K-STATE Kansas State University
Beeftips
July 2002 Department of Animal Sciences and Industry

Beef Improvement Federation 34th Annual Meeting
July 10-13
www.beefimprovement.org/BIFconv.html

KLA/KSU Ranch Management Field Days
Aug. 19
Pleasant Valley Ranch
Wallace
Aug. 22
Stuewe Ranch
Paxico

Beef Stocker Profitability Conference
Sept. 20
Manhattan
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Early Weaning Reduces Demand on Cows

Twig Marston, Extension Beef Specialist, Cow/calf Management

Weaning calves early – before they are six to 10 months old – is considered an emergency management decision in most cases. Severe drought, poor body condition score and drylot situations are several reasons for removing calves before they are four or five months old. As research is compiled, cattle producers are becoming more comfortable with the concept of early weaning and how to best implement it.

For the beef cow, the main reason to wean early is to reduce the nutritional demand placed on a ranch by reducing the nutritional requirements. How much will early weaning reduce the nutritional requirements of a beef cow? Because requirements are determined by body weights, milking ability, and days since calving, do not be surprised if early lactation accounts for nearly 50 percent of a cow's energy and protein requirement. So early weaning at six to eight weeks of lactation will reduce both the forage quantity and quality needed to maintain the cowherd. Fall and winter supplementation can be reduced because cows are in better body condition.

Early weaning can be classified by the age of the calf. For all practical purposes, beef producers should seldom consider weaning large groups of calves less than 40 days old. Calves less than 40 days old will require milk replacer and will in all likelihood refuse to eat adequate amounts of dry feed. After 40 days, the rumen is developed enough for dry feed, but their appetites for concentrate will be a major concern, and increased care can mean more work if facilities are not suited for young calves. Producers need to make sure each calf goes to the bunk, actually eats, drinks, and looks healthy.

If non-cycling cows are a concern, and fertility is in question, weaning at less than 80 days is needed to maintain a 365-day calving interval. Calves weaned from 40 to 80 days of age will still be protected by passive immunity from colostrum. They tend to be finicky eaters, making diet ingredient selection extremely important. Stay away from alfalfa pellets, cottonseed meal, corn gluten feeds, long-stemmed, free-choice hays and any ingredients calves can readily sort in the bunk or that have off flavors.

Weaning from 75 to 100 days of age (80 to 90 on average) is quite practical. Rumen compartments are well established to convert feedstuffs into energy; calves are large enough with good appetites; and maternal antibodies carried over from passive immunity should readily protect the calves from respiratory diseases.

For the less adventurous there is early weaning at three to five months of age. These calves are big and stout and will eat about anything you normally would use in a starter diet, but extra health management may be needed because passive immunity has declined and weaning stress levels may overcome the calf's natural disease resistance levels. Regardless of the calf's weaning age a normal 205-day weight should be

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Beef Stocker Profitability Conference

Sept. 20
Manhattan
Holiday Inn

This conference offers practical information and management tips to help you optimize your stocker operation and prepare for an uncertain future.

Topics include:
- Stocker Technology
- Proactive Waste Management
- Managing Stocker Risk

Immediately after the conference, stick around for the BeefstockerUSA.org Barbecue. Celebrate the first anniversary of our information-intense Web site dedicated solely to beef stocker production.

Registration cost is $30 if paid by August 1; or $40 at the door.

For details, contact:
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Composting Manure — An Alternative for your Operation?

Joel DeRouchey, Livestock Specialist

Composting is actually one of the oldest practices in handling solid manure. Proper understanding and management of the manure pile may help producers fully benefit from this waste management practice.

Composting is the natural decomposition of manure or other organic materials by aerobic (oxygen dependent) bacteria and fungi. However, the microorganisms require certain conditions to effectively break down materials. The main conditions are carbon to nitrogen (C/N) ratio, moisture and temperature.

Microorganisms use C and N for energy, growth and reproduction, and ideally require a C/N ratio of 25-30:1. However, manure from feedlots or pens results in a ratio of 10-20:1. To increase C, fibrous materials (straw, corn stalks, wood shavings, newsprint, rotted silage or hay bales, etc) can be added as they contain high C/N ratios (60-850:1). To achieve desired C/N ratios, combine and mix the manure with a C source, and remember the source of C is not as important as the economics and availability.

Moisture levels should range between 50 and 60 percent, as active composting slows when it falls below 40 percent or can totally cease if less than 15 percent. If the level is more than 65 percent, pores for oxygen transfer may become blocked and odor emissions can increase. Water must be added as solid manure and C sources usually have levels below the preferred range. Wells, ponds, lagoons, or other water sources can be used, but if the liquid is from waste storage containments, the nutrient content will increase, which can be an advantage or disadvantage depending on your use of the end compost. As a rule of thumb, the compost is too wet if water can be squeezed out of a handful and too dry if the handful does not feel moist to the touch.

Microorganisms responsible for effective composting require an optimum range of 104 to 150° F for maximum efficiency. Pathogens (135° F or above for 3 days) and weed seeds (145° F) can be killed from the heat generated during composting. If the temperature exceeds 150° F desirable organisms can be killed. Turning the pile will help decrease the temperature. Conversely, a pile below 104° F may indicate an inadequate oxygen level and should be turned. If the temperature fails to rise, the pile should be allowed to finish composting for at least one month.

