

Hardee Rancher Beef and Forage Newsletter



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UP COMING EVENTS

January 2000	
14	Smutgrass Field Day - Southwest Florida Research and Education Center - Immokalee - 8:00 A.M. - 1:00 P.M. Contact Susan Steed at SWFREC (941)658-3403 by January 7, 2000 if you plan to attend lunch.
18 & 25	Agriculture and the Internet and using Electronic Mail. To be held at the DeSoto County Service Center Annex at 7:00 P.M. Please call the DeSoto County Extension Office at (863)993-4846 to enroll for this free course.
20	17 th Annual Florida Cattlemen's Institute and Allied Trade Show - Kissimmee Valley Agricultural Center.

Do You Know What You Are Feeding?

This is the time of year when cattle nutrition is critical. Most cows are calved out and have a fair sized calf nursing. In addition, our pastures are basically dormant with this cooler weather. Add to this nutritional stress is the fact that we are now turning out bulls and are expecting our cows to cycle and achieve a pregnancy when most cows are losing Body Condition Score. **If there were ever a time to Forage Test, now is the time.** Call me at the Extension Office (773-2164) to request a Forage Sampling Kit. The cost of a forage test is only \$8.00 and it will serve as a guide when selecting a winter supplement by telling you the value of the grass/forage you are now feeding.

Guidelines to Selecting a Liquid Feed for Winter Supplementation of Producing Beef Cows in South Florida

F. M. Pate and W. E. Kunkle

Selecting a Liquid Feed for the Specific Feeding Situation Pasture situations with winter/spring breeding season

Bahiagrass, 7% crude protein (CP), 45% TDN. Feed a liquid supplement during calving/breeding season to provide about 3 lbs. of TDN and .75 to 1.0 lbs. of CP/cow/day. This would require a liquid feed containing 15 to 20% CP. For cattle up to 4 years old, thin older cows (condition score 2 to 4 at calving) or if cows are not separated by age, less than 1/4 (25%) of the total CP in the supplement should be added non-protein nitrogen (NPN). For cows 5 years and older, maintained in a separate herd and in good body condition (condition score of 5 or more at calving), all added CP can be NPN.

Stockpiled hemarthria (or pangola), 5% CP, 55% TDN. Feed a liquid supplement during calving/breeding season to provide 1.5 lbs. of TDN and .75 to 1.0 lbs. of CP/cow/day. This would require a liquid feed containing 30 to 40% CP. For cattle up to 4 years old, thin older cows or if cows are not separated by age, less than 1/2 (50%) of the total CP in the supplement should be added NPN. For older cows kept in a separate herd and in good body condition, all added CP can be NPN. **Do not feed high NPN liquid feeds to hungry cattle.**

Hay situations with hay providing most of forage with winter/spring breeding season.

Moderate quality stargrass, bermudagrass or bahiagrass, 7% CP, 50% TDN. Supplement similar to bahiagrass pasture described previously.

Hemarthria, 5% CP, 55% TDN. Supplement similar to stockpiled hemarthria pasture described previously.

What to Look for When Comparing Liquid Supplements?

Crude protein content

Total crude protein and % equivalent protein derived from non-protein nitrogen are on the feed tag. Natural protein can be calculated from these values as: natural protein (%) = total CP (%) - equivalent protein derived from NPN (%).

Natural protein. Where it can not be added, natural protein can be fed as a separate supplement to a liquid feed as a meal, range cube, or as a free-choice protein in a salt-mineral mix. Total CP of .75 to 1.0 lb/cow/day needs to be provided in the liquid and dry mixes.

By-pass protein is protein not degraded in the rumen but digested in the true stomach and intestines. Such proteins could provide more and a better balance of amino acids to cattle, thus improved production. Liquid feed fed to grazing cows should contain by-pass protein when the addition of a natural protein is recommended. A by-pass protein value is not listed on the feed tag, but proteins like feather meal, blood meal, fish meal and cottonseed meal, contain by-pass protein and will be listed on the tag if they are added.

Energy content

It is difficult to compare the energy contents of different liquid supplements. because common energy values such as TDN are not given. The following feed tag values will assist in making such comparisons.

Moisture content. A liquid feed can contain from 20 to 40% (or more) moisture. Water contributes no energy and a liquid feed with less moisture usually has a higher energy value.

Total invert sugar. Sugars are the major source of energy in most liquid feeds. Invert sugar can be as high as 40 to 48%. The higher the sugars the higher the TDN from this source.

Fat content. Fat contains 2.25 times the energy of sugar or starch. Other than providing energy to the cow, fat has no magical properties and should be priced accordingly.

