OPTIMAL MARKETING DATES FOR FEEDLOT ENTERPRISE PROFITABILITY

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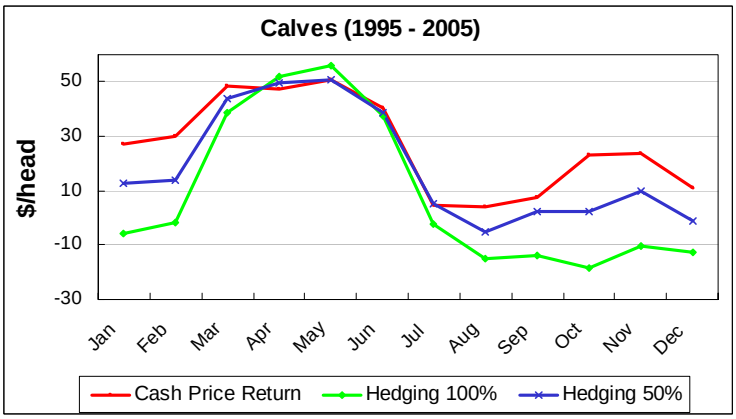
Cattle feeding is an important value added enterprise on Iowa farms, while production efficiencies impact feedlot success, buying and selling prices are the largest determinant of cattle feeding profits. Because of seasonal fed and feeder cattle and corn price patterns, some months are more profitable to produce and market cattle. Iowa State University Extension has calculated Estimated Returns to Feeding Steer Calves and Yearlings each month since 1974. This barometer of livestock profitability holds production parameters (i.e., feed efficiency, average daily gain, weights, etc) constant and changes the price variables each month for feeder cattle, fed cattle, corn, protein supplement, and interest rates.

These data were summarized by selling month to compare average returns over the last 10 and 25 years. The base analysis looked at buying input and selling the cattle based on the monthly average price for the month they were purchased or sold. Feed inputs are priced each month during the feeding period. The impact of hedging 50% or 100% of the fed cattle sold was also considered in the analysis. Closing futures prices on the 15th of the buy or sell month were used in the analysis.

In the last 10 years (1995-2005), the most profitable month to sell steer calves fed to slaughter was May (Figure 1). The worst selling month was August, if using the Cash price or Hedging 50% of the production. The Cash price and Hedging 50% returns are very similar and produced the highest return when averaged across all months of the year. However, the Cash strategy reported a positive average return in each month, while hedging had some months that averaged a loss across the 10 years. The profit from March to July sales is similar in all strategies. Hedging 100% reported the highest average return of any month, May, but also the lowest average month, October. It also produced negative returns in 8 months of the year (July-February). The May hedging strategy is worth noting for cow-calf producers retaining ownership as many market their calves in May or June.

Figure 1- Net return for calves in the last 10 years based on profit per head basis by selling month (1995-2005)



In an average of the last 25 years (1980-2005), May is the most profitable selling month in each strategy; November was the worst selling month (Figure 2). The Cash price strategy is the most profitable, especially in first half of the years.

Figure 2 – Net return for calves in the last 25 years based on profit per head basis by selling month (1980-2005)

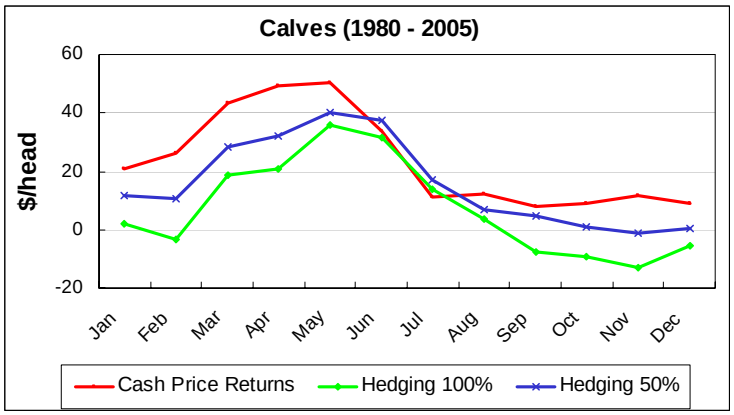


Table 1 reports the average returns to the Cash strategy for the two time periods. It also reports a "trimmed average" (T-Avg) that is an Olympic style average of throwing out the highest and lowest observation and then averaging the remaining years. This removes the effects of the extremely good or bad years. The T-Avg had little impact on the Cash average returns in the first seven months of 1995-2004, but was lower in the last five months because it removed the very high returns in the fall of 2003. The T-Avg for hedging was not impacted as much.

