

OPTIMAL MARKETING DATES FOR FEEDLOT ENTERPRISE PROFITABILITY

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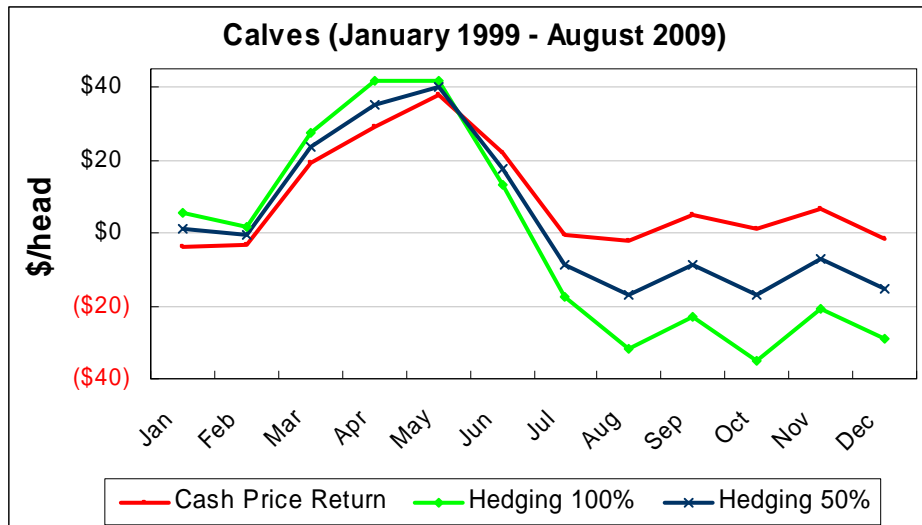
Cattle feeding is an important value added enterprise on Iowa farms. While production efficiencies impact feedlot success, buying and selling prices are the largest determinant of cattle feeding profits. Because of seasonal fed and feeder cattle and corn price patterns, some months are more profitable 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.

This data was summarized by selling month to compare average returns over the last 10 and 30 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 month were used in the analysis. The closing futures prices for calves during the sell month came from 41 weeks before the buy from 1980-1995, 34 weeks before from 1996-2006, and 29 weeks before from 2007 on. For yearlings, the closing futures prices during the sell month came from 27 weeks before the buy from 1980-1995, 25 weeks before from 1996-2006, and 23 weeks before from 2007 on.

In the last 10 years (January 1999-August 2009), the most profitable month to sell steer calves fed to slaughter was May (Figure 1). The worst selling month was August, if Hedging 50% of the production, January if using the Cash Price strategy, and October if Hedging 100%. The Cash Price strategy produced the highest return when averaged across all months of the year, but none of the strategies reported a positive average return in each month. The Cash Price strategy had the fewest months of negative return with five. Hedging 100% was evenly split with six months of positive, and six months of negative returns. Hedging 50% had seven months of negative returns, but still had a higher average return over all months of the year than the strategy of Hedging 100% of production. Profit from January 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. The May hedging strategy is worth noting for cow-calf producers retaining ownership as many market their calves in May or June.

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Figure 1- Net return for calves in the last 10 years based on profit per head basis by selling month (January 1999-August 2009)



In an average of the last 30 years (January 1980-August 2009), May was the most profitable selling month in each strategy and October was the worst (Figure 2). The Cash price strategy was the most profitable on average over the period followed by Hedging 50% of production, and Hedging 100%. In addition, using the Cash Price strategy provides a positive average return each month over the 30 year period. Hedging 50% has three months of negative average returns (Aug-Oct) and Hedging 100% has four months of negative average returns (August-November).

