Conference Summary & Wrap-Up

2009 Bucknell Nutrition Conference

July 20-22, 2009

R. Tom Bass, II, DVM, PhD
Renaissance Nutrition, Inc.

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Profitability and Income Over Feed Cost

Dr. Tim Snyder

- Capitalize on the learning opportunity the current dairy economy provides. Use it to better prepare producers for the next down cycle
- Help producers understand how to manage milk & feed price risks
- "think of forward contracting as a loss minimizing tool not a profit maximizing tool"

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Profitability and Income Over Feed Cost

Dr. Tim Snyder

- Customers: understand their budget and speak their current economic language
- COMMUNICATE. Ask questions on a regular basis
- Good news! Dairy consumption projected to increase 2.2% annually over the next 3 years
  - "the world loves milk"… [A. Holloway] "as long as we produce what they want"

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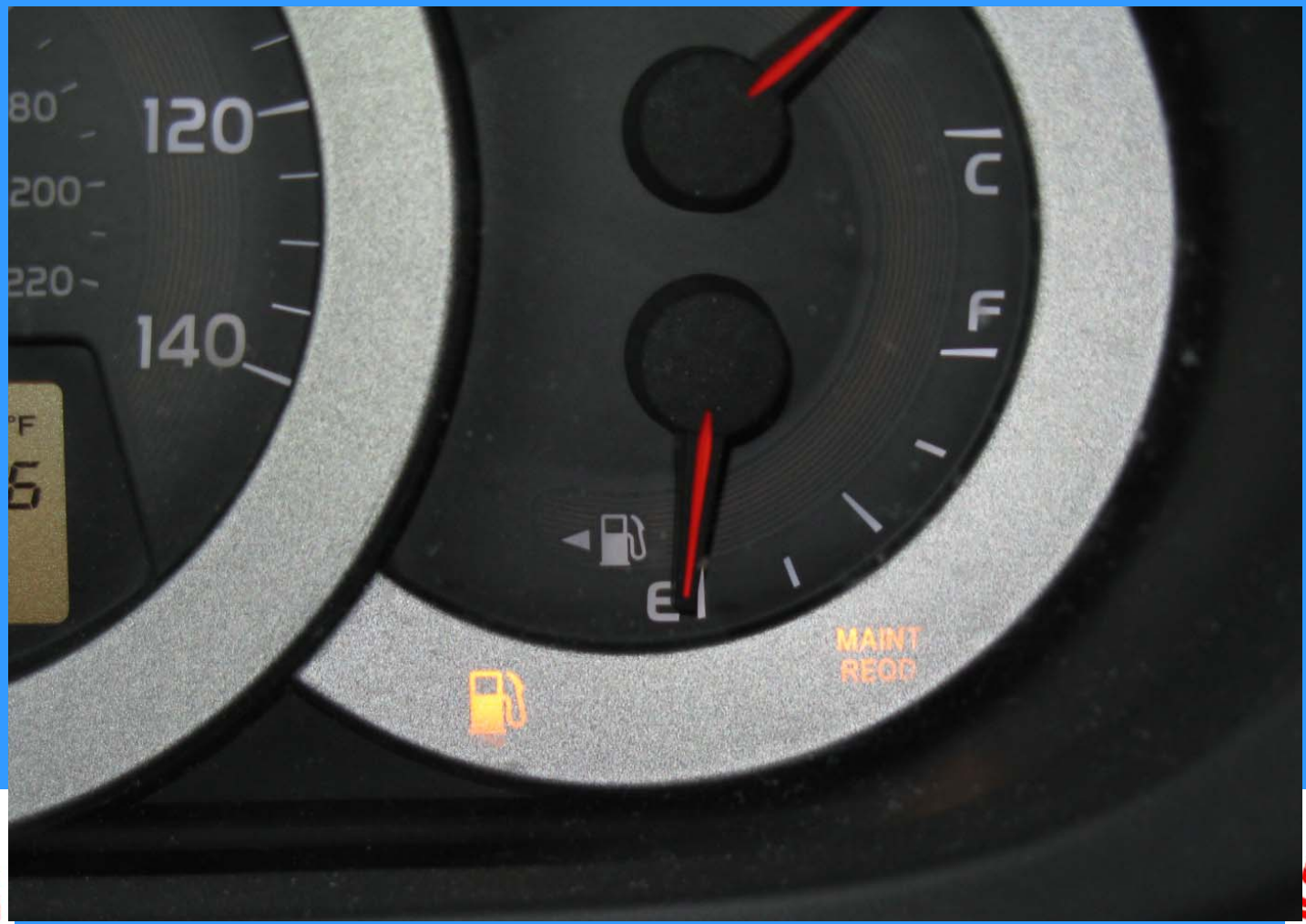
Continuing Education Program for Renaissance Help Desk



