

**“UNDER WHAT CONDITIONS ARE  
COW/YEARLING OPERATIONS  
MORE PROFITABLE THAN  
COW/CALF OPERATIONS”**



**By: Jeffrey C. Stull**

# ITINERARY

- ❖ **Introduction (Problem/Issue)**
- ❖ **Background**
- ❖ **Method of analysis**
- ❖ **Results of analysis**
- ❖ **Conclusion**
- ❖ **Recommendations**

## Problem/Issue statement

- ❖ A rancher has leased land for three years and is not sure which enterprise would be more profitable for the three year period.
- ❖ Cow/Yearling enterprise or Cow/Calf enterprise?

# Problem/Issue Setting

- ❖ Tom Walters is the tenant on a ranch southwest of Casper, Wyoming.
- ❖ The leased pasture is 16,000 acres used for summer grazing (May-September).
- ❖ The pasture is semi-arid able to run 1 cow per 80 acres.
- ❖ Operating loan interest will be 5% per year.
- ❖ Lease rate is \$18/head/month



# Audience

- ❖ First-hand Ranchers
- ❖ Long-standing Ranchers
- ❖ Recreational Ranchers
- ❖ Land owners

# Cow/Yearling Enterprise

- ❖ The land owner will “sell the grass” to a cattle owner. A lease or contract will be used between the land owner and cattle owner.
- ❖ Feeder cattle are delivered to the land owner in early spring (April-May). The yearling cattle will weigh approximately 600-800 pounds upon arrival.
- ❖ Through 5 months of grazing the cattle are expected to gain approximately 200-300 pounds.
- ❖ Feeder cattle are then returned to cattle owner at summers end for finishing ration.
- ❖ Revenue is generated from weight gained per animal during 5 month grazing season.

