

## Adisseo Bringing New Innovations to European Ruminant Market

APRIL 2021

**Formulating nutritionally adequate diets using the materials at hand, whether grass or grain, has always been the challenge at the heart of dairy farming. But of course, these days, “adequate” is no longer sufficient. Today’s rations must be optimised to do more than just meet minimal requirements. Feed must enable the cow to produce more milk (sometimes with a higher fat and protein content), must boost health and reproductive outcomes, must help the farmer make ends meet in an environment of high protein prices, and must support the farm’s sustainability goals.**

Keeping up with the accelerating demands placed on the sector requires well-resourced research. As one of the world’s leaders in the production and application of methionine, Adisseo has been expanding its amino acid line for ruminants; in addition to rumen-protected methionine, Smartamine® M and MetaSmart®, it is introducing RumenSmart®, a product aimed at combatting milk fat depression. Moreover, Adisseo has been dedicated to improving the range of solutions available to help dairy farmers meet these challenges—not only in dairy cattle, but also in minor dairy species such as goats. Today, Dr. Christophe Paulus, Adisseo EMEA Ruminant Business Director, and Robert Bennett, Ruminant Category Manager for Adisseo EMEA, help unpack how methionine and other products within the Adisseo portfolio can be applied within the world of ruminants large and small as Adisseo continues to introduce innovations.

**[Feedinfo] What are the conditions under which RumenSmart is most helpful for dairy producers?**

[Robert Bennett] RumenSmart is a unique product for use in increasing milk fat content by mitigating diet-induced milk fat



**Robert Bennett**  
Ruminant Category Manager, EMEA  
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depression. It will be most effective with diets containing high levels of starch or sugar, low levels of fibre and high levels of unsaturated fatty acids. These conditions typically occur in spring and summer pasture diets, but also in intensive winter diets. The greatest responses have been observed in high-producing cows, in the first half of lactation.

Published results from Pennsylvania State University show increases of up to +0.7% milk fat content under severe milk fat depression conditions. Recent field trials in France and Spain show more typical responses of +0.1 to +0.2% milk fat.

**[Feedinfo] RumenSmart is a concentrated source of HMTBa—the hydroxy analog of methionine. How does it impact milk fat production or influence the rumen microflora?**

**[Robert Bennett]** The main mode of action of RumenSmart is by decreasing rumen production of a specific fatty acid which is an inhibitor of milk fat synthesis in the cow's udder. RumenSmart is a nutrient for the rumen microbes which alter their fermentation when fed the right dose. They then produce less trans-10, cis-12 conjugated linoleic acid (CLA), the inhibitor mentioned above. One recent trial showed a 70% decrease in trans-10 C18:1 in milk with HMTBa, which is a major intermediate formed during altered rumen fermentation and very typical of milk fat depression.

**[Feedinfo] RumenSmart was first commercialized in 2018, if I'm not mistaken. Since that time, where has the product seen the most success? What are your objectives for it in Europe over the next few years?**

**[Dr. Christophe Paulus]** RumenSmart is 'Feed for Fat' as we say. It is a very successful product in the USA, and we expect to see a good development in Europe as the need for butter and cream is increasing with an acceleration due to the pandemic. We are offering an economic solution to maintain performances when animals start grazing, during the hot season, and in all instances when there is a risk of

milk fat depression. The feedback of the dairy farmers who tested the product is very positive with an increase of milk fat by 0.1% to 0.3% and an interesting return on investment. With our customers, we expect a strong development in Europe.



**Dr. Christophe Paulus**  
Ruminant Sales Director, EMEA  
Adisseo

**[Feedinfo] Can you help us situate RumenSmart in your portfolio? How does it differ from products such as Smartamine M or MetaSmart?**

**[Dr. Christophe Paulus]** The products are very different in function. Smartamine M and MetaSmart are providing additional methionine to the dairy cow. RumenSmart is only acting in the rumen. Smartamine M is the most effective source of rumen bypass methionine available on the market. MetaSmart is an ester of the methionine hydroxy analogue. Half of what is eaten by the cow will be absorbed in the rumen and then converted into methionine in the cow.

The other 50% is converted to HMTBa and remains in the rumen. RumenSmart is a pure source of HMTBa. This product is not providing additional methionine to the dairy cows. Instead, it acts in the rumen and modifies the fermentation pathways which lead to improved fat synthesis in the udder.

**[Feedinfo] In what ways is Adisseo also innovating to provide practical solutions to market segments which don't perhaps receive as much attention (for example, dairy goat nutrition)? Why is this important to the company?**

**[Dr. Christophe Paulus]** After years of research in small ruminants, Adisseo is now in a position to make realistic and practical recommendations on dairy goat nutrition for a very positive economic return for the whole chain. I would like to thank Dr. Lahlou Bahloul, Solutions Expert, Adisseo Centre of Expertise and Research in Nutrition (CERN), for his extensive research work together with renown experts. He contributed to a better understanding of the requirements in metabolizable methionine of dairy goats. I want as well to mention my colleague, Mr. Reynald Baes, Ruminant Technical Advisor-France, who developed the practical recommendations for the optimum economic nutrition of dairy goats. We are now implementing these with our customers across Europe to enable dairy goat farmers to benefit from this new technology.