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Energy Balance/Subclinical Ketosis in Transition Cows- Dr. Daryl Nydam

- Subclinical ketosis does bad things:
  - 14-18% less likely to become pregnant
  - Produce 1350 lb less ME305d milk (for lactation 2+ animals)
  - Increases the risk of DAs (9.7X), RP/metritis (17X), clinical ketosis (5X)

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Energy Balance/Subclinical Ketosis in Transition Cows- Dr. Daryl Nydam

- Tests:
  - Prepartum NEFAs
  - Postpartum NEFAs or BHBAs (with Precision Xtra meter)
- Use the right test & properly sample an adequate number of cows (usually 15)
- 15-20% of cows above cut point indicative of a herd problem
- Based on survey results, lots of opportunity to improve management

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Calf Barn Designs to Minimize Respiratory Disease- Dr. Ken Nordlund

- "Naturally ventilated calf barns are the source of a lot of problems"
- Often, there are substantial differences between *barn* ventilation and *pen* ventilation
- Respiratory disease is widely under-diagnosed in the dairy industry
- Draft = air speed > 50 ft/min _at animal level_

A plug for Wisconsin tourism??

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Calf Barn Designs to Minimize Respiratory Disease- Dr. Ken Nordlund

- Key factors for healthy calves:
  1) Low airborne bacteria counts in pens (bigger pens = better air quality)
  2) Solid panels between calves (open sided pens increase disease by 2.5-3X)
  3) Nesting in deep bedding

Doubled stocking density? Need to ↑ ventilation rate 7-10X to maintain the same air quality.

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Calf Barn Designs to Minimize Respiratory Disease- Dr. Ken Nordlund

- Positive pressure ventilation systems:
  - MUST use outside air → size at 15 cfm/calf
  - Relatively cheap (usu. $600-$1000 per barn)
  - One tube per 25' of building width
  - Custom-punched holes so air exits at 800 cfm
  - Position holes at 4 & 8 o'clock or 5 & 7 o'clock
  - Use a permeable base in the pen floors
  - Consider multiple, smaller barns to facilitate an "all in, all out" management scheme

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Working with Veterinarians: The Good, the Bad, and the Ugly

Dr. John Currin

- Important to realize producer goals, which takes communication
- Important to communicate w/veterinarian on a regular basis so every body is on the same page
- "Working together we can do a lot more than not working together."

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Working with Veterinarians: The Good, the Bad, and the Ugly

Dr. John Currin

Biggest Issues w/Nutritional Consultants

1) Failure to look at overall farm picture
   - Forage inventory
   - Farm cost
2) "I have another farm" syndrome
3) Need for periodic ration review to see if anything needs to be "pruned"

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Carbohydrate Interactions with Ration Components- Dr. Mary Beth Hall

- "Starch is one of our best friends and one of our biggest problems."
- Fiber digestion may be changed via interactions between ration NFC source(s) and RDP concentrations

  - When we change a ration ingredient we very well may change a lot more than the nutrient/ ingredient in question
  - The same ration can/will behave differently based on differences in DMI and rate of passage

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Non-Fiber Carbohydrate Analysis: Where is it Headed?- Dr. Mary Beth Hall

- CHOs that matter: sugars, starch, fructans, soluble fiber, NDF
- Feeding sugar will sometimes ↑ butterfat w/o a protein response… why??
  - … meet Bob & Edna
  - Rumen protozoa are at least one of the "wild cards" that contribute to milk & component variation

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Feeding Sugar, Starch and Fermentable CHO- Dr. Gabriella Varga

- Thank you for the thank you
- Ration CHO goals:
  - Provide low fill, highly fermentable diets
  - Maintain adequate ruminal pH
  - Facilitate consistent fermentation over time
  - Try to keep everybody in the rumen happy (including Bob & Edna)

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Feeding Sugar, Starch and Fermentable CHO- Dr. Gabriella Varga