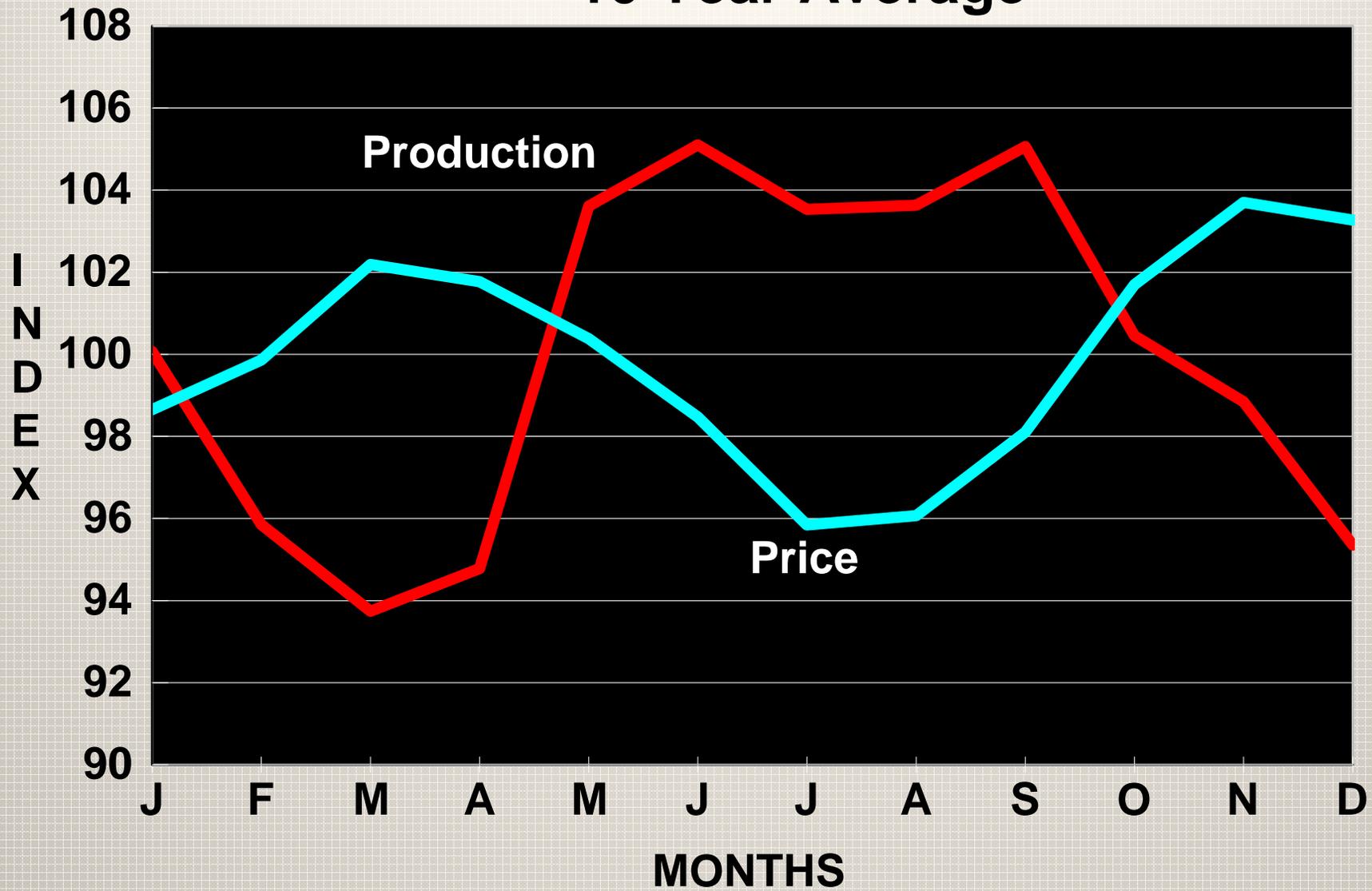
## Cow/Calf Enterprise

- ❖ The production of cattle or beef with a herd of cows which are bred and produce calves.
- ❖ Mature cows are bred in the summer to produce a calf 285 days later in the spring.
- ❖ Cows are kept year around to produce calves to be sold year after year.
- ❖ Calves for this project are expected to weigh 500 pounds when sold.

# Understanding the cattle cycle

- ❖ “Cattle cycles tend to execute within a decade and run from the beginning of one decade to the end of that same decade. But beef price cycles tend to go from the middle of one decade to the middle of the next decade.” (Hughes,2002,Sept.)
- ❖ “The cattle cycle causes beef price cycles. The two are highly correlated, but they run in opposite directions. When cattle numbers trend upward, beef prices trend downward and vice versa.” (Hughes,2002,Sept.)
- ❖ “Cattle cycles typically run 10-12 years, but rancher memories only go back seven years.” (Hughes,2004,Oct.)

# Beef Production vs Fed Price 10 Year Average



# Methods of Analysis

- ❖ First thing is to consider how many Animal units (AU) the leased land is able to stock.
- ❖ An Animal Unit Month equals the amount of forage required per month by a 1000 pound cow or their equivalent.
- ❖  $16,000 \text{ acre lease} / 80 \text{ acres per cow} = 200 \text{ AU's Cow/calf pairs}$
- ❖ To determine the yearlings AU's, a running average must be taken to account for the weight gained over the five month grazing season.
- ❖  $260 \text{ lbs.} / 2 = 130 \text{ lbs.} + \text{beginning weight (600 lbs.)} = 730 \text{ lb. yearlings}$
- ❖  $730 \text{ lbs.} / 1000 \text{ lbs.} = .73 \text{ AU's}$
- ❖  $200 \text{ AU's} / .73 \text{ AU's} = 274 \text{ AU's Yearlings}$

# Methods of Analysis

- ❖ Next, ten years of historical cattle prices were deflated and analyzed.
- ❖ ([www.ers.usda.gov/data/.../Data/HistoricalGDPDeflatorValues.xls](http://www.ers.usda.gov/data/.../Data/HistoricalGDPDeflatorValues.xls))
- ❖ Prices were collected from a weighted average summary for Wyoming auctions and USDA AMS of Torrington, Wyoming.

