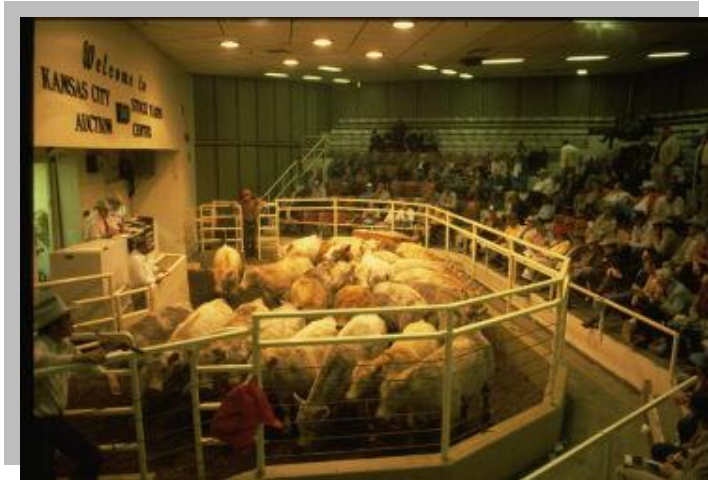


Livestock Marketing and Risk Management

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Livestock Marketing and Risk Management

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Introduction

Ranching has always been a challenging and risky operation. Producers deal with production risk on a daily basis. A late winter storm during calving or lambing season can result in sickness and even death for many new born calves and lambs. Drought can reduce available grazed forages and increase feeding costs. Sickness or disease may limit weight gain or be detrimental to reproductive performance. Producers generally have management plans in place to mitigate many of these types of production risks. For example, cattle may be moved to more protected areas for calving, nutritional supplements are often fed to offset shortages in range or pasture conditions, and animals are vaccinated to reduce incidence of sickness or disease.

Another major source of risk that producers face is market or price risk. The expected price for a 500 lb. weaned calf can easily vary more than \$20/cwt. from the time the calf is born until it is marketed in the fall; that is a difference of \$100 per head. Even at the time of sale, prices for the same weight cattle may vary as much as \$10/cwt. at a local auction; a difference of \$50 per head. While producers often take measures to mitigate production risk, some feel there is little they can do to impact the price they receive for their livestock.

However, while it is true that individual producers can have no impact on the overall price level for calves, feeder cattle, or lambs, individual producers can have an impact on the prices they receive. Is it just dumb luck that a certain neighbor of yours always tops the local sale? Perhaps he/she is devoting a little management time to making sure that their lots are uniform and have the traits most desired by the buyers. Would you like to be able to price your cattle in July but not deliver them until October? That is possible with forward contracts or the futures market. You probably insure your truck against a wreck, and yourself against poor health, have you thought of insuring your livestock against a price wreck? That is possible using either the options market or using specific insurance products specifically designed for that purpose.

The objective of this bulletin is to document the market or price risk faced by livestock producers and then to outline a number of marketing alternatives and strategies that can be used to reduce market risk. The specific objectives are to 1) quantify price risk over time, across markets, and across sale lots; 2) outline the pros and cons of a number of alternative marketing methods; 3) discuss various pricing strategies to reduce the risk faced by producers; and 4) analyze historical data comparing alternative marketing and pricing strategies.

Volatility in Market Prices

This section will look at market price volatility in a number of different ways. Volatility will be documented over time, across markets and across sale lots. In addition to simply documenting the volatility, an attempt will also be made to quantify market risk as separate from but a part of market volatility. For example, prices for lighter weight feeder cattle are typically higher in the spring and lower in the fall of the year. This contributes to price volatility, but if the pattern is known by producers, it does not really contribute much to market risk or uncertainty. However, how much your local prices vary from

the national price level is a part of volatility across markets and this also contributes directly to your market risk or uncertainty.

Volatility Over Time

Cattle ranchers make decisions to raise or purchase replacement heifers and the returns from that decision are really based on market prices and costs over the next several years. Therefore, long term price volatility is a concern for cow-calf producers. Monthly prices from 2007-2011 at Torrington, WY for 500-550 pound steer calves are displayed in Figure 1. There are a number of observations that can be made from viewing these prices. Price variability within a year varied from about \$15 per cwt. to over \$23 per cwt. and average \$20 per cwt. over the five years. That is a difference of \$100 per steer

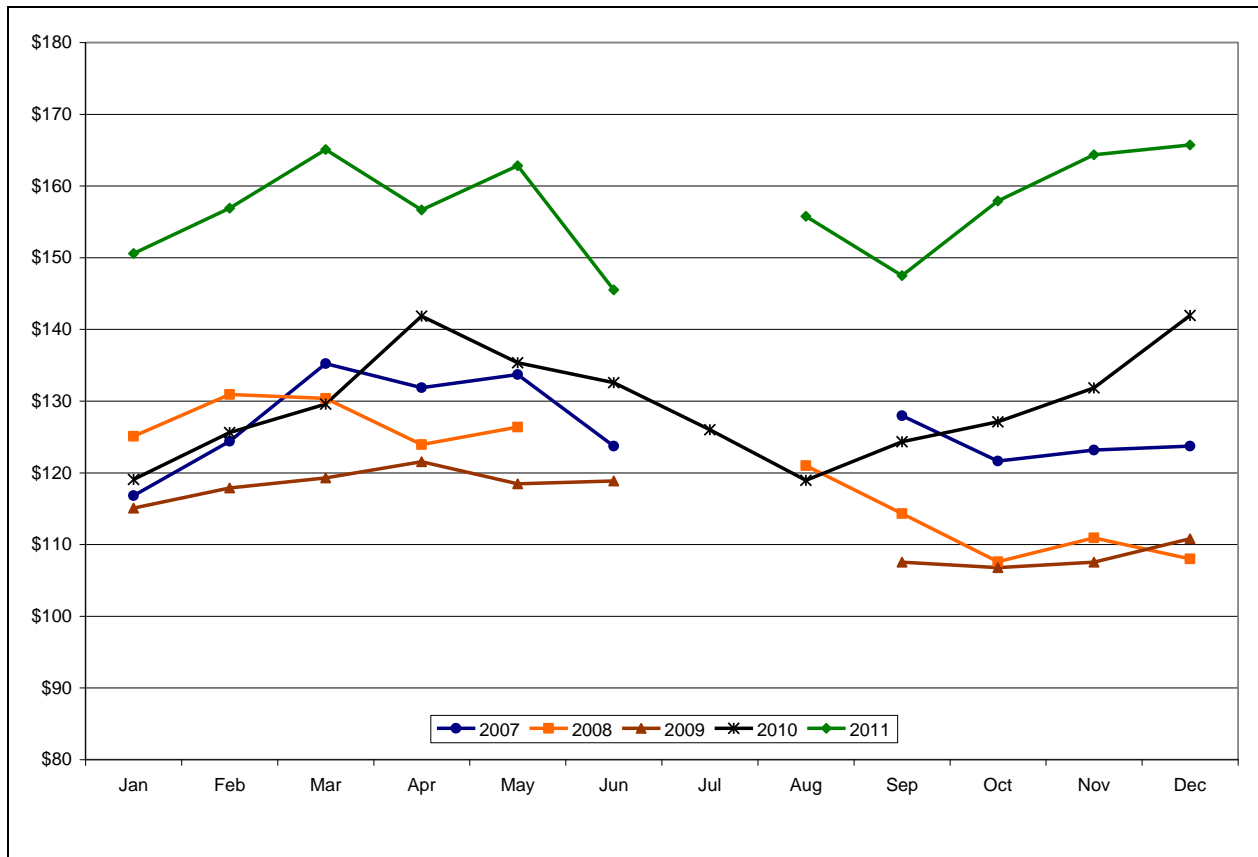


Figure 1 Monthly 500-550 lbs. Feeder Steer Prices, Torrington, WY.

calf for a 500 lb. calf. Most 500 lb. calves in Wyoming are sold in October and November. For the first three years, October and November prices were the lowest prices for the year. However, in the last two years, October and November prices were above the annual average price. The final observation is that in the last three years, October and November prices have varied from \$107 to \$164 per cwt.; that is a difference of \$57 per cwt. or \$300 per head for a 525 lb. steer calf. That kind of price volatility makes it very difficult to know how much you should pay for a replacement heifer.

Fed cattle prices have also shown considerably variability over time. Since most cattle are on feed for a period of 100 to 200 days, depending upon the placement weight, shorter term variability may be more important to cattle feeders than longer term volatility over a number of years. Weekly fed cattle prices in the 5-market area from 2007 to 2011 are displayed in Figure 2. For four out of the five years prices essentially varied between \$80 and \$100 per cwt.; a \$250 per head difference for a 1250 pound slaughter steer. Annual variability was typically from \$10 to \$15 per cwt. However, not only did 2011 prices move much higher, but annual variability also increased to about \$20 per cwt. Looking at short term variability, there are numerous times over the five years when prices increased or decreased more than \$6 per cwt. in a two week time frame. That would imply an increase or decrease in returns of more than \$75 per head. Volatility of that magnitude can be very difficult to manage.