- Provide a variety of CHO sources to keep the bugs happy (and a variety of protein sources, too)
- Corn too coarse: high intake, poor performance, happy turkeys

- Corn too fine: signs of acidosis, loose manure, +/- mucin casts (cows indicating that Bob & Edna aren't happy)

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Feeding Sugar, Starch and Fermentable CHO- Dr. Gabriella Varga

- BMR corn silage- feed it to the cows positioned to respond AND feed enough to facilitate a response (>14 lb DM)
  - Feeding more BMR should improve IOFC (11% in one PSU trial)
- Responses to feeding sugar vary! A lack of response may result from a ration RDP imbalance, excessive supply,

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Feeding Sugar, Starch and Fermentable CHO- Dr. Gabriella Varga

- When to feed sugar?
  - Relatively mature forages
  - Forages that go through extended fermentations (too wet or too dry)
  - High soluble protein rations
  - When DMI is low (palatability)
- Sugar isn't sugar, much like starch isn't starch

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Feeding Sugar, Starch and Fermentable CHO- Dr. Gabriella Varga

- CHO ration formulation isn't just on-paper numbers, it's a combination of numbers AND the fermentability rates
- (everyone smile and say "calibration" ☺ ☺)

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Anatomy Lesson for Penn State…

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The Importance of Nutrition & Trace Minerals in Dairy Animals

Dr. Dana Tomlinson

- "Nutritionists are responsible for everything that goes wrong on a dairy"
- Disease threat and immune suppression are greatest at calving time
  - Metabolic diseases hurt milk production, repro performance, profitability
  - **Maintaining DMI through the transition period** is goal #1 in addressing this

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The Importance of Nutrition & Trace Minerals in Dairy Animals

Dr. Dana Tomlinson

- Reproduction is a luxury function influenced by immune function, energy and hormonal balance
  - Fresh cow problems, heat stress, lameness, and mastitis are the primary players
  - Good nutrition (and management!), including complexed trace minerals, can positively impact all these considerations
  - Timed AI programs may help overcome some of these physiological limitations or malfunctions that impair repro performance

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Updated Research on Megalac®-R
Dr. Roy Ax

- Congratulations on being a cancer survivor!!
- EFAs are involved in steroid hormone synthesis, cell membrane integrity, biological signaling w/in the body (eicosanoids, aka prostaglandins) and immune function
- Megalac®-R is the most concentrated dietary source of linoleic and linolenic acid

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Updated Research on Megalac®-R
Dr. Roy Ax

- Repro trial 1, trial 2 (only multiparous cows)
- Versus Megalac:
  - More large follicles, half as many inactive ovaries through 30 DIM, reduced metritis
  - Metritic cows were open 10 days longer and required an addition 0.5 services to conceive
  - More estrous cycles in VWP, reduced days open and services per pregnancy

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Updated Research on Megalac®-R
Dr. Roy Ax

Economics

- Income/cow when feeding ¼ lb for 14 days pre-fresh and ½ lb for 60 days post-fresh:
  - + $109/cow
  - + $13,550/100 cows

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Key Management Factors Affecting Transition Cow Performance

Dr. Ken Nordlund

- Most (all?) fresh cow problems are a combination of metabolic and infectious
  - Risks are additive; all problems conspire to reduce milk production
- TCI™ = difference between the first test projection compared to our expectation for that cow
  - Used as an objective, semiquantitative monitor of fresh cow performance

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Key Management Factors Affecting Transition Cow Performance

Dr. Ken Nordlund

- Per 1000 units of TCI™
  - Reduced turnover rate of 2.4%
  - Increased milk production of 1240 lb
  - Increase of approx. $122 IOFC per cow per year
- In general, higher producing herds have higher TCIs, but there's lots of variation

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Key Management Factors Affecting Transition Cow Performance

Dr. Ken Nordlund

- Five factors that most significantly influence TCI™ :
  1) Fresh cow screening based on appetite & attitude
  2) Larger freestalls (the 1980's freestall is a "miserable little container")
  3) Sand-based stalls (esp. post-calving)
  4) Stable social groupings (no pen moves 3-10 days pre-calving
  5) **Bunk space for all transition cows to eat simultaneously (30" per cow)**

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Key Management Factors Affecting Transition Cow Performance

Dr. Ken Nordlund

- These data don't completely eliminate nutritional considerations, they merely reiterate the importance of cow comfort and management
- Excessive ME305 spread btw. young and old cows?
  - Possible genetic improvement, but also consider excessive "wear and tear" on older cows