Figure 2 – Net return for calves in the last 30 years based on profit per head basis by selling month (January 1980-August 2009)

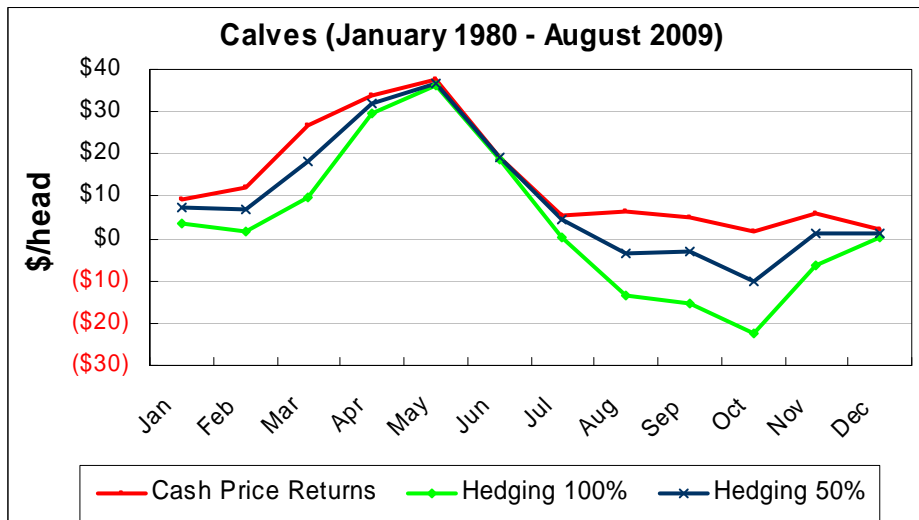


Table 1 reports the average returns and standard deviations of all of the strategies for the two time periods. It also reports a “trimmed average” (T-Avg) and a “trimmed standard deviation”. These are Olympic style averages or standard deviations that are computed by throwing out the highest and lowest observations and then averaging or finding the standard deviation of the remaining years. This removes the effects of extremely good or bad years. The T-Avg tends to have more of an impact on the Cash Price strategy’s average returns than the Hedging strategies as shown by the inconsistencies between the regular and trimmed averages. The standard deviations for all three strategies were quite high, but were highest for the Cash Price strategy. This trend indicates that returns from the Cash Price strategy were more volatile than the Hedging strategies as expected. In the Cash Price strategy, the least variable month was July, while the most variable month was October.

Keep in mind that “calves” are cattle on feed for approximately eight months. Since 1991 the weights have been 550-1150 pounds and prior to 1991 the weights were 450-1100 pounds. As the graphs indicate, marketing calves in April-May period is most profitable followed by March and June. 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 – Calf Average & Trimmed-Average per head returns and Standard Deviations & Trimmed-Standard Deviations of the returns in each month over the last 10 and 30 years.