**[Feedinfo] Has the recent increase in protein prices caused an uptick in interest in supplemental amino acids in ruminants? How has demand for these products evolved in recent times? And what kind of services can Adisseo's technical teams offer in these situations?**

**[Robert Bennett]** Balancing rations for amino acids allows nutritionists and dairy farmers to reduce the amount of protein

needed in their diets. This is particularly important when protein sources are expensive. We are seeing decreases of up to 50€/ton of feed when balancing with MetaSmart, for example, which of course has caught the interest of feed companies.

This is possible because cows use protein more efficiently when they are fed the right profile and quantities of the most limiting amino acids, primarily methionine. (Amino acids are the building blocks of protein. If certain amino acids are missing, the cow cannot use or produce all the protein she needs to.) This allows an increase in milk production performance with the same amount of protein or to produce at the same level of performance while using less protein.

Adisseo's technical team is fully trained in balancing rations for amino acids. The team typically uses "Ruminix V2 by Adisseo" to calculate rations, make suggestions for improvements and assist customers in implementing amino acid balancing in their own formulation and rationing programs.

**[Feedinfo] What happens to that additional demand after the protein price returns to a lower level? Do producers tend to return to their previous formulations, or are they convinced by other arguments—perhaps environmental or performance-based—to continue using amino acids in their ruminant feeds?**

**[Robert Bennett]** Methionine is beneficial to dairy cows in many areas beyond milk production, typically health and reproduction. This particular amino acid is necessary for many of the body's proteins, ranging from lipoproteins for fat transportation to renewal of tissues such as muscles and skin, and all the way to messenger RNA which triggers many metabolic reactions.

In terms of health, research has shown, for example, decreases in ketosis and steatosis in early lactation (less fatty liver syndrome), as well as drops in somatic cell counts of around 50 000 cells/ml indicating better immune function.

Regarding reproduction, we have seen greater embryo sizes associated with lower embryo losses, for example dropping from 19% to 6% in a recent university trial. This also leads to lower culling rates due to reproduction, allowing for greater longevity of the cows.

**[Feedinfo] As a major player in methionine on a worldwide level, how does demand for methionine in European ruminants compare to that in other parts of the world? And how important is the ruminant market to the company's overall strategy?**

**[Dr. Christophe Paulus]** Adisseo is proud to be an important player in the ruminant market. In Europe, Africa, and the Middle East, we completed the recruitment of 25 people and now have a team of highly qualified PhDs, nutritionists, veterinarians, and salespeople with extensive experience in the ruminant market. We are able to provide the necessary professional support needed by our European customers. We believe that the science on how to balance amino acids in dairy cows and other ruminants should be practically implemented in Europe for the benefit of dairy health, reproduction, and performance and for the sustainability of milk production. The market is still underdeveloped in Europe, especially when looking at the sales development of Smartamine® M and MetaSmart® in the USA and Asia. In 2021 a record number of cows have benefited from amino acid balancing in their rations. Adisseo is now in a position to bring these advanced nutritional technologies to the European market in a professional way.

**[Feedinfo] The acquisitions carried out by Adisseo, as well as your in-house development, have caused your portfolio to grow quickly in recent times. Can you give an overview of the different categories of solutions you offer for the ruminant market? Is there anything coming down the product pipeline for ruminants?**

**[Dr. Christophe Paulus]** Before speaking about innovation, we have to highlight the wide portfolio of Adisseo dedicated to ruminants. In nutrition, besides Smartamine, MetaSmart and RumenSmart, we have Microvit® A Ruminants, the most bioavailable vitamin A formulation for ruminants, and Selisseo®, the 100% pure, bioavailable and effective seleno-methionine. We can increase feed intake with Gusti®-Plus, limit the detrimental effects of mycotoxins with Toxy Nil® and Unike® Plus, improve ruminal functioning and digestibility with Nutri® Ferm and Nutri® Pass, and help intestinal integrity with Adimix® and Apex®. All these products enable us to discuss needs with our customers and design solutions for the benefit of our customers and the farmers.

Adisseo continues to explore the dairy cow's metabolism to determine how much of each amino acid is needed to ensure each vital function and the nutritional systems. It also is exploring the software to optimize diets based on this science. We are also looking into novel ways to measure or predict feedstuff amino acid supplies for ruminants. And, of course, we are developing new products. But that will have to be for another discussion.

*Published in association with Adisseo*