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For more information on SMEthane please refer to our website : **www.smethane.eu**

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SMEthane

Technological platform to develop nutritional additives to reduce methane

Global Demand

Global demand for food is expected to increase by 70% by 2050 as a result of population growth. To meet this demand, the worldwide production of meat and milk is projected to have to more than double. Unfortunately, animal production and in particular, ruminant production, carries with it a significant environmental cost - both at a local level and globally. While local environmental impact is mainly associated with intensive operations that contaminate the air, land or water with nitrogenous and phosphorus compounds, the global effect is predominantly due to the contribution of both intensive and extensive System's to the emissions of greenhouse gases (GHG).

It has been estimated that greenhouse gas (GHG) emissions from the livestock sector approximate to between 4.1 and 7.1 billion tonnes of CO2 equivalents per year, equating to 15-24% of total global a GHG emissions. Methane emissions represent between 30 and 50% of the total GHG emitted from the livestock sector with enteric methane from ruminant production systems representing by far the most numerically important source being responsible for circa 80% of the methane emissions from the sector. Clearly if the ruminant livestock sector is to continue to flourish and grow then new technologies must be developed and implemented that allow it do so whilst simultaneously decreasing the emissions of greenhouse gases.

Three main approaches to mitigating methane emissions from ruminant animal production have been suggested.

1] Improvements in efficiency through application of best practise in "on farm" management, the application of animal genetics and improved feed quality.

2] Biotechnological solutions based on introduction of new or modified microorganisms in the animal, immunological and hormonal control of gut function.

3] Dietary change including novel forages and dietary additives that manipulate rumen function.

In SMEthane we have addressed the last of these options. In recent years research has been published on the effects of a wide variety of plant extracts. However there is a lack of trials in commercially important animal species demonstrating consistent long term decreases in methane production coupled to increases in productivity. SMEthane is aiming to provide that data set in small ruminants, beef and dairy cattle together with information on stability and persistence of the additives.

Conclusion

Ruminant livestock play an important role in global feed security as they can convert ligno-cellulose material and non-protein nitrogen indigestible by monogastric animals, including man, into high value proteins for human consumption. Future ruminant production systems will need to capitalise on this important benefit while meeting the challenge of reducing GHG emissions and in particular methane. Dietary plant extracts will have role in helping farmers achieve this goal.