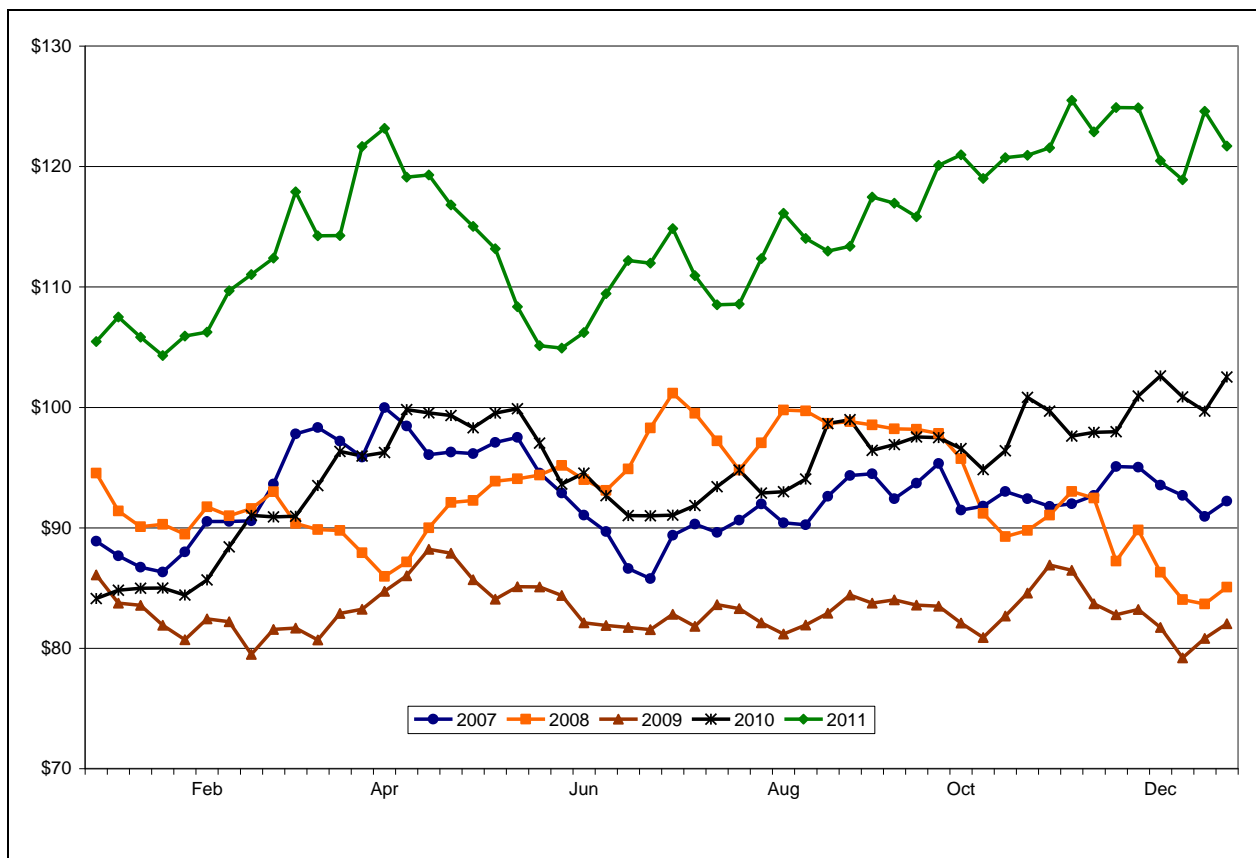


Figure 2 Weekly Prices for the 5-Area Fed Cattle (TX/OK/NM, KS, NE, CO, IA/MN).

Monthly lamb prices from 2007 to 2011 are plotted in Figure 3. From 2007 to 2009, lamb prices were fairly consistent. Late summer early fall lamb prices were typically about \$100 per cwt. making a 70 pound lamb worth \$70 per head. Prices in late winter and early spring were typically \$5-20 per cwt. higher, or \$3.50 to \$14 per head higher. In the last two years of the data, lamb prices have doubled and also become more volatile through the year. In 2011, the annual variability was \$25 per cwt., or \$17.50 per head. On a relative basis, that is actually less variable than when prices were in the \$100-120 per cwt. range. What will happen to lamb prices in the future? If they stabilize around this higher level, one

might conclude that lamb prices are less volatile than cattle prices. However, if prices jump higher still, or fall back to some level between the earlier prices and the 2011 prices, one might conclude that lamb prices are in fact more volatile than cattle prices. Time will answer this question.

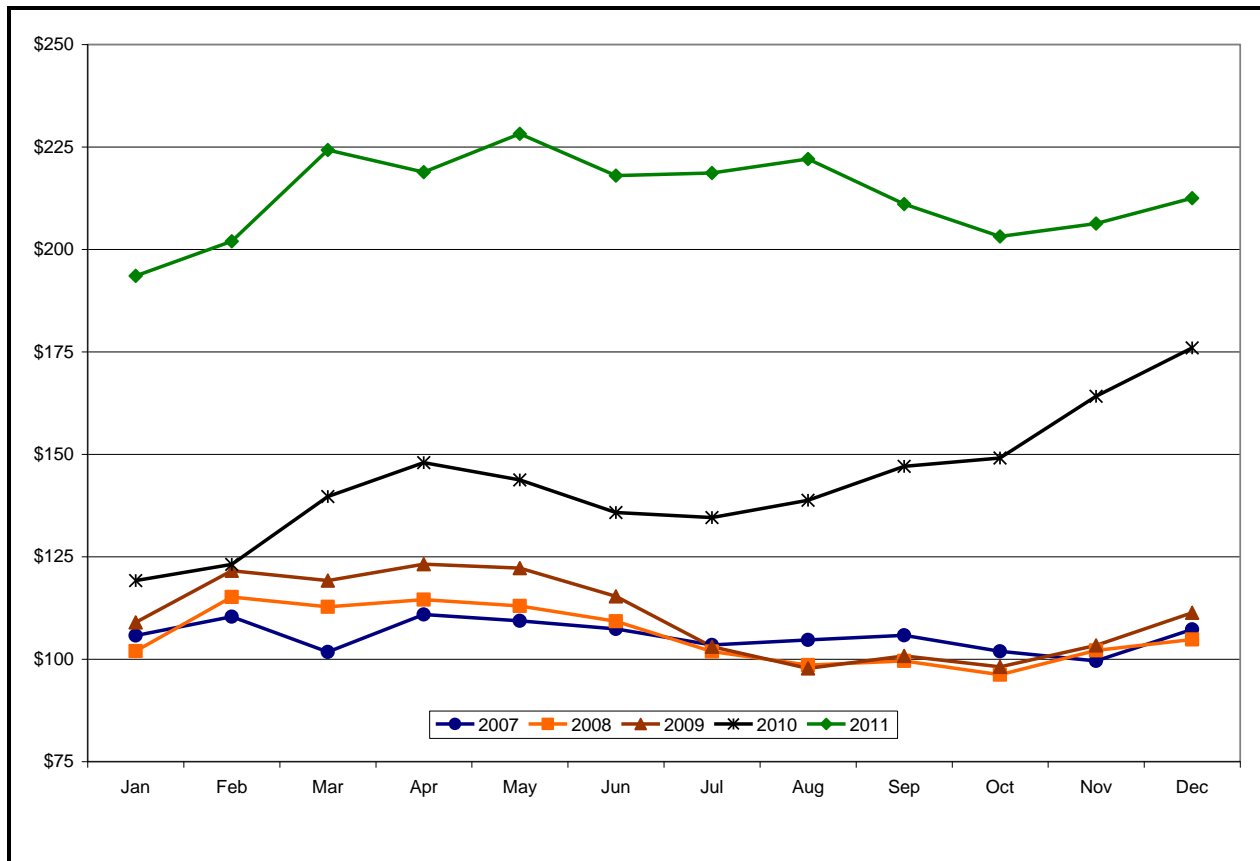


Figure 3 Monthly Lamb Prices for the 3-Market Area (CO, SD, TX)

Volatility Across Markets

In addition to varying over time, prices also vary across space or across markets. Spatial price variability may be the result of differing production systems that impact cattle or lamb quality if large distances are considered. For example, feeder cattle quality may be substantially different in the southern U.S. compared to the Rocky Mountain region. Therefore, these quality differences would be expected to result in price differences in these different regions. However, price differences may also occur in markets that are within the same region and that generally would be expected to have the same type of cattle.

Prices from two auctions in Wyoming, one in Colorado, and one in Montana are all displayed in Table 1. The prices are for 550-600 lbs., Medium-Large frame, #1, feeder steers for three different weeks in the fall of 2011. In two of the weeks the difference between the highest and lowest price that week is over \$11 per cwt., or about \$63 per head. It is also the case that each week a different auction has the

highest price and a different auction has the lowest price. In fact, three of the auctions have the highest price one week and the lowest price another week. The point of this is that this variability in prices across markets adds to a producer's risk. No one market will always have the highest price or the lowest price and the market with the highest average price overall, never had the highest price in the three weeks that were chosen.

Table 1. Feeder Steer, 550-600 lbs., Prices at Four Different Markets over Three Different Dates in 2011 and the Weekly Rank .

	1 st Week October		4 th Week October		3 rd Week November		Average	
	Price	Rank	Price	Rank	Price	Rank	Price	Rank
Torrington, WY	145.94	2	149.56	2	154.92	2	150.03	1
Riverton, WY	138.12	4	150.65	1	148.68	3	145.82	4
Brush, CO	149.52	1	145.61	3	146.65	4	147.26	3
Billings, MT	143.65	3	145.24	4	157.74	1	148.89	2

Data are from the USDA-AMS weekly market reports for each auction.

Volatility Across Lots

Prices also vary on the same day, at the same location based on the individual lots being sold. Prices for the third week in November, 2011 are displayed in Table 2 for the same four markets that were previously examined. Some of this variability may be based on differences in lot quality and/or the size of the individual sale lot. Some of the price variability is also based on weight difference for lots within the weight range being examined. But there would still likely be some unexplained variability. This is likely the result of the ebb and flow of market prices as the auction takes place and buyers become more or less aggressive on some sale lots compared to other lots.

Table 2. Feeder Steer, 550-600 lbs., Price Variability at Four Different Markets for the 3rd Week in November, 2011.

	Average Price	Low Price	High Price	Price Range
Torrington, WY	154.92	149.00	158.75	9.75
Riverton, WY	148.68	140.00	154.00	14.00
Brush, CO	146.65	144.50	148.00	3.50
Billings, MT	157.74	154.00	160.50	6.50

Data are from the USDA-AMS weekly market reports for each auction.

The overall point of this general section is that prices are volatile; they vary over time, across markets, and between sale lots. This volatility adds to the risk and uncertainty in the market place and is part of the overall marketing challenge faced by cattle and sheep producers.

Methods to Reduce Price Uncertainty

Not all price volatility is price uncertainty. Many prices move in somewhat repeatable seasonal patterns. It is also the case that regional or local prices may be consistently above or below national price levels. If these national price levels were known in advance, then local prices could also be predicted or forecasted ahead of time and this could reduce price uncertainty.

Seasonal Price Patterns

Seasonal price patterns can be determined by calculating monthly seasonal index values. This is done by dividing monthly average prices by the annual average price and multiplying by 100. If you do this for 5 years and take the average for each month, you have an estimate of the historical seasonal price pattern. Table 3 contains the monthly prices and calculated seasonal index values for Torrington, Wyoming from 2007-2011. The average monthly seasonal index values for different weight feeder steers are displayed in Figure 4.

