

# Keys to Success in Stocker Programs



There are several economic advantages to retaining raised calves or purchasing calves and selling them later in groups at heavier weights. These stocker (growing calves on pasture) or backgrounding (growing calves using mixed feeds or stored forages) programs add value to cattle for feedlots because they desire cattle that are weaned, are from a minimum of suppliers, are familiar with feed bunks and water sources and have minimal health issues. The aforementioned desires expressed by feedlot cattle buyers explain the considerable discounts the lightweight bull calves weaned the day of the sale and sold in one-head lots receive at livestock auctions. Short-term (35- to 45-day) preconditioning programs add value to calves because these programs provide evidence the calves being marketed (1) are weaned, (2) have been processed (dehorned, castrated, dewormed and vaccinated) and (3) are familiar with feed sources. By adding additional weight on calves with longer term ownership, value is added to the calves because heavier cattle require fewer days to finish and typically finish at more acceptable body weight. Regardless of the type of program, marketing decisions must be well thought out so that the greatest benefit can be gained from the time and money committed to this enterprise.

Stocker and backgrounding programs are management intensive, so it is recommended that producers have experience before starting. Producers with experience managing a cow herd should start by retaining calves from their calf crop. Health problems and other management issues are minimized because the cattle are from a known background and past management history is assured. One advantage of growing retained calves to heavier weights to be sold directly to feedyards is the reputation of the cattle, bull purchasing decisions, breed makeup and carcass performance, all can be bid into the price of the cattle; but poor choices in breed makeup and bull selection, a bad reputation for performance and carcass quality can also be bid into the price of the cattle. Purchase of additional calves can increase profitability of the operation, but care should be taken to purchase the types of cattle that will gain quickly, have minimal health problems and have breed makeup and color pattern

that minimize discounts at sale. It is also essential to have adequate facilities to sort, catch, load and process retained and purchased stocker calves. One common problem that occurs is receiving purchased cattle in the same facilities as the retained calves. Calves retained from the home ranch should have virtually no health problems, but to bring in and commingle purchased cattle with ranch calves exposes the ranch calves to every disease that the purchased calves were exposed to, practically ensuring health problems in ranch calves as well as purchased calves.

