

Agri-Basics Welcomes Breneman as Calf Specialist

Help us welcome Angela Breneman as the new Agri-Basics calf specialist. She will support the Agri-Basics, Inc. team of independent dairy and beef nutritionists covering Pennsylvania and the greater Northeast.

"We look forward to Angela using her passion for growing productive calves, along with her technical training, to help not only the customers, but all producers, grow better calves more efficiently utilizing the Double 56™ calf feeds and program," says Dale Miller, coordinator of sales and marketing.

Breneman grew up in southeast Pennsylvania working with beef cattle and horses before taking a job milking cows on a local dairy farm during high school. She owns and shows registered Angus and Holsteins, is Beef Quality Assurance Certified, and has worked as a 4-H program assistant with the Chester County cooperative extension.

She earned her B.S. in Animal Science with a specialization in livestock science and management at Delaware Valley College.

When not working for Agri-Basics or part-time in a microbiology lab, she helps her husband Aaron take care of the calves at Franklin View Farms, their 650-cow dairy in Washington Boro, southern Lancaster County.

"I like consulting and being able to help people with the things I know and have experience with," says Breneman, who enjoys working with young cattle from birth to breeding age to help them reach their genetic potential.

"Angela is working with the nutritionists to improve not only early calf performance, but also earlier transitions to forage diets without

Angela Breneman will draw on her experience at the family's 650-cow operation when working with producers to grow calves more efficiently with Double 56™ calf feeds.



compromising growth," Miller adds. "While many tend to look at the cost and protein level of a bag of feed, the Double 56™ program is geared toward rumen development and reducing the overall cost of raising heifers, while exceeding growth expectations with smoother feeding program transitions. Angela will play a key role in maximizing these goals with dairy and beef producers."

Breneman will also put her on-farm and in-lab experience and education to work doing feed trials and database research with the line of Double 56™ calf feeds, while helping producers review their heifer raising operations as the pathway to profitable herd animals.

"Quality feed and quality cattle go hand-in-hand," Breneman notes. "The ingredients, consistency, lack of fines and refusals enable Double 56™ to live up to its name to double calf birthweight in the first 56 days of life by allowing calves to consume less feed while growing better on higher quality feed. At the end of the day, in both dairy and beef, the goal is to profitably produce animals and products we as farmers are proud of. That sums up why I'm excited by this position with Agri-Basics, Inc."

Angela can be reached by email at abcalfspecialist@gmail.com and by mobile phone at 717-810-6826 or at the Agri-Basics' main office 800-361-9265. Learn more at agribasics.com.

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Essential Amino Acids for Yield and Efficiency by Peter Yoder, MS - Perdue AgSolutions LLC

Advances in research, technology, and ability to analyze feeds and cow biology continue to drive evolution in dairy nutrition, particularly protein nutrition. High demand for milk protein, interest in improving protein efficiency and reducing environmental impact, and improving cow performance and health are driving interest in protein nutrition. Over time, the industry has moved from dietary CP to the metabolizable protein system (NRC, 2001).

The metabolizable protein system was a revolutionary advancement that moved us beyond CP to microbial protein and dietary "bypass" protein evaluation and this advancement greatly improved predictability of models, protein efficiency, and cow performance. Now, with growing knowledge, research, and field experience, the industry is evaluating individual essential amino acids. This advancement to evaluating individual essential amino acid supply will further increase predictability, protein efficiency, and cow performance.

Cows need digestible essential amino acids, not simply crude protein. The optimal source of amino acids is microbial protein, however, in high producing dairy cows, supplemental "bypass" protein is needed to meet the cows need for amino acids. An effective amino acid supplement should be consistent, highly digestible, and contain an ideal amino acid profile. Research indicates that lysine and methionine are the most limiting individual amino acids in the Northeast, due to the feeds commonly fed (corn and alfalfa based diets). A new product that possesses high digestibility, consistency, and is concentrated in methionine and lysine is now available. Using a high quality and consistent blood meal (lysine source) is critical for obtaining a positive response.

