

Nutrition Programs for Southeastern Stocker Cattle

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The stocker cattle business has been one of the growth areas of beef production in the Southeast during the last several decades. The ample supply of lightweight calves in need of a little management, coupled with the ability of the stocker operator to manage on economic margins makes it in many cases a better business model than traditional cow/calf production.

Many cow-calf operators have also added stocker programs to their businesses. Some simply wean their calves and grow them to a heavier weight, but some also add additional purchased cattle to improve their ability to capture tractor-trailer load lot premiums as they market their calves.

Recent changes in fuel, feed, and fertilizer prices have dramatically impacted the cattle industry, but margins in stocker cattle can remain positive if producers manage their calf purchase and feed costs carefully.

Historically we have used a value of gain of about \$0.50 per lb on growing cattle, but with recent changes in calf pricing, gain is worth much more than that. For example, cattle at Lynchburg, VA on July 27, 2008 showed no price slide between 4 cwt and 6 cwt cattle, and when you compare those prices with the VA board sales those light cattle prices are similar to the heavier cattle, which would suggest gains in the new environment may be worth as much as \$1.00 per lb (and that is what feedlot cost of gain is now). These conditions will be hard on cow-calf producers whom undoubtedly will see lower prices for weaned calves, but there will be still be ample opportunities for producers to profitably grow those cattle to heavier weights.

General Description of Production Systems for Southeastern Stocker Cattle

Summer mountain grass-based systems. Stocker cattle production systems in the southeast can be categorized into several categories. Traditional summer stocker grazing programs in the mountain regions still are a viable low-input system, although aging infrastructure (fences) and development have reduced opportunities for mountain grazing. Cattle in these mountain systems are generally extensively managed without feed supplements, and gains during spring and early summer may be high, but generally performance will decline dramatically by mid- to late-summer.

Winter-grazing on cover crops. Another common system across the region is the grazing of small grain/ryegrass cover crops during the winter. These programs are generally located in the coastal plain regions where cropland often is planted in a cover crop such as rye that will not be harvested for grain. If forage mass is sufficient in these systems they will also provide good gains with little or no feed supplementation, but they are vulnerable to weather conditions like all grass-based systems. Research has shown that in these systems keeping good quality

hay out for cattle will improve gains during years when rainfall or temperature result in feed shortages sometime during the season. In general, despite reasonable cost of gain in these systems historically, the increase commodity prices have resulted in an increase in double cropping wheat for harvest throughout the region, and have in general reduced interest in incorporating growing cattle into grain production systems.

Winter-grazing on stockpiled fescue. There has always been some use of stockpiled fescue to grow stocker cattle in the region, but limited gains without supplementation (often about 1 lb/day) leads to the need to use a substantial amount of supplemental feed to reach adequate gains unless cattle will be kept for grazing the following spring. We have done studies in North Carolina to determine the gains of stocker cattle on stockpiled fescue, and to investigate the performance response to supplements. In one study, supplementing cattle with 8 lbs/day of a byproduct-based feed improved gain from 1.0 to 1.7 lbs/day. In other work supplementing cattle with 2 lbs of whole cottonseed increase gains from 1.05 to 1.45 lb/day (Poore et al., 2000, Poore et al., 2006.)

Some studies have shown that the presence of endophyte in much of the fescue in the region reduces animal performance by as much as 0.5 lb/day, which may be a major limitation of the system. However, we recently have summarized a 5-year grazing study where we compared endophyte-free, Max-Q, and toxic infected fescue for growing cattle on stockpiled fescue. We showed little effect of the endophyte when grazing was started in early December and ended in February (average daily gain was 1.12, 1.23, and 1.30 lb/day for toxic, MaxQ and endophyte-free, respectively; Drewnoski et al., 2007). This is possibly due to reduced toxin levels in the endophyte-infected fescue during winter, and also because cattle deal better with those toxins during cool weather than they do in hot weather. One interesting thing about this data is the high variability in performance from year to year. Average daily gain (averaged for the forage treatments) ranged from 0.8 to 1.8 lbs/day. It is not clear from the data why gain varied so much but it appears to have been due to several factors including severity of winter weather, forage quality, and length of the grazing season.

Stockpiled fescue may become a more important system for stocker cattle in future years due to the expected reduction in brood cow numbers, the ability to purchase cattle in the fall when calf prices are at their seasonal lows, and the fact that fescue being a perennial grass will be less expensive to grow and maintain than winter annuals. Good grazing management that results in efficient use of the grass that is produced remains a very important part of this system.

Our earlier work showed that cattle were responsive to supplements on stockpiled fescue, especially when protein level in the forage was less than 12%. Our more recent 5-year study results suggest that these cattle were marginally deficient in protein despite what we would consider adequate levels of crude protein in the forage. We are entering a new phase of this research to look further at responses to a variety of potential supplementation strategies for growing cattle grazing stockpiled fescue.