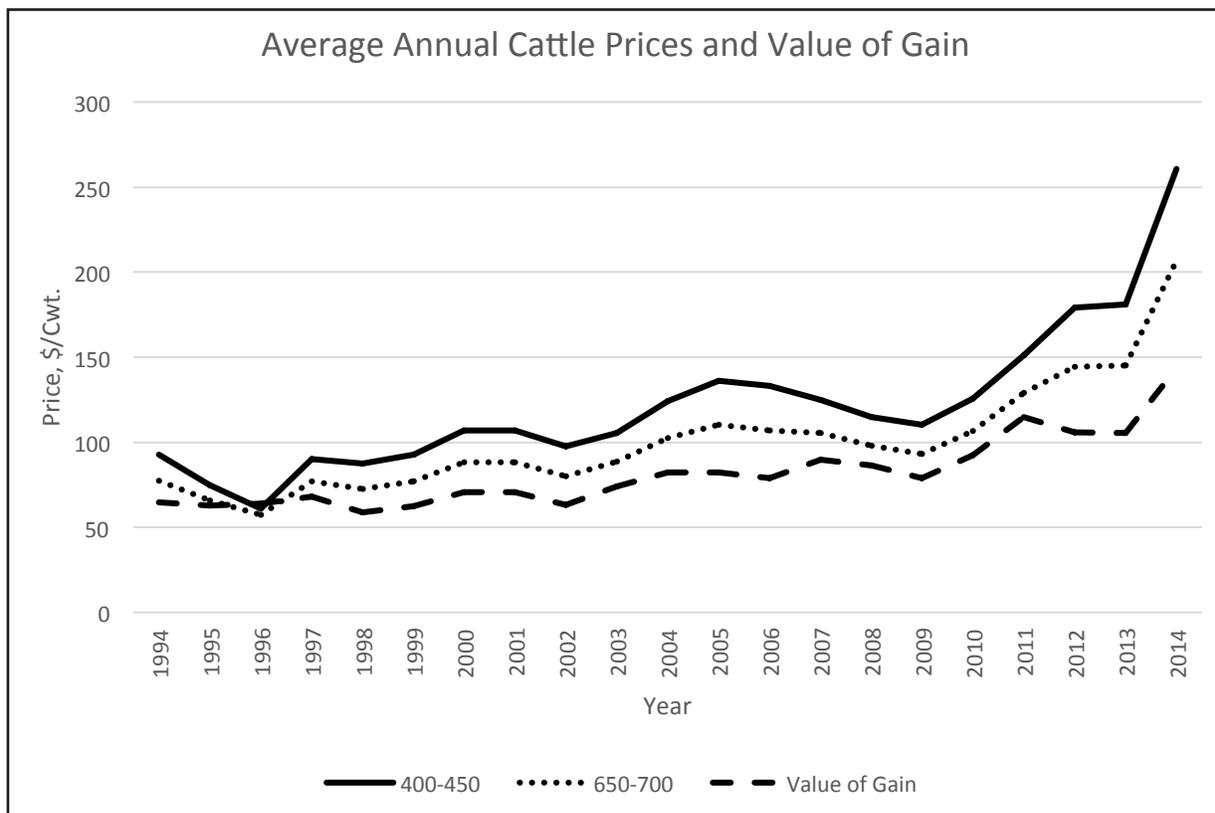
## Economics of Stocker Enterprises

Normally, as calves become heavier, the market price per pound decreases, as shown in Figure 9-1. This price slide changes relative to the value the market places on calves of different size classification. As the cost of gain in the feedlot increases, the price paid for lighter cattle becomes lower relative to the price of heavier calves. The narrowing of this price relationship can be a powerful signal for alternative marketing programs because of something called “value of gain.”

Value of gain is what added weight gain is worth after price slide has been considered. This is determined by:

$$\text{Value of Gain} = \frac{\text{Projected sales value (\$/head)} - \text{Purchase cost (\$/head)}}{\text{Total Body Weight Gain}}$$

If the cost of gain is less than the value of gain, the enterprise will be profitable, but if the cost of gain is greater than the value of gain, the enterprise will not be profitable. For example, 450-lb steers could be purchased for \$165/cwt at Arkansas livestock markets in May 2013. When these calves were removed from grass in September, they weighed 650 and were worth \$149/cwt, for a value of gain of \$113/cwt. From 1994 to 2004 the average annual value of gain was \$67/cwt; Because feedlots were faced with increased costs for feed resources and shorter supplies of feeder cattle, the value of weight added to calves increased to \$96 for the period between 2004 and 2014. Even though the value of cattle was at record levels in recent years,



**FIGURE 9-1. Arkansas annual average cattle value for 400- to 450-pound steer calves and 650- to 700-pound feeder steers and the resulting value of gain.**

the value of retaining calves to grow to heavier weights on grass was over \$143/cwt in 2014, an indicator of the highly profitable economics of stocker enterprises during periods of increasing prices.

## Effects of Health on Performance and Profitability

Health is one of the primary issues defining performance and profitability. If the initial cost of a set of stocker calves is \$500/calf, for every 1 percent death loss there is a \$5/head cost incurred by the cattle that are sold. An even larger problem may stem from the number of cattle that are chronic with respiratory disease. Chronics will not perform as well as healthy cattle, they are not worth as much as healthy cattle and they use the same amount of resources as healthy cattle, but also have the additional medicine cost used to “save” the animal. Because death loss and chronic morbidity is such an expensive problem, fresh or incoming cattle must be watched carefully and treated as soon as clinical signs are identified.

Feedlot research has demonstrated cattle that get sick do not gain as well, have a greater cost of gain and do not grade as well as healthy cattle. The

immune status of calves leaving the farm at weaning appears to be easily compromised by stress and disease exposure through marketing channels and commingling. Development of immunity before calves leave the farm begins with nutrition – trace minerals copper, zinc and selenium play a role in immune function and are commonly deficient in forages. Over a 9-year period at the University of Arkansas Livestock and Forestry Branch Station, bull calves castrated on arrival at the station gained 0.26 pound less per day and morbidity rates were 17 percent greater than calves received as steers. Additionally, bull calves received at the University of Arkansas Savoy Research Unit gained 0.5 pound less per day and morbidity was 58 percent greater than steer calves, costing 72 percent more for treatment of respiratory disease.

Research conducted by Bill Pinchak at the Texas AgriLife Research and Extension Center - Vernon found that gains of calves grazing summer grass pastures were reduced by an average of 10 percent when treated for respiratory disease during receiving for < 8 days and were reduced by 22 percent when treated for respiratory disease for > 8 days. In this study it was also estimated that, compared to healthy steers, gross returns were reduced by 10 percent for steers that were treated for respiratory disease,

9.7 percent for bulls castrated on arrival that remained healthy and 21.3 percent for bulls castrated on arrival that were treated for respiratory disease.

