PRIORITY REPORT
For Healthy Cows®
Volume 43

Nutrition Principles of Microbiology Nutrition

The understanding of rumen function and its relationship with microbiology allows for an advanced view of animal nutrition. Priority IAC recognizes that microbiology is the foundation in functional nutrition, rumen fermentation, forage fermentation, manure storage breakdown, soil production, and human gut function. Microbiology, as small and microscopic as it is, is the basis of life and pH is the key to that life. Life revolves around this and its environment responds in a good or bad way. As all evolves, the environment the microorganisms live in also evolves for good or bad depending on how the environment has changed. This is true for all around us and especially true for dairy cattle.

Much has changed: Forages are now made at bud or early blossom, much different than as promoted 30 years ago. Silage is now processed, harvested at much earlier maturity, chopped shorter, and with higher moistures than years back. Corn grain has certainly shifted from course ground to now finer, even pulverized, powder. All shifting the environment and the performance outcome of the microorganisms. Interesting how these changes correlate with a 'new normal' where the presence of impactions, VMS, breeding issues, hoof blocks, and reproduction issues are all acceptable while effective fiber, scratch factor, and the use of straw are applied as approaches to nutrition.

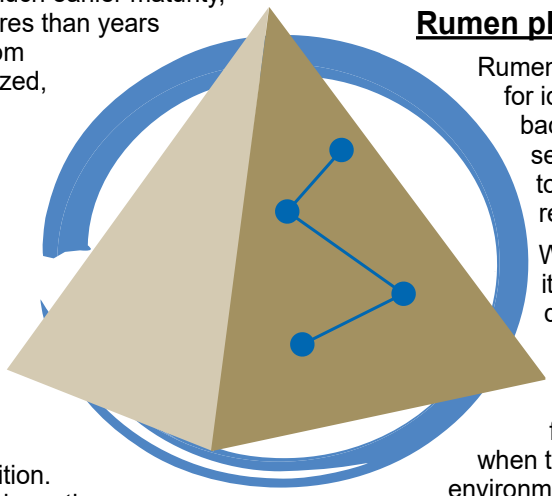
Priority offers a unique approach and perspective to animal nutrition and animal health through Microbiology Nutrition. Using microbiology nutrition as a way to keep the rumen pH and microbiome consistent is a cornerstone. Priority has found the best nutrition to support the Priority identified bacteria strains for their optimum bacteria growth in the rumen, or gut of the cow. Without the volleying of the microbiome, digestive shifts, or upsets from the slightest nutritional or environment change; the cow can continue to eat and perform minimizing the risk of metabolic, reproductive, and performance issues. And, by adding these strains the microbiomes are more united, allowing the cows to eat the nutrition presented.

The cows are speaking, their health challenges are not normal, and this 'new' normal is not acceptable. As things evolve, the ability to evolve is available if one is listening. The cows demonstrate exactly what is working for them, are we listening?

Priority IAC is proud to share Microbiology Nutrition, an approach in response to what the cows demonstrate. The first to provide simple nutrition through microbiology, Priority's mission is to serve, with a positive impact herd by herd. Priority is bringing this farm-developed concept and technology directly to producers.

the P-One Program™ provides **Smart***bacteria* to stabilize and maintain pH by optimizing energy transport through efficient carbohydrate metabolism. All this is done through microbiology, stable pH, and an optimum level and balance of carbon and nitrogen.

Here are some of the alternative views that have become pillar principles to Priority's work and the firsthand experience producers' have at their on-farm learning institution.



Rumen pH

Rumen pH has a tight window of 5.8 to 6.6 for ideal rumen function and optimum bacteria growth. On the pH scale, a seemingly small movement of 0.1 from 6 to 5.9 is actually a 1-fold change, which represents 100% increase in acidity.

When the pH is off track, the cow shows it. Subacute rumen acidosis and/or digestive inefficiencies to inconsistent and variable manure (VMS), are all ways the cow indicates a problem. This is due to incorrect pH, the fermentation cannot be maintained when the pH drops too low and the environment becomes too acidic.

Not only is subacute rumen acidosis inconsistent fermentation, but the acidic environment damages the rumen by killing off the bacteria, burning papillae, even leading to scarring and lack of nutrient absorption. The role of the P-One Program™ and its **Smart***bacteria* is to metabolize and transport energy efficiently, maintaining rumen pH in the proper range.

Fermentable Fiber & Quality Forages

Efficiently converting carbohydrates to VFAs is the key to milk production and animal health.

Fermentable fiber is a carbohydrate, so is corn. Rapidly degradable and very available, fermentable fiber sources are readily available with early maturity forages; therefore, rations need to be able to adapt. Fermentable fiber is a component of good quality forages.