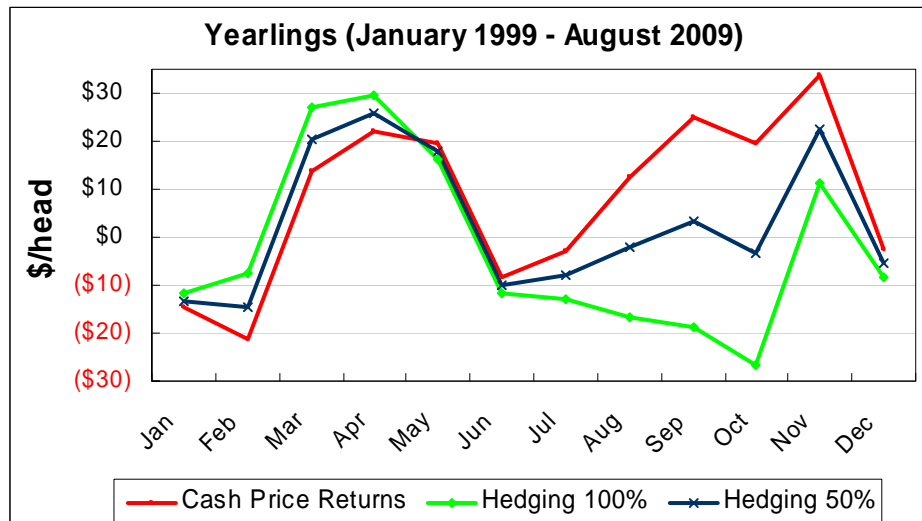
Cash Price (\$/head) - Calves								
	1999-2009				1980-2009			
	Avg	T-Avg	Std	T-Std	Avg	T-Avg	Std	T-Std
Jan	(\$3.88)	\$5.03	\$104.34	\$80.48	\$9.48	\$13.29	\$78.41	\$66.40
Feb	(\$3.08)	\$7.57	\$96.57	\$66.78	\$11.87	\$29.16	\$77.87	\$64.60
Mar	\$19.41	\$29.28	\$98.98	\$73.07	\$26.62	\$29.16	\$77.90	\$74.98
Apr	\$28.87	\$34.02	\$96.58	\$77.55	\$33.81	\$34.30	\$89.34	\$80.29
May	\$37.89	\$38.35	\$84.55	\$72.29	\$37.45	\$34.91	\$85.80	\$77.03
Jun	\$22.22	\$21.39	\$78.23	\$67.36	\$19.29	\$17.14	\$76.89	\$63.30
Jul	(\$0.45)	(\$4.89)	\$54.48	\$42.32	\$5.65	\$3.16	\$63.30	\$53.38
Aug	(\$2.41)	(\$8.96)	\$65.51	\$45.39	\$6.30	\$4.09	\$65.20	\$58.11
Sep	\$4.93	(\$5.47)	\$97.86	\$47.58	\$5.04	\$1.97	\$80.86	\$66.03
Oct	\$1.24	(\$20.47)	\$156.80	\$64.82	\$1.82	(\$4.57)	\$103.79	\$65.81
Nov	\$6.48	(\$20.64)	\$148.56	\$56.07	\$6.13	(\$4.57)	\$101.58	\$66.88
Dec	(\$1.56)	(\$5.48)	\$127.49	\$71.63	\$1.93	\$1.02	\$91.75	\$69.51
Avg	\$9.14	\$5.81	\$100.83	\$63.78	\$13.78	\$13.25	\$82.72	\$67.19

Hedging 100% (\$/head) - Calves								
	1999-2009				1980-2009			
	Avg	T-Avg	Std	T-Std	Avg	T-Avg	Std	T-Std
Jan	\$5.61	\$0.42	\$69.74	\$36.89	\$3.77	\$1.97	\$59.73	\$49.32
Feb	\$1.57	\$5.57	\$50.35	\$26.66	\$1.82	\$2.86	\$45.77	\$38.55
Mar	\$27.44	\$35.75	\$57.61	\$36.83	\$9.92	\$11.29	\$49.60	\$48.34
Apr	\$41.50	\$44.56	\$53.31	\$32.50	\$29.78	\$31.28	\$50.72	\$41.22
May	\$41.73	\$47.52	\$57.29	\$44.04	\$36.36	\$36.84	\$55.82	\$50.14
Jun	\$12.97	\$20.02	\$56.65	\$42.02	\$18.89	\$20.16	\$49.56	\$41.84
Jul	(\$17.45)	(\$21.10)	\$53.63	\$41.34	\$0.20	\$0.16	\$51.20	\$47.53
Aug	(\$31.63)	(\$32.62)	\$50.34	\$39.72	(\$13.67)	(\$12.75)	\$47.94	\$43.13
Sep	(\$22.78)	(\$13.34)	\$56.95	\$24.00	(\$15.32)	(\$12.40)	\$51.46	\$42.41
Oct	(\$35.21)	(\$37.21)	\$34.43	\$27.74	(\$22.48)	(\$23.71)	\$42.16	\$35.74
Nov	(\$20.87)	(\$30.11)	\$54.96	\$26.58	(\$6.17)	(\$7.82)	\$47.41	\$40.69
Dec	(\$28.84)	(\$29.49)	\$38.17	\$30.48	\$0.34	\$0.09	\$41.50	\$35.58
Avg	(\$2.16)	(\$0.84)	\$52.79	\$34.07	\$3.62	\$4.00	\$49.41	\$42.87

