

# Replacement Heifers—Should I Raise Them or Buy Them?

**Dan Sumner**

Rancher  
Balm, Florida

I have heard this question being debated for years between cattlemen and economists. So, when Bob Sand asked me if I'd do this presentation, my reaction was, "Here we go again!" I seem to get the topics where, no matter which side you take, there is at least a *reasonable* argument for the other.

In Animal Science classes, we were taught that the female genetic base on your own location was probably the most adapted to your condition and should perform better than animals introduced from elsewhere. Therefore, if you wanted to make genetic improvement, you tried to do it from the male side. If you were willing to invest in superior bulls, a spin-off return would be better females for retention. As a cattle manager, I have constantly striven to obtain better and better genetics to help achieve the goal of marketing a steer that best met the demands of the stocker, feeder, packer, and consumer while also providing me with females of superior production capabilities. Naturally, I have been very prejudiced toward my own heifers in spite of the cost of raising them. I felt I could better justify purchasing superior bulls if I recovered that investment both in the quality of female replacements as well as the saleability of steers.

In 1992, Max Herrin wanted to buy my replacement heifers and sell me some bred long yearlings in return. He maintained there was an advantage in tax accounting, as well as freeing up assets for greater production. Since the heifers he had were of known origin and background, the biggest argument I could muster was that his heifers were not on my production calendar and I did not calve two-year-olds. Max was adamant that any good economist or CPA could easily prove that it was more profitable to buy replacements than to raise them.

He challenged me to do a comparison using my costs (to the best of my ability to figure them, not being an economist) and see which was more profitable. Prices were relatively high then and his offer was tempting, but I remained unconvinced. However, he had me thinking.

I began developing some cash flow budgets to make comparisons. We had a herd of yearlings and a herd of two-year-olds. I determined that it was costing just about the same money, land, labor, and other resources to maintain these two herds as it would to carry another calving herd of the same number. In other words, for each weaned-heifer-two-year-old pair, I could maintain a cow-calf pair. That made me want to explore the situation further.

I attempted to do costs and returns on two scenarios. Scenario 1 is a 1,000-brood-cow operation raising its own replacements to calve as three-year-olds. Scenario 2 is a 1,000-brood-cow operation buying bred long yearlings as replacements. I used our production data and costs and a five-year average of prices received to figure the costs and returns.

Following the tables detailing the comparison of purchased vs raised replacements, I have a series of tables on comparable costs of raising heifers to calve at 2 vs 3 years of age. I put these together for another program, but included them since they have a bearing on our discussion.

If these calculations have been done correctly (I've not had a chance to get with an economist and go over them to apply all the CPA-type adjustments, etc.), there is a distinct advantage to unadjusted profits in the scenario using purchased replacements. However, when equity is taken into

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consideration, the scenario raising its own replacements calving as threes has a greater value.

I think before answering the question of buying or raising replacements, we need to look at more than just numbers. Anyway, the annual availability of sufficient numbers of head, of acceptable quality and breed composition, bred to calve in my season, would influence my decision greatly. If you can find a reliable source of the kind of replacements to sustain or even improve your program, then purchasing would allow you to concentrate on cow-calf pairs. This would be especially advantageous to central and south Florida because of the lack of high-quality forages, economical feedstuffs, or by-products. I can see where locating a replacement operation in northwest Florida, or in the other southeastern states, could be advantageous. This would be especially true if it were located near a source of by-products such as cottonseed, gin trash, soybean hulls, etc. The climate for high-quality winter forages, coupled with these by-products, seems almost too good to waste on a brood cow who can thrive on waterlogged bahiagrass. If heifers can be grown “economically” to the point of being bred as yearlings to calve as twos, I think it would *have* to be done this way.

To get back on my subject, other factors I’d consider are size of operation, location with respect

to exposure to roads, developments, etc, and handling facilities available. We all know what a pain it can be trying to keep heifers isolated from bulls, highways, etc., not to mention the cost of repairs to pens, traps and gates they can generate.

Following are some ***advantages to raising*** your own replacements:

- Greater selection over a longer period of time because you can select for breed, type, temperament, etc. as the heifers are developing
- Heifers can be trained during the growing phase and this should pay off in reduced labor costs over the productive lifetime of the animal
- You can exercise greater control over genetics by selecting sires and dams of known production.

(These kinds of things are very hard to quantify in pure economics.)

Following are some ***advantages to purchasing*** heifers:

- Allows all resources to be directed toward calf production
- Allows for terminal crossing and, therefore, selection for market traits only
- Allows for depreciation of replacements
- Relieves the operation of some liabilities unique to raising heifers.