# Methods of Analysis

- ❖ The main method was creating enterprise budgets for both the cow/calf enterprise and cow/yearling enterprise.
- ❖ The Cow/calf enterprise budget includes payments for leased land, interest on operating loan, feed for the winter months, minerals for the year, veterinarian expense, and labor.
- ❖ The cow/yearling enterprise budget includes the payments for the leased land, minerals for the grazing season, veterinarian expense, and labor.

# Cow/Calf Enterprise Budget

- ❖ Vet Expense = \$10/head/ year = \$2,000/year
- ❖ Labor = \$2500/month = \$30,000/year
- ❖ Mineral = \$1,400/ton = 2oz./day/cow = \$7,252/year
- ❖ Leased Land = \$18/cow/month = \$18,000/year
- ❖ Feed costs for the winter = 218tons\*\$100 = \$21,800/year
- ❖ Total Expense = \$79,052/year

# Cow/Yearling Enterprise Budget

- ❖ Vet=\$10/yearling at 6% sick rate=\$160/grazing season
- ❖ Labor=\$2500/month=\$12,500/grazing season
- ❖ Mineral=\$1,400/ton=2oz./cow/day=\$4,200/grazing season
- ❖ Leased Land= \$18/yearling/month=\$24,660/grazing season
- ❖ Total Expense=\$41,520/grazing season

# Explaining Project Data

- ❖ While analyzing data the lease rate for the cow/yearling was kept constant through nine scenarios.
- ❖ The rate is set at \$20/head/month plus one dollar per pound gained over 38 lbs. per month.
- ❖ Total revenue generated/month/head=\$34 dollars
- ❖ 269 yearlings\*\$34\*5months=\$45,730 total revenue
- ❖ “In most contracts a 2% death loss is acceptable to the cattle owner. Missing cattle, not verified as dead, may be the responsibility of the lease holder.”  
(Nader & Forero 2010)

# Example of Cow/Yearling

<b>Scenario 1</b>	<b>Revenue from selling grass</b>	<b>Expenses</b>	<b>Total Profit</b>
<b>2000</b>	\$45,730	\$41,520	\$4,210
<b>2001</b>	\$45,730	\$41,520	\$4,210
<b>2002</b>	\$45,730	\$41,520	\$4,210
	<b>Total profit</b>		<b>\$12,630</b>

# Explaining Project Data

- ❖ First year of lease a operating loan will used to purchase 200 young bred cows and 8 breeding bulls
- ❖ Years 2&3 of the lease there is a 6% cull cow rate and a cull rate of 2 bulls/year. “The culling rate for herds is 6 to17 percent dependent to herd size.” (Smathers, Church, Gray, & Rimbey, 2006).
- ❖ Revenue is generated from the sell of 500 lb. calves in the fall. 190 calves will be sold in the fall accounting for a 5% death loss.
- ❖ Year 3 of lease 188 middle aged bred cows are sold, 12 cull cows, 8 cull bulls