Table1 also reports the summary statistics for the 25 year period, 1980-2004. For this time period we also report a standard deviation (and T-Std Dev) of returns to reflect the variation in returns for a marketing month across the years. Notice that July is the least variable Cash marketing month and returns are more variable in the fall. Also note that hedging reduced the variability of returns as is expected. We did not report the variability for the last 10 years because of the small number of observations.

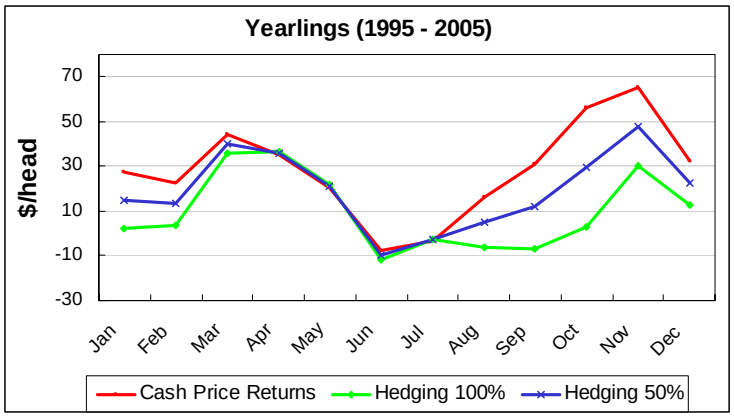
Keep in mind that "calves" are cattle on feed for approximately eight months; prior to 1991 cattle were on feed for an assumed nine and a half months. Since 1991 the weights have been 550-1100 pounds and prior to 1991 the weights were 450-1100 pounds. As the graphs indicate marketing calves in March-May period is most profitable followed by July and February. To hit that market with calves they must have been born early the previous spring, started on feed early, and pushed through the feedlot. It is no accident that the spring and early summer months are more profitable as it is more difficult to hit that market.

Table 1 –Average and Trimmed-average per head returns for calves per year in the last 10 and 25 years

CASH PRICE	1995-2005		1980-2005			
	Avg	T-Avg	Avg	T-Avg	Std Dev	T-Std Dev
January	27.34	29.42	20.73	20.96	64.23	59.97
February	29.87	33.76	26.10	44.38	67.31	60.24
March	48.42	**54.62**	43.50	44.38	74.09	67.04
April	47.56	49.96	49.49	**48.85**	82.23	75.26
May	**50.51**	50.87	**50.60**	48.32	85.22	75.90
June	40.25	40.79	33.80	31.98	76.09	61.40
July	4.53	4.45	11.37	8.93	**62.19**	**50.32**
August	**4.09**	-1.40	12.19	10.73	70.64	62.13
September	7.68	-4.82	8.13	11.14	81.20	**79.97**
October	23.17	**-7.70**	9.02	**-2.31**	102.23	66.03
November	23.61	-3.85	11.69	**-2.31**	**104.24**	67.67
December	10.99	-0.17	**9.01**	4.96	86.83	68.06
HEDGE 100%	**1995-2005**		**1980-2005**			
	Avg	**T-Avg**	**Avg**	**T-Avg**	**Std Dev**	**T-Std Dev**
January	-5.65	-8.96	1.88	-0.59	31.80	**29.94**
February	-1.81	-2.56	-3.40	-3.82	44.91	39.62
March	38.78	37.48	18.74	19.99	**42.67**	36.46
April	51.91	49.09	20.80	21.35	52.34	43.31
May	**56.13**	**56.84**	**35.93**	**38.83**	**54.77**	**45.72**
June	37.27	38.73	31.65	31.91	43.87	33.09
July	-2.59	-2.41	13.83	13.66	45.05	38.09
August	-14.98	-13.53	3.65	4.25	46.78	40.44
September	-14.07	-12.71	-7.39	-5.72	43.60	36.15
October	**-18.66**	**-17.54**	-9.46	-8.34	45.03	40.66
November	-10.34	-10.18	**-13.13**	**-13.77**	45.37	38.93
December	-12.75	-9.56	-5.40	-6.64	43.14	36.76
HEDGE 50%	**1995-2005**		**1980-2005**			
	Avg	**T-Avg**	**Avg**	**T-Avg**	**Std Dev**	**T-Std Dev**
January	12.56	11.09	11.87	8.80	**39.68**	**37.36**
February	14.03	15.90	10.76	11.42	44.88	39.30
March	43.87	46.72	28.19	28.50	46.92	43.74
April	49.73	51.44	32.07	33.03	55.76	50.49
May	**50.67**	**55.45**	**40.23**	**41.70**	62.50	**57.46**
June	38.76	41.15	37.26	36.70	60.99	48.37
July	5.20	3.24	17.03	13.85	51.47	40.75
August	**-5.44**	-9.66	6.93	5.04	50.47	42.05
September	2.45	-4.50	4.73	3.91	52.18	44.60
October	2.26	**-12.94**	1.12	-2.67	60.76	43.49
November	9.90	-8.21	**-0.94**	**-7.09**	**66.52**	47.00
December	-0.88	-7.15	0.57	-0.30	57.39	49.87

In the case of feeding and marketing yearlings, the selling month with the most average profit per head for the last 10 years was November. The worst months are June and July, when all strategies provide a negative return (Figure 3). May-July marketing has a very similar return. Cash strategies were highest averaged across all months.

