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**What makes a milk cow ration profitable?**

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At first glance the answer to the question above seems ridiculously simple. A milk cow ration that makes money for the producer is a profitable ration! It’s impossible to argue with that statement, especially when looking at a profit/loss statement that clearly shows the results. However, few producers have a formal profit/loss statement to determine the profitability of the feeding program month-by-month.

Add to this the fact that the lactating ration directly affects body condition, which has a direct impact on breeding, which affects calving interval, which in turn directly impacts milk flow, which affects income and suddenly the word profitable takes on new dimensions. Because of these interrelationships, the following information is offered with the understanding that nutritional considerations also have financial impact and that cost considerations must blend with nutritional considerations and vice-a-versa to create profitability.

Having acknowledged that nutritional considerations must be met, what profit indicator best addresses the relationship between cost and production?

**PRICE PER TON OF FEED**

Different producers have different ideas about this question. Some feel that the price per ton of individual feeds in the ration determines profit. Buying decisions are made strictly on a price per ton basis when it comes to grain, commodities, forages and supplements.

While it would be foolish to pay more than necessary for these feedstuffs, it can be equally unprofitable to purchase a feedstuff at any price if it is incapable of doing the job it’s required to do. Buying cottonseed hulls (high fiber/low energy) at $70.00/ton because energy is needed to balance the diet is a little like buying 87 octane unleaded gasoline for a top fuel dragster that only runs on a nitro-methane blend. There will certainly be great savings on fuel and if that is the only consideration, then unleaded is the clear choice between the two. However, if your objective is to win the $100,000.00 prize for 1st place - good luck! You will certainly need it! Be prepared to replace the engine!

On the other end of the question, it would be ridiculous to pay $220.00/ton for cottonseed if an equivalent blend of energy, true protein and digestible fiber could be purchased for $150.00/ton. The additional $70.00/ton reflects no additional value in the cottonseed.

Price per ton is certainly a part of the profitability equation. However, because of the interplay of nutrition, production and cost of feed, it is clear that other variables must be considered as well.

**FEED COST PER CWT OF MILK**

Another often used and referred to indicator is the cost of producing one hundred pounds of milk. Since milk pricing is most often stated as a blend price/cwt this seems to be a natural. As an indicator it is certainly a great improvement over price/ton of feed. Feed cost/cwt places the cost of feed in relationship to a specific volume of milk production - something that price/ton of feed does not do.

Though as an indicator of profitability, feed cost/cwt is a great improvement, it views only cost and not profitability. If the volume of milk production remained fixed regardless of how cows are fed, then feed cost/cwt would be an accurate indicator of profitability. Obviously, this is not the case. Feeding a cow all the alfalfa hay she can eat will produce far fewer hundred weights of milk than if she is fed concentrates as well.

An accurate indicator of profitability must take into consideration the cost of the ration expressed in relationship to the volume or quantity of compensated components it produces.

 **RETURN OVER FEED COST**

As an indicator of profitability, return over feed cost is excellent. Because production and the cost of feed are expressed in relationship to one another on a per/head per/day basis, the relationship of feed cost and volume of production is very simply illustrated.

As an example, a cow producing 100.0 lbs of milk a day at a blend price of $11.00/cwt generates gross income of $11.00 per day. If the total cost of forages, concentrates and supplements fed to the cow to produce the 100.0 lbs. of milk equals $4.11, the return over feed cost is $6.89 hd/day. In this case the feed cost/cwt of milk is also $4.11.

A change in ingredients that increases feed cost and produces a positive change in production will also mean a change in DMI (dry matter intake). A cow producing 112.0 lbs. of milk will eat more than a cow producing 100.0 lbs. Before such a change can be profitable, both the increased cost of the ration and the cost of the increased intake must be covered.

If, in this case, production remains the same return over feed cost will decrease and feed cost/cwt will increase. However, if the change in the diet produces an increase in production, the negative correlation between feed cost/cwt and return over feed cost will not necessarily be the case.

**FEED COST/CWT VS RETURN OVER FEED COST**

Feed cost/cwt doesn’t always correlate negatively with changes in return over feed cost. Let’s go back to our cow producing 100.0 lbs of milk. In the first example she was eating rolled barley in the barn and 20.0 lbs. of green chop alfalfa outside. The balance of her ration was provided in a TMR like mix of long stem hay, corn silage, earlage, barley/corn, whole cottonseed and a bypass protein blend including minerals and buffers. The price of this “TMR” mix was $105.70/ton. When the diet was reformulated, the change of ingredients moved the price of the “TMR” mix to $112.05. With no change in production, this would result in a drop in return over feed cost of $.28 hd/day. A 3.5 lb. increase in production would cover the increase in the price of the “TMR” mix and the cost of the increased DMI. This is the breakeven point.

Any production increase greater than 3.5 lbs. begins to increase return over feed cost.

When making a change in lactating diets that is designed to increase production -

**ALWAYS know your breakeven point.**

Let’s look at a 12.0 lb. increase in production. Feed cost is now $4.77, up $.66 from our base level. However, due to increased production, income is up enough to create a significant increase in return over feed cost - $7.54 compared to $6.89.

Feed cost/cwt is $4.26 compared to $4.11.

In this example, the feed cost/cwt increased $.15. This, by itself, would create a loss. However, production moved from 1.0 cwt to 1.12 cwt. The increased number of cwts covered the increased feed cost and produced an increase in return of $.66 hd/day.

**WATCH YOUR “GROSS MARGIN”**

Return over feed cost simplifies all the dynamics of profit/loss analysis. If the return goes up, the change was profitable. If the return goes down, the change produced a decrease in profit, even if the feed cost/cwt went down. Conversely, if the return goes up and the feed cost/cwt also goes up - don’t worry - the change was a profitable one!

As an indicator of profitability, feed cost/cwt only absolutely indicates a change in profit when production remains constant.

Return over feed cost however, encompasses all of the dynamics from changing price/ton of feeds to changes in production and milk price. Return over feed cost is the “Gross Margin” of the dairy industry. The money that is left after the feed bill for the milk cows is paid pays all the other bills. The more there is of that “Gross Margin” the more of it will be left after all the other bills are paid.

What makes a milk cow ration profitable? After nutritional considerations have been met, the answer is simple - A HEALTHY RETURN OVER FEED COST.

**Watching your return over feed cost is watching your profit.**