Drylot/pasture byproduct-based programs. The biggest growth in the southeastern stocker sector has been in backgrounding programs that feed mixtures of byproduct feeds either with a

roughage source in the feed ration (e.g. cottonseed hulls or corn silage) or with hay or pasture free-choice. Many of these systems stock cattle heavily on pastures (i.e. 3 to 5 head per acre) which keeps them in a “pasture-based system” from a regulatory standpoint, but where the producer must provide most of the feed on a daily basis.

It is common for these systems to develop around a central base where cattle are brought from salebarns or directly from cow/calf farms for initial processing and a “straightening out” period. Once cattle are on feed and past the major health challenges, they are packaged into uniform groups and then moved to feeding pastures/lots within reasonable travel distance of the headquarters where they are allowed to eat pasture or hay and are supplemented daily with a byproduct-based mixed feed.

These cattle are fed to approximately 850 lbs and marketed as heavy feeders. Most of these programs have been very successful but they require skills in starting cattle on feed, purchasing feed ingredients, and marketing. Most of these operations that are profitable focus on the commodity feed ingredient market and forward book ingredients when they are at seasonal lows, and aggressively package and market the final cattle as truckload lots. As feedlot cost of gain continues to climb, we expect these byproduct-based growing programs to continue to prosper, despite their higher feed costs.

Starting Programs for Stocker Cattle.

Getting cattle processed and started on feed is a key to success in any stocker program. Often calves are from various origins and in many cases have had minimal management when they arrive at the salebarn, resulting in a very stressed and “at-risk” animal when they arrive at your facility. Many of these calves will not have eaten or had water for 24 to 48 hours (or more), and already are challenged by preexisting nutritional deficiencies. Aggressive use of antimicrobials can help reduce sickness and death loss, but the key to quickly straightening the cattle out is to get them eating and drinking as soon as possible.

The recommended method is to provide these cattle with good quality grass hay in a feed bunk as soon as they arrive. This is the one feed they probably will recognize and eat well right away. In selecting this hay look for something that has green color, soft feel, and that does not have many weeds, or other foreign materials that might keep the calves from eating it well. Also, avoid infected fescue hay if at all possible. Experience has shown that a good quality ryegrass, wheat, oat, orchardgrass or non-toxic fescue hay works very well for this purpose.

Starting the day after arrival, start offering cattle a small amount of your starting concentrate. A general rule of thumb is to put 4 lb/head of the high quality hay in feed bunks, and then on top of that put 1 lb/head of the concentrate. This should be repeated twice a day and concentrate increased as quickly as possible as calves start to consume it. If there are cattle that will not approach the bunk and eat readily, they should be moved to a separate pen and given special attention. It is important to get the cattle started on concentrate quickly, both to provide them an increasing amount of protein and energy, but also to deliver trace minerals and an ionophore (primarily for control of coccidia).

These starter concentrates can contain a variety of ingredients, but should primarily contain ingredients that are very palatable. Including roughage in the concentrate can make it a complete feed, but that is not a substitute for the good quality long hay early in the program. One ingredient that is the basis for many starting feeds is cottonseed hulls. Cottonseed hulls are primarily a source of fiber (they are not very digestible), but calves really like them, and including 20 to 25% cottonseed hulls in the starter feed will get cattle eating very quickly.

Table 1 shows a good practical starter feed either formulated with or without cottonseed hulls. Commercially available starter feeds also work well and are more practical for smaller producers.

Table 1. Practical starting feeds for stocker cattle.

Ingredient	Complete	Concentrate
Cottonseed hulls	20	-
Soybean meal	12.5	15
Cracked corn	20	26
Soybean hulls	20	26
Corn gluten feed	20	26
Limestone	1	1
Mineral mix ^a	1.5	2
Molasses/fat/bcs/water	4	4
Rumensin/Bovatec	20 g/ton	25 g/ton

^a The mineral mix should contain at least 1500 ppm copper, 3000 ppm zinc, 20 ppm selenium, and 1200 g/ton ionophore

Once cattle have started on feed (usually within several weeks) they can be changed to a less expensive growing ration. When hay or pasture is available, most producers will feed about 1% of body weight as a concentrate supplement to keep gains up in these cattle. This concentrate can be a commercial feed or a home mix, but in either case the most economical choices will contain a high level of feed byproducts. Table 2 shows an example of a formula that has become popular across North Carolina. Feeding the “Supplement” formula at 1% of body weight will increase gains by about 1 lb/day above the forage alone.

Table 2. Common “50:50” soyhull:corn gluten feed concentrates.

Ingredient	Complete ¹	Supplement ²
Cottonseed hulls	25	-
Soybean hulls	30	46
Corn gluten feed	30	46
Limestone	1.5	1.5
Good quality mineral mix	1.5	2.5
Molasses/fat/bcs/water	4	4
Rumensin/Bovatec	20 g/ton	40 g/ton

¹ For feeding free-choice in a dry lot or on pasture where forage is limited

² For feeding at 1 to 1.5% of body weight on pasture or with hay when forage is not limited.