## Example of Cow/Calf

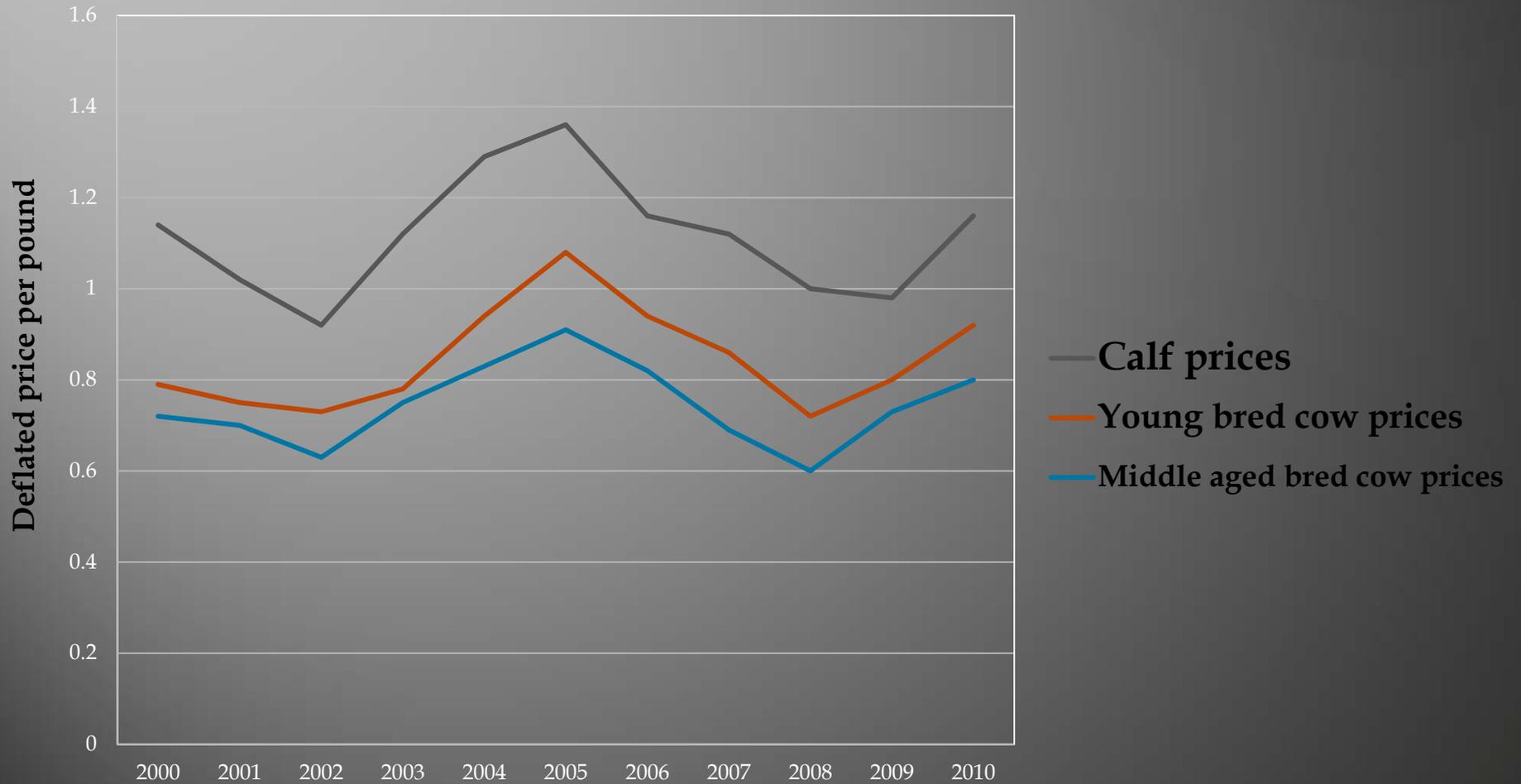
<b>Scenario 1</b>					
<b>Year</b>	<b>Cost of cows &amp; bulls</b>	<b>Revenue from calves</b>	<b>Expense</b>	<b>Total Profits</b>	
<b>2000</b>	\$174,000	\$108,300	\$79,052	\$14,328	
<b>2001</b>	\$6,220	\$96,900	\$79,052	\$2,408	
<b>2002</b>	\$6,740	\$87,400	\$79,052	(\$352)	
<b>Sell of cows</b>	(\$45,880)		Capital		
<b>Total profit</b>	(\$29,496)		(\$8,700)		
<b>Average Profit</b>	(\$9,832)				

# Results of Analysis

	Average Profit Per Scenario	
Scenarios	Cow/Calf Average Total Profit	Cow/Yearling Average Total Profit
1-(00,01,02)	(\$9,832)	\$4,210
2-(01,02,03)	\$815	\$4,210
3-(02,03,04)	\$16,571	\$4,210
4-(03,04,05)	\$30,165	\$4,210
5-(04,05,06)	\$11,698	\$4,210
6-(05,06,07)	(\$10,679)	\$4,210
7-(06,07,08)	(\$15,369)	\$4,210
8-(07,08,09)	(\$8,279)	\$4,210
9-(08,09,10)	7,981	\$4,210
Average Total profit	\$2,534	\$4,210

