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RETAINED OWNERSHIP REVISITED: BALANCING MARKET PRICES  
AND GENETIC POTENTIAL

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INTRODUCTION

Retained ownership is a marketing strategy that involves maintaining ownership of young cattle beyond calf weaning, a traditional marketing time for many producers. Numerous retained ownership strategies exist. It is extremely important for producers and their lenders to clearly understand the advantages and disadvantages of a specific retained ownership strategy in order to fully evaluate profit potential.

The advantages and disadvantages of retained ownership have been discussed by several authors. Advantages include 1) compensation for superior genetics, 2) reduction in market inefficiencies, 3) increased quality control in beef, 4) reduction in market risk for frost or drought damaged crops and 5) reduction in profitability peaks and valleys associated with cattle cycles.

Retained ownership of cattle is not without problems. Disadvantages include 1) increased risk of poor performance due to poor genetics, health problems or deteriorating environmental conditions, 2) increased market risk, 3) increased financing requirements and 4) potential tax problems.

Nearly every economic analysis of retained ownership has shown an increase in profitability over traditional cow-calf operations. Data adapted from the Kansas Steer Futurity (Simms and Maddux, 1990) are displayed in Table 1. Average annual net returns per cow through weaning were \$4.84 from 1974-1988. Negative returns averaging -\$43.81 were observed for 8 of the 14 years. Average annual returns per cow for the feedlot phase of production were \$27.13. Negative returns averaging -\$35.56 were observed in 5 of the 14 years. Returns for the combined cow-calf and feedlot phases of production averaged \$31.97. This represents a 6.6-fold increase in profitability as compared to marketing the calf crop at weaning. Losses averaging -\$40.69 were observed in 6 of the 14 years.

A 1990-91 South Dakota Retained Ownership Demonstration Program (Wagner et al., 1991) showed average profits of \$38.75 and \$16.69 for an accelerated finishing program and a traditional two-phased growing and finishing program, respectively. The variability in profitability between groups of cattle representing different genetic and management backgrounds was tremendous. Profitability ranged from -\$56.57 to \$131.36 per head and 7 of 51 groups of five steers in the accelerated pen lost money.

Table 1. Economic Returns per Cow through the Weaning and Feedlot Phases of Productions<sup>a</sup>.

Year	Net returns through weaning <sup>b</sup>	Net returns feedlot <sup>c</sup>	Combined cow-calf and feedlot
1974-75	-106.79	91.23	-15.56
1975-76	-63.80	-7.12	-70.92
1976-77	-60.32	2.99	-57.33
1977-78	-23.67	83.10	54.43
1978-79	88.99	62.10	151.09
1979-80	110.05	-65.18	44.87
1980-81	7.05	-63.80	-56.75
1981-82	-30.76	82.28	51.52
1982-83	-36.95	1.91	-35.04
1983-84	-23.15	50.28	27.13
1984-85	34.37	-33.25	1.12
1985-86	-.04	-8.47	-8.51
1986-87	61.99	107.66	169.65
1987-88	115.80	76.14	191.94
Average	4.84	27.13	31.97

<sup>a</sup>Adapted from Simms and Maddux (1990).

<sup>b</sup>Assumes a 92% calf crop weaned, 16 heifer calves for every 100 cows saved for replacements and 14% of cows are sold for salvage.

<sup>c</sup>Assuming heifer calves weigh 90% of steer calves and are discounted 10%, slaughter heifers weigh 90% of slaughter steers and are discounted 3% and cost of gain for heifers is 8% greater than cost of gain for steers.

Profitability of the two-phased program steers ranged from -\$39.57 to \$57.26 per head and 7 of 18 groups of five steers lost money.

Clearly, variation in potential profits associated with retained ownership exists both on a year to year basis and within each year. The objective of this paper is to outline a few possible retained ownership programs and to review which cattle types and market conditions each program may be best suited for.

## MARKET SITUATION

The relative prices for steer calves, feeder calves, and slaughter steers are very important in determining the profitability of any retained ownership program. When evaluating retained ownership programs, care needs to be taken so that the year or time period of analysis does not bias the results. A retained ownership program that is profitable in one year may not be profitable on average or in any other year.

