

Stocker Cattle Management: Receiving Nutrition

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Introduction

The commercial beef cattle industry consists of three animal management sectors including cow-calf, stocker/backgrounder and feedlot. The stocker industry is a transitional sector that adds value to the beef cattle production chain by 1) improving calf health prior to feedlot entry, 2) adding weight to calves through use of seasonal forage supplies such as wheat pasture grazing, and 3) leveling the seasonality in calf supplies created by the cow-calf sector.

Because the stocker sector is a transitional sector, calves usually purchased as stockers are light-weight freshly weaned calves. Stocker calves typically weigh 350 to 550 pounds at purchase.

According to the 2017 USDA census, the United States beef cow herd averages 44 head. At the cow-calf sector, the small herd size, variation in calf weight and type and multiple weaning dates throughout the year result in stocker producers receiving calves that end up being commingled with unfamiliar calves. The combination of weaning, marketing and commingling is very stressful to calves. These calves usually don't come with a proper vaccination history. Managing calves during this stressful transition, makes receiving nutrition a very important topic. The vaccines you give will be most effective when calves are not stressed and their metabolic status has normalized.

The purpose of this fact sheet is to provide information about nutrition considerations for newly received stocker calves.

The Receiving Pen

Newly received cattle need their own pen. Here they become settled into their new environment and are easy to gather for health processing. Cattle are often rested for at least the first 12 hours following receiving. Calves need to easily find water after becoming dehydrated during marketing and hauling. When possible, place water tanks along the fence as cattle will walk fences to learn of their new environment. Calves most likely will not be familiar with water troughs, so make sure water access is easy during the receiving period and not obscured with items like freeze proofing balls.

Cattle also need access to feed. Calves will most likely be more familiar with forage than grain. Dr. Eric Bailey, University of Missouri, observed it takes about six days for most calves to be at the feed bunk when the calves did not have pre-weaning exposure to supplemental feed. Early in the receiving period, placing some hay in the trough along with any feed supplement may help attract calves to the feed trough and help them become accustomed to feed. Once accustomed to feed, placing hay in the trough won't be necessary unless feeding a total mixed ration. Survey results indicate feedyards try to offer 12 inches of bunk space per calf during the receiving period; however, at least 18 to 26 inches is generally recommended for all calves to be able to eat at once.

Receiving Diet Roughage Content

Newly received calves weighing at least 350 pounds will have a digestive

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system acclimated to forage. Provide newly received calves access to very good quality grass hay. Receiving rations are often targeted to be 60 percent roughage or less. Higher levels of roughage keep grain intake low enough to prevent health/digestive problems caused by excessive feed grain consumption. Dry hays are often recommended over silages for receiving cattle because silage will be unfamiliar in smell and texture. Rations high in moisture content can also affect intake.

Receiving Diet Intake

During the first couple of weeks of the receiving period, calves may only eat 50 percent of their normal intake. Your nutritionist may recommend compensating for the reduced intake by formulating a higher concentration of protein, vitamins and minerals in the diet during the early receiving period. Calves should return to normal levels of eating by the third week of receiving.

Receiving Diet Energy Density

Increasing the energy density of receiving diets is a debated subject today. There are trade-offs between growth rate and morbidity when it comes to dietary energy content. Research by Rivera et al. showed there is nearly 7 percent unit decrease in morbidity for every 10 percent unit increase in roughage. The value of performance lost from very high roughage diets can exceed the difference in morbidity-related costs. Choosing the right energy density will also be affected by the growth program. In feedlots, the goal is transitioning calves to a high concentrate diet; whereas, stocker programs are generally forage-based programs with little to no supplemental feeding on pasture or hybrid programs where as much as 50 percent of the diet will be a mixed feed to increase stocking rate and weight gain. Byproduct feeds and grains are used to increase the energy density of the diet. The more common dry feed options today include corn, corn gluten feed, distiller's dried grains, hominy, soybean hulls and wheat middlings. The Beef Cattle NRC suggests receiving diets contain 0.59 to 0.73 Mcal/lb NEM and 0.36 to 0.41 Mcal/lb NEg or approximately 60 to 70 percent total digestible nutrients (TDN).