Figure 3- Net return for yearlings in the last 10 years based on profit per head basis (1995-2005)



On average for the last 25 years, the most profitable selling month was April and the worst one is June. The behavior of the returns is very similar with the average of 10 years; the Cash price strategy provides the highest return and the 100% hedge strategy the lowest one.

Figure 4- Net return for yearlings in the last 25 years (1980-2005)

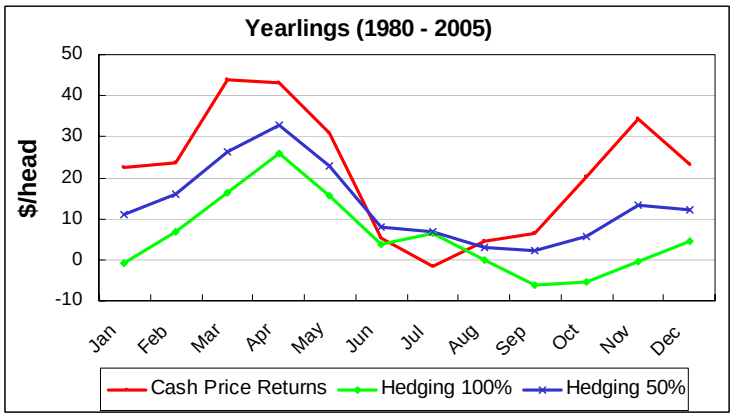


Table 2 summarizes the average and variability of returns in greater detail. The 10-year T-Avg was highest in March once you remove the effect of 2003 from the fall months. March was also the highest return for 1980-2005. Yearling returns had a generally lower variability compared to calf feeding.

Table 2 –Average and Trimmed-average per head returns per year for yearlings in the last 10 and 25 years

CASH PRICE	1995-2005		1980-2005			
	Avg	T-Avg	Avg	T-Avg	Std Dev	T-Std Dev
January	27.56	27.98	22.34	22.11	**56.49**	51.34
February	22.40	26.94	23.76	25.08	63.07	54.75
March	44.06	**49.21**	**43.79**	**45.73**	65.76	53.76
April	35.44	38.27	43.30	44.22	72.63	**64.15**
May	20.20	22.72	31.07	29.19	74.23	62.72
June	**-7.33**	-6.83	5.10	3.42	71.62	56.39
July	-3.07	**-8.33**	**-1.58**	**-1.98**	63.62	54.75
August	16.26	5.91	4.35	2.73	68.40	53.89
September	30.86	11.27	6.36	-1.04	81.76	53.12
October	56.40	25.08	20.26	6.43	**104.80**	57.28
November	**65.02**	38.04	34.27	22.21	102.74	56.43
December	32.60	23.39	23.26	19.25	75.27	**51.21**

HEDGE 100%	1995-2005		1980-2005			
	Avg	T-Avg	Avg	T-Avg	Std Dev	T-Std Dev
January	2.22	5.97	-0.99	-2.86	30.48	29.64
February	3.98	4.32	6.96	6.59	35.70	30.52
March	36.13	**37.35**	16.25	19.31	43.73	28.71
April	**36.36**	35.51	**25.83**	**25.49**	**24.29**	**21.57**
May	21.90	28.23	15.44	17.28	48.95	**40.95**
June	**-11.88**	**-11.82**	3.72	2.78	39.34	33.68
July	-2.33	2.16	6.35	7.10	42.95	36.50
August	-6.43	-7.98	0.02	0.04	33.84	30.06
September	-6.87	-8.21	**-6.17**	**-5.48**	28.50	24.56
October	2.66	6.90	-5.36	-4.53	36.28	30.95
November	30.12	29.11	-0.60	-0.78	**50.85**	40.08
December	12.88	12.97	4.60	4.13	37.46	30.39