Hedging 50% (\$/head) - Calves								
	1999-2009				1980-2009			
	Avg	T-Avg	Std	T-Std	Avg	T-Avg	Std	T-Std
Jan	\$0.87	\$0.79	\$57.20	\$41.45	\$7.25	\$7.68	\$52.49	\$47.47
Feb	(\$0.75)	\$2.09	\$53.03	\$45.15	\$6.84	\$7.16	\$47.94	\$42.98
Mar	\$23.42	\$27.02	\$60.74	\$48.21	\$18.37	\$19.14	\$54.75	\$53.51
Apr	\$35.19	\$38.71	\$63.59	\$50.68	\$31.79	\$32.41	\$60.60	\$56.28
May	\$39.81	\$42.94	\$62.62	\$45.59	\$36.59	\$35.48	\$65.86	\$57.94
Jun	\$17.59	\$22.28	\$62.80	\$51.45	\$19.09	\$18.50	\$58.57	\$47.32
Jul	(\$8.95)	(\$14.55)	\$49.93	\$37.51	\$4.41	\$2.93	\$51.84	\$44.84
Aug	(\$17.02)	(\$22.61)	\$50.59	\$36.07	(\$3.69)	(\$5.27)	\$47.76	\$42.08
Sep	(\$8.92)	(\$9.40)	\$71.01	\$25.60	(\$3.18)	(\$2.89)	\$58.60	\$46.14
Oct	(\$16.98)	(\$27.38)	\$87.63	\$36.49	(\$10.33)	(\$12.92)	\$62.91	\$45.03
Nov	(\$7.20)	(\$29.48)	\$96.53	\$33.25	\$1.10	(\$4.88)	\$70.16	\$50.97
Dec	(\$15.20)	(\$20.24)	\$68.37	\$45.40	\$1.13	\$0.85	\$53.78	\$45.71
Avg	\$3.49	\$0.85	\$65.34	\$41.40	\$9.12	\$8.18	\$57.11	\$48.36

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 using the Cash Price strategy and April using the Hedging strategies. The worst months were February for the Hedging 50% and Cash Price strategies and October for the Hedging 100% strategy (Figure 3). The Cash Price strategy provided the highest return when averaged across all months followed by Hedging 50% and Hedging 100%. Hedging 100% of the production provides a negative return when averaged across all of the months over the entire period.

Figure 3- Net return for yearlings in the last 10 years based on profit per head basis (January 1999-August 2009)



On average for the last 30 years, the most profitable selling month was April and the worst was June using Cash Prices, September when Hedging 50%, and October when Hedging 100%. The Cash Price strategy again provided the highest average return across all months over the entire period and the Hedging 100% strategy provided the lowest return, which again was negative.

Figure 4- Net return for yearlings in the last 30 years (January 1980-August 2009)