# Analyzing the Cattle Cycle

## The Cattle Cycle



# SWOT Analysis

(Cow/Calf)

- ❖ Strengths- Rancher who the thesis was done for already has good experience in this field. He knows what it takes to produce a 500 pound calf.
- ❖ Weakness-Initial investment, production & price Risk, more expenses, fluctuating prices, and must have good understanding of cattle cycles.
- ❖ Opportunity- Calf market, bred cow market, and living the American dream.
- ❖ Threat- Rise and falls in prices, and interest rates.

# SWOT Analysis (Cow/Yearling)

- ❖ Strengths- Lease rates are more constant, benefits more diverse enterprises, short period leases, and less risk.
- ❖ Weakness- Amount of profit generated will not fulfill small operations, demand for cow/yearling enterprises depend on corn prices.
- ❖ Opportunity- Cheaper costs per pound gained for cattle owner.
- ❖ Threat- Minimal profit generated per grazing season.

## Conclusion

- ❖ Many ups and downs to a cow/calf enterprise. Since the cow/yearling lease rates were kept constant we did not see ups and downs.
- ❖ Both scenarios can have positive revenues but in a three time period a cow/yearling enterprise will be more likely to generate revenue.
- ❖ There were some expenses that were not included in the research for both scenarios such as fuel to tend to cattle, depreciation on equipment, and improvements on the land.

# Conclusion (Cow/Calf)

- ❖ Generates lower profit over the three year lease due to the interest paid on the operating loan that must be taken out to purchase the young bred cattle.
- ❖ Calves generate more revenue than what yearlings generate but there are more expenses.
- ❖ Keeping cattle year around generates \$37,532 more than the cow/yearling enterprise.

# Conclusion (Cow / Yearling)

- ❖ Generates larger profit over a three year period due to a less expenses.
- ❖ There is no initial investment to purchase the yearlings when selling the grass.
- ❖ Having no interest payments on the operating loan makes a tremendous difference.

# Recommendations

- ❖ For this problem the cow/yearling enterprise looks to be the more profitable option for the three year lease.
- ❖ In a time period of three years the cow/yearling enterprise generally dominates the cow/calf enterprise.