The last 11 years, 1981-1991, capture most of the current cattle cycle. From 1981-1986 prices were generally depressed and 1987-1991 has been a time period of relatively high cattle

prices. Table 2 contains the average prices for various weights of steers in particular months for these two time periods and the average price for the last 10 years.

Many market analysts are looking for cattle prices to decline over the next few years as the cow herd inventory continues to grow. Retained ownership during 1992 will probably be difficult to show profitable as calf prices remain relatively strong this fall but yearling and slaughter prices are expected to decline into 1992. However, if by the fall of 1992 calf prices have also declined, then projections for 1993-1996 should show similar price relationships as observed in the early 1980's. From Table 2 it would appear that retained ownership could be profitable in these years, since the price roll back from calves to feeders and calves to slaughter steers is less pronounced in the lower priced years of the cattle cycle.

Table 2. Average Feeder Cattle Prices at Torrington, WY, and Slaughter Cattle Prices at Sioux Falls, SD, 1981-1991.

Class	Weight lb	Month	1981-86 \$/cwt	1987-91 \$/cwt	1982-1991 \$/cwt
Steer calves	450	Oct	69.14	99.16	84.25
	550	Oct	65.41	93.10	79.23
	650	Oct	62.78	87.21	74.92
Feeder steers	550	Feb	69.89	92.66	80.81
	650	Feb	66.43	85.45	75.51
	750	Feb	65.13	81.00	72.83
Feeder steers	550	Apr	71.02	93.58	81.89
	650	Apr	66.06	85.68	75.51
	750	Apr	63.24	79.38	70.92
Yearling steers	750	Sep	61.59	83.84	72.38
	900	Sep	60.12	79.48	69.45
Slaughter steers	Choice	Apr	102.84	121.67	112.21
	Select		92.65	114.39	103.22
	Choice	May	104.04	121.90	112.76
	Select		93.21	113.12	103.12
	Choice	Jun	102.76	117.06	109.13
	Select		91.10	109.42	99.39

#### RETAINED OWNERSHIP STRATEGIES

Numerous retained ownership strategies exist. This paper will concentrate on only a few. These include accelerated finishing programs for weaned calves; traditional two-phased growing and finishing programs; moderate rate of gain backgrounding programs, sell as yearling in late

winter; and low rate of gain backgrounding programs, sell as yearling in late winter or as long yearling in early fall.

### Accelerated Finishing Program

Average profitability of 255 steers fed an accelerated finishing program as part of the South Dakota Retained Ownership Demonstration was \$38.75 per head. Profitability of the 51 groups of five steers was extremely variable, however, ranging from -\$56.57 to \$131.36 per head. Tables 3, 4 and 5 display the data divided into the low, middle and high profitability groups. The high profitability groups made nearly \$75 per head. These cattle were initially heavier and older. They gained weight more rapidly, were fed fewer days and graded an average of 62.9% Choice. Clearly, larger, growthier cattle with the propensity to grade Choice were well suited for the accelerated finishing program. Lighter cattle without the ability to gain 3 pounds daily and without the capability of grading Choice were not well suited for accelerated finishing.

Table 3. Profitability and Initial Data for Steers Fed Accelerated Finishing Diet.

Profit Group	Profit	Initial Weight	Initial Height	Initial Fat	Initial Age
Low 1/3	-.67	561	44.80	.10	201
Middle 1/3	41.46	554	44.75	.10	202
High 1/3	74.68	605	45.49	.11	216

Table 4. Profitability and Feedlot Performance and Cost Data of Steers Fed Accelerated Finishing Diet.

Profit Group	Profit	Feedlot ADG	Days Fed	Slaughter Weight	Cost of Gain
Low 1/3	-.67	2.79	206	1134	52.46
Middle 1/3	41.46	2.95	194	1125	51.46
High 1/3	74.68	3.07	188	1181	53.00

Table 5. Profitability and Carcass Data for Steers Fed Accelerated Finishing Diet.