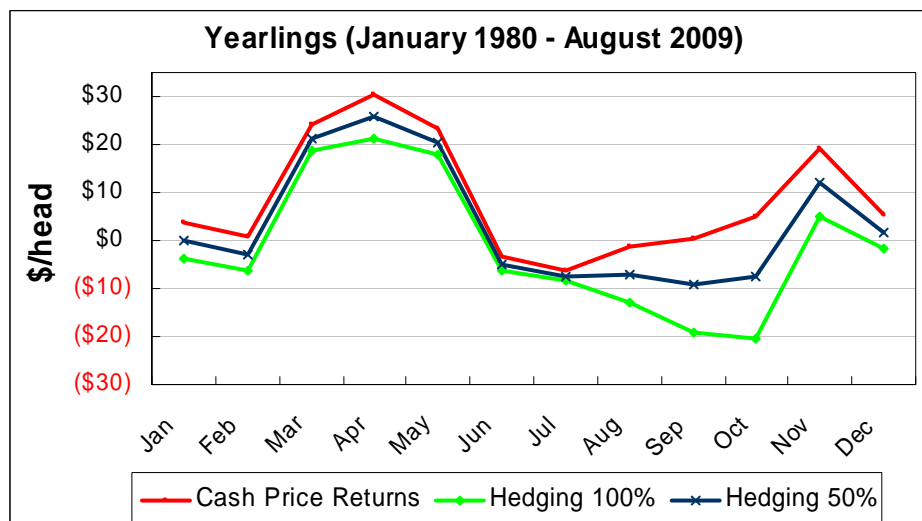


Table 2 summarizes the average and variability of returns in greater detail. The T-Avg. tends to have a similar effect on all strategies. Yearling returns had less variability than calf returns. The most and least variable months for the Cash Price strategy for yearlings match the months of most and least variability for calves also.

Table 2 – Yearling Average & Trimmed-Average per head returns and Standard Deviations & Trimmed-Standard Deviations of the returns in each month over the last 10 and 30 years.

Cash Price (\$/head) - Yearlings								
	1999-2009				1980-2009			
	Avg	T-Avg	Std	T-Std	Avg	T-Avg	Std	T-Std
Jan	(\$14.64)	(\$5.40)	\$115.94	\$90.82	\$3.96	\$8.25	\$81.85	\$67.31
Feb	(\$21.17)	(\$12.11)	\$113.87	\$86.96	\$0.77	\$5.25	\$84.69	\$70.57
Mar	\$13.70	\$20.15	\$93.29	\$69.39	\$24.09	\$26.90	\$69.96	\$68.13
Apr	\$21.92	\$29.66	\$84.09	\$57.43	\$30.46	\$32.23	\$79.00	\$68.56
May	\$19.38	\$23.06	\$65.52	\$45.57	\$23.28	\$21.54	\$74.84	\$64.18
Jun	(\$8.18)	(\$8.46)	\$54.50	\$46.62	(\$3.41)	(\$6.03)	\$68.84	\$56.28
Jul	(\$2.88)	(\$9.12)	\$68.64	\$53.86	(\$6.41)	(\$7.09)	\$62.46	\$54.68
Aug	\$12.39	\$2.33	\$74.09	\$51.54	(\$1.11)	(\$2.83)	\$63.87	\$50.70
Sep	\$25.21	\$4.28	\$107.11	\$48.81	\$0.61	(\$6.06)	\$80.09	\$55.08
Oct	\$19.70	(\$3.30)	\$172.24	\$65.10	\$5.19	(\$2.70)	\$108.78	\$59.09
Nov	\$33.70	\$9.99	\$163.71	\$61.04	\$19.11	\$11.00	\$104.71	\$58.38
Dec	(\$2.60)	(\$6.10)	\$138.09	\$81.25	\$5.41	\$4.97	\$89.22	\$61.37
Avg	\$8.04	\$3.75	\$104.26	\$63.20	\$8.49	\$7.12	\$80.69	\$61.19

Hedging 100% (\$/head) - Yearlings								
	1999-2009				1980-2009			
	Avg	T-Avg	Std	T-Std	Avg	T-Avg	Std	T-Std
Jan	(\$11.72)	(\$7.47)	\$58.37	\$40.68	(\$3.70)	(\$2.28)	\$50.27	\$42.82
Feb	(\$7.60)	\$0.83	\$51.02	\$30.53	(\$6.24)	(\$3.96)	\$45.77	\$38.55
Mar	\$27.12	\$32.50	\$52.96	\$30.87	\$18.69	\$19.82	\$32.50	\$29.39
Apr	\$29.57	\$34.16	\$36.24	\$20.81	\$21.45	\$22.75	\$34.69	\$29.14
May	\$16.40	\$20.59	\$52.75	\$43.06	\$17.85	\$18.30	\$46.59	\$41.27
Jun	(\$11.82)	(\$12.34)	\$27.86	\$20.32	(\$6.22)	(\$6.17)	\$48.24	\$43.32
Jul	(\$12.75)	(\$12.15)	\$48.14	\$35.12	(\$8.38)	(\$7.88)	\$42.37	\$37.85
Aug	(\$16.64)	(\$18.13)	\$35.52	\$29.68	(\$12.98)	(\$13.90)	\$33.72	\$29.24
Sep	(\$18.81)	(\$15.81)	\$57.16	\$24.51	(\$19.18)	(\$18.32)	\$39.73	\$27.08
Oct	(\$26.52)	(\$26.98)	\$40.38	\$36.12	(\$20.33)	(\$19.32)	\$39.58	\$34.32
Nov	\$11.07	(\$2.05)	\$68.38	\$37.80	\$5.07	\$1.58	\$50.21	\$36.82
Dec	(\$8.39)	(\$20.15)	\$61.62	\$32.70	(\$1.67)	(\$3.88)	\$46.19	\$35.16
Avg	(\$2.51)	(\$2.25)	\$49.20	\$31.85	(\$1.30)	(\$1.10)	\$42.49	\$35.41

