

Economics of Drought Management Strategies

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Background

- Summer 2002 I wrote:
 - Since moving to Laramie, I have become concerned with de-stocking recommendations
 - Little or no focus on the economic consequences
 - Decision to de-populate along with de-stocking in where the big economic costs are generated
 - Could ranchers be walking into an economic firestorm??

Definitions

- De-stocking
 - Removing grazing animals from the grasslands
- De-populating
 - Selling animal from ranch ownership
- Re-populating
 - Adding animals back into the grazing herd

2002 Drought Strategies Identified

- Sandhills of NE Rancher
 - 15% reduction in cow numbers year 2002
 - Winters cow on cornstalks
 - Backed off on replacement heifer calves held back
 - Wants to sell large # cows at cattle cycle price peak
- NC Wyoming Rancher
 - Depopulated 30% 2002
 - AI'ing to get maximum calf price
 - Record calf price in 2004!
 - Shipping cows 135 miles to aftermath grazing
 - Raising some AI bulls
 - Invested savings in high-quality non-ag property and plows earnings back into the ranch operating expenses
- SC Wyoming Rancher
 - Started early weaning 2002 – to feedlot – will continue this
 - Cows can be maintained easier
 - Cows on windowed hay and supplement
 - Depopulated 17%
 - Will repopulate by holding back heifers
 - “is a very slow process with high calf prices”

What we learned from North Dakota's Droughts in the 1980s

- 1980/81 – ranchers moved cattle south 400-500 miles to grass
 - It was a financial disaster!
- 1988 – Did not move cows south to grass
 - De-populated
 - My economic analysis suggested should have moved animals to grass!
- Why the Difference?
- Conclusion:
 - Optimum drought strategy depends on where we are in the cattle cycle!

Economics of De-populating

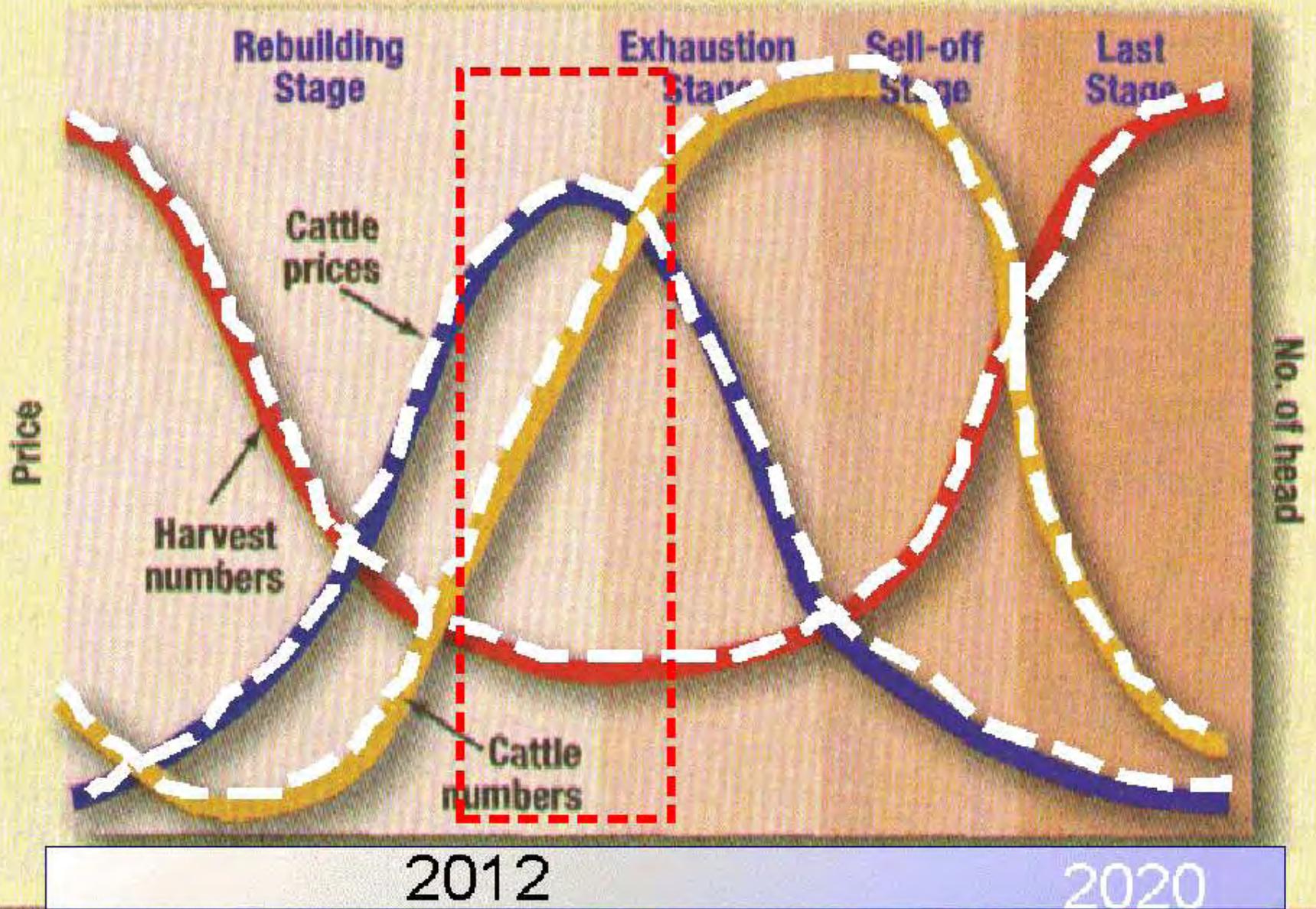
- Two costs associated with De-populating
 - Visible costs
 - Selling bred cows at fire-sale prices
 - Re-populating with expensive females
 - Invisible (hidden) costs
 - Less calves to sell when it starts raining
 - Less calves to sell when prices go up
 - Invisible costs > Visible costs?
 - Could a rancher's drought strategy amplify the drought's negative financial impact?