Ingredient composition. Good ingredients for making liquid feed are cane, citrus, beet, and corn molasses. Molasses distillers solubles contains more protein and vitamins than molasses, but the energy value is much lower than the original molasses because sugars were fermented into alcohol. Molasses distillers solubles has a relatively high ash content which provides no energy.

Estimated TDN. The TDN value of a liquid feed, as-fed basis, can be estimated using the above values with the following formula: $TDN = \text{total invert sugars (\%)} + \text{natural protein (total CP - NPN) (\%)} + \text{fat} \times 2.25 (\%) + 8 \times (100 - \% \text{ moisture}) \div 78$.

For molasses slurries the energy value of dry ingredients added is not fully credited. The formula does not credit carbohydrates other than invert sugars. For example, the non-protein portion of cottonseed meal or most of the nutrients in grains are not sugars.

Minerals and vitamins

The cost of adding these is relatively minor, and they are not needed if cattle consume adequate levels of a good mineral/vitamin supplement.

Cost

To figure cost, set a goal as to supplemental nutrient needs/cow/day and then determine what it will cost to meet this goal. Example: if one supplements older brood cows grazing bahiagrass pasture 3 lbs./cow/day of

TDN and 1.0 lb./cow/day of total CP. Estimate the TDN (as-fed value) of the liquid feed, say it is 52% in this example. The quantity of liquid feed that needs to be fed to provide 3 lbs./cow/day of TDN is 5.75 lbs. (3 divided by .52). To provide 1.0 of CP divide 1.0 by 5.75 and multiply by 100 and this gives the % CP the feed should contain (crude protein % = $(1.0 \div 5.75) * 100$), which is 17% CP in this example. If the liquid feed selected sells for \$115/ton it will cost \$0.33 (33 cents)/cow/day ($\$115 \div 2000$) x 5.75 lb./cow/day). If a liquid supplement is fed free choice, intake will vary with pasture, cattle, and type of supplement, thus affecting cost/cow/day. Intakes should be monitored and adjustments made for a cost effective supplementation program.

Painless Record-keeping Leads to Business Success

By Terri Lonier

Some of the biggest groans I hear from solo entrepreneurs come from discussions about bookkeeping. "I'm an artist, not an accountant," the creative types say. "I didn't start this business to spend all this time crunching numbers," protest the independents who'd rather be talking to customers. Nearly everyone can relate to the complaint, "How am I supposed to find any time to do my business if I'm always shuffling papers?" You can either make bookkeeping work for you or against you, but it's a fact of life for all businesses. It's an essential element in tracking, summarizing, and analyzing business activities. Since you have to keep records anyway, why not adopt the attitude that record-keeping tasks are a guidance tool, helping you navigate the solo business path? Let it act as a mirror, reflecting a true financial picture of your business.

Success comes from keeping good records and using them as planning tools in your business. Here are the top five tips on the easiest way to keep financial records.

1. Keep personal and business finances separate.

Make a sharp dividing line between personal and business finances. Set up a separate bank account for your business and dedicate one general credit card for business purposes only.

2. Run as much through business checking as you can.

Centralizing your business activity in one checking account can be an enormous help in staying organized, since you'll have a clean paper trail of your finances. For example, deposit all income to your business checking account, even if you will transfer it to savings later. Try to pay expenses with a check whenever possible, noting invoice number and category on the check.

3. Stay current.

Try to set aside regular times to do bookkeeping tasks. Once it piles up, you'll be even less inclined to tackle it. Don't lose control of your business by not staying informed of your financial status.

4. Keep systems simple, and leave a paper trail.

It's better to have a simple system that you'll use faithfully than a sophisticated method that you never touch. Determine what information is important to run your business, and set up a system that feels comfortable and delivers what you need. If your system is computer-based, be sure to create printed records for a paper trail, and backup your files regularly. Find an easy way to store receipts-such as an accordion pocket folder-and use it consistently.

5. Refine, but have continuity.

As your business grows and changes, it's likely you'll also refine your bookkeeping system. Try to avoid abrupt changes or the temptation to start a new system each year-both can waste valuable time and cause confusion when analyzing past financial performance. Focus instead on tweaking your current methods and incorporating new approaches slowly, until you find the best system for your unique business.

You don't have to fall in love with bookkeeping, but using it as a planning tool can help you review your options and make informed decisions-the hallmark of successful entrepreneurs.