Hedging 50% (\$/head) - Yearlings								
	1999-2009				1980-2009			
	Avg	T-Avg	Std	T-Std	Avg	T-Avg	Std	T-Std
Jan	(\$13.18)	(\$10.74)	\$67.43	\$57.13	\$0.13	\$1.87	\$52.02	\$46.41
Feb	(\$14.39)	(\$11.86)	\$69.24	\$60.31	(\$2.74)	(\$1.23)	\$54.27	\$49.13
Mar	\$20.41	\$24.34	\$61.04	\$43.56	\$21.39	\$22.72	\$43.92	\$41.86
Apr	\$25.74	\$31.91	\$55.54	\$29.63	\$25.95	\$27.95	\$47.96	\$39.94
May	\$17.89	\$19.79	\$49.08	\$35.16	\$20.56	\$19.41	\$52.87	\$45.14
Jun	(\$10.00)	(\$10.80)	\$31.72	\$27.26	(\$4.81)	(\$5.57)	\$49.19	\$39.78
Jul	(\$7.81)	(\$10.67)	\$53.31	\$43.50	(\$7.40)	(\$8.13)	\$45.78	\$41.69
Aug	(\$2.12)	(\$9.44)	\$45.11	\$25.52	(\$7.05)	(\$8.95)	\$38.91	\$31.09
Sep	\$3.20	(\$5.76)	\$76.20	\$26.33	(\$9.29)	(\$12.87)	\$52.63	\$33.02
Oct	(\$3.41)	(\$18.01)	\$96.47	\$39.65	(\$7.57)	(\$12.20)	\$64.12	\$40.41
Nov	\$22.39	(\$1.67)	\$110.17	\$46.06	\$12.09	\$4.28	\$72.38	\$44.18
Dec	(\$5.50)	(\$11.18)	\$66.87	\$47.76	\$1.87	\$0.73	\$48.12	\$39.88
Avg	\$2.77	(\$1.17)	\$65.18	\$40.16	\$3.60	\$2.34	\$51.85	\$41.04

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 year-round 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 four strategies for calves that keep pens utilized every month by selling fed cattle and immediately buying the next set of calves 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. In each combination we have 3 head/space/2 years. The net return values are calculated based on the Cash Price strategy only. We also calculated a trimmed average (T-Avg).

In the last 10 full years (1998-2007), the most profitable combination was January/September/May while the least profitable is March/November/July. In the average of the last 28 full years (1980-2007), the most profitable combination was again January/September/May while the least profitable changed to February/October/June (Table 3).

Table 3 - Net return for calves in 1998-2007 and in 1980-2007 based on profit per feedlot space per year.

