

# Can You Afford That Cow?

*Careful evaluation is needed when restocking the herd.*



PHOTO BY SHAUNA ROSE HERMEL

by **KASEY MILLER**

With the intense drought last year in Texas and the Southwest, many cattle producers were forced to liquidate their herds. The beginnings of an El Niño weather pattern have brought much of Texas and the Southwest more rainfall this spring and summer, and producers are starting to consider restocking their herds. When restocking, the big question on everyone's mind should be, "What can I pay for that cow and still be profitable?"

Rob Hogan, assistant professor and extension economist in Fort Stockton, Texas, looked to answer just that question. He said that there are a few simple equations that can help answer this question anywhere in the country.

To begin answering that overarching question, some other questions need to be asked first:

- What is the initial cost of the investment?
- What would the annual cost be?
- Will she have a calf annually?
- How big will that calf be?
- What is the salvage or cull value?

Collectively, these questions can determine whether she's a good investment.

## Assumptions

To answer these questions, some difficult and risky assumptions have to be made. Fortunately, there are some tools to help. Hogan used the Standard Performance Analysis (SPA) database information developed by Jim McGrann, professor emeritus in agricultural economics at Texas AgriLife Extension, and others on the National Cattlemen's Beef Association (NCBA) Producer Committee. This database has recorded the minimums, maximums and averages of performance and costs in cattle for many years.

The first assumption figures the productivity level by determining the weaning percentage and weaning weights. Since Hogan is in west Texas, he used SPA data for the Southwest region, which indicated an average weaning percentage of 82.1% and an average weaning weight of 525 pounds (lb.).

The next step is to figure the cost to manage a cow annually. The Southwest SPA average indicates it costs \$588.22 per year to keep a cow-calf pair.

The last step is to figure future calf market prices, another tricky assumption. Hogan referred to the Food and Agricultural Policy Research Institute (FAPRI) for estimates. FAPRI is a dual-university project of the University of Missouri (MU) and Iowa State University that provides baseline economic projections for the agricultural sector. Hogan calls it a "stupendous resource for all agricultural economists."

He used the FAPRI price projection for 600- to 650-lb. Oklahoma City feeder steers and adjusted the prices by an additional \$5 per hundredweight (cwt.) for the Texas SPA average calf at 525 lb. (see Fig. 1).

## Using the numbers

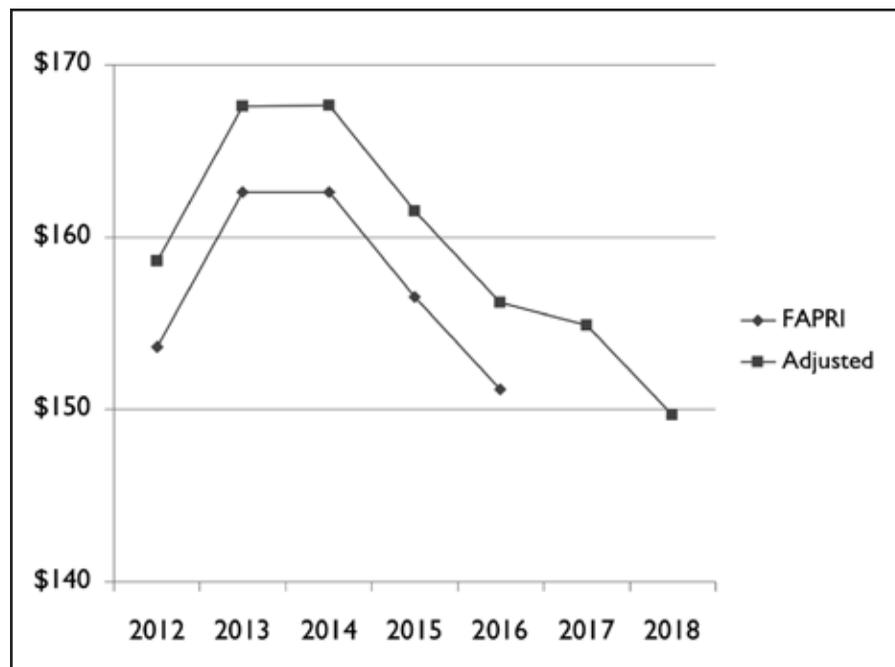
Now that the assumptions are made, what do you do with them?

Hogan explained that the net present value (NPV) is the sum of the flow of discounted net incomes (DNI) from each year (selling a calf each year) minus the initial investment. This equals today's value of replacement females. The caveat is to remember that the dollar value is not the same in time.