Economics of Drylotting Beef Cows

(North Dakota State University Research Herd)

- Long-term research trial with drylotting beef COWS
 - Tied into irrigated land aftermath feeding
 - Complete control over ration nutrition
 - Economics never quite matched traditional grazing systems – if grass is available
- Drylotting beef cows part of year in a drought can be economically viable
 - Allows you to de-stock
 - But, do not have to depopulate
 - Just keep producing and selling calves

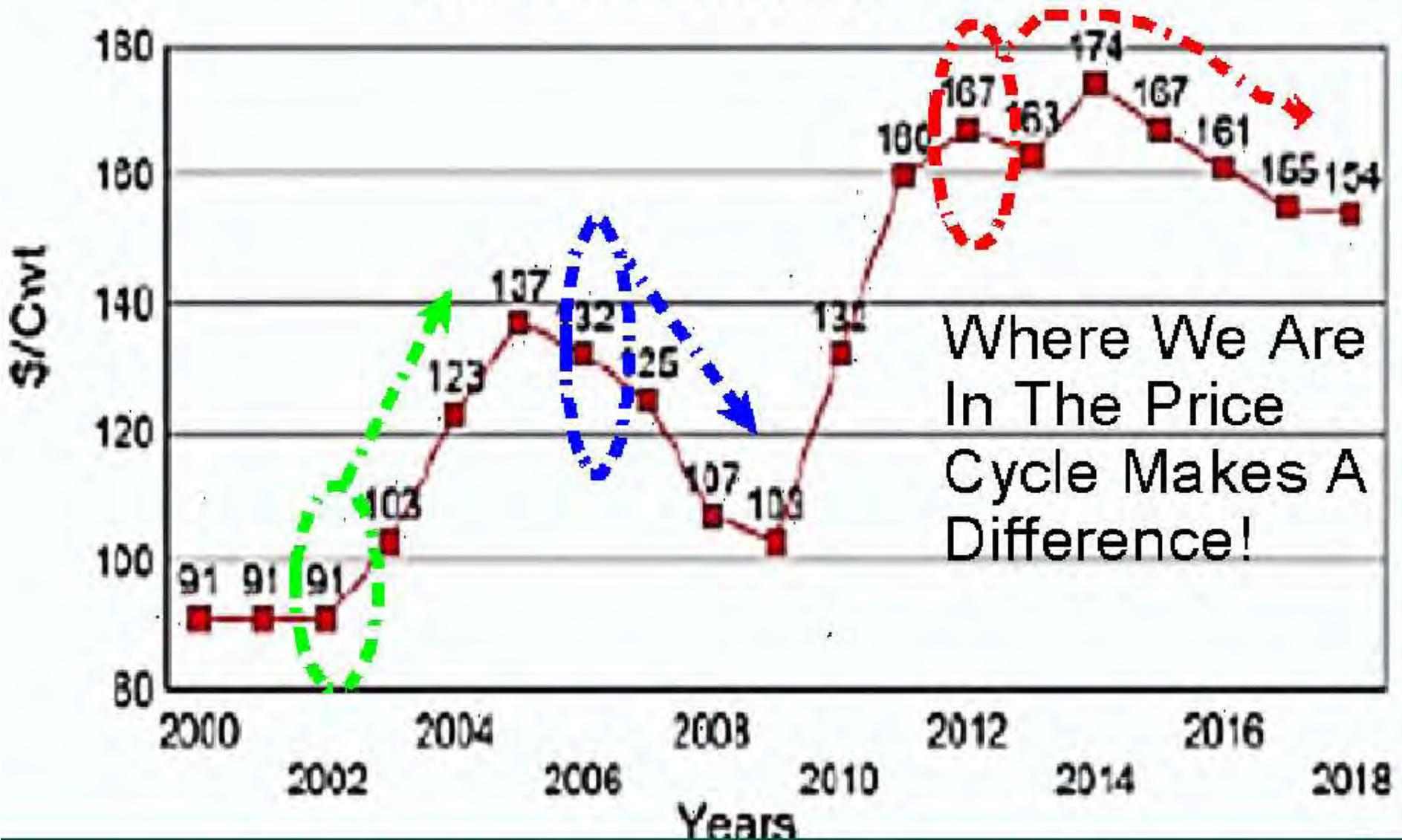
Figure 1. Cattle, slaughter and price cycle relationships