CALVES: NET RETURN/SPACE/YEAR				
	1998-2007		1980-2007	
Combinations	Average	T-Avg	Average	T-Avg
Jan/Sep/May"	\$32.74	\$32.30	\$34.74	\$36.41
Feb/Oct/June"	\$25.99	\$23.26	\$26.58	\$26.98
Mar/Nov/Jul"	\$22.00	\$19.18	\$28.02	\$28.60
Apr/Dec/Aug"	\$23.57	\$23.41	\$30.76	\$32.46
Average	\$26.08	\$24.54	\$30.02	\$31.11

Next, we analyzed six strategies for yearlings that keep feedlots full by selling finished cattle and immediately buying feeder cattle in the following combinations: (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. In each combination there are 2 head/space/year. The net return values are calculated based on cash price.

In the last 10 years (1999-2008), the most profitable combination was March/September. In the average of the last 29 years (1980-2008), the most profitable combination was May/November. For both periods, the worst combination was June/December (Table 4). Analyzing the differences between the average and trimmed average, we can see that net returns for yearlings vary more than for calves. Over the entire period, calves are more profitable than yearlings. However, in the last 10 years, yearlings are more profitable on average.

Table 4 - Net return for yearlings in 1999-2008 and in 1980-2008 based on profit per feedlot space per year.

YEARLINGS: NET RETURN/SPACE/YEAR

Combinations	1999-2008		1980-2008	
	Average	T-Avg	Average	T-Avg
Jan/Jul	\$6.98	\$6.36	\$6.51	\$6.29
Feb/Aug	\$19.14	\$10.48	\$9.57	\$6.30
Mar/Sep	\$53.06	\$46.11	\$29.94	\$26.17
Apr/Oct	\$44.77	\$31.28	\$37.03	\$32.46
May/Nov	\$53.02	\$28.20	\$42.50	\$34.37
Jun/Dec	(\$4.84)	(\$9.69)	\$4.22	\$3.45
Average	\$36.51	\$23.98	\$28.42	\$24.11

When comparing the most profitable marketing months of each of the strategies evaluated (1 calf/year, 2 yearlings/year, 1 yearling/year, and 3 calves/2 years), we find that the most profitable strategy over the last 30 years was 2 yearlings/year sold in May/November, which provided a net return of \$42.50. The least profitable strategy over the last 30 years was 1 group of yearlings/year which provided a maximum net return of \$30.46. Over the last 10 years, the most profitable strategy was selling 2 yearlings/year in March/September which provided a maximum net return of \$53.06. The least profitable strategy was selling 3 calves/2 years in January/September/May which provided a maximum net return of \$32.74. Taking an average of all returns each strategy provided in every marketing period shows different results. Over the last 10 years, the 2 yearlings/year strategy provided the highest average return at \$36.51. However, over the last 30 years, the strategy of selling 3 calves/2 years provided the highest average return at \$30.02. The strategy that provided the lowest return, 1 yearling per year, was consistent between both periods. The strategy of keeping feedlots full seems to provide the greatest profits on average over time, but as expected of efficient markets, no single strategy consistently provides the highest return.

Table 5 – Comparison between the strategies in the last 10 and 30 years (or 29 and 28 years for multiple yearling and calf strategies) on a \$/space/year basis using cash prices

	Strategy	Marketing Period	Max Average	Overall Average (All Marketing Periods)
Last 10 Years	2 Yearlings/Yr	March/September	\$53.06	\$36.51
	1 Yearling/Yr	November	\$33.70	\$8.04
	1 Calf/Yr	May	\$37.89	\$9.14
	3 Calves/2 Yrs	Jan/Sep/May	\$32.74	\$26.08
Last 30 Years	2 Yearlings/Yr	May/November	\$42.50	\$28.42
	1 Yearling/Yr	April	\$30.46	\$7.12
	1 Calf/Yr	May	\$37.45	\$13.78
	3 Calves/2 Yrs	Jan/Sep/May	\$34.74	\$30.02

This analysis is meant to provide insight on profits drawn from various marketing dates for fed cattle. As the analysis shows, multiple strategies are available to attempt to maximize profits. However, there is not a single strategy that consistently provides the producer with the maximum amount of profit. It is important to remember that the best opportunity for profit is dependent on each producer.