Inconsistent Weather Impacts Midwestern Cattle Ranchers and Beef Prices across the U.S.

Emerson T. Hauck, Dr. Kristen Crossney PhD.
Department of Geography & Planning, West Chester University

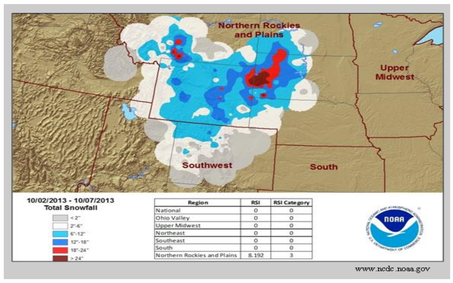
WCU WEST CHESTER UNIVERSITY

Abstract

- The 2013 winter storm that took place in the Midwestern states has affected South Dakota's Cattle ranchers and market beef prices, because South Dakota is one of the top 5 leading states in beef production for the country the reduction in cattle will increase retail beef prices
- Viewers will understand how this winter storm has impacted South Dakota's farming economy as well as beef prices across the country
- All data collected has been shown through graphs that show the rise and fall in cattle numbers, beef price across the nation, and the amount of hay harvested in South Dakota
- As a conclusion viewers will be presented with the idea of global warming as a cause that has brought on such harsh seasonal transitions across not only America but the world

Data

- Personal interviews with Jim Shmeenk a local cattle farmer in South Dakota. This information is very valuable and the Shmeenk's, provided an inside look at how the area and the farmers in Northwestern South Dakota were affected
- The Agricultural Census data about the number of cattle in the state and the amount of money brought in from the beef cattle industry
- Information regarding the 2013 storm was gathered from the National Climate Data Center and the below graphic shows this storms snowfall across the affected area



Interview with SD Cattle Rancher, Jim Shmeenk

1. What is the primary type of farming that you do?
Beef cattle, they house multiple herds of cattle that are designated to beef production.

2. How large is your ranch and how many cows do you have?
Their ranch is roughly 27,000 acres, with about 670 head of cattle.

3. How did the 2013 blizzard in South Dakota affect your ranch?
The blizzard produced roughly 4' of snow scattered throughout the Northwestern and Midwestern regions of the state followed by 70mph wind drifts resulting in 7' snow drifts.

4. How many cows were lost as a result of the storm, and what would their worth have been if they survived?
They lost roughly 150 in 2013, the majority of them being lost in the winter storm. Not all of those cows would have been sold through the year, but with some being female, they lost the capability to reproduce and thicken the herd.

5. What is the average amount of cattle that you take and sell at beef auctions?
The Shmeenk's on average try to take 60 - 75 head of cattle to auction each year. The amount sold depends on the needs and demand from slaughter houses around the country.

6. What is your farm's average revenue for the fiscal year, what resource is your main producer of that revenue?
On average the Shmeenk's bring in roughly $145,000 each year. This revenue is earned mostly off of a combination of cattle sales, whether it be to auction, neighboring farmers, or local meat houses. They also produce revenue from selling hay as feed to surrounding farmers. Usually they keep all the hay they harvest but on occasion they will sell 50 – 100 round bales at $100 per bale.

7. Were there any measures that you could have taken to prevent such a major loss?
When the Shmeenk's received warning of a large snow storm that was going to pass through the area, they called local friends and family to set out on the ranch and gather the herds in their respective corrals. Unfortunately the storm came sooner than expected and left some of their herds caught in the storm.

8. How are the weather patterns affecting your ranch currently?
Today, the large temperature ranges are strongly affecting the Shmeenk's. In the winter the Shmeenk's run the risk of losing cattle to the cold and during the summer, temperatures get to be too hot and too dry resulting in drought and regular field fires destroying the hay fields used to feed the cattle during the winter months.

9. How will you prepare differently in the event that another large storm will be projected to hit Butte County.
The Shmeenk's have placed three more corrals on their land reducing the distance between their other feeding corrals and their main farm.