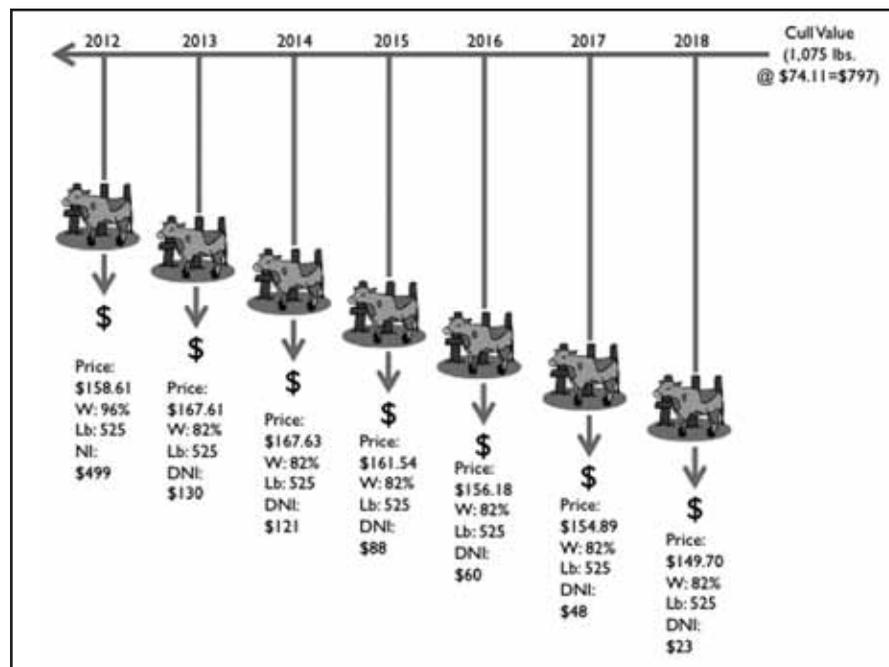
"If I offered you a dollar today or a dollar in two years — same dollar, let's say there is no inflation or other adjustments — would you rather have a dollar today or a dollar in two years? It makes a difference when you get it," he illustrated.

"We're going to discount the net income for the fact that it can't be used

**Fig. 1:** The Food and Agricultural Policy Research Institute (FAPRI) prepares baseline projections for the agricultural sector. Here, the FAPRI price projection for 600- to 650-lb. Oklahoma City feeder steers was adjusted for an additional \$5 per cwt. for the Texas SPA average calf at 525 lb.



**Fig. 2:** Rob Hogan, assistant professor and extension economist in Fort Stockton, Texas, explained how the net present value (NPV) of a cow is calculated over her estimated productive life span. This chart explains which factors contribute to the NPV over time.



today. What we're interested in is what will Elsie bring today?" he said.

To put the numbers to use, Hogan provided this example. Fig. 2 illustrates the numbers. You buy a cow with a healthy calf at side in 2012. The first year her calf will bring \$158.61 per cwt. (this number comes from FAPRI assumptions). The weaning percentage is 96% because the calf is already on the ground (as compared to the SPA assumption of 82%).

The calf weans at 525 lb., and the net income for the first year, 2012, is \$499. This number is the price of the calf minus what it took to keep the cow-calf pair.

"That's always charged to the calf, as part of that enterprise," he noted.

The numbers are applied in the same way for the following years, except that the weaning percentage drops to 82%.

"Each year after 2012, the cost of keeping our pair up increases by 1%," he mentioned. In 2013, the discounted net income is \$130 — the net income discounted at 3% because of the opportunity cost (remember, today's dollar is not the same as tomorrow's dollar).

In this example, the producer sells the cow in 2018. She weighs 1,075 lb. and brings \$74.11 per cwt., so she earns \$797. If you discount it, he added, that comes to \$667.

The added incomes give an NPV of \$1,636. This is without putting in her initial cost.

### **What can we pay for the cow?**

This leads to the original and overarching question, what can we pay for the cow? All the numbers crunched stay the same, but now we need to factor in the initial purchase price.

With a \$500 initial purchase, that drops the NPV to \$1,136. If \$900 is used to buy the cow, her NPV drops to \$736. If \$1,100 is the purchase price, her NPV drops to \$536. Finally, if \$1,636 is the purchase price, she would only break even.

Given this example, paying more than \$1,636 means that producers would lose money in the long run. Conversely, finding cows cheaper than \$1,636 would give profit on the long-term investment.

These assumptions can change if the female is a registered female and selling in the registered market, which can have higher prices than the FAPRI market. There are other assumptions even in the commercial market.

"If the calf is black — over time, if she has a black calf every year — we've got a premium. You can get more for Elsie if she's black and has black calves," he added. "We don't even care what color she is, if every calf she has is black, she's worth more money."

Anything that happens that changes the growth in revenue (i.e., the calves bring premiums) and doesn't change the cost means that the cow will have a higher NPV.

### **Other considerations**

With every economic assumption, there are other factors that can come

into play. What type of female do you purchase? Do you buy a heifer or a bred cow or a pair? How many years has the cow been in production? In this case, market prices indicate that later calves will bring lower discount net incomes. The longer you keep the cow, Hogan warned, you could be gambling the calf's lower discount net income vs. the cow's cull value, which is fairly high right now.

Other considerations might be whether the money was borrowed to buy the cow. What is the interest going to be? What is the genetic potential of the cow? What are the management requirements? What is the culling rate in your herd?

These numbers are specific to west Texas and those market and production conditions. However, this method of analysis, Hogan emphasized, can be used

on bulls, custom trucking and a number of different things anywhere in the country.

Producers who want to use this method of analysis on their herd can find resources at [http://agrisk.tamu.edu/agrisk/beef\\_cow\\_calf/index.php](http://agrisk.tamu.edu/agrisk/beef_cow_calf/index.php).