**LET'S LOOK AT EACH DROUGHT
INDIVIDUALLY**

500-600 Lb Steer Calf Prices

source: FPP-MIS Long Range Prices

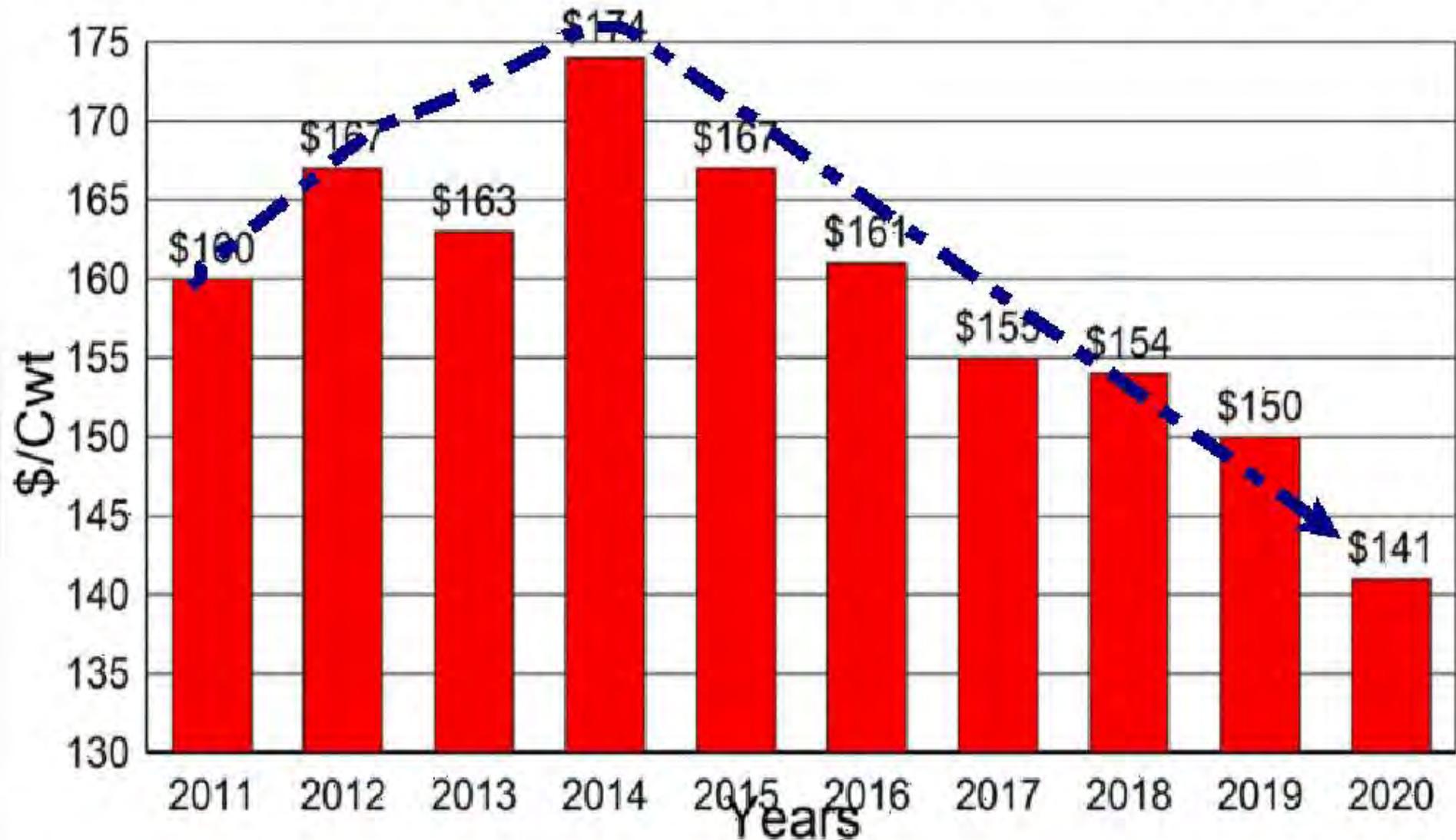


Simulation Results

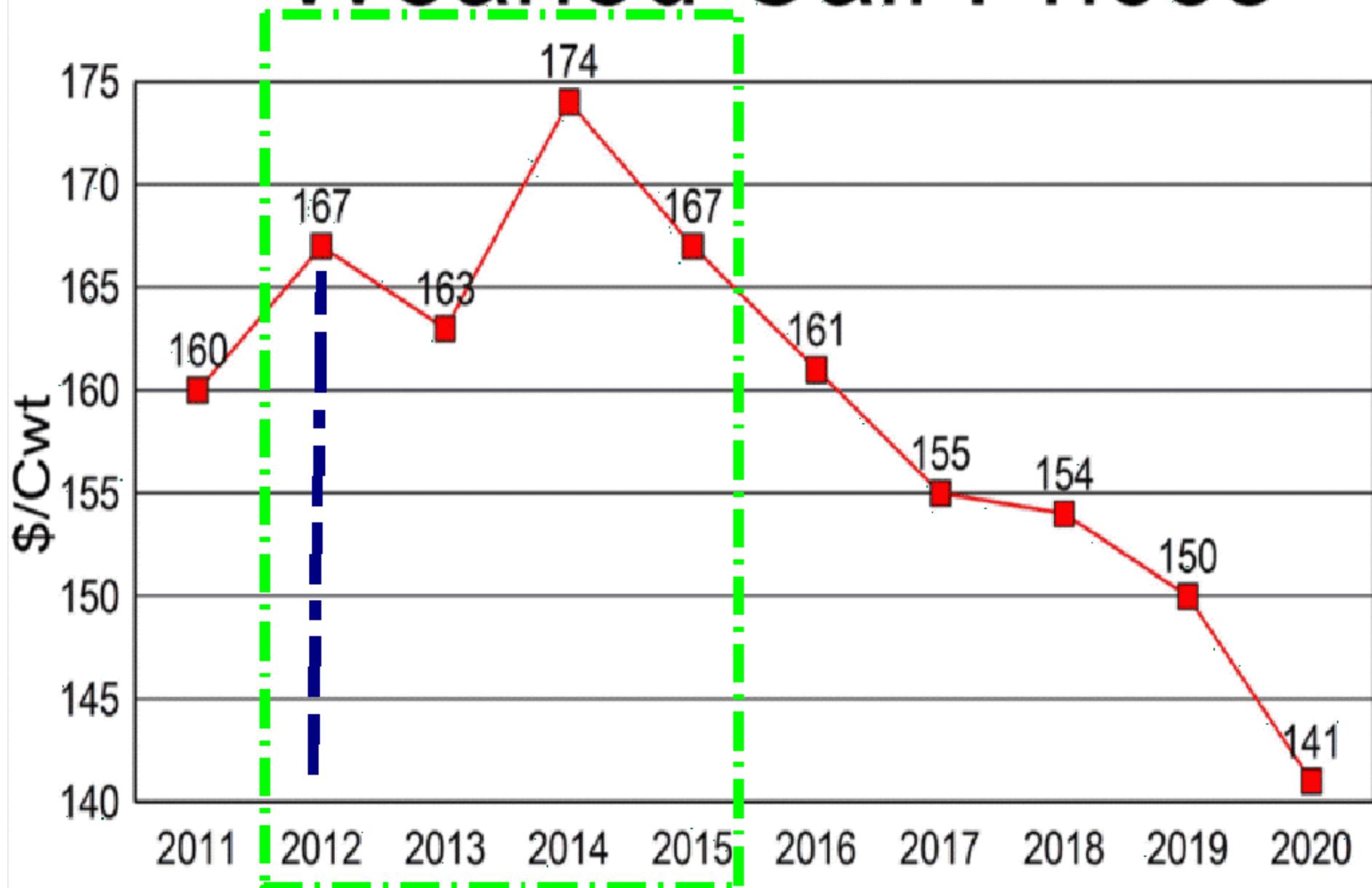
- Traditional Drought Management Strategy
 - Large negative impact in 2002
 - Low calf prices
 - Low fire-sale price of females
 - High re-population costs
 - Much, much smaller impact in 2006
 - High calf prices
 - Higher fire-sale price of females
 - Lower re-population costs
 - What about 2012 drought?
 - Reasonably good firesale prices
 - High calf prices at least through 2014
 - High repopulation costs
 - High drought feed costs
 - Where we are in cattle cycle has HUGE impact!