The blood source's digestibility, consistency, and cow performance responses have been well documented (Noftsker and St-Pierre, 2003).

Dairy producers are compensated by not only volume, but also pounds of fat, protein, and other solids. Over the last 10 years, milk protein has tended to have increasing economic value in extra dollars. Genetics and making sure cows get the amino acids they need in a form they can utilize can result in a sizable payback/return in the component part of the milk check. "Dairymen often overlook the economic impact of revenue corrected milk," says Russ Kline, Agri-Basics, Inc. nutritionist based in McVeytown. Often the mailbox price is what is noticed and typically the combined price for solids is overlooked, he continues.

In early October, the current value of fat was \$3.2467 per pound and protein was at \$3.4991 per pound. "This would equate to a change of .01 point of milk fat being worth \$.211 and 0.1 point of protein being worth \$0.227," Russ says. These numbers fluctuate with the market however, would be extra dollars over base price.

Improving the supply of limiting essential AA in a well-balanced dairy diet in most cases will yield positive investment returns in terms of increased yield of milk protein and/or fat if other factors such as cow comfort, forage quality, etc. are also in place. Increased milk production has also been documented (Schwab et al., 2014). Benefits of improved liver health, reduced early embryonic death, and antioxidant effects from supplemental methionine have also shown promise; however, the research has yet to be fully documented.

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Circle December 11 For Annual Meeting

Hear the latest on dairy nutrition and calf feeding at the Agri-Basics annual Dairy Producer Meeting. Agri-Basics invites everyone in its family of customers to our all-day seminar starting at 9 a.m. on December 11 at Yoder's Restaurant in New Holland, PA.

This year's speakers include Dr. Robert B. Corbett, D.V.M., PAS, who will talk about "Nutrition's Impact on Immunity" and outline "Strategies for Intensive Heifer Raising". Joining him will be Rob Costello, tech service specialist for Milk Specialties, who will outline "Seasonal Adjustments to Calf Feeding" and take a look at "Alternative Proteins for Calves".

Dr. Corbett's major areas of interest are dairy replacement heifer programs, with emphasis on management and nutrition to maximize the normal genetic potential for growth, health and production of dairy heifers; and transition management and nutrition. He is currently consulting in North America, Mexico, Central, South America, Australia and China in various types of environments, including pasture-based dairy operations as well as total confinement systems.

Rob has spent his lifetime in the calf consulting business, and is the founder and author of "Calf Sessions". <http://calfsessions.blogspot.com/>

Contact your Agri-Basics nutritionist right away for your invitation to the event.



Resistant Rootworm Found on Dairies

Corn rootworm with resistance to Bt corn hybrids has been found in Cumberland and Mifflin counties in Pennsylvania and near Ithaca, NY. This means dairies with fields in continuous corn need to look closely at which hybrids they order this winter.

There basically are four Bt toxin strains. If you have used hybrids with the Cry3Bb1 or mCry3A toxins, Penn State Entomologist John Tooker recommends you rotate to the Cry34/35. Cross-resistance has been found between to Cry3Bb1 and mCry3A toxins.

You may have noticed fields this fall with lodged or goose-necking plants. When Tooker did root ratings in Mifflin County, he found rootworms removed 2-2.5 nodes of roots (on a 3-point scale) from many plants. "At this point it is 'suspected resistance'," Tooker emphasizes. However, all indicators point to an emerging situation similar to what has been observed in much of the

Midwest where resistance to Bt is widely documented.

"The best cure for corn rootworm," Tooker notes, is rotating out of corn to alfalfa or beans. However, management plans at many dairies require continuous corn. Chemicals help but their potency declines between planting and rootworm emergence (usually June...the same time lightening bugs start to fly)."

The Mifflin County fields were planted in three corn varieties: two that expressed the YieldGard rootworm trait (Cry3Bb1 toxin) and one expressing one of the Agrisure rootworm traits (mCry3A toxin). Tooker did gene checks on the plants to confirm they were producing the appropriate rootworm-targeting toxins. They were.

"Importantly, all these features are identical to those of fields in the Midwest where resistance to Bt by rootworm populations

has been confirmed by university entomologists," Tooker says.

