate (Percent)</th>
</tr>
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<tbody>
<tr>
<td>95-100</td>
<td>25</td>
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<tr>
<td>90-94.99</td>
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<td>40</td>
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<tr>
<td>85-89.99</td>
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<td>45</td>
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<tr>
<td>80-84.99</td>
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<td>50</td>
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<tr>
<td>70-79.99</td>
<td>35</td>
<td>55</td>
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</table>


Livestock Risk Protection example

- Backgrounding spring-born calves
- 313* head steers
- Using March 12 2021 for target sale date
- Weight 2: 600-900 lbs
- Covered price: $128.88
LRP – March 2021 endorsement


Other parameters

<table>
<thead>
<tr>
<th>Current date</th>
<th>10/14/2020</th>
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<tbody>
<tr>
<td>Number of head (number of head to match futures contract = 63)</td>
<td>313</td>
</tr>
<tr>
<td>Expected weight at time of sale, lbs/head -- (use weight 2 for LRP)</td>
<td>800</td>
</tr>
<tr>
<td>Pounds of cattle expected to sell in cash market, lbs</td>
<td>250,400</td>
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<tr>
<td>Expected sale date</td>
<td>3/15/2021</td>
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<tr>
<td>Feeder cattle type</td>
<td>Steers</td>
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<tr>
<td>CME futures contract for hedging (Jan, Mar, Apr, May, Aug, Sep, Oct, Nov)</td>
<td>Mar</td>
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<tr>
<td>Commission for roundtrip (sell and buy) futures trade, $/contract</td>
<td>$55.00</td>
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<tr>
<td>Commission to buy or sell options contract, $/contract</td>
<td>$30.00</td>
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<tr>
<td>Futures price -- Mar CME feeder cattle contract, $/cwt*</td>
<td>$128.850</td>
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<td>Expected basis (cash - Mar CME futures), $/cwt#</td>
<td>$6.00</td>
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<tr>
<td>LRP expected ending value for relevant time period*</td>
<td>$128.876</td>
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<tr>
<td>End date for LRP contract</td>
<td>3/15/2021</td>
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https://agmanager.info/k-state-feeder-risk-management-tool
Other parameters

<table>
<thead>
<tr>
<th>CME feeder cattle option premiums</th>
<th>LRP coverage levels and premiums</th>
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<tbody>
<tr>
<td>Strike price</td>
<td>Put</td>
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<tr>
<td>$/cwt</td>
<td>$/cwt</td>
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<td>$116.00</td>
<td>$5.3250</td>
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Number of contracts Futures: 5, LRP: 313, Put: 5

Strike price(s), $/cwt: $128.03, $126.00

Premium, $/cwt: $6.943, $9.350

98% coverage without premium subsidy

Comparison of Alternative Expected Net Selling Prices

<table>
<thead>
<tr>
<th>Ending Futures Price, $/cwt</th>
<th>Expected Net Selling Price, $/cwt</th>
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</thead>
<tbody>
<tr>
<td>105</td>
<td>110</td>
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</tbody>
</table>

Result with LRP premium subsidy

- Previous result: LRP is very similar to a put in the protection that it provides
- Premium subsidy lowers cost
- Estimated per cwt cost based on RMA cost estimator

<table>
<thead>
<tr>
<th>Livestock Risk Protection %</th>
<th>09%</th>
<th>08%</th>
<th>06%</th>
<th>05%</th>
<th>03%</th>
<th>02%</th>
<th>01%</th>
<th>00%</th>
<th>88%</th>
<th>87%</th>
<th>85%</th>
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<tbody>
<tr>
<td></td>
<td>$11,300.00</td>
<td>$9,688.00</td>
<td>$8,216.00</td>
<td>$6,422.00</td>
<td>$4,987.00</td>
<td>$4,523.00</td>
<td>$3,758.00</td>
<td>$2,818.00</td>
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<tr>
<td>Per CWT</td>
<td>$4.51</td>
<td>$3.87</td>
<td>$3.29</td>
<td>$2.56</td>
<td>$2.15</td>
<td>$1.81</td>
<td>$1.50</td>
<td>$1.13</td>
<td>$0.93</td>
<td>$0.75</td>
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100% coverage with premium subsidy
98% coverage with premium subsidy

92% coverage at $118 / cwt
LRP cost advantage: 92% LPR vs $126 put

Comparison of Alternative Expected Net Selling Prices

LRP – Key points

- Similar to a put, at a lower cost
- Lower coverage levels = lower cost and lower price guarantee
- Flexibility: can insure a specific number of pounds within the 6000/12000 head limit
- Seems like a relatively straightforward process for operations that are beginning to think about price risk management
- Livestock products other than DRP (PRF too?) still seem rather “niche”
Moving forward

Livestock insurance
   PRF
   LRP
   Others?

Other areas
   ECO and other high coverage products?

Resources

https://www.agmanager.info/crop-insurance
https://www.agmanager.info/livestock-meat/livestock-marketing-charts/
https://agmanager.info/k-state-feeder-cattle-risk-management-tool

Vintage LRP:
https://agmanager.info/livestock-meat/comparing-lrp-put-option
https://agmanager.info/livestock-meat/lrp-basis-understanding-basics
Questions?
Comments?
Thank you!

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