2012 DROUGHT STRATEGY SIMULATIONS

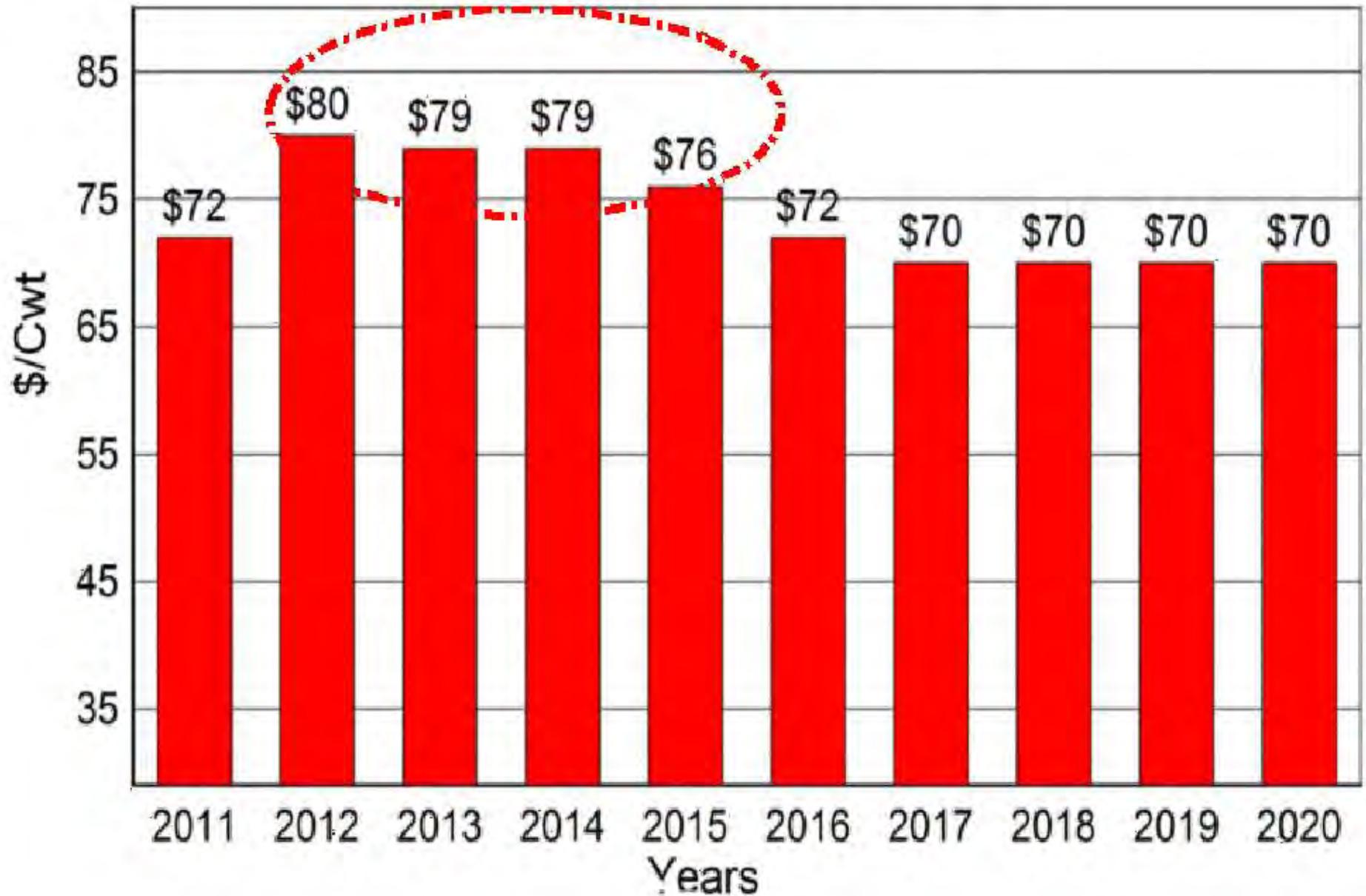
Weaned Calf Prices



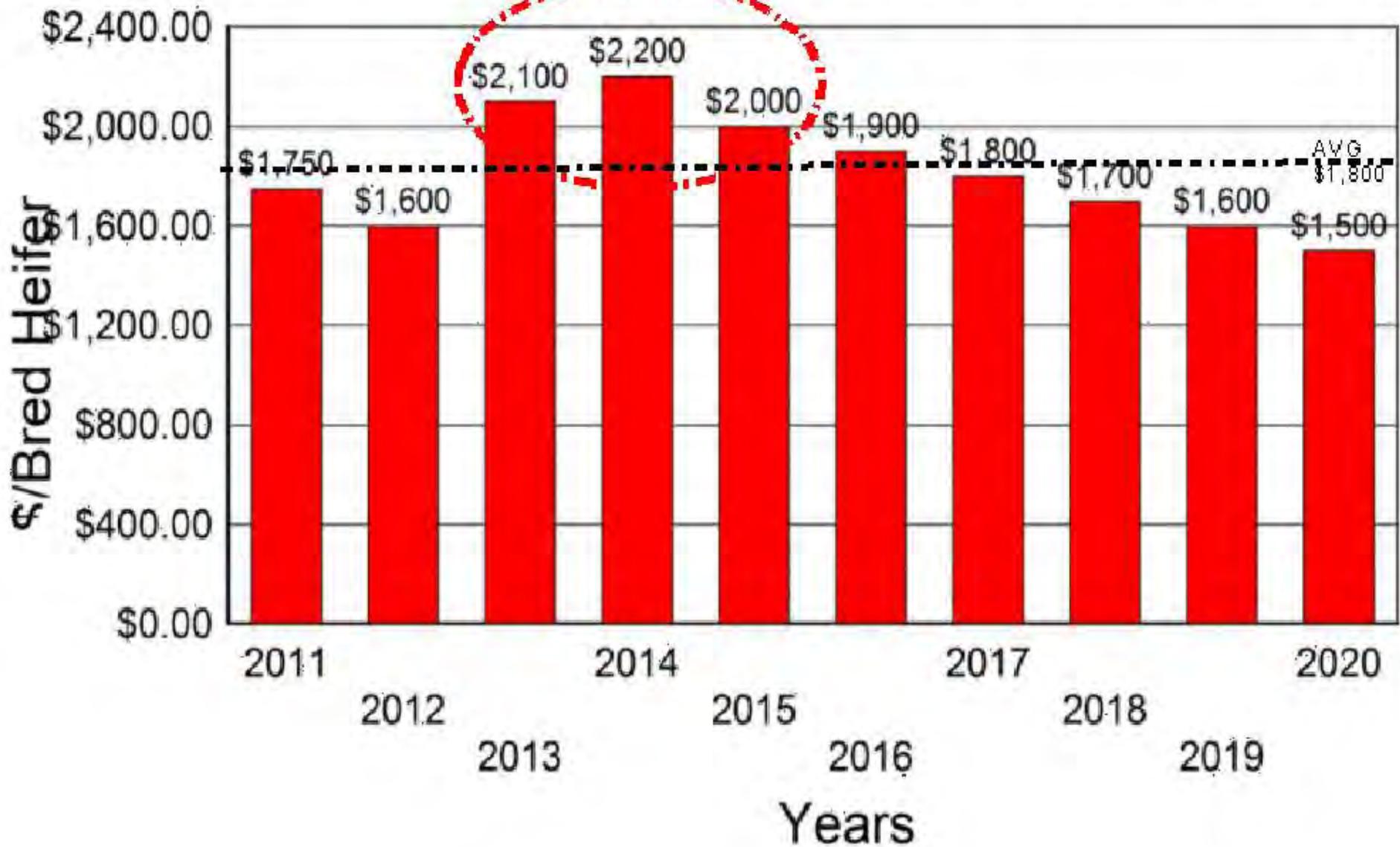
Weaned Calf Prices



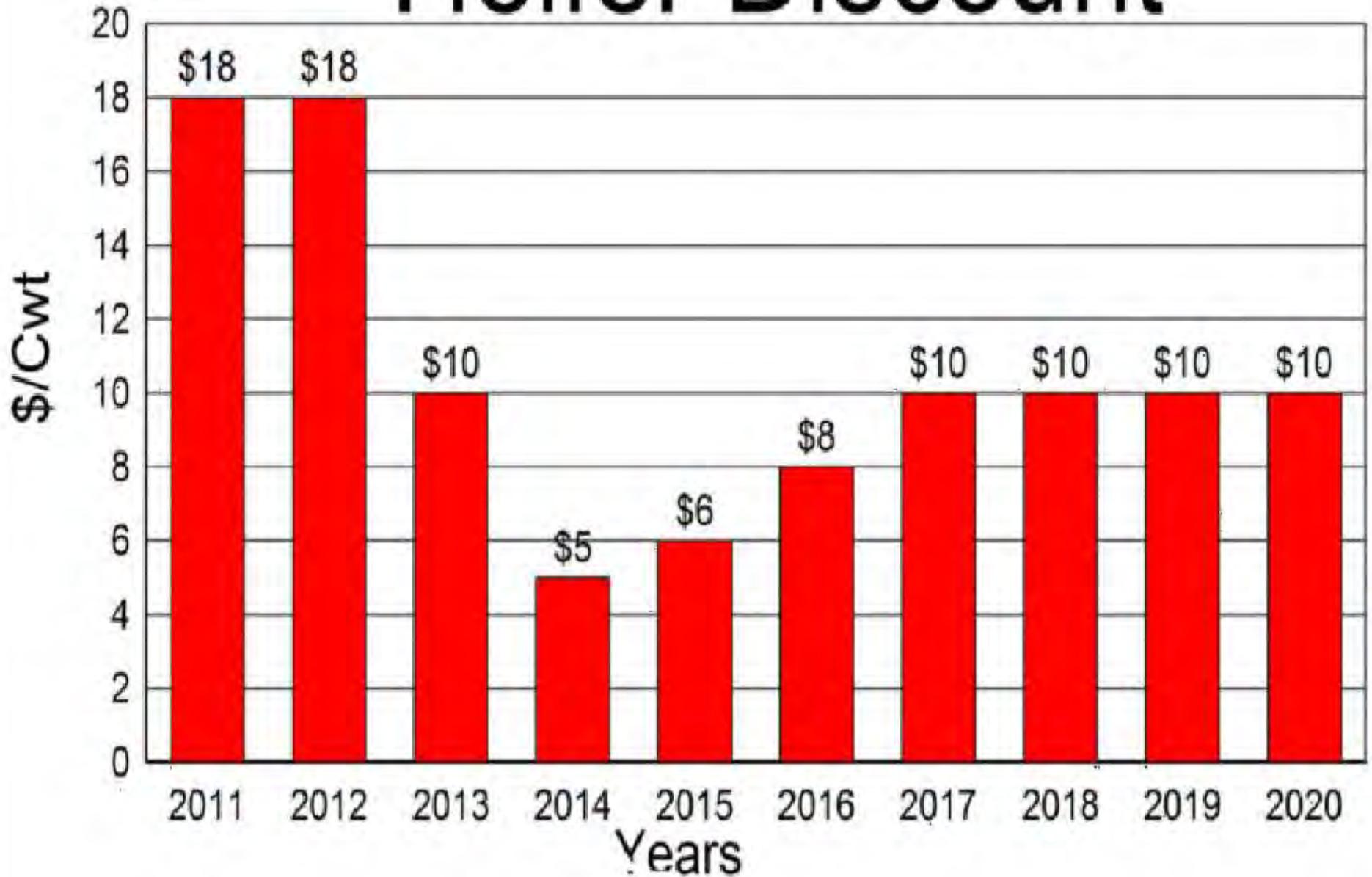
Cull Cow Prices



Projected Purchase Price Of Bred Heifer



Heifer Discount



2012 Drought Strategies Evaluated

- Control
 - 2011 thru 2020 assuming no drought
 - Assumes no increase in feed costs from drought
- Traditional_1 + No Special Repopulation
 - 2012 sold 60 bred cows
 - 2012 held back zero replacement heifers
 - 2013 on back to normal 46 replacement heifers
- Traditional_2 + Buy Back Replacements
 - 2013 – buy 60 bred females to calve in 2014
- Traditional_3 + Raise Back Replacement
 - Raise back 170 heifers: 85 in 2013 and 85 in 2014