**Scenario 1: 1,000-bred-brood-cow ranch raising its own replacements to calve at 3 years of age**

1. Average cost per cow per year = \$350.00 (including costs of replacement herds)
2. Pregnancy rate = 95%
3. Weaning rate = 95%
4. Culling rate = 15% or 150 hd (including cows not pregnant or weaning a calf)
5. Steers' average wean weight = 550 lb
6. Heifers' average wean weight = 500 lb
7. Ranch calves as 3-year-olds (It therefore has a herd of weaned heifers and a herd of 2-year-olds that are not producing.)
8. Ranch weans 160 hd heifers per year for replacements, to net 150+
9. Annual cost of yearlings = \$150.00
10. Annual cost of 2-year-olds = \$200.00
11. Cost of replacement herds is comparable to the cost of a producing herd and takes about the same amount of pasture . . . . . [cost of (1) yearling + (1) 2-year-old = cost of one brood cow]
12. Replacement costs:
  - Opportunity cost of weaning rather than selling . 400
  - Cost of carrying for first winter . . . . . 150
  - Cost of second winter + breeding . . . . . 200
  - Lost profit . . . . . 82.50
  - Total . . . . . 832.50
 (Or else, calculate opportunity cost = 750 if no pasture available for producing cow)
  - 95% weaning rate = 950 calves to sell or wean: 475 steers, 475 heifers
  - Steers @ .85 \* 550 lb = 467.50
  - Heifers @ .80 \* 500 lb = 400.00

**Scenario 2: 1,000-bred-brood-cow ranch buying replacements**

1. Sell all calves
2. Buy replacements at \$800 each as bred long yearlings to calve as 2-year-olds.
3. Use all production levels from Scenario 1
4. Cow cost is assumed to be the same, except the cost of carrying replacement herds is backed out:
  - Carrying costs
  - Yearlings . . . 160 hd @ 150 = 24,000
  - 2-year-olds . . 160 hd @ 200 = 32,000
  - 56,000/1,000 = 56.00/hd



**Table 1.** Costs for Scenario 1

<b>1-Year-Old Heifers</b>		
<b>Item</b>	<b>Units</b>	<b>Cost</b>
Feed		
Weaning	14 days x 5 lb @ .13 = 9.10 + hay	10.00
Training & maintenance	2 lb per hd per day avg @ 10 months	60.00
Vaccinations		10.00
Wormer	2 @ 5.00	5.00
Labor	2 @\$2.50	18.00
Fertilizer	3 hrs per wk-120	15.00
Mineral and salt		5.00
Vehicle		8.00
Miscellaneous		<u>19.00</u>
		150.00
<b>2-Year-Old Heifers</b>		
Winter supplement—maintenance		100.00
Fertilizer		30.00
Bull		15.00
Hay		30.00
Wormer	2 @ 5.00	10.00
Vaccination	1 @ 5.00	5.00
Labor		<u>10.00</u>
		200.00
<b>Cows</b>		
Winter supplement		100.00
Hay		30.00
Bull		15.00
Vehicle		8.00
Labor		60.00
Fertilizer		30.00
Land		35.00
Mineral & salt		15.00
Vaccinations		7.00
Wormer		5.00
Planting pasture, maintenance of pens, fences, other capital expenditures, etc.		<u>45.00</u>
		350.00



**Table 5.** Cost of bred 2-year-old, to weaning of first calf and pregnancy-tested for second calf

Winter supplement . . . . . (16% C.P. molasses) . . . . .	\$125.00
Fertilizer . . . . .	30.00
Bull . . . . .	15.00
Hay . . . . .	30.00
Wormer . . . . . (1 @ 5.00) . . . . .	5.00
Vaccine . . . . . (1 @ 5.00) . . . . .	5.00
Vehicle . . . . .	2.00
Labor . . . . .	4.00
Mineral and salt . . . . .	4.00
(Weaned calf = 500 lb)	<u>\$200.00</u>

**Table 6.** Cost to get heifer from weaning to pregnancy-tested pregnant as a long yearling to calve as a 2-year-old

Feed . . . . . (5 lb per day for 180 @ .13) . . . . .	\$117.00
Forage . . . . (fertilized perennial or annual, or ammoniated hay) . . . . .	9.00
Bull . . . . .	15.00
Wormer . . . . . (2 @ 5.00) . . . . .	10.00
Vaccine . . . . . (2 @ 5.00) . . . . .	10.00
Vehicle . . . . .	8.00
Labor . . . . .	24.00
Mineral and salt . . . . .	4.00
Miscellaneous . . . . .	3.00
	<u>\$200.00</u>
Winter and spring supplement . . (180 days) . . . . .	125.00
	<u>\$325.00</u>

**Table 7.** Cost to get heifer from pregnancy-tested pregnant as a long yearling through calving as a 2-year-old, until weaning and pregnancy-tested pregnant for second calf

Winter supplement . . . . .	\$200.00
Fertilizer . . . . .	30.00
Bull . . . . .	15.00
Hay . . . . .	30.00
Wormer . . . . . (2 @ 5.00) . . . . .	10.00
Vaccine . . . . . (1 @ 5.00) . . . . .	5.00
Vehicle . . . . .	12.00
Labor . . . . .	24.00
Mineral and salt . . . . .	4.00
(Weaned calf = 350 lb)	<u>\$330.00</u>

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**Table 8.** Costs and returns through first 3 years for cows calving first at 2 years of age and 3 years of age

<b>Costs</b>		
	<b>Calve as 2-Year-Old*</b>	<b>Calve as 3-Year-Old</b>
1st year	\$325.00	\$150.00
2nd year	330.00	200.00
3rd year	<u>+330.00</u>	<u>+200.00</u>
	985.00	550.00
<b>Returns</b>		
Weaned calves	(350 lb @ \$1.00/lb) 350.00	(500 lb @ \$0.80/lb) -400.00
	(500 lb @ \$0.80/lb) <u>-400.00</u>	<u>-400.00</u>
Unrecovered cost	\$235.00	\$150.00
* Some research has shown that subsequent lifetime production is greater for cows who first calved as 2-year-olds than for those who first calved as 3-year-olds.		