Profit Group	Profit	Hot Carcass Weight	Dressing Percent	Fat Thickness	Ribeye Area	Yield Grade	Percent Choice
Low 1/3	-.67	720	63.42	.41	12.86	2.61	28.5
Middle 1/3	41.46	716	63.68	.39	12.67	2.62	47.6
High 1/3	74.68	764	64.69	.45	13.00	2.91	62.9

Cost of gain was slightly greater for the high profit steers compared with the low and middle profit steers. Average daily gain was important as it relates to days on feed. As rate of

gain increases, fewer days are required to reach market weight. Market prices were stronger earlier in the year and declined steadily through the spring until the slowest gaining cattle were sold. This trend has occurred over the past several years and will likely occur in the near future as more calves and fewer yearlings are placed on feed. Long-term, there may be opportunities for producers to alter calving season and production systems to best fit the winter fed cattle market.

Average prices observed for the low price years (1981-86) and high priced years (1987-91) were applied to the Retained Ownership Demonstration data. Average profitability was greater in the low price years than in the high price years (44.14 versus -\$2.78 per head). This was apparently due to lower price margins between feeder cattle and slaughter steers during the low price years as compared to the high price years.

Generally, it is assumed that British cattle are not suited to accelerated finishing programs. The tendency in the industry is to grow these cattle on roughage programs in order to presumably increase slaughter weight. However, calves sired by Angus bulls appeared profitable under this accelerated feeding program (Table 6). This was due to their ability to grade Choice more readily than some of the other cattle. On the surface, Hereford sired calves appear less profitable in this system. The profitability estimates calculated in this study were based on an average initial price for the calf based only on differences in calf weight. If discounts of \$4 to \$6 per cwt normally seen for Hereford calves and \$4 to \$6 premiums normally seen for some exotic calves at weaning were applied to this analysis, differences between breed types would be diminished. Provided a minimum carcass weight of 600 lb is achieved, British cattle can be fed successfully in this system if they gain rapidly enough to be marketed early or if they have the genetic capability to grade Choice.

Table 6. Effect of Sire Breed on Profitability and Various Performance and Carcass Traits for Accelerated Steers.

Breed	Initial Weight	Final Weight	Days Fed	Age	Hot Carcass Weight	Yield Grade	Percent Choice	Profit
Angus	531	1079	185	2.97	689	3.06	77.5	60.73
Charolais	576	1159	200	2.93	743	2.64	46.7	35.71
Gelbvieh	602	1162	193	2.90	754	2.65	42.9	51.94
Hereford	561	1092	173	3.07	684	3.40	0	17.24
Limousin	539	1162	214	2.92	764	2.05	26.7	37.99
Simmental	602	1201	204	2.94	760	2.54	45.7	23.01

#### Traditional Two-Phase Growing and Finishing Program

Average profitability of 90 steers fed a traditional, two-phased program as part of the South Dakota Retained Ownership Demonstration was \$16.69 per head. Profitability of the 18 groups of five head varied from -\$39.57 to \$57.26 per head. Tables 7, 8 and 9 display the

information for the low, middle and high profitability groups.

Table 7. Profitability and Initial Data for Steers Fed Two-Phase Growing and Finishing Diet.

Profit Group	Profit	Initial Weight	Initial Height	Initial Fat	Initial Age
Low 1/3	-22.46	492	42.88	.11	190
Middle 1/3	22.17	498	42.77	.09	195
High 1/3	50.36	522	44.09	.10	206

Table 8. Profitability and Feedlot Performance and Cost Data of Steers Fed Two-Phase Growing and Finishing Diet.

Profit Group	Profit	Feedlot ADG	Days Fed	Slaughter Weight	Cost of Gain
Low 1/3	-22.46	2.66	221	1079	53.00
Middle 1/3	22.17	2.75	214	1085	52.35
High 1/3	50.36	2.91	207	1124	52.81

Table 9. Profitability and Carcass Data for Steers Fed Two-Phase Growing and Finishing Diet.