The most common method of composting is storing the composting material in windrows. When using a bucket loader to turn the piles, the initial windrows can be six to 10 feet high and 10 to 15 feet wide. During composting, many nutrients are lost through microorganism degradation and atmospheric loss, including N (40%) and C (60%). This loss can be seen by a decrease in pile mass, which can be one-half from start to finish. Composting time may range from two to five months, depending on the management and composting conditions.

In Kansas, KDHE requires all composting sites over one-half acre to be permitted. When selecting a site, regardless of size, several considerations need to be evaluated. Some of these factors include proximity to your home and neighbors, visibility of site, drainage, runoff control, soil type, and separation distance between the composting site and water sources and streams.

Producers should weigh the advantages and disadvantages when determining if composting is right for their operation. Some advantages include easier handling and spreading, pathogen and weed seed destruction, excellent soil conditioner, and the selling potential of finished compost. Some disadvantages are loss of N and other nutrients, labor and equipment costs, land needed for composting site, and initial odor from the composting pile.

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achievable with proper management. All that is required is proper diet, some careful calf observation and decent facilities.

Calf removal will positively affect reproduction two ways. First, the negative effect of suckling on the resumption of estrous cycles is removed. Second, weaning will give the cow a chance to return to a positive energy balance. Research indicates that early weaning can increase pregnancy rates as much as 20 to 40 percent, depending on the severity of the negative energy balance within the cowherd. Experience with 48-hour calf removal protocols indicate a substantial number of cows may return to estrus within three days of weaning. Extra bulls may be needed for the first week or so if weaning takes place early in the breeding season.

The proper time to start the vaccination program is a few weeks before early weaning. Calves should be vaccinated for black leg and malignant edema and other injections recommended by your veterinarian. Consultation should be an intrinsic part of the management. Calves also could be implanted and given a Pasteurella vaccine. The last major health consideration is coccidiosis. Coccidiosis is always a threat when dealing with stressed, confined calves. Remember, relieving any weaning stress will be rewarded with fewer problems after the calves are removed from their mothers.

The first two weeks after weaning are the most critical. Calves are going to be expected to learn to get over their mothers, eat from a trough, and to stay healthy. The key is getting them to eat quickly after weaning. It is imperative that only top quality, highly palatable ingredients be used in the starter rations. Creep feeding before early weaning is an interesting concept. However, calves less than 120 days of age eat very little creep feed, so trying to "bunk break" a set of calves with creep feed may be questionable.

Calves should be placed in small pens after being removed from their dams. Plenty of cool, fresh, clean water needs to be accessible at all times to all calves. Shade and other forms of protection are advisable. The pens should be made as comfortable as possible to reduce stress, encourage appetite, and provide shelter from adverse elements.

Oklahoma State University has developed a ration that can be used from weaning to 200 days of age (see Table 1). This ration is high in both energy and protein, and calves should be able to consume 4 to 5 pounds within a day or two. Once accustomed to their surroundings and eating facilities, expect calves to consume between 3 and 3.5 percent of their body weight daily (as-fed basis). It is not advisable to feed free-choice forage to early-weaned calves. Complete, mixed rations give the best animal performance.

Early weaning is a management decision that can be used to achieve normal weaning weights and reproductive performance. The additional labor and management make it a practice that generally confines it to emergency situations. But in times of drought, it is more efficient to supply purchased feed to calves than to the lactating cow.

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Table 1. Ration Fed to Early Weaned Calves

Ingredient	Percent (as fed basis)
Cottonseed hulls	30.0
Corn, rolled or ground	45.3
Cane molasses	4.0
Soybean meal	18.0
Calcium carbonate	1.9
Dicalcium phosphate	.45
Salt	.30
Vitamin A (30,000 IU/gm)	1 lb/ton
Coccidiostat	recommended dosage

Oklahoma Beef Cattle Manual, 3rd Edition, E-913, Oklahoma State University

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Kansas Feedlot Performance and Feed Cost Summary*

Gerry Kuhl, Feedlot Specialist, Kansas State University

April 2002 Closeout Information**

Sex/No.	Final Weight	Avg. Days on Feed	Avg. Daily Gain	Feed/Gain (Dry Basis)	% Death Loss	Avg. Cost of Gain/Cwt.	Projected Cost of May-Placed Cattle
Steers/11,814	1,197	158 (116-192)	3.04 (2.80-3.27)	6.15 (5.81-6.70)	2.10	$51.99 (47.69-60.28)	$48.25 (44.00-50.00)
Heifers/24,952	1,118	163 (141-189)	2.76 (2.52-3.00)	6.42 (5.90-7.14)	1.87	$53.94 (51.24-59.51)	$50.00 (46.00-52.00)

Current Feed Inventory Costs: Mid-May	Avg. Prices	Range	No. Yards
Corn	$ 2.27/bu	$ 2.13-2.35	7
Ground Alfalfa Hay	$104.65/ton	$95.00-113.95	7

*Appreciation is expressed to these Kansas feedyards: Brookover Ranch Feed Yard, Decatur County Feed Yard, Fairleigh Feed Yard, Hy-Plains Feed Yard, Kearny County Feeders, Pawnee Valley Feeders, and Supreme Cattle Feeders.

**Closeout figures are the means of individual feed yard monthly averages and include feed, yardage, processing, medication, death loss and usually sold FOB the feedlot with a 4% pencil shrink. Interest charges normally are not included.

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