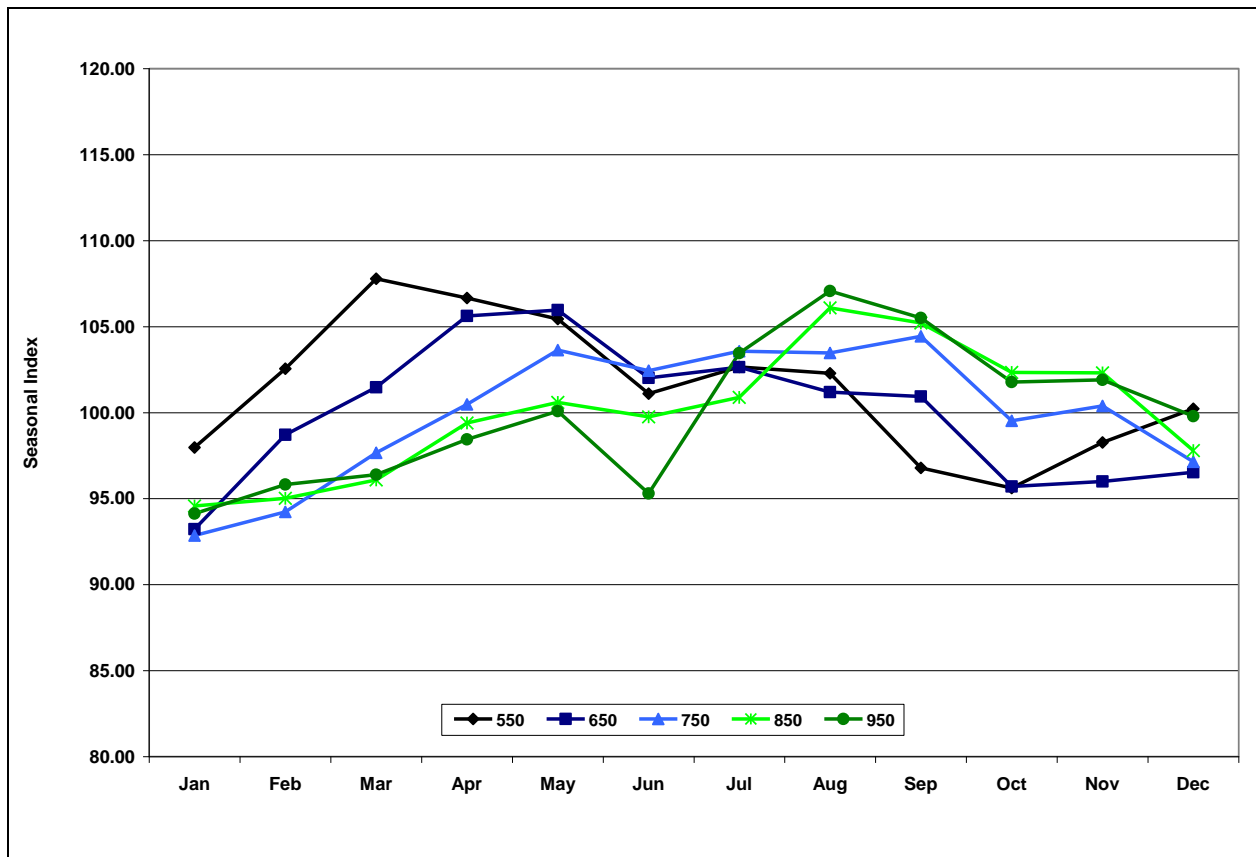


Figure 4. Monthly Season Price Indices for Feeder Steers at Torrington, WY, 2007-2011.

These monthly seasonal index values can be used to make short 1-6 month price forecasts to give an estimate of the price in the future. If it were July and you wanted to predict the November price for 550 lbs. steers, then you would take the current July price and divide by the July index and then multiply by the November index. For example, if the price in July was \$145/cwt. then the November prediction

would be $\$145/102.65*98.27 = \138.81 . Another example for yearlings, assume the price for 850 lbs. steers was $\$120/\text{cwt.}$ in May and that you wanted to predict the September price for 850 lbs. steers. The price prediction would be $\$120/100.59*105.21 = \125.51 . The index values are obtained from Table 3. You should use currently reported market prices to make your future price projections. Those prices for Wyoming can be found at: http://www.ams.usda.gov/mnreports/to_ls795.txt.

Basis Price Predictions

Research has shown that for many agricultural commodities, the most accurate forecast for local cash prices is to adjust the futures market price by the historical basis. Basis is defined as your local cash price minus the futures price for the same commodity. Basis for various weights of feeder steers at Wyoming is displayed in Table 4. Each basis value is an average value over the last five years, 2007-11. The near-by CME Feeder Cattle Futures monthly price was subtracted from each monthly average cash price. For example, if the price in June was $\$139.25$ for 550 lbs steers and if the Aug Feeder Cattle contract averaged $\$130.70$ in June, than basis would have been $\$8.38 = 139.25-130.70$.

The following examples illustrate how to use historical basis values to forecast cash prices. In September 2011, the CME Nov 2011 Feeder Cattle Contract was trading around $\$139$ per cwt. If you wanted to predict the price of a 550 lbs steer in November 2011, you would add the historical basis of $\$11.64$ to the $\$139$ futures price as follows: $\$139.00 + \$11.64 = \$150.64$. In July, the September Feeder Cattle contract was trading at $\$136$. The historical basis for an 850 lbs steer in September is $-\$2.78$. Therefore, the predicted September price for 850 lbs steers in Wyoming would be $\$133.22/\text{cwt.}$ ($\$136.00 - \2.78). These basis values were obtained from Table 4. More basis information on numerous markets can be obtained at <http://www.beefbasis.com>. This web site actually does the price forecasting for many different auction markets. The Beef Basis web site also incorporates other feeder cattle characteristics to try and more accurately predict what your cattle will actually bring at a sale. In this manner, some of the lot volatility discussed above can also be reduced.

Marketing Alternatives

Cattle and sheep producers have several alternatives when it comes to marketing their livestock. The majority of producers use an auction market of some kind to market at least some of their livestock each year. Direct marketing from producers to other producers who add weight and condition to the livestock has also been used by many producers. In more recent years, there has been an increase in direct sales from producers to consumers; this has been particularly true in the lamb industry. The following section describes some of these marketing choices and lists some pros and cons to each alternative. When a specific example is provided, this is only for illustrative purposes and does not constitute an endorsement of this particular business.

Local Auctions

Local auctions are a very traditional and primary marketing method for many livestock producers. Generally the timing of the marketing decision is simply linked to the production process