2013 Winter Impact Discussion

Results

- Figure 1, provided by the North American Statistics Service, begins at a time when American Farming encountered its greatest adversary, the Dust Bowl of 1936
- Following that time we can see that cattle numbers have drastically increased across the country
- Following 1975 we can see the cattle numbers slowly decline
  - ➢ Two major phenomena that could have caused this could be inconsistent weather patterns , as well as a decrease in beef consumers.

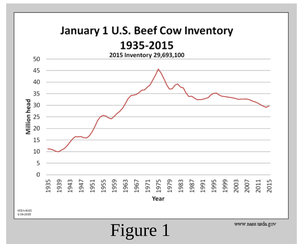


Figure 1

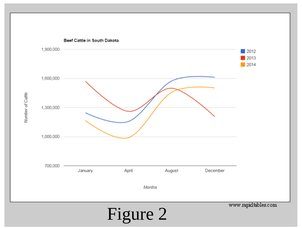


Figure 2

- In Figure 2, each year is depicted by a colored line
- This data was provided by the Agricultural Census
- These lines show the starting cattle numbers for the year, and will slowly move into April, which is a major selling season for ranchers and numbers are expected to decrease slightly.
- In August the numbers should slowly rise to birthing seasons and new cattle being added to the heard and the numbers should remain steady to finish the year
- 2013 had a drastic difference, numbers showed a 300,000 head of cattle decrease compared to the previous year.

- Figure 3, with data provided by the Agricultural Census, provides annual round bale harvest numbers for SD, Round bales are cattle primary food source for winter months
- In 2012, an estimated 100,675,000 bales were harvested
- In 2013, an estimated 83,850,000 bales were harvested
  - ➢ This could be caused by the significantly hotter and drier summer ruin the crop
  - ➢ With a primary food source lacking, cattle needed to be ration through the 2013 winter storm
- In 2014, an estimated 106,350,000 bales were harvested
  - ➢ This could have been caused by the amount of precipitation during the previous winter

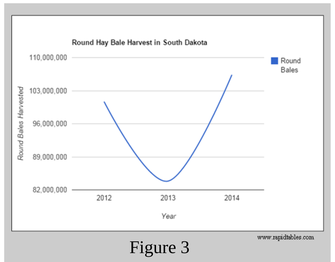


Figure 3

Figure 4

- In Figure 4, with data provided by the Agricultural Census, beef prices normally enter the year at a set price, then will slowly fall due to the abundance of beef from auction, then prices will rise as the year ends
- For 2013, the price per pound for choice retail beef skyrockets to $5.58, this is about $0.50 above the normal prices for this time of year
- This $0.50 increase may not seem very significant when examining it on a graph, but as private markets sell 1000's of pounds of beef to the general public we will start to see that $0.50 increase exponentially and it will impact our wallets.

Impacts from 2013 Winter Storm in South Dakota

- Drastically reduced cattle numbers in South Dakota
- Increased retail beef prices across the country
- Eliminated the potential revenue for South Dakota's farming economy
- Shut down some ranchers across South Dakota due reduced funds and cattle
- Flooded some grazing lands across the state

Conclusions

- Severe weather changes are the leading cause of cattle death in these western ranches either because the cold sweeps in too quickly, or because the cattle don't have adequate access to a source of food. Other reasons for cattle deaths in cold weather can be a result of biological defect on the cows' part. In warm winter months cattle thin their coats to allow them to stay cool and not over heat, this can be fatal though if the winter comes too quickly, not giving the cattle adequate time to thicken their coats. In recent years with the hot and dry summer month's hay production has decreased severely leaving ranchers with no choice but to outsource for hay, costing them money. Also with the loss of cattle, farmers lose money at auction because of their low cattle numbers and their inability to supply enough sellable cattle.
- We as citizens see these impacts at our local meat markets. The data corresponds with the price on the meat markets across the country, as cattle numbers fall, meat prices slowly increase and as the number of cows rise, the prices start to fall back to their normal values.
- Looking specifically at climate issues, greenhouse gasses are effecting more than the ozone; and scientists must stay committed to solving the issue while also looking at what these changes are doing to the industries that our nation relies so heavily on. Continuous weather patterns like this can lead to severe economic falls in the farming industry which could lead to America outsourcing even more for its food; which will inevitably hinder our countries economy.

Acknowledgements

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