PREP 305 Beyond the Accepted™ byTechMix

Microbiome:

Facilitates a rapid change in microbial populations necessary for adapting to a lactation diet.

Defining the microbiome

The microbiome is the community of microorganisms that inhabit an animal, with important effects on animal health. Variability is influenced by environmental, dietary and host-associated factors including genetics, birth, housing, diet, management, diseases, antibiotic use and more.

Managing the microbiome

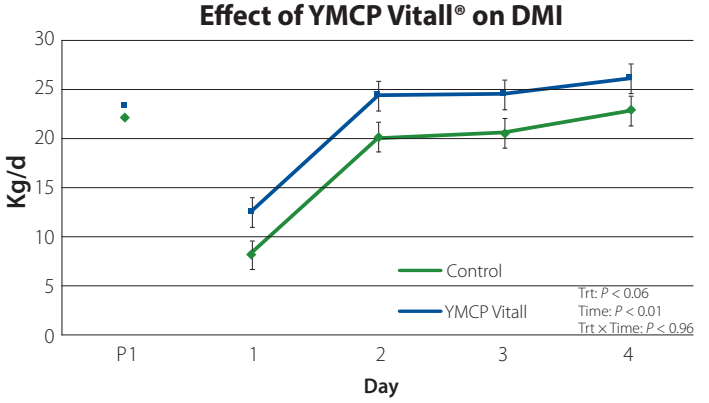
The rumen microbiome has the most influence on the health and production of the cow. Dietary changes such as switching from feeding a high forage to a high starch diet, has significant implications:

- Organisms that are required to break down fiber differ from those that break down starch
- This change often causes a period of subacute ruminal acidosis and inefficient or incomplete digestion of nutrients
- Causes a significant decrease in feed intake while the microbiome adjusts

Key ingredients in YMCP are beneficial

Probiotics and prebiotics are effective products for positively affecting change in the rumen microbiome. Two such ingredients included in our YMCP® product line work to:

- Stimulate lactate utilizing bacteria *Selenomonas ruminantium* and *Megasphaera elsdeni*i, reducing lactate in the rumen, increasing pH
- Reduce lactate producing bacteria such as *Streptococcus bovis*
- Increase ruminal pH (*M. elsdenii* ferments lactate to propionate via the acrylate pathway, increasing energy sources for the cow)
- Improve fiber digestion due to changes in bacterial populations and rumen environment facilitating increased enzymatic activity.
- Support an anaerobic environment that is optimal for a robust microbiome



16 percentage point increase over Control

*Al-Qaisi, M., et al., Res. Vet. Sci., 129 (2020): 74-81

Preparing the fresh cow for lactation

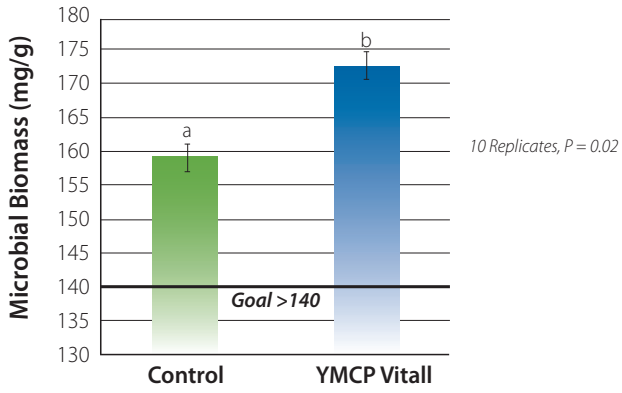
The YMCP family of products encourage feed intake by helping the microbiome adapt to the new ration following dry matter intake (DMI) depression. Cows that are able to maintain and even increase their DMI are shown to have a more diverse and healthier rumen environment.

Dietary changes to higher starch diets can result in rumen acidosis and can depress dry matter intake. Maintaining rumen pH above 5.6 is key to supporting rumination time and beneficial microbial output*.

*Guedes, C.M., et al., 2008. Anim. Feed Sci. Technol. 145 (2008):27–40.
*Thrune, M., et al., Livestock Science 124 (2009):261–265.