Feeding Management Strategies

We have done research over the last 6 years addressing alternative byproduct-based feeding management programs, including self-feeding and infrequent feeding.

Self-feeding byproduct feeds. Many producers would like to feed individual byproducts or blends in self-feeders to reduce their labor costs. As with any self-feeding program there is potential for problems with bloat or founder especially when weather changes, when feeders are allowed to run out, etc. Also, gains on cattle might be higher than desired for typical stocker programs, but for shorter-term programs they work well.

Tables 3 and 4 show the results of two studies we conducted with self-feeding. We observed no health problems in any of these calves, and the biggest problem we observed were the very high intake, especially of the soybean hulls, and the fact that the calves became quite fat after 84 days on these treatments.

Table 3. Performance of steer calves fed a diet of hay only, or self-fed loose soybean hulls, loose corn gluten feed or loose wheat midds for 84 days (Poore et al., 2002).

Item	Hay	Soybean Hulls	Corn Gluten Feed	Wheat Middlings
Initial weight, lb	504	508	504	513
ADG, lb/d	1.39 ^a	3.30 ^b	2.93 ^b	2.22 ^c
Feed:gain	9.3 ^a	7.0 ^b	6.9 ^b	7.6 ^{a,b}
Hay dry matter intake, lb/d	12.7 ^a	4.07 ^b	6.67 ^c	4.31 ^b
Concentrate intake, lb/d	0.0 ^a	19.1 ^b	13.4 ^c	12.4 ^c

^{a,b,c} means with different superscripts in a row differ, P<0.05.

Table 4. Performance of steer calves fed a diet of hay only, or self-fed pelleted or loose soybean hulls or corn gluten feed or 84 days (Poore, 2002).

Item	Hay	Pelleted Soybean Hulls	Loose Soybean Hulls	Corn Gluten Feed
Initial weight, lb	513	515	516	514
ADG, lb/d	2.1 ^a	3.42 ^b	3.50 ^b	2.64 ^c
Feed:gain	7.3	6.1	6.4	6.6
Hay dry matter intake, lb/d	15.1 ^a	7.05 ^b	5.65 ^b	11.2 ^c
Concentrate intake, lb/d	0.0 ^a	13.8 ^b	16.7 ^c	6.05 ^c

^{a,b,c} means with different superscripts in a row differ, P<0.05.

Corn gluten feed seemed to be a viable alternative for these systems, but there was some inconsistency in the intake and performance between the two years. In the first year the cattle quickly went on the corn gluten feed and averaged over 12 lbs/day consumption, but in the second year they were slow to start and only averaged 6 lb/day intake of the corn gluten feed.

In the second year when pelleted soybean hulls were compared to loose soybean hulls, cattle actually ate less pelleted hulls which was the opposite from what we expected. In our commercial operations, most producers now use a 50:50 mix of soybean hulls and corn gluten feed (Supplement in table 2) in these self-feeding programs which appears to be effective.

Infrequent feeding. Another strategy to reduce labor we have been working on is supplementing cattle 3 times a week, rather than daily. This approach will help small producers reduce their time demand, and will allow larger producers to travel to outlying pastures only on alternate days which will help with their daily workload and scheduling. Using cattle similar to those in the self-feeding studies, we compared feeding hay only, hay plus daily feeding with 6 lb/day of a 50:50 soybean hull:corn gluten feed blend (7X), or hay plus the same total amount of the same blend 3 times a week (3X, 14 lb/feeding). Results of that trial are shown in Table 5.

Table 5. Performance of steer calves (initial weight 602 lbs) fed a diet of hay only, or supplemented with a 50:50 soybean hull:corn gluten feed blend daily (7X) or on Monday, Wednesday and Friday (3X) at a rate of 6 lb/head daily (adapted from Drewnoski et al., 2008).

Item	Hay	7X	3X
ADG, lb/d ^a	0.33	1.52	1.45
Feed:gain ^{a,b}	16.6	5.9	5.3
Hay dry matter intake, lb/d ^{a,c}	14.2	13.4	11.1

^a Hay differs from 7X and 3X P<0.05.

^b 7X and 3X differ, P<0.05

^c 7X and 3X differ, P<0.07

These results are encouraging and we are continuing to work on the infrequent feeding concept. It has been widely shown that protein supplements can be fed three times a week without compromising performance, but usually, infrequent feeding of energy supplements (which are fed at higher levels) has resulted in some decrease in performance. Our work with the byproduct blends commonly used in our area suggest that gains will be similar for daily vs. 3 times a week feeding, and actually feed conversion appears to be improved slightly with the less frequent feeding.

Summary

There are many options for growing stocker cattle in the southeast, including both grass/pasture-based systems, and by-product-based feeding programs. As long as there are light calves that are marketed with a low level of management experience, there will be a niche for stocker producers that are good managers. Getting calves started on feed and healthy is the most important aspect to the program. The optimal growing program will depend on the producer's facilities, feed resources, and management ability.

References

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