



# DIRECT

~ SOLUTIONS FOR SUCCESS ~

## Abstracts from 2005 ADSA Dairy Science Meetings

Summarization by: *Dr. Tim Snyder, PhD, PAS, Dipl. ACAN*  
Renaissance Nutrition, Inc.

### Rumensin<sup>®</sup> Effect in Lactating Rations

Abstracts T204, T205, T206. Several research groups compared the effect of Rumensin<sup>®</sup> on milk production and components. In Elanco FDA trials, production generally increased, intake was lower and components varied. In herds where butterfat (BF) % was similar to control, the Neutral Detergent Fiber in the ration was 3 - 4 % higher and Non Fiber Carbohydrates (NFC) were lower. In rations that provided higher levels of Metabolizable protein from growing more rumen bacteria, milk protein % was higher. They concluded diets that promote ruminal fermentation of fiber and microbial growth optimize the lactation response of cows fed Rumensin<sup>®</sup>. Canadian researchers reported lower BF% in diets with Rumensin<sup>®</sup> and also in diets with added soy oil. There was an added effect on lowering BF% when Rumensin<sup>®</sup> and soy oil were both in the diet. Researchers from Sweden also found lower BF% when either Rumensin<sup>®</sup> or soy oil was fed. They too reported an added effect when both were in the diet together.

**Take home message:** Proper ration formulation is essential when including Rumensin<sup>®</sup> in rations. Diets containing lower digestible fiber, higher fermentable starch and sources of vegetable fat/oil can result in variable/lower components, especially if Rumensin<sup>®</sup> is fed. Renaissance nutritionists can provide ration recommendations to optimize Rumensin<sup>®</sup> use.

### Colostrum Quality

Abstract M196. Penn State researchers compared Immunoglobulin “IgG” levels in cows by lactation number and amount of first milk produced. They found NO significant differences in IgG levels or 1<sup>st</sup> milk amount produced due to lactation number. They did find significantly less IgG concentration when first milk amount produced was greater. The researchers concluded that high quality colostrum from all lactations can be used equally effectively to provide immune antibodies. Also, 1<sup>st</sup> milk amount produced, regardless of lactation number, dilutes IgG levels.

	1 <sup>st</sup> lact	2 <sup>nd</sup> lact	3 <sup>rd</sup> lact	4 <sup>th</sup> lact	5 <sup>th</sup> + Lact
IgG level, g/L	26	29	28	25	25

**Take home message:** Four quarts of colostrum from these cows would provide the recommended 95 to 110 g of IgG. As a reminder, to ensure optimum absorption by the calf it is important to get 4 quarts of clean, high quality colostrum from healthy cows into the calf within the first 6 hrs after birth. Frozen colostrum, should be labeled with date, colostometer score, and cow ID, and should only be collected from Johnes-negative cows (if Johnes status is known). If thawed slowly, high quality, frozen colostrum can aid in immunity transfer to calves when fresh colostrum isn't available.

### Distillers Grains Variability

Abstract T214. South Dakota researchers reported variability in Distillers grains w/solubles (DDGS) depending on ethanol plant source and wet vs dry. Compared with soybean meal (SBM), DDGS were less digestible and as expected, had more rumen undegradable protein (RUP).

	SBM	A	B	C	D	E	Wet DDGS
Rumen Undegradable Protein %	39	78	67	64	71	63	56
Intestinal Digestibility, %	88	63	77	77	66	66	72

**Take home message:** DDGS are variable, wet DDGS may have less RUP and be more digestible than dry. With more ethanol plants coming on line, DDGS will become more plentiful cost less, and more will be available in the wet form. Amino acid make-up of DDGS does not match requirements for milk production well. DDGS can be high in free corn oil. Caution should be used in sourcing and including DDGS in rations.

## Corn Types Affect Cow Response

Abstracts T207 T221. Comparison of flint (hard, vitreous endosperm) versus dent (soft, floury endosperm) corn by Brazilian researchers showed a tendency toward higher milk production for dent corn as silage and grain. There were indications that ruminal fermentation was greater on dent corn as well. Scientists at Michigan State compared floury (dent) and vitreous (flint) corn types either as high moisture (HM) or dry. Floury corn dry was more efficient and floury corn HM was less efficient in supporting production. Milk protein was increased with vitreous corn fed dry but not when fed HM. Cows ate more TMR but produced similar amounts of milk when either corn type was fed dry rather than HM.

**Take home message:** Corn is NOT Corn, different types/varieties will react differently to storage method and result in different effects in the cow. Renaissance nutritionists are monitoring starch sources, starch amounts, and rates of fermentation in their ration formulations.

## Phosphorus, Manure, Nutrient Management

Abstracts 327, 328, 418, 447, W253. Penn State workers showed that a level of 0.32% phosphorus in the diet was too low for high production, (0.37% is the calculated requirement) and 0.44% resulted in excess excretion in manure. Substituting soy hulls for a portion of the alfalfa hay in diets at either phosphorus level reduced phosphorus excretion into manure. Michigan State workers confirmed the maintenance requirement for phosphorus at different intakes. These workers also evaluated prediction equations to estimate the excretion of phosphorus in manure based on dietary phosphorus intake and milk phosphorus level. Heifers at South Dakota State fed 25% of their diet as distillers grains excreted more phosphorus because of higher phosphorus intakes. Virginia scientists examined manure output of heifers fed high or low forage diets or byproduct-based diets. They found that heifers with similar growth produced widely varying amounts of manure depending on the diet.

**Take home message:** There is a lot of research being conducted on manure, phosphorus and nitrogen excretion. Current recommendations are being fine-tuned and adjusted. Whole farm nutrient balance, forage and feed selection, and feeding the correct levels of nutrients in highly digestible, balanced rations will lower nutrient excretion and excess loss to the environment. For those in the Chesapeake Bay watershed, the Bay Foundation website [www.cbf.org](http://www.cbf.org) has a just released report supportive of agriculture in the region and use of new techniques to reduce nutrient losses.

## Post Calving Milking Frequency

Abstracts 55, 662, 155. Workers at AZ State compared 3X milking with 4X followed by 2X. They found no combination of 4X / 2X that resulted in greater production than using 3X over the first 42 days in milk for cows or heifers. They also reported another study where they compared 6X vs 3X on large commercial farms and found no benefit to 6X for 7 or 21 days before switching to 3X vs. continuous 3X. Va Tech researchers developed a spreadsheet to predict the economic impact of changing milking frequency or adding cows. Inputs include hours of parlor use, labor, stalls, group sizes, parlor turns, milking frequency, milk yield and price. Costs included labor, feed, supplies, cull and replacement cows, etc. Economics are sensitive to milk yield change, parlor turns, and cow costs.

**Take Home message:** While the AZ trial did not show a response, previous research and farm experience has shown improved production with increased milking frequency during early lactation. However, this practice may not be economical in all cases. The Va Tech spreadsheet may be helpful in comparing different scenarios for potential profitability.

## Dry Period Length

Abstracts W117, 660. At the U of WI, researchers compared no milking (dry), 1X or 4X milking the last 28 days precalving. First calf heifers dropped dramatically with no dry period. Cows not milked (dry) or milked 4X produced similar milk next lactation, but they produced significantly less if milked 1X. They also produced less fat and protein. AZ workers evaluated why 1<sup>st</sup> lact animals don't respond well to no dry period and found that 50% of the loss of milk is due to reduced mammary cell renewal and secretory capacity.

**Take home message:** Cows could be continuously milked with no dry period, if milked 4X. However, reducing the dry period to 30-45 days may be more practical. Heifers require a dry period for best subsequent lactation production.