Table 3. Monthly Seasonal Index Values of Feeder Steers at Torrington, Wyoming (2007-2011).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Price of 550 lb Steers, Wyoming													
2007	113.58	121.28	130.25	129.63	132.26	123.70	121.00	122.75	124.49	119.02	120.065	120.055	123.17
2008	121.02	127.165	128.03	120.16	124.14	124	124	121	112.53	104.05	106.285	103.62	118.00
2009	112.705	114.58	116.215	119.64	116.98	112.425	112	112	104.54	103.18	104.52	106.185	111.25
2010	115.56	122.245	128.585	139.11	134.815	128.955	126	122.22	122.63	123.125	126.82	137.385	127.29
2011	147.16	152.64	161.555	158.28	159.725	139.25	145	155.76	142.61	153.39	157.605	161.715	152.89
Monthly Seasonal Indexes for 550 lb Steers, Wyoming													
2006	92.21	98.46	105.74	105.24	107.38	100.43		99.66	101.07	96.63	97.48	97.47	
2007	102.56	107.77	108.50	101.83	105.20	105.08	105.08	102.54	95.36	88.18	90.07	87.81	
2008	101.31	103.00	104.47	107.54	105.15	101.06	100.68	100.68	93.97	92.75	93.95	95.45	
2009	97.52	103.72	114.55	115.20	105.00	107.83	110.00	106.66	100.24	100.22	106.74	114.64	
2010	96.25	99.84	105.67	103.52	104.47	91.08	94.84	101.88	93.28	100.33	103.08	105.77	
Average	97.97	102.56	107.78	106.67	105.44	101.10	102.65	102.28	96.78	95.62	98.27	100.23	
Price of 650 lb Steers, Wyoming													
2007	100.65	108.02	114.47	119.33	123.64	114.99	114.92	122.93	122.04	112.96	110.48	106.79	114.27
2008	106.07	114.67	112.44	109.28	117.72	122.11	122.00	113.00	111.42	97.46	96.92	92.20	109.61
2009	100.39	103.78	103.04	110.23	113.29	100.84	102.62	104.00	101.86	95.27	95.13	96.32	102.23
2010	102.72	109.81	117.86	129.00	124.69	117.12	117.80	114.13	116.02	113.34	113.10	122.05	116.47
2011	133.60	138.85	144.54	148.40	135.72	139.28	140.59	134.60	136.54	141.23	147.45	149.39	140.85
Monthly Seasonal Indexes for 650 lb Steers, Wyoming													
2006	88.08	94.53	100.18	104.43	108.20	100.63	100.57	107.58	106.80	98.86	96.69	93.45	
2007	96.77	104.62	102.58	99.70	107.40	111.41	111.31	103.10	101.66	88.92	88.43	84.12	
2008	98.20	101.52	100.79	107.83	110.82	98.64	100.38	101.73	99.64	93.19	93.06	94.22	
2009	88.19	94.28	101.20	110.76	107.06	100.56	101.14	97.99	99.61	97.31	97.10	104.79	
2010	94.85	98.58	102.62	105.36	96.36	98.89	99.82	95.56	96.94	100.27	104.69	106.06	
Average	93.22	98.71	101.47	105.61	105.97	102.02	102.64	101.19	100.93	95.71	95.99	96.53	
Price of 750 lb Steers, Wyoming													
2007	96.99	99.08	103.82	106.76	112.48	109.00	108.85	120.12	120.41	113.52	107.14	101.85	108.33
2008	96.72	103.66	101.63	100.53	106.78	112.25	113.30	110.29	110.24	96.90	97.03	90.23	103.30
2009	96.01	92.97	93.92	97.71	107.63	102.25	102.22	99.13	99.81	94.68	96.97	90.80	97.84
2010	96.90	99.84	105.64	114.45	114.80	108.35	110.00	110.31	113.43	109.12	114.30	116.62	109.48
2011	126.31	124.46	135.88	136.48	128.53	132.95	138.54	130.51	131.91	137.15	141.16	140.43	133.69
Monthly Seasonal Indexes for 750 lb Steers, Wyoming													
2006	89.53	91.46	95.83	98.54	103.82	100.62	100.47	110.88	111.14	104.79	98.89	94.02	
2007	93.63	100.35	98.38	97.32	103.37	108.67	109.69	106.77	106.72	93.80	93.93	87.35	
2008	98.12	95.02	95.99	99.86	110.01	104.51	104.51	101.31	102.01	96.77	99.11	92.80	
2009	88.51	91.20	96.49	104.54	104.86	98.97	100.48	100.75	103.61	99.67	104.40	106.52	
2010	94.48	93.09	101.63	102.09	96.14	99.45	103.63	97.62	98.67	102.59	105.59	105.04	
Average	92.85	94.22	97.67	100.47	103.64	102.44	103.57	103.47	104.43	99.52	100.39	97.15	
Price of 850 lb Steers, Wyoming													
2007	95.42	96.56	99.59	101.87	104.62	97.26	107.18	114.50	114.83	110.71	104.84	98.30	103.80
2008	94.15	97.64	94.35	95.53	106.17	109.54	101.00	111.94	108.37	97.52	97.19	89.21	100.21
2009	92.60	90.22	87.84	92.31	94.30	91.21	97.25	93.44	94.95	93.17	92.85	88.08	92.35
2010	95.19	97.00	99.14	106.01	106.45	106.00	103.03	110.50	108.09	107.79	112.44	115.36	105.58
2011	121.68	119.85	127.73	130.03	117.55	121.75	122.77	129.31	128.70	131.98	134.25	126.78	126.03
Monthly Seasonal Indexes for 850 lb Steers, Wyoming													
2006	91.92	93.02	95.94	98.14	100.79	93.70	103.25	110.30	110.62	106.65	101.00	94.69	
2007	93.94	97.43	94.14	95.32	105.94	109.30		111.70	108.14	97.31	96.98	89.01	
2008	100.27	97.69	95.11	99.96	102.11	98.77	105.31	101.18	102.81	100.89	100.54	95.38	
2009	90.15	91.87	93.89	100.41	100.82	100.40	97.58	104.66	102.37	102.09	106.50	109.26	
2010	96.54	95.09	101.35	103.17	93.27	96.60	97.41	102.60	102.12	104.72	106.52	100.60	
Average	94.57	95.02	96.09	99.40	100.59	99.75	100.89	106.09	105.21	102.33	102.31	97.79	
Price of 950 lb Steers, Wyoming													
2007	90.86	94.68	94.41	97.78	98.41	96.00	107.75	109.60	111.24	107.42	99.37	99.37	100.57
2008	87.06	93.18	92.11	91.71	97.61	90.50	105.50	110.62	106.51	94.27	92.95	85.48	95.62
2009	88.55	86.58	85.41	89.34	89.51	85.43	92.82	92.51	90.91	87.73	89.20	84.00	88.50
2010	92.05	94.30	96.80	101.10	105.21	96.27	101.75	106.60	105.53	103.05	103.54	115.56	101.81
2011	121.12	119.00	122.80	121.18	117.78	120.31	121.00	124.39	121.57	126.48	130.40	125.50	122.63
Monthly Seasonal Indexes for 950 lb Steers, Wyoming													
2006	90.34	94.14	93.87	97.22	97.85	95.45		108.98	110.61	106.80	98.80	98.80	
2007	91.04	97.44	96.33	95.90	102.07	94.64	110.33	115.68	111.38	98.58		89.39	
2008	100.06	97.83	96.51	100.95	101.14	96.53	104.88	104.53	102.73	99.13	100.79	94.91	
2009	90.41	92.62	95.08	99.30	103.34	94.56	99.94	104.70	103.65	101.22	101.69	113.50	
2010	98.77	97.04	100.14	98.82	96.04		98.67	101.43	99.14	103.14	106.34	102.34	
Average	94.12	95.81	96.39	98.44	100.09	95.30	103.46	107.07	105.50	101.78	101.91	99.79	

Table 4. Average Monthly Basis for Feeder Steers at Torrington,WY, 2007-2011. (The average is obtained by ignoring the highest and lowest basis and then averaging the other 3 years)

CME Feeder Cattle Futures												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	96.28	99.36	104.83	108.71	109.17	108.65	114.99	116.32	117.08	112.43	108.98	105.01
2008	99.47	104.95	100.46	101.16	109.19	111.63	112.22	113.84	108.66	97.96	96.04	90.57
2009	94.42	92.64	92.37	98.07	99.49	98.00	103.04	100.32	97.77	93.97	93.64	93.60
2010	97.08	100.08	104.31	112.51	110.67	110.83	113.85	113.53	111.36	109.62	113.85	119.47
2011	124.65	127.46	130.45	133.21	127.08	130.70	138.26	133.86	134.04	139.54	143.73	144.76
Price of 550 lb Steers,Wyoming												
2007	113.58	121.28	130.25	129.63	132.26	123.70	121.00	122.75	124.49	119.02	120.065	120.055
2008	121.02	127.165	128.03	120.16	124.14	124	124	121	112.53	104.05	106.285	103.62
2009	112.705	114.58	116.215	119.64	116.98	112.425	112	112	104.54	103.18	104.52	106.185
2010	115.56	122.245	128.585	139.11	134.815	128.955	126	122.22	122.63	123.125	126.82	137.385
2011	147.16	152.64	161.555	158.28	159.725	139.25	145	155.76	142.61	153.39	157.605	161.715
Basis for 550 lb Steers, Wyoming												
2007	17.30	21.91	25.41	20.91	23.09	15.05		6.43	7.41	6.59	11.08	15.05
2008	21.55	22.21	27.57	19.00	14.95	12.37	11.78	7.16	3.87	6.09	10.24	13.05
2009	18.29	21.94	23.84	21.57	17.49	14.42	8.96	11.68	6.77	9.21	10.88	12.59
2010	18.48	22.17	24.28	26.60	24.14	18.12	12.15	8.69	11.27	13.51	12.97	17.92
2011	22.51	25.18	31.11	25.07	32.65	8.55	6.74	21.90	8.57	13.85	13.88	16.95
Average	19.44	22.11	25.75	22.52	21.57	13.95	10.37	9.18	7.58	9.77	11.64	15.01
Price of 650 lb Steers,Wyoming												
2007	100.65	108.02	114.47	119.33	123.64	114.99	114.92	122.93	122.04	112.96	110.48	106.79
2008	106.07	114.67	112.44	109.28	117.72	122.11	122.00	113.00	111.42	97.46	96.92	92.20
2009	100.39	103.78	103.04	110.23	113.29	100.84	102.62	104.00	101.86	95.27	95.13	96.32
2010	102.72	109.81	117.86	129.00	124.69	117.12	117.80	114.13	116.02	113.34	113.10	122.05
2011	133.60	138.85	144.54	148.40	135.72	139.28	140.59	134.60	136.54	141.23	147.45	149.39
Basis for 650 lb Steers, Wyoming												
2007	4.37	8.66	9.64	10.61	14.47	6.34	-0.07	6.60	4.96	0.53	1.50	1.78
2008	6.60	9.72	11.98	8.12	8.53	10.48	9.78	-0.84	2.76	-0.50	0.88	1.62
2009	5.97	11.14	10.66	12.16	13.80	2.83	-0.42	3.68	4.09	1.30	1.49	2.72
2010	5.63	9.73	13.55	16.49	14.02	6.28	3.95	0.59	4.65	3.72	-0.76	2.58
2011	8.95	11.39	14.09	15.19	8.64	8.58	2.33	0.74	2.50	1.69	3.72	4.62
Average	6.07	10.20	12.06	12.65	12.15	7.07	2.07	1.67	3.83	1.17	1.29	2.36
Price of 750 lb Steers,Wyoming												
2007	96.99	99.08	103.82	106.76	112.48	109.00	108.85	120.12	120.41	113.52	107.14	101.85
2008	96.72	103.66	101.63	100.53	106.78	112.25	113.30	110.29	110.24	96.90	97.03	90.23
2009	96.01	92.97	93.92	97.71	107.63	102.25	102.22	99.13	99.81	94.68	96.97	90.80
2010	96.90	99.84	105.64	114.45	114.80	108.35	110.00	110.31	113.43	109.12	114.30	116.62
2011	126.31	124.46	135.88	136.48	128.53	132.95	138.54	130.51	131.91	137.15	141.16	140.43
Basis for 750 lb Steers, Wyoming												
2007	0.71	-0.28	-1.02	-1.96	3.30	0.35	-6.15	3.80	3.32	1.09	-1.85	-3.16
2008	-2.75	-1.29	1.17	-0.63	-2.41	0.62	1.08	-3.55	1.58	-1.06	0.99	-0.35
2009	1.59	0.32	1.55	-0.37	8.14	4.25	-1.19	2.04	0.71	3.33	-2.80	-2.80
2010	-0.18	-0.24	1.33	1.94	4.13	-2.48	-3.85	-3.23	2.07	-0.50	0.44	-2.85
2011	1.65	-3.01	5.43	3.27	1.45	2.25	0.28	-3.35	-2.13	-2.39	-2.57	-4.34
Average	0.70	-0.60	1.35	0.31	2.96	1.07	-1.79	-2.59	1.90	-0.28	-0.14	-2.93
Price of 850 lb Steers,Wyoming												
2007	95.42	96.56	99.59	101.87	104.62	97.26	107.18	114.50	114.83	110.71	104.84	98.30
2008	94.15	97.64	94.35	95.53	106.17	109.54	101.00	111.94	108.37	97.52	97.19	89.21
2009	92.60	90.22	87.84	92.31	94.30	91.21	97.25	93.44	94.95	93.17	92.85	88.08
2010	95.19	97.00	99.14	106.01	106.45	106.00	103.03	110.50	108.09	107.79	112.44	115.36
2011	121.68	119.85	127.73	130.03	117.55	121.75	122.77	129.31	128.70	131.98	134.25	126.78
Basis for 850 lb Steers, Wyoming												
2007	-0.86	-2.81	-5.25	-6.84	-4.55	-11.39	-7.81	-1.83	-2.25	-1.72	-4.14	-6.71
2008	-5.32	-7.32	-6.11	-5.63	-3.02	-2.09		-1.90	-0.29	-0.44	1.15	-1.37
2009	-1.82	-2.43	-4.54	-5.76	-5.19	-6.79	-5.79	-6.88	-2.83	-0.80	-0.79	-5.52
2010	-1.90	-3.08	-5.17	-6.50	-4.22	-4.83	-10.82	-3.03	-3.28	-1.83	-1.41	-4.11
2011	-2.98	-7.62	-2.72	-3.18	-9.53	-8.95	-15.49	-4.55	-5.34	-7.56	-9.48	-17.98
Average	-2.23	-4.40	-4.99	-5.97	-4.66	-6.86	-9.32	-3.16	-2.78	-1.45	-2.12	-5.45
Price of 950 lb Steers,Wyoming												
2007	90.86	94.68	94.41	97.78	98.41	96.00	107.75	109.60	111.24	107.42	99.37	99.37
2008	87.06	93.18	92.11	91.71	97.61	90.50	105.50	110.62	106.51	94.27	92.95	85.48
2009	88.55	86.58	85.41	89.34	89.51	85.43	92.82	92.51	90.91	87.73	89.20	84.00
2010	92.05	94.30	96.80	101.10	105.21	96.27	101.75	106.60	105.53	103.05	103.54	115.56
2011	121.12	119.00	122.80	121.18	117.78	120.31	121.00	124.39	121.57	126.48	130.40	125.50
Basis for 950 lb Steers, Wyoming												
2007	-5.42	-4.68	-10.42	-10.94	-10.77	-12.65		-6.72	-5.84	-5.01	-9.62	-5.64
2008	-12.41	-11.77	-8.35	-9.45	-11.58	-21.13	-6.72	-3.22	-2.15	-3.69		-5.09
2009	-5.87	-6.07	-6.96	-8.73	-9.98	-12.58	-10.22	-7.81	-6.86	-6.25	-4.44	-9.60
2010	-5.03	-5.78	-7.51	-11.42	-5.46	-14.56	-12.10	-6.94	-5.83	-6.57	-10.32	-3.91
2011	-3.54	-8.46	-7.65	-12.03	-9.30		-17.26	-9.47	-12.47	-13.06	-13.33	-19.26
Average	-5.44	-6.77	-7.83	-10.60	-10.02	-13.61	-11.16	-7.16	-6.18	-5.94	-9.97	-6.78

