

MARKET IMPACTS ON CULLING DECISIONS

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Biological considerations determine the quantity of product that will reach the market, but economic considerations, particularly market prices and supplemental feed costs need to be combined with biological performance to determine the bottom line of profitability for a culling strategy. (See previous article for a discussion of biological performance.) This article will concentrate on market considerations and profitability of culling strategies. The next article will conclude with our recommendations of optimal culling strategies.

MARKET PRICES AND THE CULLING DECISION

The culling decision has long-term consequences. Each replacement heifer you buy or raise this year will, hopefully, remain productive for at least five years. This lengthy time span complicates calculating the productivity of an existing cow in the herd versus a replacement. In addition to the uncertainty involved with future production, uncertainty exists about future prices.

Each individual rancher is a "price taker." That is, an individual rancher cannot have any noticeable impact on total livestock supply available or price, even if they are one of the largest

ranches in the state. A rancher will receive whatever price the going market rate is at the time livestock are sold or bought. Subsequently, timing in relation to market prices is very crucial to the culling decision. The three market prices of 1) feeder calves, 2) replacement heifers, and 3) slaughter cows are all inter-related and vitally important to the economics of the culling decision.

If culling decisions are made in the fall for a spring calving operation, feeder calf prices may be overlooked as an unimportant market factor. Another year will pass before either the current cow or replacement will have a calf for sale, but there is a substantial association of the feeder calf price level from one year to the next. This is why one should not ignore current calf prices as being important for the culling decision.

Ranches that raise their own replacement stock sometimes overlook replacement prices as being an important market consideration for their culling decisions. But even if one raises their own replacement stock for feed costs that add up to only half the value of the current market price for replacement heifers, current replacement prices (minus any transportation and selling costs) should be utilized as the cost for bringing a heifer into the herd. If one can sell a bred replacement heifer for \$650, even though you may only have \$450 of total costs into raising the heifer, the cost of bringing the heifer into the herd is \$650. (\$450 in costs and \$200 in forgone profits if the animal is not sold)

Slaughter prices directly enter the decision of whether to cull since a cow culled will be sold for the going market

slaughter price. If slaughter prices are high while replacement prices are relatively low, replacing marginal older cows will be more economical (buy low and sell high). Conversely, if replacement prices are high and slaughter prices are relatively low, keeping marginal older cows will be more economical (don't buy high and sell low). It is not just market prices that need to be considered. Since the value of a cull cow is weight times price, market prices need to be considered jointly with weight performance. (See the previous article for a discussion of biological performance.)

If ranchers were able to accurately predict future prices it would be a relatively simple exercise to evaluate alternative culling strategies. However, ranchers aren't the only individuals that have trouble predicting prices. Ag economists have problems predicting prices as well. One reasonable approach to get around the problem of not being able to predict distant future prices exactly, is to calculate the probabilities associated with ranges of future price movements from one period to the next. These price movement probabilities can then be utilized in conjunction with current price levels to evaluate alternative culling strate-

gies. The results are based most heavily on nearest price movements plus the more distant or average consequences expected over a number of years.

These probabilities of future price movements can be calculated from the behavior of past prices. Long-term price levels for calves, calculated as an average of steer and heifer calf prices, and bred replacement heifer prices are shown in Tables 1 and 2. Table 1 shows the percent of the time various price level combinations have occurred for November while Table 2 presents comparable information for May. For example, the historical probability of November calf prices being above 100\$/cwt. and replacement prices being above 805 \$/head is just over 2% (the bottom right entry in the Table 1). The same value for May prices is over 3% reflecting the normally higher spring calf prices. Over time these probabilities have been observed to follow predictable patterns that are highly dependent upon the level of current prices. It is the prediction of the probabilities of price movements from a current price level which is useful for evaluating culling strategies. For example, consider the following situation:

Table 1. Long-Term Probability Price Levels for November.

		Calf Prices				
		< 70	70-80	80-90	90-100	> 100
Replacement Prices	< 475	0.1018	0.0545	0.0189	0.0013	0.0001
	475-585	0.0789	0.1037	0.0635	0.0096	0.0010
	585-645	0.0393	0.1017	0.1201	0.0356	0.0068
	695-805	0.0085	0.0379	0.0742	0.0445	0.0143
	> 805	0.0009	0.0077	0.0243	0.0295	0.0215

Table 2. Long-Term Probability Price Levels for May.

