Drought Management for Cattle Producers: Forage Prices and the Role of Insurance

Jennifer Ifft, Flinchbaugh Agricultural Policy Chair and Associate Professor
Cordon Rowley, MS Student

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My Background



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Seasonal Change

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Summary

- Hay prices and drought in KS
- Hay price increases
  - Feeder/ backgrounding model in KS
  - Cow-calf model in KS
- Insurance
- Insurance vs Drought

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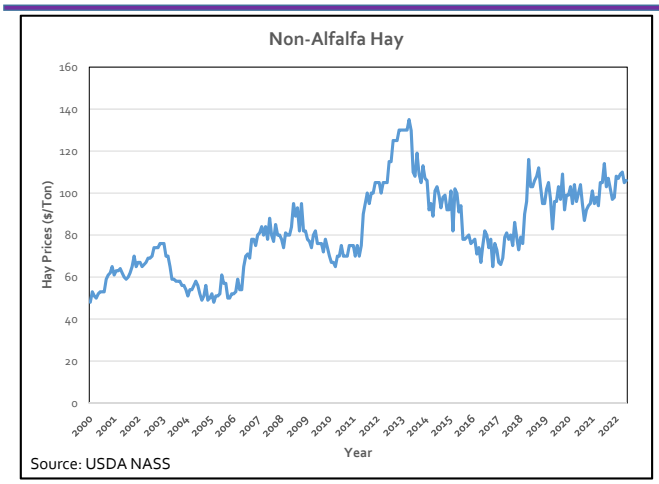
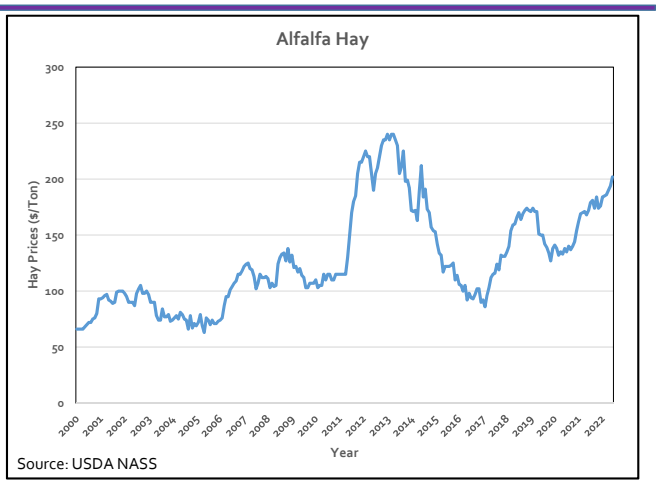
Kansas Hay Trends





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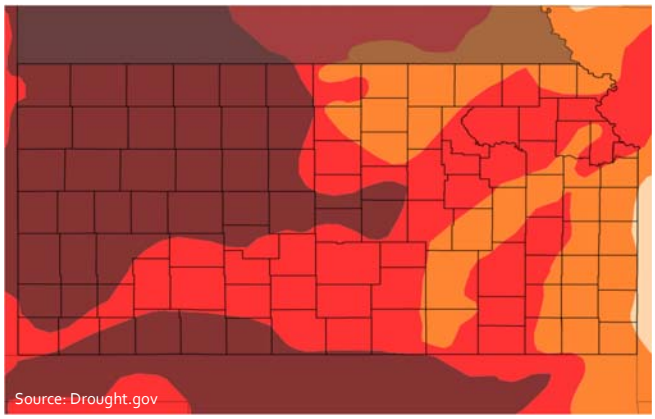
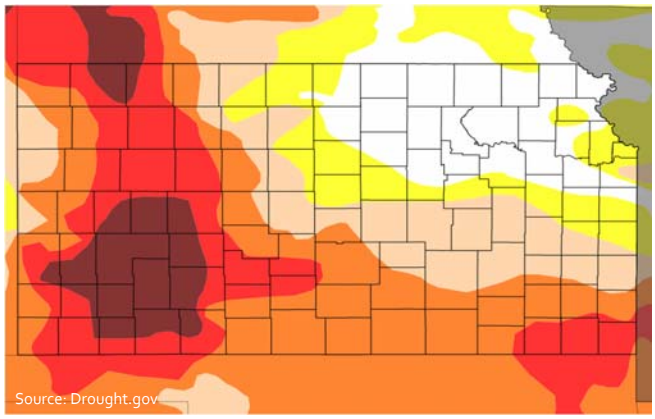
Drought in Kansas