Receiving Diet Protein Density

Protein is very important to restoring health in newly received calves. The Beef Cattle NRC recommends receiving diets be 13.5 to 14.5 percent protein. The effects of different sources of protein during receiving are not well characterized. In general, urea should not be used as a protein source for receiving cattle diets. The byproduct feeds distiller's dried grains and corn gluten feed are often used for dietary protein because of their cheaper cost compared to other more protein-dense

NUTRIENT CONCENTRATION FOR NEWLY RECEIVED CALVES (DRY MATTER BASIS)	
ITEM	RANGE
Predicted intake, % body weight	
Day 0 to 7	1.6
Day 0 to 14	1.9
Dry matter, %	80 – 85
Crude protein, %	12.5 – 14.5
NEm, Mcal/lb	0.59 – 0.73
NEg, Mcal/lb	0.36 – 0.41
Total digestible nutrients, %	60 – 70
Calcium, %	0.6 – 0.8
Phosphorus, %	0.4 – 0.5
Potassium, %	1.2 – 1.4
Magnesium, %	0.2 – 0.3
Sodium, %	0.2 – 0.3
Copper, ppm	10 – 15
Iron, ppm	100 – 200
Manganese, ppm	40 – 70
Zinc, ppm	75 – 100
Cobalt, ppm	0.1 – 0.2
Selenium, ppm	0.1 – 0.2
Iodine, ppm	0.3 – 0.6
Vitamin A, IU/day	1316 – 1613
Vitamin E, IU/day	400 – 500

National Academies of Sciences, Engineering, and Medicine. 2016. *Nutrient Requirements of Beef Cattle, 8th Revised Edition*. Washington, DC: The National Academies Press.

options such as soybean meal. Both distiller's grains and corn gluten feed are inherently wet from milling processes. A challenge with using dried forms of distiller's grains and corn gluten feed in receiving rations is excessive heat either from drying or shipping too wet. This can affect the time it takes cattle to become accustomed to these feeds. Damaged feeds can often be purchased at a discount, but using cheap feeds because of nutritive value or damage can be more costly in the long term.

Minerals and Vitamins

With the exception of vitamin E and accounting for reduced intake early during receiving, mineral and vitamin requirements are similar during stress and normal production. Producers who formulate their diets by trial and error often forget to balance calcium and

phosphorus. The calcium to phosphorus ratio should be at least a 1:1 ratio and often formulated for a 2:1 ratio. This is usually not a problem with improved grass forage fed at 60 percent of the diet; however, when byproduct feed mixes exceed 1 percent body weight, dietary phosphorus often exceeds dietary calcium. This is easily corrected by adding calcium carbonate to the diet. Organic forms of copper, zinc and selenium are also beneficial to receiving cattle. The biological availability of organic forms of trace minerals is greater than traditional inorganic forms. Inorganic forms will include the terms sulfate and oxide. Organic forms will often include terms like amino acid complex and lysine. Organic sources may also be provided through specialized yeast products. Injectable trace mineral solutions have also improved growth or reduced morbidity in studies with newly received calves. Vitamin E is an antioxidant that is beneficial during stress. The Beef Cattle NRC recommends 400-500 IU/day during receiving. This is approximately 67 IU/lb diet dry matter during the first 14 days of the receiving period.

Additional Feed Considerations

Feed additives

Adding a coccidiostat, amprolium or decoquinate, to the receiving diet is a good idea and often overlooked. The ionophores lasaloid and monensin also have coccidiostat properties. Always consult labels before mixing more than one feed additive. Monensin will reduce feed intake, so the lowest effective rate is recommended when getting cattle acquainted with the feed. More than 60 percent of feedlots include a direct-fed microbial in their receiving rations. Results with feed additives to enhance the digestive system's microbiome are inconsistent. A final consideration for feed additives is adding antibiotics to aid treatment for bovine respiratory disease. Adding an antibiotic to the diet will require a veterinary feed directive. Using feed as a means to treat cattle has two shortcomings. The first is the added cost of treating cattle that are not sick. The second is that sick cattle don't eat as much, so delivering medication at the required dosage through feed is challenging.

Feed mixing

Stocker producers may choose to mix feeds on-farm instead of purchasing a formulated receiving ration. Purchasing blended byproducts is also a popular option when on-farm storage and mixing capabilities are limited. Whether mixing on-farm or purchasing a byproduct blend, choose ingredients that are not only complementary in nutritive profile (one corrects the inadequacies of the other) but also form for final product consistency. For example, minerals won't blend well with a mix of whole corn and hard, corn gluten feed

pellets. One of the more common errors observed with on-farm mixes is too many ingredients with higher fat content. Another common issue is feeding high levels of one single ingredient. Both corn gluten feed and distiller's dried grains are high in sulfur content. Excessive dietary sulfur can cause a neurological problem called polioencephalomalacia. Pitfalls with ingredient choices can be avoided by discussing options with a nutritionist before ingredients are purchased rather than asking for help after the fact.

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