ECONOMIC RESULTS

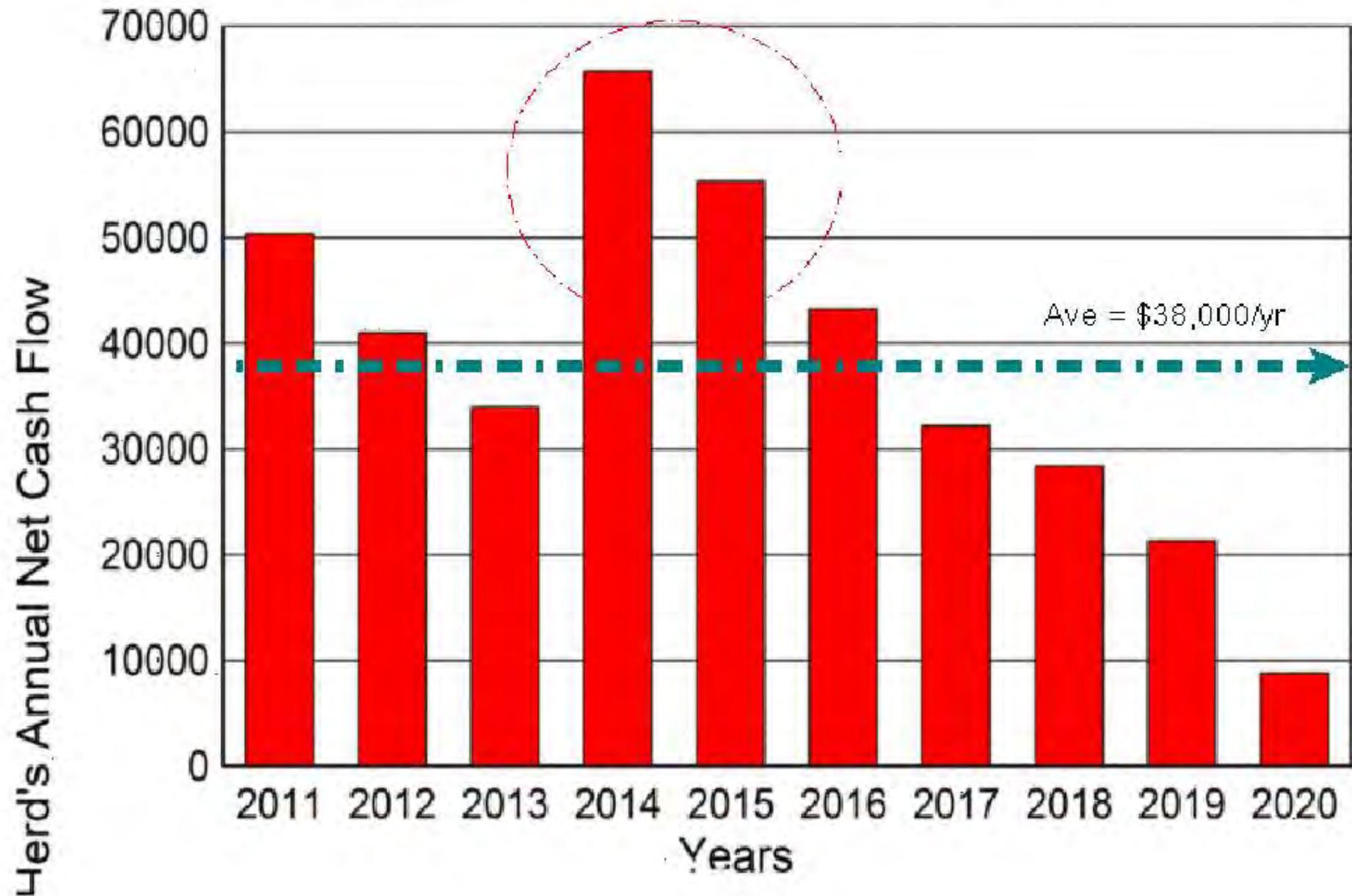
Control:
2012 No
Drought

Cash Flow Summary

250 Cow
Herd

Year	Year	Cow Sales	Calf Sales	Cash Costs	Net Cash Flow		Gross Sales	
					Total herd	Per Cow	Per cow	Per Herd
1	2011	\$36,288	\$167,881	\$153,780	\$50,389	\$202	\$817	\$204,169
2	2012	\$40,320	\$173,085	\$172,961	\$40,444	\$162	\$857	\$213,405
3	2013	\$39,816	\$171,087	\$184,401	\$26,501	\$107	\$850	\$210,903
4	2014	\$38,868	\$186,727	\$159,819	\$65,776	\$264	\$906	\$225,595
5	2015	\$38,304	\$180,535	\$163,470	\$55,368	\$221	\$872	\$218,839
6	2016	\$36,288	\$173,142	\$166,146	\$43,284	\$172	\$834	\$209,430
7	2017	\$35,280	\$165,749	\$168,821	\$32,208	\$128	\$801	\$201,029
8	2018	\$35,280	\$164,653	\$171,496	\$28,437	\$113	\$797	\$199,933
9	2019	\$35,280	\$160,270	\$174,171	\$21,379	\$85	\$779	\$195,550
10	2020	\$35,280	\$150,408	\$176,846	\$8,842	\$35	\$740	\$185,688
XXXXX	XXXXXX	\$371,004	\$1,693,535	\$1,691,912	\$372,627	\$149	\$825	\$2,064,539

