Before decisions regarding purchasing or retaining replacement females are made, producers may want to consider the economic value of a replacement entering the herd. The decision to invest in a replacement female can be treated as a straightforward capital budgeting problem. An investment in a replacement female is made with the expectation that it will generate a stream of cash flows in the future from the sale of marketable calves, and ultimately, the cow will be culled generating an additional one-time cash flow. Capital budgeting can help in the planning process by determining if an investment is worth the capital expenditure.

One way to analyze this investment is to calculate the net present value, which reflects the value of potential future returns in today's dollars based on an assumed rate of return. When it comes to projecting the net present value offered by purchasing or retaining a replacement female, a number of assumptions about the future must be made, providing key inputs into this process. These include:

- purchase price of replacement female (if any),
- number of calving opportunities,
- number of marketable calves,
- weaning weights of calves,
- sale prices of calves,
- annual cow costs,
- annual heifer development costs (if any),
- weight of cow when culled,
- sale price of cull cow, and
- discount rate.

Decision Tool B1-74, Net Present Value of Beef Replacement Females, has been developed to aid in decisions regarding purchasing or retaining available replacement females. The spreadsheet tool estimates the present value of future returns, net of costs incurred. Input and output variables are specified on a per-head basis over the period of time between the decision to purchase or retain a replacement female and when the replacement female is culled from the herd.

Producers assessing the economic situation presented by purchasing or retaining a replacement female will want to base the analysis on the most likely assumptions during the future production period. The resulting net present value may then be evaluated in relation to the risks associated with not being able to precisely predict the future. Any investment return is a function of both revenue and costs so consideration of the number of calves and income from those calves (i.e., calf weaning weight and price assumptions) corresponding to the production life of a given replacement is in order. In addition, while producer expectations on cattle prices certainly have a role in replacement investment decisions, it is important to recognize that across producers the variation in revenue is regularly estimated to be lower than the variation in production costs. As such, the underlying variation in production costs probably warrants more attention as an input to reflect a producer's individual situation as the industry is characterized by more diversity in production costs than in realized revenue.

Projecting the net present value offered by purchasing or retaining a replacement female allows producers to properly reflect upon the economic opportunity presented by any candidate investment in beef replacements. Producers will also want to consult with the team of experts they have assembled including their beef extension specialist, herd health veterinarian, and nutritionist.