First Genetically Engineered Vaccine for Shipping Fever

By Linda McGraw, ARS

A cure for livestock respiratory disease has long eluded researchers. This ailment costs U.S. and Canadian cattle producers more than \$1 billion annually. But now a new live vaccine developed by ARS researchers promises to substantially reduce these losses.

Shipping fever, as the disease is more commonly known, affects calves about 1 week after they are transported from the cow and calf operations where they were born to the feedlots where they finish their growth. It is the biggest killer of beef cattle in feedlots.

The culprits are three different bacteria that are usually harmless - *Pasteurella haemolytica*, *P. multocida*, and *Haemophilus somnus*. Normally present in cows' nasal cavities, these bacteria usually don't cause problems - until the young animals are readied for shipment. Then the stress of handling and shipping takes a toll on their immune systems, and the bacteria move into their lungs and cause pneumonia.

The disease can hit the pocketbooks of both shippers and receivers. Animals that look healthy when purchased may arrive at their destination with decreased appetite, fever, coughing, and nasal discharge. If they survive, infected beef cattle grow poorly and need more time and feed to reach market weight. The same bacteria also infect sheep and goats.

ARS veterinarian Robert E. Briggs and microbiologist Fred M. Tatum created a live vaccine by deleting a large piece of a gene called *aroA* from each of the three bacteria. Without this gene, the bacteria do not cause infection.

These are the first genetically engineered vaccine strains for shipping fever that have been made without using foreign DNA or a marker for antibiotic resistance, says Tatum.

Most shipping fever vaccines are made from bacterins - suspensions of killed bacteria - or from specific bacterial proteins. The immunity they confer has left much to be desired.

A live vaccine is more effective because it gives disease resistance much like convalescent immunity to the animal, says Briggs. Similar to what happens when someone recovers from mumps or measles, this type of immunity is typically stronger and longer lasting than that conferred by killed vaccines.

Several patents on the vaccine technology have been issued jointly to ARS and the Biotechnology Research and Development Corporation in Peoria, Illinois. BRDC is a public-private organization formed to speed

commercialization of government-funded research discoveries. Member company Schering-Plough of Madison, New Jersey, has licensed the technology to make multivalent injectable vaccines and is in the process of getting approval to market the new product.

Meanwhile, Briggs and Tatum are working on an oral vaccine that can be given to animals via their feed. Recently, 100 head of cattle were shipped from Tennessee to Texas. Some of the calves received the oral vaccine 4 days before shipping and others didn't. All of the calves fed the oral vaccine were protected, while 10 non-vaccinated calves died from pneumonia.

If proved effective, producers might find that feeding the vaccine is easier and less time-consuming than intramuscular injections.

Robert E. Briggs and Fred M. Tatum are in the USDA-ARS Respiratory and Neurologic Disease Research Unit, National Animal Disease Center, P. O. Box 70, Ames, IA 50010; phone (515) 239-8639, fax (515) 239-8458, e-mail bbriggs@nadc.ars.usda.gov tatum@nadc.ars.usda.gov.

Heifer Development, Selection and Breeding

By Lochrane A. Gary

Developing replacement heifers is a critical element to improving reproductive performance in a herd. Many managers fail to recognize how important it is to keep heifers growing after weaning. The emphasis should be placed on skeletal growth more than just weight gain. The period from weaning at 5-9 months of age to breeding at 15 months is critical if you expect a high percentage to conceive. Heifers need to weigh 65% of their expected mature weight at the beginning of the breeding season.

Heifers selected for breeding should be born during the first half of the calving season. These heifers should be older, heavier and out of the more fertile cows. They should have a better chance of reaching puberty and conceiving early. Select at least 50% more heifers to breed than needed for replacements. Not all will become pregnant and you won't be happy with all that do.

Breed heifers to a bull known to sire small calves at birth. A live calf in the weaning pen is far better than a calving problem which may result in a crippled or stunted heifer or worse. The performance of a first-calf heifer is a reliable indication of her future usefulness. During the first production cycle, the most important factor is for a heifer to produce a live calf and breed back within 90 days.

Must Do's During The Breeding Season

- Keep a vigilant eye on cows to see if they are cycling. Observe bulls closely to insure that they are getting the cows bred. Remove crippled bulls and replace immediately.
- Monitor pastures closely to keep cows distributed over feed resources. Nutrient levels must be kept high. Cattle cannot be expected to become pregnant on fresh air and sunshine.
- Keep the mineral box fresh at all times.

- Every cow that has lost a calf or did not calve should be marketed immediately. Why keep a loser?

STAFF CONTRIBUTORS

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For questions or comments regarding this publication contact



[Lochrane A. Gary](#)



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