Hedge 50%	1995-2005		1980-2005			
	Avg	T-Avg	Avg	T-Avg	Std Dev	T-Std Dev
January	14.89	16.55	11.13	8.97	**33.86**	32.79
February	13.19	15.04	16.14	17.08	39.21	35.84
March	40.10	**41.15**	**26.42**	28.15	46.76	38.56
April	35.90	36.89	32.98	**34.11**	38.87	31.97
May	21.05	24.76	22.70	23.87	49.10	**44.53**
June	**-9.61**	**-8.29**	8.11	6.73	53.92	42.16
July	-2.70	-6.07	6.63	4.44	47.08	40.61
August	4.92	-3.36	2.91	1.85	39.90	**30.10**
September	12.00	-0.24	**2.30**	**-2.02**	47.92	32.25
October	29.53	14.57	5.78	-1.06	61.17	37.86
November	**47.57**	29.26	13.22	5.18	**70.61**	43.54
December	22.74	19.41	12.32	11.21	46.17	38.04

Optimizing feedlot returns

The analysis above is based on profit per head independent of feedlot utilization. We wanted to evaluate returns to a feedlot that faces an annual fixed cost and can choose to feed calves or yearlings or let the space set idle part of the year. We calculated the net return based on profit per feedlot space per year. The analysis includes 4 strategies for calves that keep the pens utilized every month and that sell fed cattle and buy the next set of calves immediately in the months of: (1) January, September and May, (2) February, October and June, (3) March, November and July, and (4) April, December and August. Therefore, in each combination we will have 3 head/space/2 years. The net return values are calculated based on cash price strategy only. We also calculate a trimmed average (T-Avg).

In the last 10 years (1994-2004), the most profitable combination was February/ October/ June and the worst one April/December/August. But in the average of the last 24 years (1980-2004), the most profitable combination changes to January/September/May and the worst one continues to be April/December/August (Table 3).

Table 3 - Net return for calves in 1994-2004 and in 1980-2004 based on profit per feedlot space per year

Combinations	1994-2004		1980-2004	
	Average	T-Avg	Average	T-Avg
Jan'/Sep'/May''	36.36	32.75	**43.55**	**42.31**
Feb'/Oct'/Jun''	**41.26**	**34.84**	39.39	37.51
Mar'/Nov'/Jul''	36.85	32.00	39.02	37.17
Apr'/Dec'/Aug''	**22.66**	**20.16**	**35.11**	**34.47**
Average	*34.28*	*29.94*	*39.27*	*37.86*

Next, we analyzed six strategies for yearlings that keep the feedlot full by selling finished cattle and immediately buying feeder cattle in the following: (1) January and July, (2) February and August, (3) March and September, (4) April and October, (5) May and November, and (6) June and December. So, in each combination we will have 2 head/space/year. The net return values are calculated based on cash price.

In the last 10 years (1994-2004), the most profitable combination is April/October, but considering the trimmed average it changes to March/September. For both averages, the worst combination is June/December. But in the average of the last 24 years (1980-2004), the most profitable combination is May/November and in the trimmed average is April/October. The worst combination is January/July and June/December (Table 4). Analyzing the differences between the average and trimmed average, we can see that net return for yearlings vary more than for calves. But, on average of all strategies, the yearlings are more profitable than the calves, especially in the last 10 years, when the net return for yearlings is $57.44/space/year and for calves it is $34.28/space/year.

Table 4 - Net return for yearlings in 1994-2004 and in 1980-2004 based on profit per feedlot space per year

	1994-2004		1980-2004	
Combinations	**Average**	**T-Avg**	**Average**	**T-Avg**
Jan/Jul	32.55	31.94	**23.83**	22.86
Feb/Aug	44.91	39.54	30.66	27.55
Mar/Sep	74.01	**63.17**	49.77	43.90
Apr/Oct	**89.46**	53.02	62.92	**48.90**
May/Nov	79.85	39.84	**63.62**	48.54
Jun/Dec	**23.85**	**5.48**	28.29	**22.72**
Average	*57.44*	*38.83*	*43.18*	*35.75*

Comparing the most profitable marketing months of each of the strategies evaluated (1 calf/year, 2 yearlings/year, and 3 calves/2 years), we can see that the most profitable strategy is 2 yearlings sold in April/October, which provides a net return of $89.46/space/year. The least profitable strategy is 3 calves/2 years, because the maximum net return in the last 25 years is $43.55/space/year. Selling one group of calves a year can be more profitable than 3 calves/2 years, but the farmer needs to be careful about when they sell the cattle, because this strategy has the lowest net return some months (July, August, September and December).

Table 5 – Comparison between the strategies in the last 10 and 25 years

	Strategy	**T-Avg**	**Avg**
1994-2004	2 yearlings/year	63.17	89.46
	1 calf/year	54.62	50.51
	3 calves/2 years	34.84	41.26
1980-2004	2 yearlings/year	48.90	63.62
	1 calf/year	48.85	50.60
	3 calves/2 years	42.31	43.55