		Calf Prices				
		< 70	70-80	80-90	90-100	> 100
Replacement Prices	< 475	0.0659	0.0645	0.0377	0.0080	0.0007
	475-585	0.0343	0.0808	0.1022	0.0339	0.0054
	585-645	0.0133	0.0529	0.1400	0.0760	0.0212
	695-805	0.0017	0.0113	0.0630	0.0667	0.0352
	> 805	0.0001	0.0016	0.0161	0.0301	0.0360

It is May, and we are interested in predicting next fall's calf and replacement prices. The current calf price is 95 \$/cwt. and the current replacement price for a bred heifer is 750 \$/head. Our calculations, based on the behavior of prices over previous years, lead to the probabilities of price movements as shown in Table 6, panel 4. The probability of the calf price staying in the 90 to 100 \$/cwt. range and the replacement price staying in the 695 to 805 \$/head range is .1162 (a bit better than 11 chances in 100). The probabilities of the calf price increasing to the more than 100 \$/cwt. range and the replacement price decreasing to the 585 to 645 \$/head range is only .0003 (3 chances in 10,000). The probability of both decreasing is much higher, .3797, reflecting the fact that calf and replacement prices almost always move together and that calf prices are generally lower in the fall than spring.

In order to predict future price movements for all ranges of calf and replacement prices, 25 probability tables were calculated for the at May to November price movements and another 25 for the at November to May price movements (Tables 8-12). Besides being necessary to evaluate culling strategies

these probability tables provide useful insights into price movements for calves and replacements.

Cull cow prices are also important to the culling decision. But cull cow prices are highly related to calf and replacement prices since an existing cow in the herd has value for either slaughter or replacement stock. Thus, this relationship was exploited for deriving optimal culling decisions — and is why we have focused on just calf and replacement prices in this article.

FEEDING COSTS

Costs directly determine the bottom line of profitability for an operation. Feed costs are generally the largest expense item for a ranching operation, assuming that land costs are considered in the feeding cost calculations. Veterinary, livestock hauling, and marketing costs also affect profits, but are generally much smaller in magnitude. Because the nutrition requirements of young cows, especially those with their first calf, is greater than more mature cows, feed costs directly influence the economics of the culling decision.

Although you may be able to buy a replacement heifer for almost the same amount that you can get in salvage value for an older cow, a differential in feeding costs for the replacement versus the older cow in the subsequent year(s) may be enough to make it more profitable to keep the older cow for another year. This is especially true if you are in a range situation with coarse forage that requires a well developed rumen and doesn't have adequate nutrients, vitamins, and/or minerals for a young cow to grow, raise a calf, and breed back. Supplementation of nutrients, vitamins, and/or minerals is often given as the alternative for improving the young cows performance. However, the added feed costs associated with the younger cow's diet need to be weighed against the performance of an older cow with less feed costs.

The differential in your feed costs for a new replacement versus an older cow is more crucial to the culling decisions than the level of your feeding costs. If the level of your feed costs for all cows is \$150/yr. instead of \$250/yr., your level of profits will be \$100 more for each cow. However, the decision of whether to keep or cull a cow will not

change much, if any, since the cost of feeding a replacement will be relatively high (low) if the cost of feeding an older cow is high (low). The differential in feed costs for a replacement versus an older cow is the most crucial cost figure in the culling decision. For example, if the annual feed costs for a replacement are \$50/head more than for an older cow, versus say \$10/head more, the rancher with a \$50/head feed differential is much more likely to keep older cows than one with a \$10/head differential.

CONCLUSION

The price probability predictions presented in Tables 1 through 12 describe a small part of the market analysis necessary to evaluate culling strategies. These tables also are useful for predicting price movements for other purposes as well. The variation in cost for different ages of cows is also critical to evaluating culling strategies. The next article in the culling series puts all the pieces together, herd performance, market prices, and costs and present our recommendations of an optimal culling strategy for a reasonably typical Arizona ranch.

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Table 3. May Calf Price <70.

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price <475	Replacement Price	<475	0.584	0.009	0.000	0	0
		475-585	0.240	0.055	0.003	0	0
		585-695	0.033	0.046	0.015	0	0
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 475-585	Replacement Price	<475	0.267	0.000	0.000	0	0
		475-585	0.384	0.013	0.000	0	0
		585-695	0.215	0.096	0.017	0	0
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 585-695	Replacement Price	<475	0	0	0	0	0
		475-585	0.326	0.001	0.000	0	0
		585-695	0.377	0.020	0.000	0	0
		695-805	0.164	0.089	0.017	0	0
		>805	0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 695-805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0.389	0.001	0.000	0	0
		695-805	0.358	0.028	0.001	0	0
		>805	0.120	0.080	0.017	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price >805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0.121	0.000	0.000	0	0
		695-805	0.333	0.003	0.000	0	0
		>805	0.413	0.107	0.018	0	0

Table 4. May Calf Price 70-80.

