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# MS Biotec Celebrates 10 Years of Pioneering Ag Tech and *Mega e* Innovation

**MS Biotec is pioneering the use of the rumen-native bacteria *Mega e*<sup>TM</sup> to support rumen health at times of feed transition and stress while increasing profitability**

**In 2020, MS Biotec celebrates its 10th year in business — an ag tech start-up success story in the heart of America’s cattle county.** MS Biotec grew through a combination of persistence and innovation — from early research into rumen health, to founding the company in 2010 to bring *Mega e* to scale, to breakthroughs in freeze-drying that enabled the 2020 launch of LactiproFLX<sup>®</sup> and LactiproNXT<sup>®</sup>.

**“Since we founded MS Biotec in 2010, our scientists have been researching the unique properties of *Mega e*,”** explains CEO Leander van der Walt. “As we celebrate our 10th year in business, we’re thrilled to still be Kansas-based and to bring innovative new products to America’s beef and dairy producers.”

Van der Walt first learned of *Megasphaera elsdenii* in his home country of South Africa in 2003. Recognizing the potential of the rumen-native bacteria to support animal health and diet transitions, the South African team patented the most effective strain of *Mega e* (*Megasphaera elsdenii* NCIMB 41125). A U.S. patent, FDA use approval and advances in anaerobic processes and packaging followed, culminating in the founding of MS Biotec close to Kansas State University and the first commercial application at a U.S. feedyard in 2010.

Since then, MS Biotec has continued to pioneer the science — evolving Lactipro products, expanding its team, and innovating anaerobic processes and packaging at its state-of-the-art R&D and production facility in Wamego, Kansas.

“Our 10th year is a landmark for us,” van der Walt says. “We’ve continued to lead the field because our products maintain digestive health and because we see that the beef and dairy producers we serve need every advantage for health and profitability in today’s marketplace. We are getting very positive feedback from customers about our two new innovations.”

LactiproFLX is a small, convenient capsule that places a large number of *Mega e* directly into the rumen. It immediately begins targeting lactic acid, which can build up and have dangerous effects on cattle as they transition to higher-energy diets or experience stress. LactiproFLX is available for sale now and comes in formulations for feedlot cattle, dairy and beef cows, and calves. LactiproNXT is a low volume drench that will be available for sale later in 2020.

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# About MS Biotec

MS Biotec is pioneering the use of the rumen-native bacteria *Mega e* to manage diet transitions while maintaining animal health. Our signature line of Lactipro® products harness the power of *Megasphaera elsdenii* NCIMB 41125, a superior strain of lactic acid-utilizing bacteria. Our PhD-led teams collaborate with leading universities and researchers to advance the science of rumen health and validate every product we bring to market. MS Biotec and its affiliates are the world's only commercial providers of *Mega e*, and the company is a co-owner of the patent for *Megasphaera elsdenii* NCIMB 41125.

## Company Timeline

- 1993** A team in South Africa isolates the superior strain of *Megasphaera elsdenii* NCIMB 41125.
- 1996** The team shelves the work due to lack of success with freeze drying and product development.
- 2003** Leander van der Walt joins South African team addressing bovine acidosis and obtains South African patent for *Mega e* strain NCIMB 41125 and its uses, and for proliferation and delivery devices. Van der Walt begins work with Kansas State University to conduct foundational animal and microbiology work.
- 2009** U.S. patent for *Megasphaera elsdenii* NCIMB 41125 is granted. MS Biotec is established in the U.S. Work begins on innovative anaerobic development in a specially designed facility close to Kansas State University.
- 2010** FDA approval is received for Lactipro®. Anaerobic development and production facility opened in Wamego, Kansas, in the vicinity of leading scientists at Kansas State University. First generation of Lactipro introduced in U.S. and first commercial dose administered.
- 2014** Expansion of production facility to second building in Wamego, Kansas.
- 2015** 2nd generation product, Lactipro *advance*®, introduced to the market.
- 2016** Expansion of second building to accommodate more advanced quality control and R&D
- 2017** Provisional patent for freeze drying filed.
- 2018** Investment from Paine Schwartz Partners accelerates company's growth. Patent application for use in poultry, equine, and silage.
- 2020** MS Biotec celebrates 10<sup>th</sup> year in business with the release of innovative 3<sup>rd</sup> generation products LactiproFLX and LactiproNXT.

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# MS Biotec Q&A

## What is LactiproFLX?

LactiproFLX is a small, convenient capsule that contains an appropriate amount of the rumen-native bacteria, *Mega e*, for the specific animal type. One capsule per administration is all that is needed. Lactipro places a large number of viable *Mega e* into the rumen to support healthy rumen function. MS Biotec selected this superior strain, *Megasphaera elsdenii* NCIMB 41125, because of its high growth rate in the rumen, its ability to grow at low pH, and its prolific utilization of lactic acid.

### LactiproFLX is available in 3 formulations:

- **LactiproFLX Feedlot:** Ideally suited to help hospital cattle transition back to their home pen diet
- **LactiproFLX Dairy:** For use in dairy and beef cows
  - Ease fresh cow transition to higher-starch diet; support rumen health in hospital cows returning to the production herd
  - Reduce risk of grain overload in beef cows grazing downed corn or crop residue
- **LactiproFLX Calf:** Stimulate healthy rumen development in young calves

## What is *Mega e*?

*Mega e* (*Megasphaera elsdenii*) is a rumen-native bacteria cattle rely on to digest high-energy diets. A naturally occurring anaerobic bacteria, *Mega e* has unique properties that make it essential to rumen health. While other rumen microorganisms consume amino acids and simple sugars first, *Mega e* prefers lactic acid as its energy source. As *Mega e* targets lactic acid in the rumen, it produces beneficial volatile fatty acids, such as butyric and propionic acids. *Mega e* is the primary and most prolific lactic acid utilizer. It contributes to the development and maintenance of a healthy rumen and enables pH regulation.

## How does *Mega e* work?

With traditional feed transitions, naturally occurring *Megasphaera elsdenii* in the rumen takes weeks to reach populations required to effectively handle grain-based diets. As animals transition to higher-concentrate feed, lactic acid may accumulate in the rumen if *Megasphaera elsdenii* levels are not sufficient to handle the increased acidity. If lactic acid builds up, the rumen's natural pH balance can become too acidic and health issues can result — from acidosis to rumen damage, weight loss to bloating, and even death. As the primary and most prolific lactic acid utilizer, *Mega e* works to improve rumen health, supports a healthy pH, and contributes to the growth of rumen papillae, which absorb nutrients.

## How does MS Biotec produce and package LactiproFLX?

Our state-of-the-art production facility in Wamego, Kansas and PhD-led teams are dedicated to *Mega e* research and product innovation. Since our founding in 2010, we have continually improved Lactipro from a high-volume drench with a 14-day shelf life to our latest breakthrough, LactiproFLX. Our proprietary anaerobic production process and packaging enable us to freeze-dry *Mega e* in a live, suspended state. LactiproFLX is a small, convenient capsule administered with a customized application device. LactiproFLX offers a 12-month shelf life from manufacturing date, and can be used for feedlot cattle, dairy and beef cows, and calves. It comes in a 25-capsule resealable pouch. Each capsule is individually sealed to maintain product quality.

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