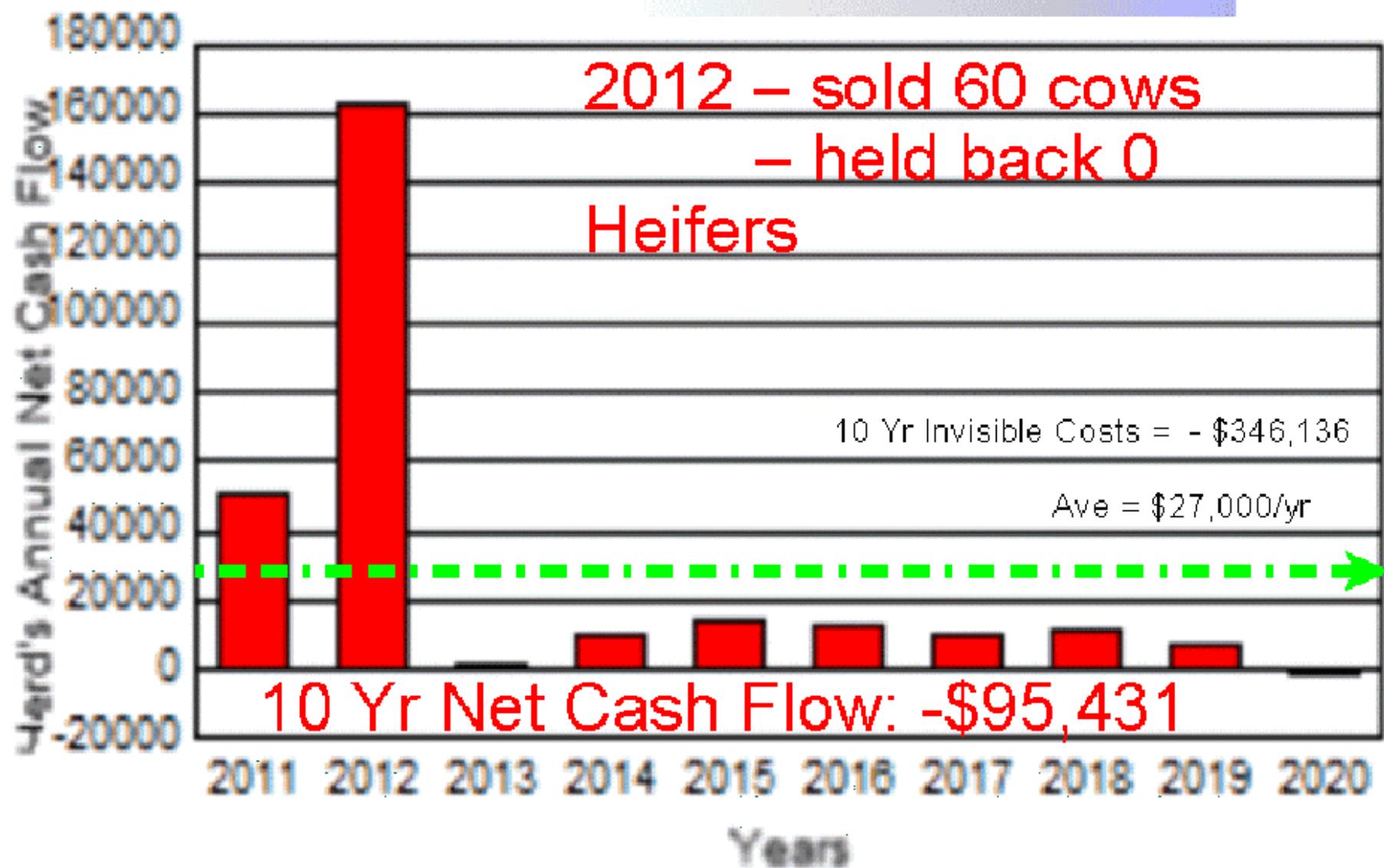
Net Cash Flow With Normal Rainfall



**IF YOU DEPOPULATE, THE DROUGHT
MAY IMPACT YOU FOR 6-8 YEARS INTO
THE FUTURE!**

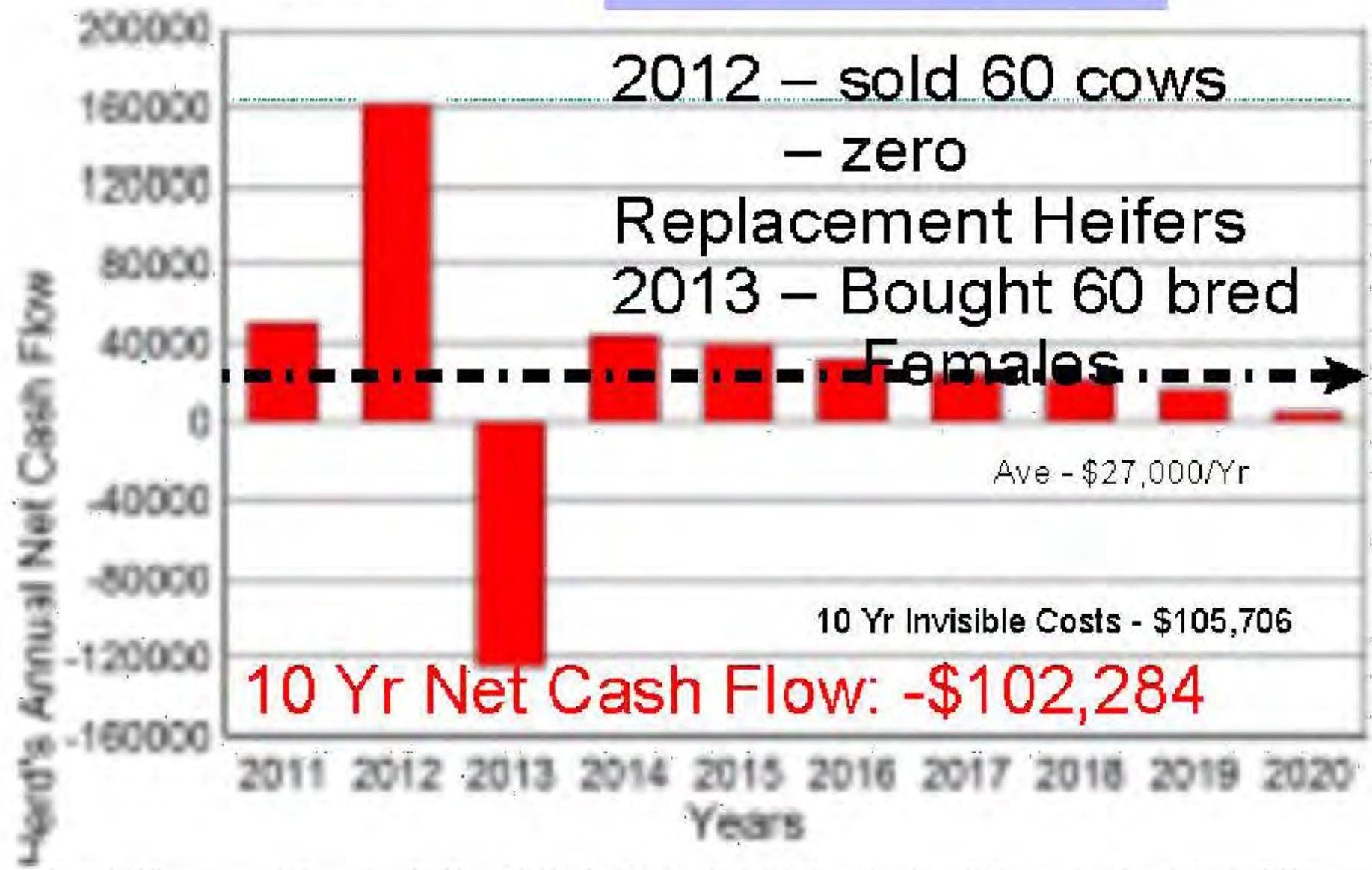
Net Cash Flow

+Traditional + No Replacement



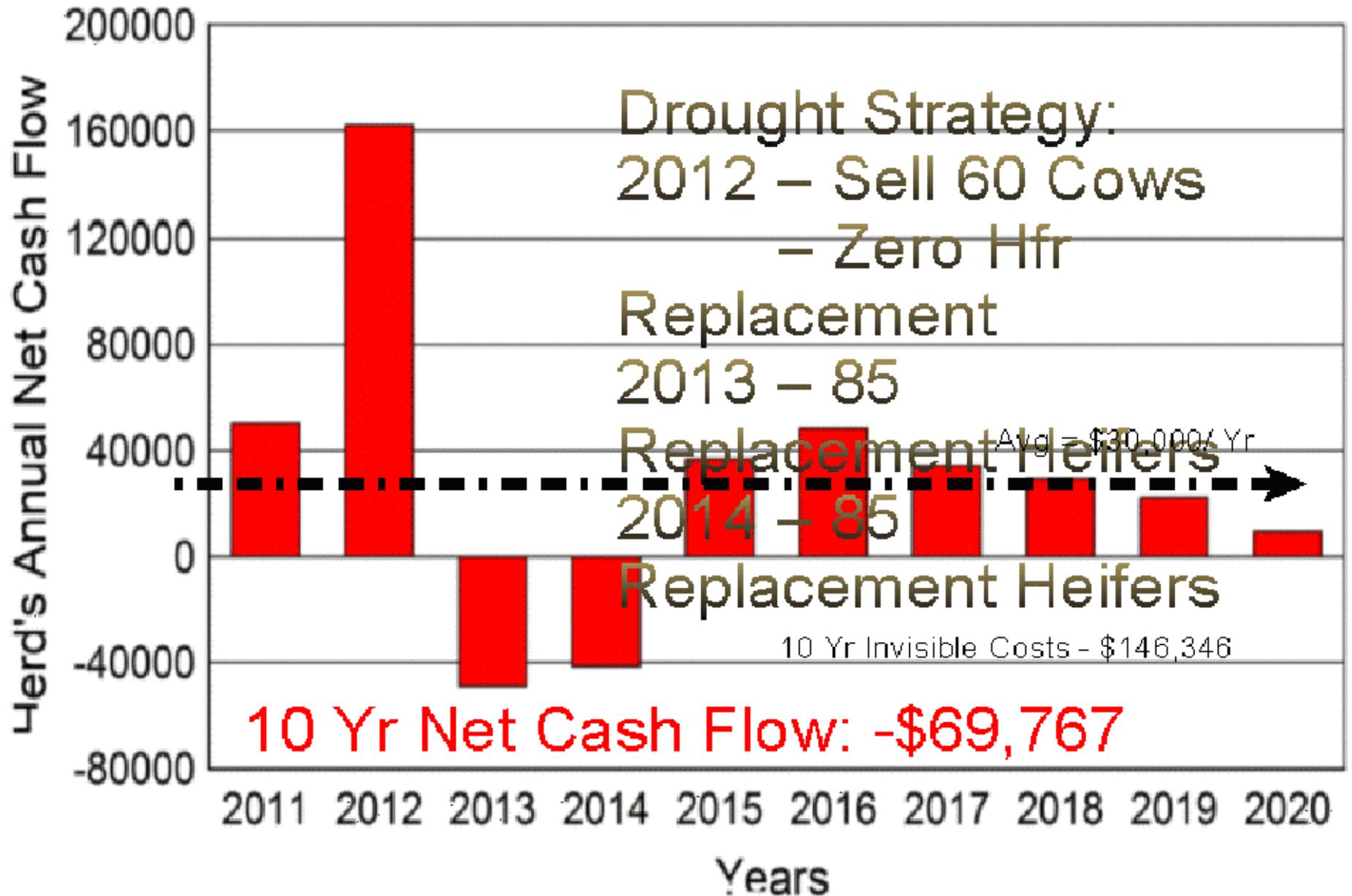
Net Cash Flow

Traditional +buy 60 bred females



Net Cash Flow

Traditional + Raise 270
Replacement Heifers



Conclusions

- Need to break drought management strategies into:
 - De-stocking – removing cattle from grassland
 - De-populating – Removing cattle from ranch ownership
 - De-stocking is a production decision
 - De-population is an economic decision
 - Each as it owns Management Decision Variables

Conclusions (continued)

- There are two categories of drought costs
 - Visible drought costs
 - Selling cows at fire-sale prices
 - Repopulating with purchased or raised females
 - Invisible drought costs
 - Having less calves to sell in years after the drought
- Optimal drought management strategies have to take both into account!

Net Cash Flow With Normal Rainfall