Microbiome

YMCP Vitall Effect on Microbial Biomass Production



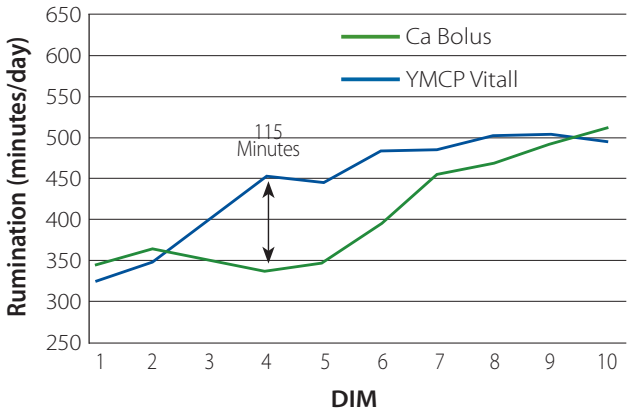
10 Replicates, P = 0.02

9% biomass increase over Control

YMCP Vitall enhanced production of microbial biomass in an in-vitro rumen

- Contributes to total microbial protein production*
- Higher microbial biomass production is the gold standard parameter associated with higher milk production

Effect of YMCP Vitall on Average Daily Rumination (2nd lactation)

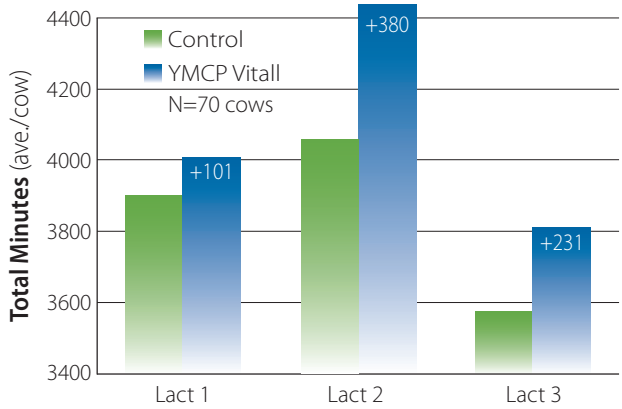


Cows that eat more, ruminate more.

Improved microbiome increases rumination time

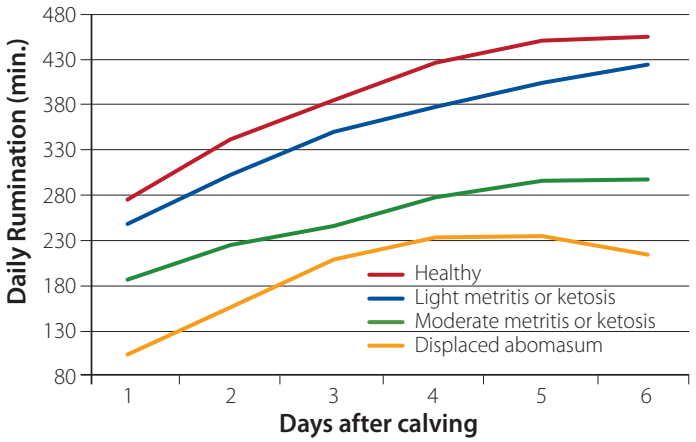
Daily rumination time is an industry accepted indicator for dry matter intake. Data shows the YMCP family of products have a positive and sustained impact on daily rumination time for all lactations.

Effect of YMCP Vitall on Average Total Rumination Time (First 10 DIM)



Lact 1 Control = No bolus
Lac 2 & 3 Control = Calcium Bolus

Daily rumination time of healthy and (later diagnosed) diseased cows in the first week after calving



Source: Bar, D. Daily rumination time and calving diseases. In Proceedings. 26th World Buiatrics Congress, Santiago, Chile. Page 153. 2010.

Microbiome health drives performance

The microbiome in the rumen is a key driver of dairy cow health and performance. The YMCP family of products promote overall enteric health and have accentuated benefits on the rumen microbiome.