He recommends moving to a pyramid or "stacked" hybrid that offers two Bts. There are four Bt toxin strains: Cry3Bb1, Cry34/35, mCry3A, and eCry3.1Ab. If you have used hybrids with the Cry3Bb1 or mCry3A toxins, rotate to Cry34/35. Cross-resistance has been found between Cry3Bb1 and mCry3A toxins, so rootworms resistant to one are resistant to the other. By using a Cry34/35 hybrid, no matter which of the susceptible lines you have been using, you know you have a new Bt toxin and that should work.

"In the northeastern U.S., the only reason to manage for corn rootworm is if you are growing continuous corn," Tooker says. Talk to your hybrid vendor. Otherwise, you can look forward to fields of stunted, goose-necked corn next Fall.

Balancing Amino Acids

Too little – or too much – of a good thing is never good. Amino acids are a case in point. Having all of the requisite amino acids present in a cow's diet is important...but equally important is having a good balance of amino acids available for metabolism, immunity and milk protein synthesis.

"Balancing amino acids is not a new concept. But there are new technologies emerging for balancing amino acids better," says James Drackley, professor of animal sciences at the University of Illinois-Urbana.

Balancing amino acids is vital in all cow diets but may show additional positive effects in transition cows. Methionine is one such limiting and essential amino acid that participates in methylating reactions. It is important for gluconeogenesis, the cow's immune function, and her milk protein synthesis. Methionine is also instrumental in the formation of the non-essential amino acid cysteine...necessary for milk protein synthesis and for immune system antioxidants.

When methionine is lacking, cysteine becomes partially essential, and the animal begins to suffer from oxidative stress, inflammation and immunosuppression.

Drackley says producers should focus on bringing their lysine and methionine into better balance. "These are the most important amino acids for better use of metaboliz-

able protein," he says.

Drackley's collaborative studies with Juan Llor, associate professor of animal sciences at Illinois, focus on mechanisms of metabolic adaptation from gestation to lactation in dairy cows. Typically, a producer should shoot for about a 3:1 ratio, or slightly less, of lysine to methionine. Illinois researchers found that most dairy diets across the North and Midwest tend to show lysine is higher in that ratio. "That's why it is beneficial to add supplemental methionine," he explains.

"We are pretty excited about the potential for this for better transitions," he continues. Treatments in their project started 21 days before freshening and continued through 30 days in milk. In the Illinois study, Smart-amine or MetaSmart were examined. They looked at a pre-fresh group and fresh cows.

The pre-calving study animals got roughly 5 grams of supplemental methionine and 10-15 grams in the fresh group.

"We saw an increase in milk production and in milk protein and improvements in markers of metabolism and body reserves," Drackley says.

Amino acid requirements are calculated on the metabolic needs for milk production, reproduction, skin health, fecal/urinary metabolism, growth, and reserves. On a cellular

level, nutrition models must account for the amino acid requirements for the immune system, synthesis of non-essential amino acids, formation of metabolic pathway components, gluconeogenesis, and milk synthesis.

Cows in transition are at highest risk for many diseases due to the steep acceleration of milk yield, peak increases in blood NEFA, decreases in intake, and subsequently, a negative energy balance. During accelerated increases in milk production, the udder relies heavily on methionine for the production of milk proteins, while the liver and immune systems require increased amounts of methionine to keep up with metabolic demands.

Supplementing and balancing the transition cow diet with methionine can alleviate methionine deficiency during transition. Supplemental methionine in a transition cow's diet enhances liver metabolism of dietary energy sources, causing stimulated secretion of very low density lipoproteins. VLDLs are as an efficient source of energy to the cow while the incidence of fatty liver and blood NEFA decreases. A decrease in NEFA usually increases dry matter intake, creating a positive cycle during the stressful time of transition.

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Your Winter Calf Checklist *by Angela Breneman*

Leaves changing color and the brisk reminder of forgetting to grab a jacket before you walk out to the barn are reminders that winter is just around the corner. While we make adjustments for the colder weather in our homes, remember to make cold weather preparations for our calves. Keeping newborn calves healthy during colder months doesn't have to be stressful if you follow a few helpful tips and reminders.