## **Types of Stocker/ Backgrounding Programs**

### **Using Hay or Stored Forages for Growing Calves**

Feeding hay and supplement may not be the most cost effective choice for putting additional weight on calves. Hay is an expensive source of digestible energy; if an 800-lb bale costs \$30, the cost of forage delivered to the animal can approach \$100/ton when storage and feeding losses are considered. Research indicates that when feeding average quality hay (10 percent crude protein and 55 percent TDN), it requires 7 lbs of dried distillers grains to get calves to gain 1.8 lbs/day. If the cost of distillers grains is \$180/ton and hay intake is 9 lbs/day, the cost per pound of gain would be close to 60¢/lb. The combination of relatively low gains (< 2 pounds per day) and expensive feed sources makes growing cattle on average-quality hay unprofitable in many cases.

### **Feeding Mixed Diets to Growing Cattle**

Calves can successfully be fed mixed diets based on digestible fiber by-product feeds (such as corn gluten feed, soybean hulls and dried distillers grains). These diets normally contain low to modest amounts (20 to 40 percent of dry matter) of roughage (hay, silage or cottonseed hulls) and are fed to promote gains of 2 to 3 pounds per day with feed efficiency ranging from 5 to 7 pounds of feed per pound of gain. These programs can be very profitable, but they are dependent on feed costs and gain in animal value. Management is intensive and these programs require excellent animal husbandry. Feed delivery must be at the same time each day, and feeding rates must be adequate to meet nutrient requirements for desired gain. When feed delivery or mixing is inconsistent, metabolic diseases are more likely (founder and acidosis), animal performance will be lower, cost of gain will be higher and profitability will be reduced.

### **Grass-Based Growing Programs**

The performance of stocker calves is much more sensitive to forage quality and stocking rate than other classes of livestock. Leafy wheat forage commonly contains 25 to 30 percent crude protein and 75 to 85 percent digestibility; this level of protein and energy is adequate to meet the nutritional require-

ments of a stocker calf gaining over 3 pounds per day. In order for a calf to gain 2 pounds per day, diet digestibility should be 67 percent or greater. Summer grasses often lack the digestibility to provide adequate energy for high levels of gain.

Arkansas' climate is conducive to near year-round forage production with proper management. Tall fescue is a cool-season grass that is predominant in northern Arkansas, and it persists in many areas of southern Arkansas. Cool-season annuals are extremely productive and will grow even during cold months of the year. Warm-season forages are productive during summer.

There are several challenges to Arkansas stocker production. Although the climate is favorable to year-round forage production, it can also have its extremes including being too dry or too wet. Seasonal droughts are often a problem limiting forage production and quality during the summer and complicating establishment of cool-season annuals in the fall. In addition, extremely wet conditions during winter and spring months can impact animal performance because of increased nutrient requirements, destruction of pastures by hoof action and delaying pasture management practices.

Forage maturity, fiber levels and digestibility decline of warm-season grasses in mid-summer lead to low body weight gains. Often calves grazing summer grasses gain only 1.5 pounds per day or less without supplementation. Optimization of production requires use of inputs – fertilizer, weed control, supplemental feeds, to name a few. Fertilization of warm-season grass pastures increases the crude protein content and increases forage growth by 30 pounds of forage for every pound of actual N applied. The additional forage growth must be utilized to maintain forage quality and avoid waste.

Stocker calves grazing toxic endophyte tall fescue usually have poor weight gains. But performance during the fall and winter of weaned calves grazing this forage can be around 1.4 lbs per day when stocked at 1 calf per acre (Table 9-1). During the spring, calves were only able to gain 1 lb per day because of the increased effect of toxicity during that time. Calves lost an average of \$17 when grazing toxic endophyte tall fescue in the fall and the spring. An advantage to toxic endophyte tall fescue is that it's inexpensive to produce and calves can graze it during the fall and winter until higher quality forage is available in the spring. Over eight years at the Livestock and Forestry Branch Station near Batesville, cost of gain of calves grazing toxic endophyte tall fescue was 33¢ per pound compared to 38¢ per pound for winter annual forages.