itself. When producers are ready to sell and deliver their livestock they truck them to the auction market. The auction then promotes the livestock and tries to bring in the best price for the producers. They may sort them into multiple sale lots as they best see fit. Price is then dictated by the market of the day. Producers often have the option to accept or decline the sale price, but if declined careful consideration must be given to the loss that will certainly be incurred, such as transportation costs and auction fees while exploring other marketing alternatives. Once the cattle are sold, the auction subtracts their sales fees from the producer's price and then pays the producer for the livestock.

When considering this marketing strategy the obvious attraction is the overall ease for producers. No real prior considerations or preparations are required to participate in the auction. However with this relative ease in participation come many drawbacks that make this option less appealing. The major costs of marketing at an auction are commission and yardage. Depending on the auction itself much variation can be seen in the way commission charges are assessed. Some are assessed on a per-head basis, others on a percentage of the proceeds, and still others as a combination of the two. Other deductions may be made for such things as insurance, state inspection and fees, and brand inspection.

One such local auction is being held on a consistent basis in Buffalo, Wyoming. This is a smaller local auction and depending on the time of year is held weekly to semiweekly and also offers a live internet video sale on a monthly basis. As this is only a local auction, sale volume can vary greatly with the time of year. Spring and summer sales can be as low as just over 100 head per week, however fall sales can climb to well over a thousand head per week.

Regional Auctions

Regional auctions are much the same as local auctions and all of the same pros and cons should be considered. Differences from the local auction to keep in mind are the possibility of greater transportation costs depending on the auction location as well as increased competition as a result of the larger auction. However these drawbacks can often be offset by the advantages gained by participating in a larger regional market.

When it comes to regional livestock auctions one of the most well-known is the Torrington Livestock Market. In fact Torrington Livestock Markets is Wyoming's largest livestock market. All classes of cattle are for sale every Friday. Yearling & Calf sales are held every Wednesday, August through March. Special Bred Cow, Pair & Calf sales are held on Mondays as advertised throughout the fall. Imploring multiple locations, in all Torrington Livestock Markets has sold up to an impressive 19,000 head per week. "Drawing cattle from a nine-state region: Nebraska, Colorado, Arizona, Nevada, Utah, Idaho, South Dakota, Montana and the bulk of Wyoming, Torrington Livestock attracts buyers from all over the nation." http://www.torringtonlivestock.com/company_info_history.asp

Satellite Video Auctions

In more recent years one marketing option that has continued to grow in popularity is a video auction. When producers are ready to price their livestock, but prior to when they are ready to deliver them, they contact a representative from a video sale auction and have them come to their ranch and film their livestock and help to write a description of the cattle. Then on a specified date, an auction will take place and buyers may be at a specific auction location or scattered across the U.S. in their own homes bidding on the cattle. A typical such auction consists of the buyers watching the short video of the livestock as well as reading the written description as the auction company solicits bids and tries to secure the best price for the producer. The buyer will then take delivery of the livestock at a future date (1,2, 4 months in the future) and generally assumes the responsibility for transporting the cattle off of the producer's ranch. Generally, there is a price slide negotiated if the cattle are heavier at delivery than is negotiated in the contract and sale lots are typically for a semi-load of cattle (40,000 – 50,000 lbs.)

This has become an attractive marketing option for many easily identified reasons. First, the actually handling of the livestock is reduced to a bare minimum. Livestock never have to be transferred to and from auction sites eliminating transportation costs as well as loss due to shrinkage. Second, price risk can be reduced by obtaining the forward price for the livestock. Also unlike a forward contract negotiated between one buyer and seller, a video auction has the ability to reach a vast number of potential buyers increasing buyer competition and hopefully in turn bringing a higher price for the livestock. Of course with this added security of a guaranteed forward price, producers run the risk of missing out on price rises in the market at the future date. Another advantage gained by producers is the added ability to determine the time frame that the buyer may take delivery. Video auctions typically carry higher commission fees than a typical local auction; however this cost is hopefully offset by the savings of reduced transportation costs.

As far as cattle video auctions are concerned there are many options. However one name that has become well known among cattlemen is the Superior Livestock Auction. In 1987 The Superior Livestock Auction first introduced satellite video auctions to the nation. Now they have grown to offer many different video auction services which when combined market well over 1 million head annually. Auctions are held weekly and buyers from around the nation are brought together via satellite and internet broadcasting. Bids can be gathered through phone or simply through the click of a button on the computer. Another such company is Western Video Market. They too have grown in popularity and now successfully market just under half a million cattle annually. These are very large markets offering quite literally a nationwide buyer base, helping producers secure the best price for their livestock.

There are fewer Video auctions for sheep, but one such auction that sheepmen are beginning to utilize is Northern Livestock Video Auction. Northern markets livestock using both traditional video markets as well as internet video markets. Their volumes are similar to Western Video Market in terms of total livestock. However, unique to Northern Livestock Video Auction they have specific lamb and breeding sheep focused sales.

Internet Auctions

Similar to video auctions, internet auctions are also a relatively new form of livestock marketing. When using an internet auction a written description of the livestock is posted to an internet ad as well as pictures. Depending on the auction, videos may also be prepared and posted to the ad. Bidding is opened for a set period of time and all buyers may bid up until the predetermined auction end time. Using internet auctions is an attractive option for many producers because they are able to market their livestock to a large number of buyers without ever having to move their livestock. However internet auction sites do charge sales commission fees that can often offset the benefit.

One such internet auction site is CattleUSA.com. From this site buyers may bid on cattle from the convenience of their home and also at their own leisure. Set end times are predetermined for these auctions but before this end time buyers may sit down and browse through many lots of cattle for sale and can make bids at any time.

Direct, Commodity Markets

Direct markets are perhaps the most basic and traditional livestock marketing strategy. When producers are ready to sell and deliver their livestock, a neighbor, a local feedlot operator, or any potential buyer comes directly to look at the livestock for sale and offers to buy them for an agreed upon price. The buyer is generally responsible for transporting the livestock off of the ranch.

Advantages to the direct commodity market include; avoiding commission and yardage fees as well as no transportation cost to the producer. However because producers are typically working with a single buyer to try to negotiate a price, there is no competition between buyers to help drive up the price. Typically price is negotiated based on recent local auction averages.

Direct, Niche Markets

Niche marketing has been defined as servicing a unique market, or a unique portion of a common market that is not already served. When it comes to livestock and meat products, the vast majority are marketed as basic commodities based on a common set of standards or grades. However one marketing alternative for producers to consider, is participating in niche markets. The products sold through these programs can receive a premium on the market and are less vulnerable to substitution because they have characteristics that make them appeal to a specific type of consumer. This premium on the market price plus the added security of fewer substitutions, make niche markets appear very appealing. However too often producers only consider the higher sale price from delivering niche products to the market and fail to recognize any of the potential drawbacks. It is critical to consider additional costs of production such as finishing, advertising, arranging processing, and any additional time commitment.

Livestock producers have two very different options for niche marketing. The first is to participate in preexisting large scale niche markets. Examples of such markets would include labels such

as lean, organic, and natural. Of course to participate in these markets producers must be willing and able to meet very specific qualifications for their livestock to be eligible to be sold under these labels. By participating in an existing niche market one can capitalize on the expertise of others who have risked market development, investment, and processing arrangements. For producers who have livestock and a production system that fits with the requirements of these programs it can be a low-risk means to reach a niche-market and capitalize on added premiums on the market price.

The second option that producers have to participate in niche marketing is to develop a micro-niche of their own. This can be more complicated and usually carries a greater risk but also has the potential for greater rewards. The economic principle of the relationship between risk and reward potential is very evident in niche marketing decisions. The profitability of participating in a preexisting niche market may not be as great as creating an entirely new niche, however the risk of failure in the market is also significantly less and is something to be seriously considered and evaluated.