May Replacement Price <475

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0.495	0.095	0.006	0	0
	475-585	0.097	0.155	0.046	0	0
	585-695	0.004	0.034	0.055	0	0
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

May Replacement Price 475-585

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0.262	0.011	0.000	0	0
	475-585	0.276	0.112	0.010	0	0
	585-695	0.070	0.161	0.097	0	0
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

May Replacement Price 585-695

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0.314	0.018	0.000	0	0
	585-695	0.249	0.134	0.015	0	0
	695-805	0.046	0.131	0.092	0	0
	>805	0	0	0	0	0

May Replacement Price 695-805

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0.366	0.030	0.001	0	0
	695-805	0.214	0.151	0.021	0	0
	>805	0.029	0.103	0.085	0	0

May Replacement Price >805

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0.126	0.001	0.000	0	0
	695-805	0.290	0.044	0.002	0	0
	>805	0.193	0.238	0.105	0	0

Table 5. May Calf Price 80-90.

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price <475	<475		0	0.515	0.078	0.004	0
	475-585		0	0.114	0.148	0.036	0
	585-695		0	0.006	0.038	0.049	0
	695-805		0	0	0	0	0
	>805		0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 475-585	<475		0	0.265	0.008	0.000	0
	475-585		0	0.296	0.095	0.007	0
	585-695		0	0.085	0.160	0.083	0
	695-805		0	0	0	0	0
	>805		0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 585-695	<475		0	0	0	0	0
	475-585		0	0.319	0.014	0.000	0
	585-695		0	0.271	0.116	0.010	0
	695-805		0	0.057	0.134	0.079	0
	>805		0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 695-805	<475		0	0	0	0	0
	475-585		0	0	0	0	0
	585-695		0	0.374	0.023	0.001	0
	695-805		0	0.237	0.134	0.015	0
	>805		0	0.036	0.107	0.074	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price >805	<475		0	0	0	0	0
	475-585		0	0	0	0	0
	585-695		0	0.127	0.001	0.000	0
	695-805		0	0.300	0.034	0.001	0
	>805		0	0.221	0.228	0.088	0

Table 6. May Calf Price 90-100.

**May
Replacement
Price <475**

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0.532	0.062	0.003
	475-585	0	0	0.132	0.138	0.028
	585-695	0	0	0.008	0.041	0.044
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**May
Replacement
Price 475-585**

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0.268	0.005	0.000
	475-585	0	0	0.315	0.078	0.004
	585-695	0	0	0.101	0.158	0.070
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**May
Replacement
Price 585-695**

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0.323	0.010	0.000
	585-695	0	0	0.292	0.098	0.007
	695-805	0	0	0.069	0.134	0.067
	>805	0	0	0	0	0

**May
Replacement
Price 695-805**

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0	0	0.380	0.017	0.000
	695-805	0	0	0.260	0.116	0.011
	>805	0	0	0.045	0.109	0.063

**May
Replacement
Price >805**

		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0	0	0.127	0.001	0.000
	695-805	0	0	0.309	0.026	0.001
	>805	0	0	0.249	0.215	0.074

Table 7. May Calf Price >100.

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price <475	Replacement Price	<475	0	0	0.316	0.230	0.050
		475-585	0	0	0.021	0.129	0.148
		585-695	0	0	0.000	0.010	0.083
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 475-585	Replacement Price	<475	0	0	0.214	0.056	0.004
		475-585	0	0	0.123	0.208	0.066
		585-695	0	0	0.013	0.105	0.211
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 585-695	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0.245	0.081	0.007
		585-695	0	0	0.098	0.213	0.086
		695-805	0	0	0.007	0.075	0.187
		>805	0	0	0	0	0

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price 695-805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0	0	0.272	0.112	0.012
		695-805	0	0	0.075	0.206	0.106
		>805	0	0	0.004	0.051	0.162

		November	Calf Price				
			<70	70-80	80-90	90-100	>100
May Replacement Price >805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0	0	0.116	0.012	0.000
		695-805	0	0	0.179	0.136	0.020
		>805	0	0	0.055	0.221	0.260

Table 8. November Calf Price <70.

**November
Replacement
Price <475**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0.325	0.225	0.047	0	0
	475-585	0.023	0.132	0.143	0	0
	585-695	0.000	0.011	0.082	0	0
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**November
Replacement
Price 475-585**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0.217	0.053	0.003	0	0
	475-585	0.129	0.206	0.062	0	0
	585-695	0.014	0.108	0.206	0	0
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**November
Replacement
Price 585-695**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0.249	0.078	0.006	0	0
	585-695	0.104	0.212	0.081	0	0
	695-805	0.008	0.078	0.184	0	0
	>805	0	0	0	0	0

**November
Replacement
Price 695-805**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0.277	0.108	0.011	0	0
	695-805	0.079	0.206	0.101	0	0
	>805	0.004	0.053	0.159	0	0

**November
Replacement
Price >805**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0.116	0.011	0.000	0	0
	695-805	0.185	0.132	0.018	0	0
	>805	0.059	0.225	0.253	0	0

Table 9. November Calf Price 70-80.