Profit Group	Profit	Hot Carcass Weight	Dressing Percent	Fat Thickness	Ribeye Area	Yield Grade	Percent Choice
Low 1/3	-22.46	689	63.89	.47	12.19	2.84	20.3
Middle 1/3	22.17	701	64.64	.40	12.83	2.49	56.7
High 1/3	50.36	728	64.73	.48	11.81	2.83	70.0

The high profitability groups made \$50.36 per head. These cattle were slightly heavier, older and larger framed initially. They gained weight more rapidly, were fed fewer days, had higher dressing percentages and graded an average of 70% Choice. Cattle in the lowest profitability group appeared to lack the ability to reach the Choice grade.

Profitability of cattle during the low priced years (1981-86) averaged \$47.48 per head. Profitability during the high priced years averaged -\$8.11 per head. The difference is once again due to a reduction in the price margin between calves and slaughter steers for the low price years.

Table 10 shows the effect of breed type on profitability and other variables for cattle fed the two-phased program. Angus sired cattle graded Choice more readily and were therefore profitable under this system. Cattle without the propensity to grade Choice were less profitable in this two-phased system. Profitability of Charolais and Gelbvieh sired cattle had \$50 per head lower profits under the two-phased system than under the accelerated program (Table 6). Cattle with the capability of gaining rapidly and reaching an acceptable market weight early should be

pushed accordingly, especially if they do not have the potential to grade Choice. In 1991 and during the last 3 years, fed cattle prices have been stronger and the Choice-Select price spread narrower earlier in the year. Fed cattle prices were lower and the quality discount was greater as the year progressed.

Table 10. Effect of Sire Breed on Profitability and Various Performance and Carcass Traits for Two-Phased Steers.

Breed	Initial Weight	Final Weight	Days Fed	Age	Hot Carcass Weight	Yield Grade	Percent Choice	Profit
Angus	506	1093	208	2.82	703	2.99	76.9	39.73
Charolais	509	1142	231	2.75	736	2.57	35.0	-15.12
Gelbvieh	499	1119	230	2.70	721	2.37	57.1	3.30
Hereford	485	1013	199	2.65	645	2.94	6.7	-12.33
Limousin	507	1010	200	2.52	662	2.45	40.0	15.10

#### Background Moderate Rate of Gain, Sell Late Winter

Average profitability of the backgrounded steers from the South Dakota Retained Ownership Demonstration would have been -\$1.84 if they would have been sold in February. Feeding these cattle through slaughter made an average of \$18.53 additional profit per head. Examining the data split up into the upper, middle and lower one-third profitability groups reveals an interesting trend (Tables 11 and 12). Cattle in the high profitability group made an average of \$23.88 per head and weighed 452 pounds when they entered the feedlot. Cattle in the low profitability group lost an average of \$29.06 per head and weighed 556 pounds. Profitability of cattle in the low profitability group was improved by \$64.06 per head when fed to slaughter. Profitability of the middle and high profitability cattle was reduced by \$1.20 and \$7.25 per head.

Table 11. Profitability and Initial Data for Backgrounded Steers.

Profit Group	Profit	Initial Weight	Initial Height	Initial Fat	Initial Age
Low 1/3	-29.06	556	44.58	.11	204
Middle 1/3	-.35	504	42.78	.11	190
High 1/3	23.88	452	42.33	.09	198

Table 12. Profitability and Performance Data for Backgrounded Steers.

Profit Group	Profit	ADG	Cost of Gain	Final Weight
Low 1/3	-29.06	2.37	58.89	821
Middle 1/3	-.35	2.15	58.20	745
High 1/3	23.88	2.21	54.20	700



The low, middle and high profitability groups correspond exactly to the high, middle and low initial weight groups, respectively. Therefore, this information suggests that heavy weight calves should not be backgrounded and sold as feeders. Profitability is significantly improved by feeding these cattle to slaughter.

Profitability during low price years (1981-86) was -\$1.89 per head. Profitability during high price years (1987-91) was -\$31.75 per head. Ranking of the calves from most profitable to least profitable did not change significantly for high price versus low price years. Only one of the sets of 5 steers would have been profitable during the high price years.

