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### **Economics of Winter Protein Supplementation**

As promised last week, I'll dig into the economic side of protein supplementation for the cow herd today. Keep in mind I'm an animal scientist trying to do an economist's work, with lots of assumptions, so this might fail! I've had the opportunity to balance some rations recently, so the values used should be fairly reflective as of late October. I think you'll see that there is no one size fits all scenario when it comes to supplementation. Pricing on a per unit of protein consumed per day, does help compare apples to apples. So, let's dig in and review some options.

One of the more popular, low labor, self-regulating options to supplement on crop residue, dormant pasture or even hay are protein tubs. These are generally managed by placing one 200 or 250-pound tub per 20-30 head, with consumption rates ranging somewhere between ½ to 2 pound per head per day. That said, all tubs are not created equally! Protein content can range widely from something in the low teens to almost fifty percent. Protein sources also widely vary and many of the high percentage tubs have non-protein nitrogen (NPN) sources, such as urea, as a main ingredient. A general rule of thumb is that NPN should not consist of more than 1/3 of the total crude protein in the ration, so this is something to watch for carefully.

To look at an example; tub A is 30% protein, 200-pound tub, with about one third of the 30% as NPN, safely falling within guidelines. It retails for \$115, which converts to \$0.1725 per pound of protein. This should last a twenty-five head cow herd eight days at the one-pound consumption level, or \$14.38 per day for the herd. Tub B is a 16% protein, 200-pound tub that has no NPN. It retails for \$70, which is \$0.056 per pound of protein, which looks like the buy! However, consumption on this tub ranges between one and two pounds per day, which means it will last the same cowherd four days at the upper consumption level, or \$17.50 per day.

By using this method, you can compare the various protein percentage levels and purchase prices. Keep in mind, these two products may offer different fat or energy levels, vitamins and minerals, have safeguards for consumption and other products in the mix. All these factors need to be considered and weighed as you look a purchasing for your specific needs. For purposes today, we are evaluating them solely on protein percentage to the diet. The liquid-based supplements delivered in tanks can be evaluated in much the same way as cooked, poured or pressed tubs discussed here.

Other examples of protein supplements for the cow herd include; cubed "cake" products and by-product ingredients in meal form, like: distillers grain, wheat midds, soybean meal and corn gluten meal, to name a few. Again, each brings different levels of protein, price and other pros or cons to a complete ration. As discussed last week, these are best consumed daily, but can be delivered every other day to save on the labor cost that comes with them.

Rations I evaluated earlier this week looked at a corn-based supplement to cows consuming good quality dry grass hay. Soybean meal (SBM - 48%) and dry distillers grain (DDG - 29%) were compared, to bring rations to roughly the same crude protein percentage. Plugging in estimated prices, the SBM came in at roughly \$0.32/# protein/head/day and DDG at \$0.55/#protein/head/day, but total ration cost was \$0.14/head/day lower for the DDG ration due to the reduced amount of corn. For comparison sake to tubs...this DDG ration would calculate to \$13.75 per day protein supplement cost for the twenty-five head herd, not counting feed labor.

The point to all these numbers and scenarios is that you have to look at all factors, do some math and determine what is the best option for your particular operation. Dumping tubs out, once a week on corn stalks a half hour from home, may make more sense than feeding a cheaper corn/DDG ration to cows in a lot outside your kitchen window. Sharpen the pencil and do the math! Visit with your local Extension office if you need additional help and guidance.