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price <475	Replacement Price	<475	0.099	0.256	0.241	0	0
		475-585	0.001	0.030	0.267	0	0
		585-695	0.000	0.001	0.093	0	0
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price 475-585	Replacement Price	<475	0.095	0.133	0.046	0	0
		475-585	0.015	0.136	0.246	0	0
		585-695	0.000	0.019	0.309	0	0
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price 585-695	Replacement Price	<475	0	0	0	0	0
		475-585	0.101	0.163	0.069	0	0
		585-695	0.010	0.115	0.273	0	0
		695-805	0.000	0.011	0.258	0	0
		>805	0	0	0	0	0

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price 695-805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0.105	0.191	0.101	0	0
		695-805	0.006	0.091	0.290	0	0
		>805	0.000	0.006	0.211	0	0

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price >805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0.068	0.051	0.008	0	0
		695-805	0.040	0.165	0.130	0	0
		>805	0.004	0.071	0.462	0	0

Table 10. November Calf Price 80-90.

**November
Replacement
Price <475**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0.119	0.267	0.210	0
	475-585	0	0.001	0.038	0.258	0
	585-695	0	0.000	0.001	0.092	0
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**November
Replacement
Price 475-585**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0.109	0.128	0.036	0
	475-585	0	0.021	0.154	0.222	0
	585-695	0	0.001	0.025	0.302	0
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**November
Replacement
Price 585-695**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0.117	0.160	0.056	0
	585-695	0	0.014	0.133	0.250	0
	695-805	0	0.000	0.015	0.254	0
	>805	0	0	0	0	0

**November
Replacement
Price 695-805**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0	0.122	0.191	0.083	0
	695-805	0	0.009	0.108	0.270	0
	>805	0	0.000	0.008	0.208	0

**November
Replacement
Price >805**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0	0.075	0.046	0.006	0
	695-805	0	0.051	0.173	0.111	0
	>805	0	0.005	0.088	0.444	0

Table 11. November Calf Price 90-100.

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price <475	Replacement Price	<475	0	0	0.140	0.274	0.182
		475-585	0	0	0.002	0.049	0.247
		585-695	0	0	0.000	0.001	0.092
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price 475-585	Replacement Price	<475	0	0	0.124	0.121	0.028
		475-585	0	0	0.029	0.171	0.198
		585-695	0	0	0.001	0.032	0.295
		695-805	0	0	0	0	0
		>805	0	0	0	0	0

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price 585-695	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0.134	0.154	0.045
		585-695	0	0	0.020	0.151	0.227
		695-805	0	0	0.001	0.020	0.249
		>805	0	0	0	0	0

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price 695-805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0	0	0.141	0.187	0.068
		695-805	0	0	0.013	0.126	0.248
		>805	0	0	0.000	0.012	0.205

		May	Calf Price				
			<70	70-80	80-90	90-100	>100
November Replacement Price >805	Replacement Price	<475	0	0	0	0	0
		475-585	0	0	0	0	0
		585-695	0	0	0.082	0.041	0.004
		695-805	0	0	0.064	0.178	0.093
		>805	0	0	0.008	0.105	0.424

Table 12. November Calf Price >100.

**November
Replacement
Price <475**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0.023	0.142	0.432
	475-585	0	0	0.000	0.003	0.295
	585-695	0	0	0.000	0.000	0.093
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**November
Replacement
Price 475-585**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0.028	0.111	0.134
	475-585	0	0	0.001	0.037	0.360
	585-695	0	0	0.000	0.002	0.326
	695-805	0	0	0	0	0
	>805	0	0	0	0	0

**November
Replacement
Price 585-695**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0.03	0.12	0.18
	585-695	0	0	0.00	0.03	0.37
	695-805	0	0	0.00	0.00	0.27
	>805	0	0	0	0	0

**November
Replacement
Price 695-805**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0	0	0.030	0.132	0.235
	695-805	0	0	0.000	0.018	0.369
	>805	0	0	0.000	0.000	0.216

**November
Replacement
Price >805**

May		Calf Price				
		<70	70-80	80-90	90-100	>100
Replacement Price	<475	0	0	0	0	0
	475-585	0	0	0	0	0
	585-695	0	0	0.025	0.064	0.038
	695-805	0	0	0.005	0.074	0.256
	>805	0	0	0.000	0.011	0.525

FROM:

Arizona Ranchers' Management Guide
Russell Gum, George Ruyle, and Richard Rice, Editors.
Arizona Cooperative Extension

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