First, consider how the colder weather will affect the calves. Generally, they are comfortable between 50-75F degrees. In this range, calves experience no sort of stress and require no extra energy to meet their requirements. For those of us who live in Pennsylvania, keeping a calf in that range will be near impossible in the middle of January. Thus, as the weather dips below 50 degrees and calves start requiring more, we need to provide an energy-packed diet in order for them to build energy reserves and continue to grow. Calves that are not fed enough to meet their energy needs may fall short on weight gain and structural growth and be more susceptible to disease. To avoid this, encourage calves to consume enough milk or milk replacer and high-quality starter feed to meet their needs. Calf starter makes up 75% of their energy and protein in the first 12 weeks of life so the sooner calves start eating grain, the faster they will utilize the benefits of generating heat with the energy provided.

One way of encouragement is to make sure the milk is warmed to 105 degrees at every feeding. When the milk is not warmed correctly, the calf expends valuable energy trying to bring the milk to body temperature after ingestion. Another way to increase

starter intake is to start small feedings at an early age. Offer handfuls of fresh, high quality grain within the first two-to-three days after birth. Be cautious not to offer too much, or you can end up wasting feed. Water consumption is also vital in improving feed intakes. Calf starter intake and water intake go hand in hand. While water helps establish rumen bacteria and absorbs nutrients, grain kick-starts the papillae development on the rumen walls. This allows more nutrient absorption and causes generation of heat which is used to keep the calf warm. Try warming the water slightly so that it is lukewarm and removing all slush or ice throughout the day to encourage drinking.

Try to remember that "less is more." Do not push too much milk or feed on them all at once. Access to clean, fresh starter daily will be able to help provide the calf with more of its nutrient needs than milk or milk replacer can alone. Before adding an extra feeding of milk or adding an add pack, try encouraging more starter consumption.

Keep the thermo-neutral zone of the calf in mind Here, housing plays an important role in maintaining that temperature range and energy requirements. It is crucial to house calves in an area that is free from drafts and moisture. This will not only help them maintain warmth but will also prevent respiratory disease such as pneumonia. Making sure a calf is completely dry before leaving the barn could be crucial to its future health. Maintaining clean, dry bedding is another way to prevent cold weather stress. A healthy calf can handle colder temperature as long as clean and dry bedding is provided and they are protected from the wind. A deep bedding of straw or similar material

where calves can nestle down is perfect for preserving body heat.

How much bedding to provide? A rule of thumb is if calves' legs are completely hidden when she is lying down, you have provided enough. If the weather gets really cold, a calf jacket can come in handy. This is particularly helpful on newborn calves when the temperature is below 60 degrees. Make sure the blanket fits snugly and monitor the jacket for cleanliness. If it becomes dirty or soiled it can cause more harm than good by exposing the calf to pathogens or moisture.

Ventilation is essential when rearing young calves, especially in winter. Whether you have hutches, greenhouses, barns or group housing, proper ventilation must be maintained. While we want to keep calves away from drafts, it is still important to maintain air movement. Air flow removes moisture and ammonia build-up which cause respiratory problems. It also prevents contamination of air borne pathogens from sick calves to healthy calves by moving the air from the inside out. Fresh air year round is critical to keeping calves healthy.

In essence, the goals with raising calves should be the same year round-growing healthy vigorous calves. There are certain times where protocols and management procedures just need some tweaking to add that extra energy calves need during the colder months. Along with these tools and early response to disease, your calves will overcome cold stress and develop into strong, healthy heifers that will impact your future productivity and profitability.

Balancing Amino Acids *cont. from bottom of page 2*

"The overall effect of met supplementation to periparturient cows is encouraging but more conclusive evidence would require increased sample size," the Illinois research said. "Bottom line message is that producers should talk and work with their nutritionist in this area. The information we are gathering shows a wide range of positive effects."

Essential Amino Acids for Yield and Efficiency *cont. from page 1*

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