One common large scale niche market that can be seen today is the natural beef market. In this case the US department of agriculture regulates the term natural beef and sets the conditions which must be met in order to sell beef under this label. Generally natural beef refers to beef raised without the use of hormones or antibiotics. Furthermore the meat can't contain artificial ingredients and must be minimally processed.

"Laramie County ranchers John and Jane Francis are marketing their "Pure Wyoming Beef" to customers as far away as Dallas and Los Angeles. Their motto is "Pure Air, Pure Water, Pure Grass, Pure Wyoming." They started their natural-beef business as a spinoff of the 50-year-old family business, the Francis Livestock Company." http://billingsgazette.com/news/state-and-regional/wyoming/natural-beef-ranchers-filling-niche-u-s-market/article_c782743b-df43-5e9f-bcdd-b9bf4acfd9ec.html#ixzz22yDgwnrK

Pure Wyoming Beef is a perfect example of a producer carving a smaller micro-niche into a preexisting larger niche. In this case they are still marketing their cattle under the natural beef label, however in addition to simply marketing their beef as natural; Pure Wyoming Beef has chosen to focus their marketing on Wyoming as a choice spot to raise natural beef. They market the fact that their livestock have been born and raised on the same ranch in premium conditions to raise choice natural beef. By doing so they are able to sell their natural beef to buyers in faraway locations who desire the natural beef that only Wyoming can offer. http://billingsgazette.com/news/state-and-regional/wyoming/natural-beef-ranchers-filling-niche-u-s-market/article_c782743b-df43-5e9f-bcdd-b9bf4acfd9ec.html#ixzz22yDgwnrK

The sheep industry has seen growth in two key niche markets; the ethnic lamb market and the ethnic cull ewe market. Direct sales in the lamb industry accounted for nearly 1.2 million head in 2010 according to an American Sheep Industry Study. Further based on ethnic consumption of lamb it is evident that much of the direct sales can be attributed to the ethnic market. As this population continues to grow in the United States it is likely that this niche market will continue to be a strong opportunity for sheep producers. For more information see the article "Quantifying the Non-traditional

Lamb Market in the United States”.

http://sheepindustrynews.org/?page=site/text&nav_id=2c016db4300b6e6fcb7d4a766b1da000&PHPSESSID=pylkrjdbkfggta&archive_id=

Another opportunity for sheep producers in building a niche market is through the wool. Fine wool and wool merchandise can be sold successfully in direct niche markets. One example of a sheep ranch in Wyoming expanding into the wool niche market is Cole Creek Wool Company. Shelly Nicolaysen owns and operates Cool Creek Wool and started the company as a way to help contribute to her husband Kem Nicolaysen’s family ranch. To learn more about Cole Creek Wool read the following article from the Wyoming Livestock Roundup. <http://colecreekwool.com/Coal%20Creek%20Wool-1156-rev.pdf>.

Direct, Cooperative

Direct market sales to a cooperative are similar to the traditional direct market sales in most aspects. However, one large difference is that producers are a part of the ownership of the entity to which they are selling their livestock. One exception is that many calf cooperatives do not take ownership of the calves, but rather bind together collectively to potential receive a better price for feeder calves. Since large lots of calves often bring higher prices due to economies of scale this allows smaller producers to receive premium prices by joining together.

In the sheep industry an important example of direct marketing to a cooperative is the Mountain States Lamb Cooperative, www.mslamb.com. In an effort to mitigate the cyclical nature of the lamb market and provide stability to its members the Mountain States Lamb Cooperative was formed. It is comprised of 127 family ranchers in 10 western states. Mountain States is much more than just a feeder lamb cooperative, it is an entity that takes the lambs through the finishing process and on to the consumer. Mountain States Lamb accounts for nearly 25% of U.S. domestic lamb production.

Risk Management

Regardless of the marketing method chosen by producers, there are still opportunities for risk management strategies as well. The discussion here is not intended to be a complete description of these alternatives, but rather a short description with references for additional material if more information is desired.

Cash Sales

When risk management is discussed with regards to livestock marketing, an important aspect is often to mitigate the issues of volatility associated with cash sales. Therefore cash sales are not often thought of as a risk management tool. However, there are some opportunities within cash sales to reduce risk.

One way to mitigate risk in the cash market is to be in the market often. By selling livestock at multiple times of the year producers may reduce some of the effects of seasonality in cash sales. This may also mitigate the risk of selling in a “bad market.” On a practical level a ranch may choose to market a portion of their calves in different time frames by utilizing production practices in a combination such as early weaning, overwintering and summer yearling programs. Through utilization of multiple production practices as mentioned producers will be marketing calves multiple times throughout the year and utilizing multiple weight categories. This spreading out of marketing over time and market class is a form of diversification that can reduce risk. Essentially, you are not “putting all your eggs in one basket” or perhaps it would be better said that you are not putting all your calves in one market.

If you traditionally market your calves at weaning and either sell them direct or through a local auction, then you are essentially pricing them and delivering them in the same time period. In some years this is the most profitable alternative. However, in other years a higher price can be obtained if the cattle are priced earlier but still delivered in the fall. Historically, prices follow a seasonal pattern. The average seasonal low in prices occurs in the fall of the year when the majority of calves are sold. Delivering calves at other times may prove costly. Delivering calves early usually results in giving up too much weight. While you will likely receive a higher price per pound for the lighter calves, revenue for each calf is usually decreased because of the lighter weight. However, your costs for carrying a cow are not changed. This strategy is sometime effective to minimize impacts from drought, but otherwise usually results in reduced profitability. Likewise, to carry a calf to a later time beyond weaning requires additional costs and therefore the market needs to be higher to offset those added costs. However, if you separate the pricing and delivery decision you can still deliver your calves when it is most cost effective, but you have several opportunities to price them prior to delivery.

Forward Contracts

Often when it comes to price risk management, many producers will opt to arrange a forward contract with a buyer. Producers contract to provide the livestock at a future date at a certain average weight. The buyer agrees to accept delivery at that date and a price is agreed upon at the time of the contract. There are many forward contracts still agreed to with only a handshake between the two parties. Provided the market does not move drastically higher or lower, and provided the livestock meet the agreed upon specifications, there are usually no problems with these handshake agreements. However, in the case of drastic market moves, or livestock that end up being considerably different than what was agreed to, a written contract with specifications on remedies for breach of contract can help avoid costly litigation. Most sales on satellite video auctions and many internet sales are actually forward contracts. Frequently the pricing transactions take place one to four months in advance of when the livestock will be delivered. Generally, these forward contracts are written, and often the video or internet auction company acts as a 3rd party to help insure that each of the principle parties to the contract fulfill their obligations.

Cash forward contracts eliminate price risk; regardless of whether the market moves higher or lower, the producer's price is fixed once the contract is negotiated. Feeder cattle prices change for different weight feeder cattle and when contracts are written, both parties to the contract are estimating the feeder cattle weight at the time of delivery. Many forward contracts, both private treaty and those written through a video auction sale, will frequently employ a price slide as part of the contract negotiation. This essentially sets the terms as to how much the agreed upon price will be adjusted if the weight is not as expected. For more information on forward contracting and utilizing a feeder cattle price slide the reader is encouraged to read the following fact sheet:

<http://www.ianrpubs.unl.edu/epublic/pages/publicationD.jsp?publicationId=1389>

Futures and Options Markets

Sometimes you want to forward contract your cattle, but you can't find anyone willing to write you a contract. Or perhaps you want to leave your livestock marketing decisions more open, but would still like to have some form of price protection. There is a Feeder Cattle Futures market that you can use to establish an expected price for your cattle. This is similar to forward contracting but also very different.

Producers can establish a price prior to delivery by using the Chicago Mercantile Exchange feeder cattle futures. A producer can hedge their calves by selling an October or November feeder cattle contract earlier in the spring or summer. Then, when the calves are sold at weaning in the local market, the producer buys back the October or November feeder cattle contract. If the market has declined from the time of the initial futures market sale, then the producer will make a positive return in the futures market. This will offset the lower cash price received. However, the same as with a forward contract, producers also cannot take advantage of higher prices. If prices increase after the initial sale of the October or November feeder cattle futures, then when the producer buys the contract back, they lose money in the futures market. This offsets the higher price received in the cash market and producers are left with about the same return regardless of whether the market moves higher or lower after the initial futures sale. Hedging is designed to minimize price risk; it is not a method to consistently receive a higher price.

Producers also have the opportunity to purchase a put option on the feeder cattle futures. This enables producers to establish a minimum price but still take advantage of higher prices, should they occur. This is more attractive to producers to be able to minimize downside price risk but still take advantage of higher prices should they occur. However, there is a cost associated with this options strategy. A premium must be paid to purchase the put option. This is very similar to the cost of buying insurance; you pay a premium cost there as well. In these volatile markets, premiums have become quite high for this type of market insurance.

For more information on hedging using futures and options the reader is encouraged to go to the following on-line publication from the Chicago Mercantile Exchange:

<http://www.cme.com/files/HedgingElectronicFile.pdf>

Historically most cow-calf producers have not used the CME Feeder Cattle futures or options to hedge the sale price of their calves. University extension specialists have conducted numerous workshops over many years to educate producers on the use of futures and options and yet only a small percentage of producers use these risk management tools. One explanation has always been that the Feeder Cattle contract specifications don't fit a weaned calf and that the basis variability for this cross hedge may be too large for an effective hedge (Feuz and Umberger, 2000.) Another reason often put forth for the lack of use of futures and options by cow-calf producers is the fixed contract size (50,000 lbs.) does not work well for smaller producers.

Insurance

In 2002 the USDA-Risk Management Agency (USDA-RMA) introduced Livestock Risk Protection (LRP) insurance for feeder cattle. It is now available in 37 states, which include all of the largest cow-calf producing states. This insurance product is very similar to purchasing a Put Option on feeder cattle futures, in that a minimum price is established. If prices fall below this level, then an insurance indemnity is paid out to the producer. If the market is higher than the insured price, then the producer is out the insurance premium but receives the higher market price. However, producers can insure as few as one head if they desire; thus overcoming the size of contract issue with the CME feeder cattle contract. Mark, 2005, examines the similarities and differences between using a traditional future hedge or put option and using LRP insurance to protect feeder cattle prices. He points out that basis risk is still an issue, and in fact in Nebraska, LRP basis variability is greater than feeder cattle futures basis variability for 500-600 pound steers.