**TABLE 9-1. Animal Performance and Estimated Cost of Gain Based on Stocker Cattle Research at the University of Arkansas Livestock and Forestry Branch Station and Southwest Research and Extension Center From 1997 to 2007.**

|                                 | Toxic Tall Fescue | Novel Endophyte Tall Fescue | Crop-Field Winter Annuals | Interseeded Winter Annuals |
|---------------------------------|-------------------|-----------------------------|---------------------------|----------------------------|
| Fall ADG, lb/d                  | 1.4               | 2.0                         | 2.5                       | 2.5                        |
| Spring ADG, lb/d                | 1.0               | 1.9                         | 2.4                       | 2.6                        |
| Stocking Rate, calves/acre      |                   |                             |                           |                            |
| Fall                            | 1                 | 0.75 to 1                   | 0.75 to 1                 | 0.75 to 1                  |
| Spring                          | 2 to 3            | 2 to 3                      | 2 to 4                    | 2 to 4                     |
| Cost of gain, ¢/lb <sup>1</sup> | 33¢               | 27¢ <sup>2</sup>            | 40¢                       | 38¢                        |

<sup>1</sup>Pasture only cost of gain: includes establishment cost of annuals, fertilizer etc.

<sup>2</sup>Cost of gain includes \$250/acre establishment cost pro-rated over 8 years.



**FIGURE 9-2. Calves grazing toxic endophyte tall fescue at the University of Arkansas Livestock and Forestry Branch Station near Batesville. The effects of the toxic endophyte cause problems with heat tolerance of calves even in mild temperatures of the spring grazing season, decreasing grazing time and reducing forage intake with large negative effects on animal performance.**

Nontoxic or novel endophyte tall fescue is productive in stocker cattle production systems and doesn't require yearly re-establishment that annual grasses require. With this grass, stocker calves perform similarly to calves grazing annual pastures. The major disadvantage to novel endophyte tall fescue is the cost of establishment and the one-year establishment period. Research at the University of Arkansas Livestock and Forestry Branch Station near Batesville and the Southwest Research and Extension Center near Hope indicate that calves grazing nontoxic endophyte tall fescue will gain 1.9 to 2 pounds per day during the fall and the spring. Calves need to be

stocked at 1 to 1.5 acres per calf during the fall but can be stocked at 2 to 3 calves per acre during the spring. Gain per acre was found to range from 400 to 900 pounds and profits averaged \$88/acre.



**FIGURE 9-3. Calf grazing nontoxic endophyte tall fescue at the University of Arkansas Southwest Research and Extension Center near Hope. Cattle grazing this high-quality forage can gain in excess of 2 pounds/day through the fall and spring.**

Small grains (wheat, rye and oats) or annual ryegrass can be used for grazing calves in any area of the state. In many situations, producers in Arkansas have unrealistic expectations of stocking rates. Fall production of cool-season annuals is much lower than production in the spring. If stocking rates are too high in the fall, gains will be limited and forage regrowth may be impacted in the early spring. No-till production is gaining popularity in many farming areas because of increased fuel costs and reductions in the



**FIGURE 9-4. Calves grazing lush wheat pasture at the University of Arkansas Livestock and Forestry Branch Station. Cattle can gain over 2.5 pounds/day when forage allowance is well managed through moderate stocking rates.**

availability of labor. Production budgets based on research conducted by the University of Arkansas Livestock and Forestry Branch Station show that profitability is increased by \$90/acre when using no-till establishment compared with conventional tillage establishment practices, with no reductions in forage production or animal performance.

Small grains and ryegrass are more productive when planted in crop fields but can be effectively interseeded into bermudagrass pastures. When interseeded, the risk of not getting the grass established is greater and there's less fall forage production. This delays grazing and reduces stocking rate of calves grazing interseeded cool-season pastures during the fall and winter. Calves grazing interseeded small grains during the fall gained an average of 2.5 pounds/day when stocked at 1.5 to 2 acres per steer, but decreased to 1.2 pounds/day when stocked at 0.7 acre/steer during the fall because of low forage availability. When planted into dedicated crop fields, calves stocked at 1 acre per steer have gained 2.5 pounds per day; as stocking rate increases, gains decreased to 1.8 pounds per day at stocking rates of 0.7 acre/steer. Gain has been increased at increased stocking rates by providing concentrate supplementation at rates of  $\frac{3}{4}$  to 1 percent of body weight. During the spring, animal performance increases dramatically and stocking rates should be increased to 0.5 acre/steer on these pastures.

## Summary and Conclusions

Well-managed stocker and backgrounding programs can be profitable and add to the net farm income of many beef cattle operations in the Southeast. The risks associated with health and marketing of these cattle can also create large economic losses if these factors are not controlled through good management. Forage programs should be designed to economically produce long periods of high quality forage that will add gain to calves cheaply. If cattle are grown on mixed diets, feed costs must be controlled and feeding management must be excellent for the program to be profitable.