# Work Cited

- Anderson, P. D., Robb, G. J., & Minert, J. (2005). *The Cattle Cycle*. Manuscript submitted for publication, Division of Agriculture, University of Arizona, Tucson, Arizona. Retrieved From <http://www.cals.arizona.edu/arec/wemc/cattlemarket/CatlCycl.pdf>
- Nader, A. G., Forero, C. L. (2010). *Sample Costs for Beef Cattle Yearlings/Stocker Production*. Manuscript submitted for publication, Agricultural Economics, University of California, Sacramento, California. Retrieved from [http://coststudies.ucdavis.edu/files/beefyearling\\_stockersv2010.pdf](http://coststudies.ucdavis.edu/files/beefyearling_stockersv2010.pdf)
- Dhuyvetter, K. C., Langemeier, M., & Johnson, S. (2009). *Beef cow-calf enterprise*. Manuscript submitted for publication, Agricultural Economics, Kansas State University, Manhattan, Kansas. Retrieved from <http://www.ksre.ksu.edu/library/agec2/mf266.pdf>
- Gadberry, S., & Troxel, T. (2000). *Cow calf enterprise budgeting*. Manuscript submitted for publication, Division of Agriculture, University of Arkansas, Fayetteville, Arkansas. Retrieved from [http://www.uaex.edu/Other\\_Areas/publications/PDF/MP-413.pdf](http://www.uaex.edu/Other_Areas/publications/PDF/MP-413.pdf)
- Bevers, S., & McCorkle, D. (1992). *Cow calf enterprise standardized performance analysis*. Manuscript submitted for publication, Economic Accountability, University of Texas A&M, College Station, Texas. Retrieved from <http://animalscience.tamu.edu/images/pdf/beef/beef-cow-calf-enterprise.pdf>
- Comerford, J. W., Greaser, G. L., Moore, L., & Harper, J. K. (2001). *Feeding beef cattle*. Unpublished manuscript, Agricultural Sciences, Penn State University, University Park, Pennsylvania. Retrieved from [http://agalternatives.aers.psu.edu/Publications/feeding\\_beef](http://agalternatives.aers.psu.edu/Publications/feeding_beef)
- Murugan, S. (2007). *Profit maximizing livestock production and marketing strategies to manage climate variability*. Unpublished manuscript, Agricultural Economics, New Mexico State University, Las Cruces, New Mexico. Retrieved from <http://aces.nmsu.edu/aes/corona/documents/subu-2007.pdf>
- Smathers, R. C., Church, J. A., Gray, W. C., & Rimbey, N. R. (2006). *Background and assumptions*. Manuscript submitted for publication, Agricultural and Life sciences, University of Idaho, Moscow, Idaho. Retrieved from <http://www.cals.uidaho.edu/aers/PDF/Livestock/EBB%202004/EBB-CC1-06.pdf>
- Reece, P. E., Volesky, J. D., & Schacht, W. H. (1998). *Integrating management objectives and rangeland strategies on semi-arid rangeland*. Manuscript submitted for publication, Agriculture and Natural Resources, University of Nebraska, Lincoln, Nebraska. Retrieved from <http://elkhorn.unl.edu/eublic/ive/ec158/build/ec158.pdf>
- Ringwall, K. (2009). *What is the real value in a beef herd?* North Dakota State University, Fargo, North Dakota. Retrieved from <http://www.ag.ndsu.edu/news/columns/beeftalk/beeftalk-what-is-the-real-value-in-a-beef-herd/>
- Zehander, C. (1996). *Making the marketing decision*. Manuscript submitted for publication, Department of Animal Science, University of Minnesota, Minneapolis, Minnesota. Retrieved from <http://www.extension.umn.edu/beef/components/homestudy>
- Hughes, Harlan. Meyer, Lee. Cross, Tim. Aakre, Dwight. (2002). *Managing for Today's Cattle Market and Beyond: Taking Your Beef Cow Herd Profitably Through the Cattle Cycle*. [http://beefmagazine.com/mag/beef\\_understanding\\_cattle\\_cycle/index.html](http://beefmagazine.com/mag/beef_understanding_cattle_cycle/index.html)

Edwards, W. (1999). *Beef sharing agreements*. Manuscript submitted for publication, Management for Profit, Iowa State University, Ames, Iowa. Retrieved from <http://www.extension.iastate.edu/bfc/pubs/beefcowsharing>

## Internet and Interview Sources

<http://www.montana.edu/softwaredownloads/livestockdownloads.html>, Break even Prices, Griffith, D., 11/18/10

<http://www.ers.usda.gov/Briefing/Cattle/data.htm>, Meat Price Spreads, 11/17/10

Tom Walters, 11/11/10, "Interview on expenses of a cow/calf operation in Wyoming" Hwy 220, Casper, WY, 82604. Collected data of expenses toward vaccinations, feed, etc. Tom has been a manager of a cow/yearling enterprise for 12 years now.

Danny Fenster, 11/13/10, "Interview on expenses of a cow/yearling operation in Wyoming", Hwy 77, Medicine Bow, WY. I collected start weights and end weights for the ranch. Also, collected expenses for the enterprise. Dan Has been the manager for Q creek land & livestock for 12 years know.

Chris Bastian, 1/14/11, "Interview on Wyoming auction calf prices" Laramie, WY. I collected 500 lb. calf weights and cull cow prices from Chris. Chris is a professor at the University of Wyoming.

Kaye Orton, 2/25/11, "Interview on Wyoming auction bred cattle prices" Torrington, WY. I collected young bred cow prices and middle aged bred cow prices from Kaye. Kaye has worked for the USDA, AMS livestock and grain market news for many years.



Questions??