Cow-calf producers don't seem to be any more interested in buying LRP-Feeder Cattle insurance than they have been in the futures market. The 2008 state profiles provided by the USDA-Risk Management Agency show that for the four intermountain states of Arizona, Nevada, Utah and Wyoming there was only 1,874 head of feeder cattle insured with LRP-Feeder cattle insurance. The northern plains states of Montana, North Dakota and South Dakota insured less than 40,000 head, which would be less than one percent of the 2008 calf crop of these three states. For more information on LRP-Feeder Cattle insurance see the following fact sheet: <http://www.rma.usda.gov/pubs/rme/lrp-feedercattle.pdf>

LRP-Lamb – In 2007 the USDA-Risk Management Agency (USDA-RMA) began a pilot program for Livestock Risk Protection (LRP) insurance for lamb. 28 states, including all of the states west of the Mississippi river, are part of the pilot program. The benefits of this program are nearly identical to the LRP for feeder cattle program as described above. However, sheep producers have been utilizing LRP-Lamb at a higher rate here in the west than LRP-Feeder cattle. The 2011 state profiles provided by the USDA-RMA show that for the four intermountain states of Arizona, Nevada, Utah and Wyoming there was \$7,871,000 of dollar liability purchased for lambs while the same states only purchased \$4,253,000 of dollar liability for feeder cattle. Considering there are more than twice as many feeder calves in those states than lambs there is a significant difference in the rate of utilization of LRP-Lamb over LRP-Feeder

cattle in those four states. . For more information on LRP-Lamb insurance see the following fact sheet:
<http://www.rma.usda.gov/pubs/rme/lrp-lamb2.pdf>

USDA-RMA also introduced Adjusted Gross Revenue-Lite insurance (AGR-Lite) as another insurance product that cow-calf or lamb producers could use to insure against risk (USDA-RMA, 2009). This insurance product does not insure against one peril, such as price risk or death loss of livestock, but rather insures against revenue loss. That revenue loss may be the result of a price decline or a production loss. University extension specialists have been involved in conjunction with USDA-RMA in educating producers about this insurance product. While this insurance product has the added benefit of insuring against production risks that will impact revenue in addition to insuring against lower market prices that will impact revenue, still the use of this insurance product has been very limited to date. For more information on this specific insurance product, see the following fact sheet:
<http://www.rma.usda.gov/pubs/rme/agr-lite.pdf>

There is no one pricing strategy that will return the highest price every year. Nor is there one pricing strategy that is right for each producer. However, if producers know their cost of producing a calf and evaluate the various pricing alternatives, the “best” alternative can be selected for a particular year and situation. What is “best” for each producer depends upon how much risk they are willing to tolerate and their overall financial position.

Packaging Cattle

Regardless of how cattle are marketed and priced, studies have shown that there are things producers can do to receive a higher price. Data were recently analyzed for over 30,000 lots of cattle sold on Superior Livestock Video Auction from 2004-2006. Various cattle traits and market lot characteristics were found to result in price premiums or discounts. Table 5, displays the premiums and discounts on a per hundred weight basis compared. The premiums and discounts are compared to selling a medium frame, medium flesh, crossbred steer. Cattle that are lighter fleshed or Angus receive a premium as well as uniform lots, truck load lots or greater, and cattle that have an RFID tag and qualify for a natural program. Small framed, heavy fleshed, exotic- cross, and cattle with horns are all discounted.

While these premiums and discounts were specific to sales on one satellite video auction market, similar premiums and discounts exist in other markets. Auction barn managers and owners have told me that larger, more consistent lots always bring a premium in the market. Likewise cattle that are too fleshy, have horns or other non-desirable traits are always discounted.

To the extent possible, as you can manage for the positive characteristics and away from the negatives, you should sell at the higher end rather than the lower end of a price range for a given weight of cattle. Packaging in this manner is another form of risk management.

Table 5. Price Premiums/Discount for various cattle traits and lot characteristics. (Base price is for a medium frame, medium flesh, cross bred steer)

Characteristic	Premium/Discount	Characteristic	Premium/Discount
Heifer	-8.12	Horns	-3.39
Small Frame	-4.48	Uniform Lot	2.73
Light Flesh	1.38	Mixed Lot	-2.38
Heavy Flesh	-2.50	Natural	0.65
Angus	2.65	RFID	1.45
Exotic Cross	-5.23	Truck load Lot	3.00

Historical Returns to Alternative Pricing and Risk Management

In this section of the report, the expected net returns and the variability of those returns for cow-calf producers using cash, futures, options, LRP, and AGR-Lite pricing strategies are compared when: 1) only market price level risk is considered, 2) market price level and local price (basis risk) are considered, and 3) market price level, basis risk and production risk are considered.

A simulation analysis was conducted to compare the expected gross returns from using a cash only pricing strategy to that of placing a hedge using CME feeder cattle futures, buying a put option on the feeder cattle futures, buying LRP feeder cattle insurance, or buying Adjusted Gross Revenue-Lite insurance. The simulation analysis was conducted using the SIMETAR add-in to Excel (Richardson, Schumann and Feldman, 2006). There are three types of risk identified and modeled in the simulation: market price level risk, local price or basis risk, and production risk. With a cash only strategy no measures are taken to manage any of these risks. The use of futures, options, and LRP insurance all address market price level risk, but do nothing to protect against basis risk or production risk. AGR-Lite insurance is designed to insure against an unexpected loss in gross revenue, which could incur because of a decline in the market level price, a decline in the local price (basis), or a reduction in the number of calves to sell or the weight of the calves. Therefore, only AGR-Lite insurance is designed to manage all three types of risk identified here. Details on how this simulation analysis was setup can be obtained from Feuz, 2009.

Once all of the distributions were determined for the stochastic variables, four separate simulations of 500 iterations each were conducted: the first simulation involved only market level risk and the weight of calves to sell was expected to equal 50,000 pounds, one CME feeder cattle contract; the second simulation was the same as the first with the exception that the number of cows were reduced to show differences in the pricing alternatives when there is not sufficient weight to fulfill a feeder cattle contract; the third simulation analysis involved market level risk and basis risk for the expected 50,000 pounds of calves to sell; and the fourth simulation included market level, basis and production risk.

The initial simulation was run with only market price level risk as a stochastic variable. In Figure 5, are cumulative distribution functions (CDFs) of the five pricing alternatives. The CDFs show the

probability, vertical axis, that will returns will be less than so many dollars per head, horizontal axis. This is based on revenues during the 2004-2008 time frame. A few important observations can be made from this set of CDFs. The futures hedge eliminates most of the market price level risk faced by cow-calf producers. The model sells 15% of the cows each year as culls, and no price protection is taken on them. That is the source of variability. Since the futures were assumed to be efficient, there is an equal probability that cash prices will be higher or lower than the hedged price. Both the put option and LRP insurance protect against downside price risk and yet allow producers to take advantage of higher market prices. There is also little difference between the put option and LRP insurance. A futures hedge, a put option, and LRP insurance all behave as theory would suggest and as is taught to producers by extension specialists. One other note from the CDFs; AGR-Lite appears to be a poor choice for most producers.

The second simulation involved looking at the pricing alternative when there was not sufficient number of calves being marketed to fill a feeder cattle contract. In the first scenario, the number of cows to calve was set so that the expected pounds of calves to sell would equal 50,000. For this second scenario, cow numbers were reduced so that the expected pounds of calves to sell would be 25,000. With this scenario, the futures hedge becomes more risky as producers are over hedged, Figure 6. Effectively they are speculating on a half of a contract. The LRP insurance is superior to the put option if the market is above the expected price but the put is superior if the market declines. The reason for this is that when prices rise, there is no insurance indemnity paid nor option premium to sell in the market place. However, with the put, producers had to pay for insurance on 50,000 pounds, whereas with the LRP insurance, producers only paid for 25,000 pounds. When prices decline, the put is superior because producers receive the put premium on 50,000 lbs. but the LRP insurance only pays out on the insured 25,000 lbs.

The third simulation scenario involved the addition of basis risk with market level risk. This is the price risk that cattle producers face. Figure 7 contains the CDFs for this simulation. The futures hedge pricing alternative still reduces price risk the most. However, variability or risk as measured by the standard deviation of per cow returns as more than doubled for the hedge pricing scenario when both basis and market level risk is considered, as compared to the first scenario when only market level risk was considered. The put option and LRP insurance alternative are still very close in their distribution of returns. The AGR-Lite policy is still an inferior alternative.

The last simulated scenario involves market level, basis and production risk. The CDFs for this simulation are displayed in Figure 8. The distributions appear similar to those from the previous scenario with the addition of slightly more variability. The means and variances for each simulated distribution for this final scenario were tested for significant differences using a t test for the means and an F test for the variances. All tests are reported based on the 95% probability. The mean, or expected, revenue per cow were statistically equivalent for all pricing statistically lower mean. The futures hedge pricing alternative results in a statistically smaller variance than all other alternatives. Using either put options or LRP insurance statistically reduces variance from the cash or AGR-Lite alternative and option and LRP variance are statistically equivalent. The AGR-Lite alternative would not be preferred by producers as the expected return is reduced and variability is not reduced.