On the surface, Hereford sired cattle appeared more profitable under this system than other breeds (Table 13). However, if discounts were applied to the initial value and yearling sale price, this advantage is diminished.

Table 13. Effect of Breed Type on Performance and Profitability.

Breed	Profit	Initial Weight	Initial Age	ADG	Cost of Gain	Final Weight
Angus	-1.91	506	203	2.27	57.08	760
Charolais	-2.90	509	189	2.22	63.14	758
Gelbvieh	-5.52	499	207	2.09	60.55	733
Hereford	9.81	485	191	2.23	55.85	735
Limousin	-3.40	507	203	2.04	60.53	735

### Background Ranch Type Programs

Another form of retained ownership that is practiced on many ranches is to background calves on the ranch and then either sell short yearlings in the spring or summer the yearlings on grass and sell them in the fall. Research previously conducted showed that it was most profitable for a typical mountain valley ranch in Wyoming to retain ownership of calves and sell them as yearlings (Feuz and Kearl, 1987). Based on 1985 level of costs and 1980-1985 average prices for cattle, Feuz and Kearl found that net ranch income could be increased from \$31,178 for a cow-calf ranch to \$46,537 for a cow-yearling ranch. These levels of income were based on an 850 animal-unit ranch weaning 400 and 425 pound heifers and steers, respectively. The heifers were fed to gain about 1 pound per day through the winter and the steers were fed to gain 1.17 pound per day. Linear programming was used to determine optimal time of sale and optimal level of winter gain.

Their model was updated to reflect prices for the 1981-1986 time period and the 1987-1991 time period. During the period of relatively low cattle prices, net ranch income (NRI) was increased 40% by retaining ownership of calves through the winter and summer and selling them as yearlings. With relatively high cattle prices, NRI could be increased 16.5% by keeping calves and selling them as yearlings.

Calf weaning weights were adjusted up to 480 and 510 pounds for heifers and steers, respectively, and the model was reevaluated. For the 1981-1986 time period, NRI was increased 6% by retained ownership. Some of the calves were fed to gain about 1.5 pound per day through the winter and sold in April as short yearlings and the remaining calves were fed to gain just over 1 pound per day and then kept through the summer and sold as yearlings. However, during the 1987-1991 time period, NRI was maximized by selling the heavy calves at weaning. NRI decreased 8% by retaining ownership on the ranch.

It is important to note that, when evaluating on-ranch retained ownership, net ranch returns must be considered and not just returns from the retained ownership. This is because labor, management and other resources are generally limited, and retaining ownership of calves may change the number of mature cows the ranch is capable of supporting. The results from the Wyoming model would suggest that on-ranch retained ownership is very profitable for lighter weight calves. However, the heavier calves are probably better suited for another form of retained ownership, particularly in higher priced years.

## SUMMARY AND CONCLUSIONS

Most retained ownership summaries have shown an improvement in profitability when examined over several years. However, considerable variation in profitability existed for cattle fed as part of the South Dakota Retained Ownership Demonstration. From the preceding analyses, it appears as if Retained Ownership is potentially more profitable in low cattle price years when the margin between feeder price and slaughter price is reduced. However, the average prices in the low and high price time periods eliminate price trend effects. Whenever there is an upward market trend from the fall into the late spring or summer, retained ownership will be more profitable. This in fact was the case for 1989 and 1990.

In addition, it appears as if heavy, older cattle at weaning should not be backgrounded and sold as feeders in late winter. Rather, these cattle should be fed a high energy finishing diet from weaning until slaughter. Cattle fed in a two-phase growing and finishing program need to grade Choice in order to be profitable because they are generally sold later in the year when the Choice-Select price spread is greater. Lighter weight calves appear to be most profitable in either a low rate of gain backgrounding program and then put on grass for the summer or a moderate rate of gain backgrounding program and sold in late winter. Cattle that do not have the propensity to grade Choice are generally less suitable for retained ownership programs that take them to slaughter weights.

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