August 2012



August 2022



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U.S. Drought Monitor

- D0: Abnormally dry – Yellow – Water requirements increase
- D1: Moderate – Tan – Grasses are stressed, hay demand increases
- D2: Severe – Orange – Low yields
- D3: Extreme – Red – Higher cattle sales, crops begin to fail
- D4: Exceptional – Dark Red – Ground cracks, crop fail

Source: Drought.gov

Droughts Effect

- Drought isn't the sole reason for hay price spikes
- Hay prices aren't at the highest, but they could get there
- To illustrate the effects, I will be displaying two models
- Feeder model, transparent way to show feed costs
- Cow-calf budget, overall impact

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Feeder Model

- Feeding post-wean calves
- Will not be factoring the costs associated with the cows/ farm
  - Feed costs per calf
  - Non-feed costs per calf
- Weaning weight of 500 pounds
- The goal is making the heaviest calf for the price
- Then sending them off to further fatten for slaughter

Feeding Calves

- 500 lb -> 740 lb
- 120 days on feed, 2 lb daily gain
- Feeding an average of 12 lb of grain and co-products
- Access to large round bales of bluestem grass (good)
  - Eating 2% bodyweight on average
- 120 lb of supplement – vitamins, minerals

Kansas Right Now

- Purchasing Large Round Bluestem – $80-$130 per ton
- Assuming
  - Buying all your hay
  - $100 per ton large round bales
  - $6.00 corn
- Current conditions
  - Total cost per calf – $184
  - Total cost per pound gained – $1.17

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Kansas Drought and Hay Prices

- Kansas hay market in the last 20 years
- Abnormally dry conditions – $2 per ton increase
- Moderate- Extreme – $6 per ton increase
- Exceptional – $35 per ton increase
- Right now, Kansas is becoming more dry
- Which lead me to test these increases on today's market

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Simulating Drought Effect

- Moderate – Extreme Drought
  - Hay prices $106 per ton
  - Total cost per calf – $187
  - Total cost per pound gained – $1.18
- Exceptional Drought
  - Hay prices $136 per ton
  - Total cost per calf – $205
  - Total cost per pound gained – $1.26

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Margins

	Today	Moderate-Extreme Shock	Exceptional Shock
Feed costs	$184	$187	$205
Value post-wean calf	$982	$982	$982
Value feeder calf	$1,369	$1,369	$1,369
Net feeder calf	$1,185	$1,182	$1,164

Only accounting for feed costs

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Breaking Even

- The feeder market is good
- 600+ lb feeders expected $186 per cwt
- To breakeven at the minimum
  - Pay $300 per ton of hay
  - Assuming no-cost of cows/ purchasing
- All others results suggested a profit
- Buy LRP
- Let's see what happens in the cow-calf budget

Detailed Cow-Calf Budget

- In-depth financial model of a cow-calf operation
- Purchasing all hay
- This time factoring the costs of the farm
  - Number of head
  - Grazing costs
  - Feed costs
  - Non-feed cost
- Like the feeder model we will be reacting the model to a drought like increase

Cow-Calf Budget

- 100 cows, 5 bulls, 15 retained heifers
- 90% calving rate
  - 45 bull calves
  - 45 heifer calves
- Cows and calves fed
  - Corn silage/ prairie hay
- Bulls
  - Brome/ prairie hay

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Feed Costs

- Buying $100 per ton bluestem bales
- Buying $40 per ton corn silage
- Feeding 90 days
- Grazing 320 acres
- Current Conditions
  - Total cost per cow – $522
  - Total feed cost farm – $52,251
  - Income over total cost – $285

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Simulating Drought Cow-Calf

- Moderate-Extreme Drought
  - $106 per ton large round bluestem bales
  - Total cost per cow – $526
  - Total feed cost farm – $52,633
  - Income over total costs – $97.62
- Exceptional Drought
  - $136 per ton large round bluestem bales
  - Total cost per cow – $548
  - Total feed cost farm – $54,763
  - Income over total costs – $2,228.98

Culling vs Feeding

Additional Culling

- Culling is a major part of the industry
- Efficiently Culling
  - Open cows
  - Old genetics
  - less productivity
- *Additional* culling is an issue
  - Cows are sold before peak output
- In times of extreme drought *additional* culling might be necessary