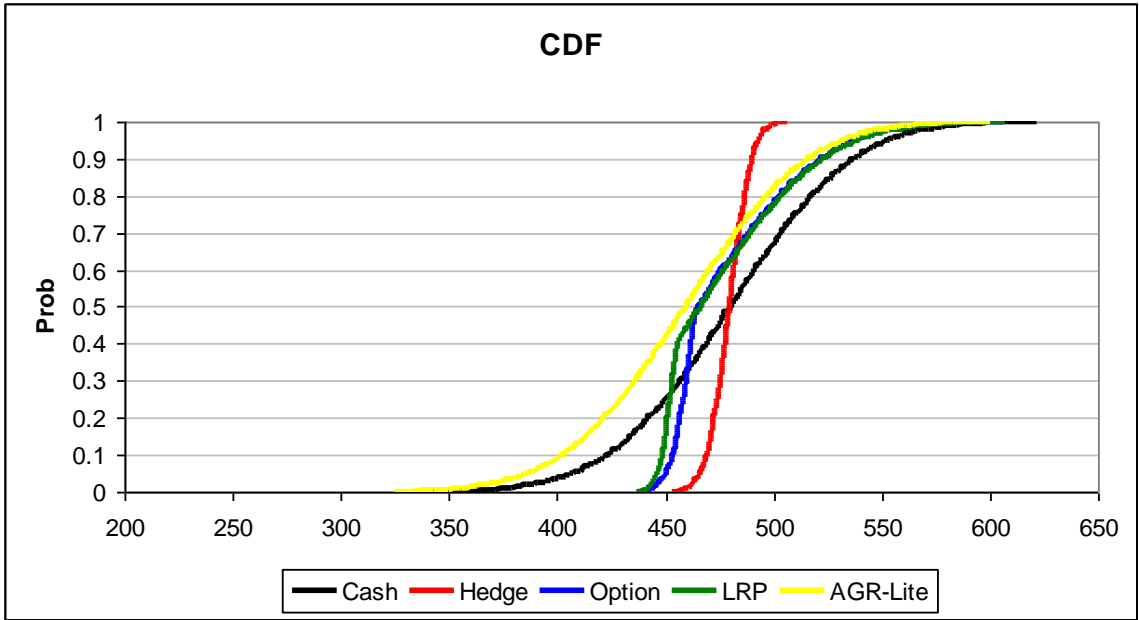


Figure 5. CDFs for the pricing alternatives when only market level risk is considered.

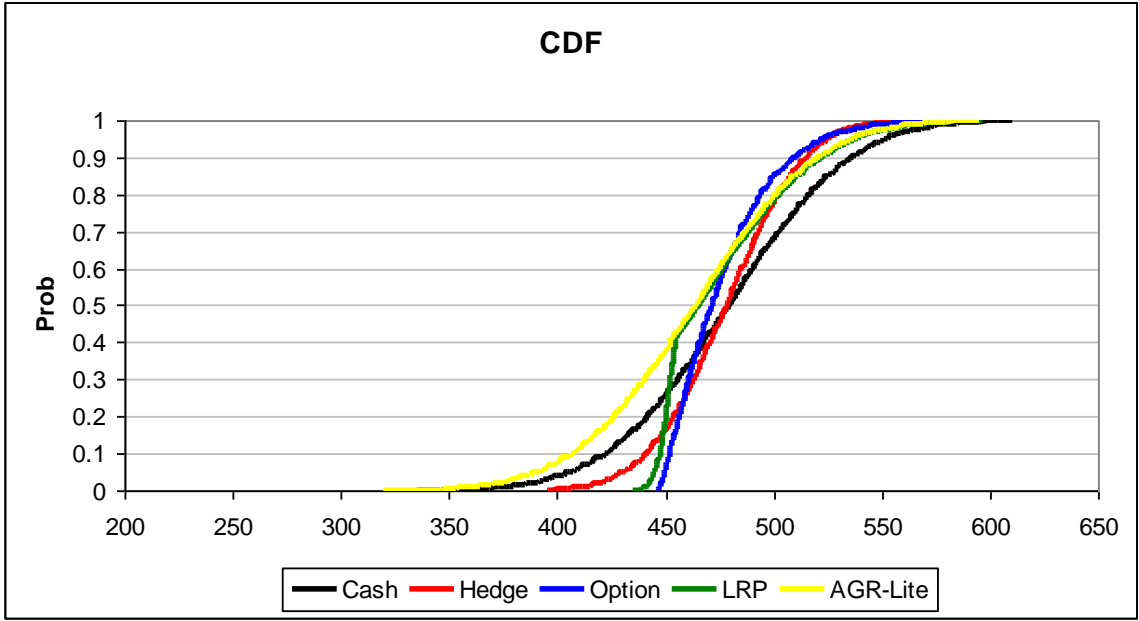


Figure 6. CDFs when only market level risk is considered but when there is less than a full contract of weight to sell.

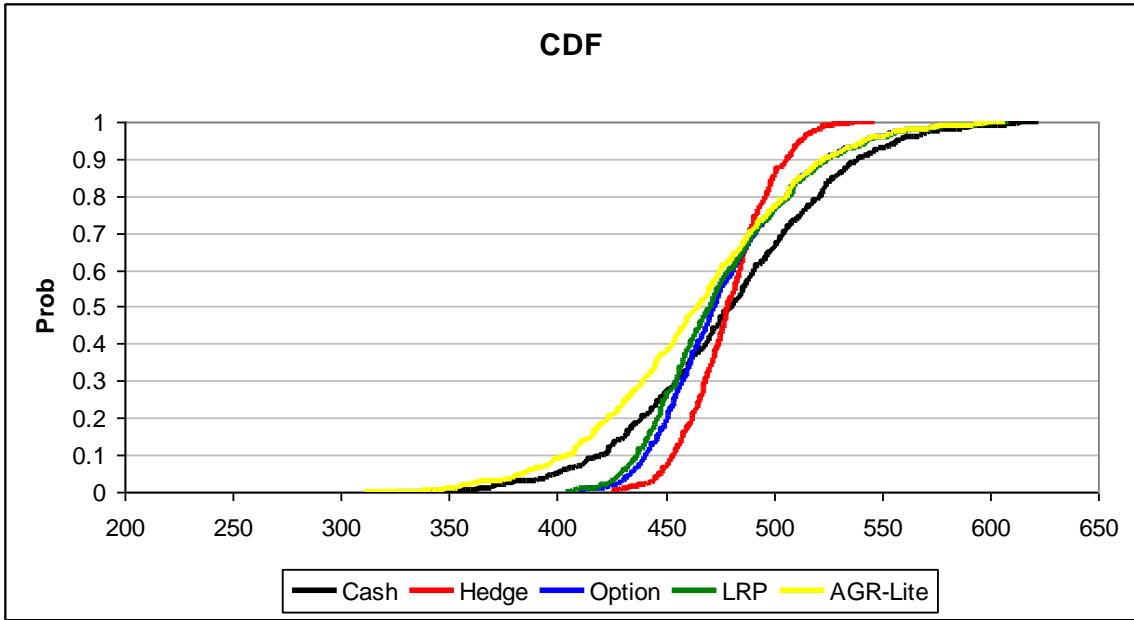


Figure 7. CDFs for the pricing alternatives when market level and basis risk are considered.

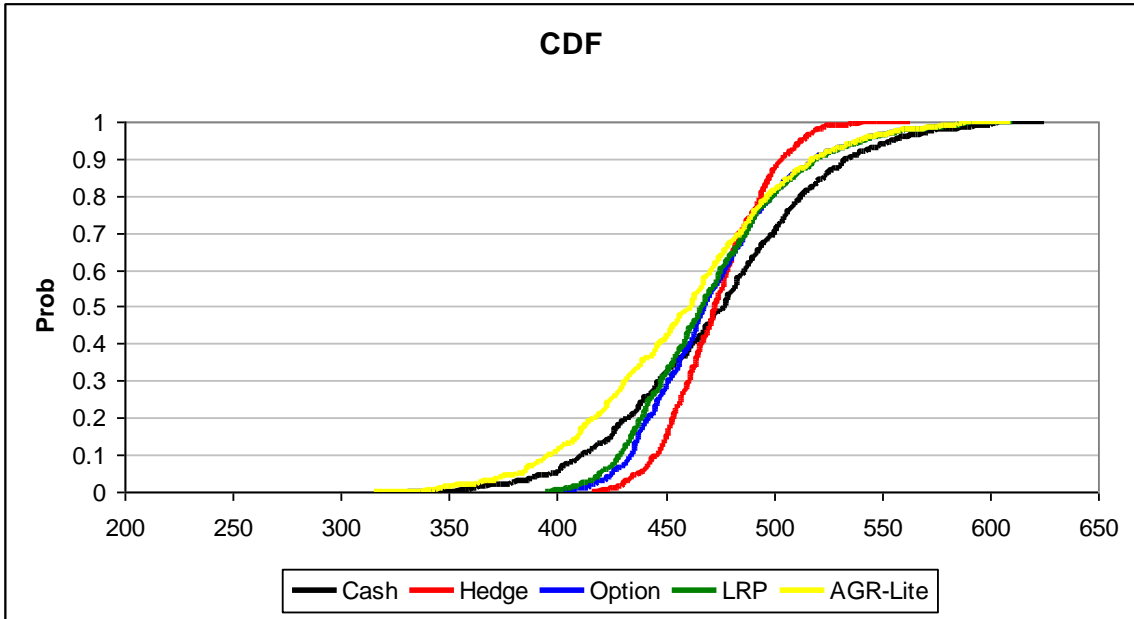


Figure 8. CDFs for the pricing alternatives when market level, basis, and production risk are considered.

There are several implications from this research. The first implication is that producers can reduce the variability of returns by using futures, put options or LRP insurance. However, with a futures hedge, which eliminates the most variability, that reduction not only eliminates significant downside risk but also caps upside potential. This remains a stumbling block for many producers. Another implication

from this research is that it appears that LRP insurance is a good substitute for buying a put option for those producers who would prefer to deal with an insurance salesman rather than a commodity broker. The LRP insurance premiums are priced similar to the put option premiums and the resulting distributions of returns are statistically equivalent. For those smaller producers, who have not been able to utilize the option market because they couldn't fill a feeder cattle contract, it appears the LRP insurance is a viable alternative. However, it appears that the AGR-Lite insurance policy is not an effective policy for cow-calf producers. The premiums are set too high relative to the risks that are insured.

Summary

Feeder cattle and lamb prices are volatile and will likely remain volatile in the future. This presents marketing challenges for producers. However, while it is true that individual producers can not impact the general level of market prices, producers do have opportunities to impact the price they receive and reduce some of the uncertainty in the market place.

This bulletin was written with the intent of outlining several alternative marketing strategies that producers might consider. There is no one strategy that will be right or best for all producers, but the strategy that works best in a particular situation will depend upon management style, resource base, and the alternatives available in the specific area. Likewise, there are several ways to manage price risk. The choice is probably dependent upon attitude toward risk, financial position, and perhaps knowledge or understanding of risk management alternatives. Hopefully, this bulletin has helped to increase the number of alternatives to consider and a greater understanding of the tradeoffs between them.

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