~ more on page 2

~ from page 1

Forage quality has dramatically increased the past 20 years and post-fresh metabolic issues have followed. Data taken from the World Forage Analysis Superbowl over the last 23 years shows ADF levels have dropped 55% and milk pounds per ton have increased by 109% in alfalfa hay. Quality increases have also been seen in corn silage with a respective 20% drop in ADF and 54% increase in milk pounds per ton over the past 20 years.

"Our feed is getting more digestible all the time. It's really easy to mess up the rumen with them, but we can keep them eating without those problems with P-One™," shares Eric Vander Kooy, Harmony Dairy, Washington.

"Make it wet. It's so much more fermentable when you have that kind of moisture," recommends Jay Hein, Nor-J Farms, Ohio.

With more moisture, the body doesn't need to add the water back into the feed in the rumen. This also means less work the cow has to do to process the feeds to utilize them.

"Now we can use the thought process of 'the wetter, the better.' With the **Smart***bacteria* working through the fermentation process, we can take advantage of the wetter feed, versus letting it upset the gut like it did before the P-One Program™. It really does help," shares Nevin L'Amoreaux, Paradise Valley Farms, Ohio.

"All the things made sense to me as far as needing the fiber [in the ration] to be digestible. The more moisture in it, the more digestible it's going to be," says Doug Harre, Wilra Farms, Illinois.

These significant increases have substantially elevated the amount of fermentable fiber per pound and the rate of fermentation. This is referred to as increasing energy density per pound.

Energy Density

Driving intakes is expensive.
Feeding a ration with refusals is expensive.
Feeding ingredients that take space without purpose is expensive.

Why feed 65lbs dry matter intake (DMI) when you can get the same milk on 55lbs of DMI?

A Priority Ration is about efficiency, allowing the **Smart***bacteria* to do the work as they stabilize and maintain pH.

"With the proper feed in there, things go a lot better. We're confident in the P-One Program™ so we can feed a lot denser diet – They're eating less and are more efficient so they can produce more milk on less inputs," notes Eric Breunig, KJRT Dairy, Wisconsin. "Our feed efficiency is much better on the P-One Program™ than the other nutrition approaches we tried."

Feed is too expensive to waste. When feeding to an empty bunk, one is ensured that the cows eat the diet. Cows need to overeat the diet to ensure every cow is getting their needs met. Since fresh cows cannot eat as much, an energy dense diet gets them closer to meeting their needs sooner after calving. This allows for them to overcome a negative energy balance at calving and transition into the herd more smoothly.

"We have them on the P-One™ diet, starting them a couple of weeks before they freshen, and it has almost eliminated any off feed issues in our fresh cows. We rarely have a DA," shares Eric Vander Kooy, Harmony Dairy, Washington. "I really believe keeping them eating with the P-One Program™ helps prevent ketosis and those kind of issues in fresh cows. Treating is labor intense. You don't make any money treating cows, it's just damage control."

Low MUNs – Less Protein Fed

With correct rumen fermentation, the cow can produce most of the protein she needs through the production of microbial protein from bacteria. Excess protein in the ration can be measured by MUNs and additional protein is expensive.

"We were already feeding that type of ration, so we didn't have a lot of ration changes to make to reap the benefits. Since we've been on the P-One Program™ we've actually been able to lower the protein more," shares Doug Harre, Wilra Farms, Illinois. "Right now our MUNs are at 8.5%, but I'm not feeding any bean meal or other protein. I'm able to work with what I have."

MUNs measure the amount of nitrogen the cow is excreting as waste that wasn't needed to make milk or fulfill other body needs or maintenance. This waste takes energy from the cow as she needs to rid it from her body.

"It used to frustrate me so badly, when the nutritionist would come around and tell me that MUNs cannot be that low because you'll lose pregnancies, you'll lose milk. They'd recommend levels of 12, 15, even 18. I've even had a vet say an 18 MUN is healthy. But they are wrong. It's money wasted," confirms Jay Hein, Nor-J Farm, Ohio.

"The MUNs are 5-8, never over 8. I just don't like them being over that knowing that's an expense we don't need," says Jake Hein, Nor-J Farm, Ohio.

No Straw in Ration

While straw is a source of fiber, it's like feeding wood and is something the cow cannot breakdown. Feeding straw fills the rumen with indigestible material, something the cow cannot use. In dry and close-up diets, straw may take days and even weeks to pass through post calving, with no nutrient value to the cow, taking up space for energy badly needed post calving. Because straw takes up valuable space from usable nutrients it increases the fresh cow's risk of ketosis, having little or poor colostrum, slow to come into milk with rapid loss of body condition.