Cull Value Cows

- Cow – Breakers 75%-80%
  - $84-$90 per cwt
  - $1,131 per head
- Cow – Boner 80%-85%
  - $77 per cwt
  - $1,001 per head
- Cow – Lean 85%+
  - $65 per cwt
  - $845 per head

Source: USDA AMS

Risk of Feeding

- Feeding the non-culled cows
- Can put strains on an operation
- Limit the quality of hay purchased
- Maintain herd size
- Opportunity cost to feeding

Risks of Additional Culling

- Culling a healthy cow limits calf output until replaced
- Though if you can't feed them your options are limited
- Culling cow in drought means buying replacement in the future
- Only buy when affordable
- Or when green grass returns

Margins of Cow-Calf

	Feed Costs	Value of Calf	Heifers	Bred Cows
First Year	$523	$982	$1,000	$1,800
Second Year	$1,046	$1,964	$1,000	$1,800
Third Year	$1,569	$2,945	$1,000	$1,800

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Managing Drought with Safety Net Programs

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Pasture, Range and Forage

- Protection against *general* dry conditions
- At least 2 two-month interval of coverage
- You can choose between 70%-90% with 5% increments
- Grid selection broken down into 17x17mile sections
- This can cover grazing and hay fields
- Indemnities trigged when precipitation falls below that interval
- Producers should come out ahead in the long run

2021 PRF payments

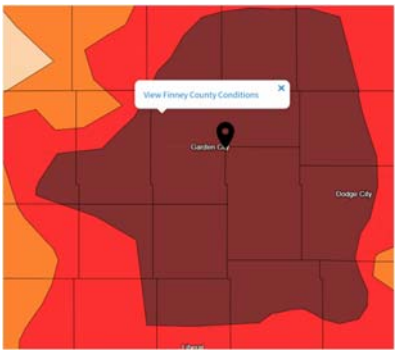
- KS acres covered 2,366,217
- Total Premium $25,138,593
- Total Subsidy $13,324,237
- Total Indemnity $22,400,868
- Net Payment: $10,586,512
- Or average $4.47 per acre

PRF payments versus Drought

- PRF payment $4.47 per acre
- Moderate-Extreme Drought
  - Cow-calf feed cost per head ~$4 increase
  - Feeder cattle feed cost per head ~$3 increase
- Exceptional Drought
  - Cow-calf feed costs per head ~$25 increase
  - Feeder cattle feed cost per head ~$21 increase

Examples of PRF Payments

- Finney county hay net indemnities
  - Jan-Feb: $14 per acre
  - Fed-Mar: $0 per acre
  - Mar-April: $16 per acre
- Finney county grazing net indemnities
  - Jan-Feb: $3 per acre
  - Fed-Mar: $0 per acre
  - Mar-April: $3 per acre



Livestock Forage Disaster Program

- Protects producers from severe drought and higher (D2)
- Consecutive eight weeks in grazing season
- Monthly feed cost of effected livestock
  - Standard is $47.29 per animal/ normal capacity
  - Reduced by 60% – payment reduction measure
  - Reduce by 5.7% – Budget Control Act
- Leaving $1.07 per animal net payment
- Can only receive for a maximum of 5 months

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LFD vs Drought

- Standard LFD payment $1.07 per animal per 1 month
- Moderate-Extreme Drought
  - Cow-calf feed cost per head ~$4 increase
  - Feeder cattle feed cost per head ~$3 increase
- Exceptional Drought
  - Cow-calf feed costs ~$25 increase
  - Feeder cattle feed cost per head ~$21 increase

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Conclusion

- Drought increases hay price
- Culling cattle is a trusted, effective drought management
- Evidence suggests that federal and insurance payments are effective in moderate to extreme drought conditions
- In exceptional drought these federal and insurance payments help but will not cover the total cost, can be saved for restocking
- Utilize financial tools and academic calculators

Data Sources

- USDA AMS weekly report
  - Hay Price
  - Cattle Prices
- Calculators
  - Iowa State Feeder Calf Background Worksheet
  - KSU Detailed Cow-Calf Budget
  - KSU Beef Replacement
- Insurance
  - USDA Summary of Business

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Questions?
Comments?
Thank you!

Dr. Jennifer Ifft
Associate Professor
Email: jifft@ksu.edu
Phone: 785-532-4468

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NORTH CENTRAL EXTENSION RISK MANAGEMENT EDUCATION

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