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Key Management Factors Affecting Transition Cow Performance

Dr. Ken Nordlund

- Sand vs mattresses?
  - Sand conferred a 1200 unit advantage in TCI™
- Pen moves: aim for fewer moves, with more cows per movement
  - Reduces social turmoil
  - Move cows to calving pen once labor has begun

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Key Management Factors Affecting Transition Cow Performance

Dr. Ken Nordlund

- Economics:
- Building cost: $90/cow/year over 10 years
- Milk & survival benefit: $250/cow/year

- Milk yield and survival will pay for the facilities and labor

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Hoof Health: New Software Tool

Dr. Dana Tomlinson

- FirstStep™ is a new, comprehensive lameness investigation & management tool developed by Zinpro
- Footbath spreadsheet also available– focuses on commercially available footbath solutions footbath formulations, and leg hygiene scores
- Access to the complete FirstStep™ program available through Renaissance support folks; spreadsheet available to everyone

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Presenting REN-FOOT
Ms. Rosemary Smithyman

REN-FOOT

- Assists in control of some infectious foot diseases (especially foot warts)
- A buffered acid product that is part of a foot health program; Usage rate: ½ oz/gal
- Usually cheaper than $CuSO_4$, reduces its use, and should improve footbath effectiveness

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Feeding Propylene Glycol and Glycerol Pre- and Post-Fresh- Dr. Gabriella Varga

- Dry propylene glycol (250 g/cow/day):
  - Rumen and blood metabolites responded similarly regardless of dose of administration
  - Reduced incidence of subclinical ketosis by 50%

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Feeding Propylene Glycol and Glycerol Pre- and Post-Fresh- Dr. Gabriella Varga

- Glycerol
  - Not much research, and what's out there is quite varied
  - Beware the source (some contains excessive levels of methanol)
  - Availability??

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Feeding Glycerol, Glycol, and Alcohol Pre- and Post-Fresh- Dr. Gabriella Varga

- Glycerol fed at 250 g/cow/d from 1 through 21 DIM
- After removal of the glycerol, treated cows tended to increase milk (52 vs 46 kg/day)
  - "Liver imprinting" (gene activation)
- Reduced BHBA

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Forage Fragility and its Impact on Dairy Nutrition- Mr. Kurt Cotanch

- Not all NDF is the same
  - Differences in fermentability, ability to stimulate cud chewing, and fragility
- Ball milling used to evaluate forage fragility
  - Fragility = change in pef value (pef = physical effective factor)
  - Is 3.35 mm (vs 1.18 mm) the more appropriate size for determining peNDF in cattle?

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Forage Fragility and its Impact on Dairy Nutrition- Mr. Kurt Cotanch

- Ruminating response could be either due to differences in fragility and/or NDFd; lignin doesn't seem to improve the explanation

<u>"Heifer hay" vs. straw for cud chewing?</u>

- Total rumination time higher for the straw diet (25 minutes/day)

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Forage Fragility and its Impact on Dairy Nutrition- Mr. Kurt Cotanch

- Diets need:
  - really high quality, fermentable NDF
  - some "junk" NDF to stimulate cud chewing
- Straw can "pull cows away from the edge" of subacute rumen acidosis

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A Rancher's Husband (Mr. Trent Loos)

- 76,000 farm families produce 80% of this country's food (approx. 2% of US pop.)
- US agriculture has not adequately explained what we do– we need to reduce the disconnect between producers and consumers
- We need to help the country's population 'understand weird'

  - **COMMUNICATION** is the key

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A Rancher's Husband (Mr. Trent Loos)

- We produce the most reasonably priced, safest, most abundant food supply the world has ever seen
- We use 35% of the water, 10% of the land mass, and generate 65% of the carbon to produce a gallon of milk versus what was needed in 1944 (thank you technology & efficiency)
- "Green space"- conservation and respectful utilization/harvest trumps preservation

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A Rancher's Husband (Mr. Trent Loos)

- Milk supply issues: oversupply or under-consumption??
- "The problem with our nation today isn't what they know. It's too much of what they know, isn't so." -R. Reagan
- We very rarely tell people what is good for them
  - It's really, really good for them if US agriculture succeeds…

GET THE MESSAGE OUT!!

www.FacesofAg.com

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Thank You! Please Travel Safely!