~ more on page 4

By Richard V. Breunig,
President and Founder

President's *Perspective*

Autonomy - Authenticity - Assurance

With more than 20 years in business, we remain a farm-developed and family-owned company. True to our roots, Priority IAC is a different way. Priority IAC has revealed **Smart***bacteria* with specific roles (genomics) in the body that benefit digestion and streamline nutrition.

And here at Priority, we are taking this unique viewpoint, invention, and knowledge directly to the field. Priority has taken a bottom up approach to getting the message out. With a grassroots reach, Priority is in the field to embrace and encourage producers to trust their cows as the truth. Just as I trusted the cows of Clover Mist when I started down this path with Microbiology Nutrition more than 30 years ago.

We understand that all bacteria are not the same, that the strain truly matters. The unique individual that is the needle in the haystack. Found from the masses as there are numerous species of bacteria, with scientific estimates at more than a trillion. There are trillions of strains (or subspecies/subtypes) of each of the different species that form the estimated population on the Earth at five million trillion, trillion bacteria, or scientifically stated as 5×10^{30} bacteria.

By searching for the best of these unique individuals and identifying the strains that have a specific function that benefit health, Priority has identified the quality workers that have unique and effective functions. All of these **Smart***bacteria* are found in digestive tracts and are naturally occurring organisms that originate from the Earth. But once we found the unique individuals we honed in to learn as much as we could about them. Understanding their mode of action and intelligence in the body to even being able to fine-tune nutrition to help these **Smart***bacteria* grow and thrive. Thus, each product is listed with genus species and strain number. The strain number is the one in a trillion trillion.

Because of the importance of these strains, Priority launched the Bacteria Quality System to ensure that all Priority IAC products deliver the promised strains, strain ratios, and counts as the standard in every package. These quality checks are just a touch of the care and commitment that has gone into the development and creation of Priority IAC products.

To preserve the authenticity, viability, and stability of Priority products, all products are now manufactured under the precision and guidance of Priority IAC at our headquarters in Manitowoc, Wisconsin. It is a natural undertaking as Priority's commitment to these unique strains and the production of quality products provides a dynamic environment. This has been a natural learning progression as Priority is committed to the vast growing customer awareness in Microbiology Nutrition. Producer meetings and the last 20 years of Priority Reports has been a way to empower producers with information on simple nutrition principles that can be applied and tested at the very grassroots level - The firsthand experience from producer's on-farm learning institution.

Priority IAC products provide unique, branded strains of **Smart***bacteria*.

Your 1st Ingredient™ *For Healthy Cows*®.
– truly remarkable products!

PRIORITY IAC™
the **Smart***bacteria* & Nutrition Company™

PRIORITY IAC™ 3504 County Road CR
Manitowoc, WI 54220

~ from page 2

Anything that is not digested is simply a pass-through.

"It all goes back to my meeting with Richard, when he explained the straw diet being nothing but a roadblock. After we changed the dry cow diet, it's like the gates opened. We've been taught the wrong way forever, there is a better way! This is the better way and we're going to do it," reflects Jake Hein, Nor-J Farms, Ohio. "When we switched from a straw diet to the Priority ration, there was 23 different ingredients just in the old mineral mix. Today the Priority diet is six mineral ingredients with corn silage and hay. It's amazing how simple it is."

Moreover, the misconception of needing particle length and length of cut is irrelevant as there is nothing it scratches. By processing feed and making more surface area, more is utilized because the bacteria can actually break them down.

Consistent Microbiome

Microbiology to manage variability, the P-One Program™ delivers **Smart***bacteria*. A4000h™ and A2020™ are branded strains to metabolize and transport carbohydrates efficiently and bring commonality to each rumen in the herd. Cows' microbiomes are so uniquely different, but the daily feeding of the **Smart***bacteria* in Priority rations brings them similar. With that consistency, the cows respond similarly and can be expected to perform similarly.

"Since having Priority do our rations my feed bill went down and the cows responded very well to the diet change – We're actually getting cows to show heats," Charlie Sachs, Towerview Dairy, Minnesota.

By shifting the bacterial profile of the rumen to a consistent one from cow to cow, and equipping the rumen fermentation with **Smart***bacteria*, the P-One Program™ is positioned as the first ingredient.

"In order to maximize the rumen, you have to feed the rumen bugs," states Eric Breunig, KJRT Dairy, Wisconsin.

Opportunities Available
Call for details.

888-444-2030
info@forhealthycows.com

MEETING EVENTS...

Meetings to bring producers together to Think Differently, using innovative Microbiology Nutrition

To find a meeting in your area, Contact Priority IAC office at 1-888-444-2030, visit our Facebook page at Priority IAC, or contact your Authorized Reseller.