



SALMATE[®] embracing life



A UNIQUE OMEGA-3 FATTY ACID ENCAPSULATED DRY PRODUCT WITH EPA AND DHA



www.salmate.com

SALMATE® and the Improvement of Reproductive Performance in Sows

The term "essential fatty acid" refers to a fatty acid that cannot be synthesized in the body but is required for certain essential biological functions. Omega-3 (ω -3) (Linolenic) and Omega-6 (ω -6) (Linoleic) fatty acids are the most important. Not only is the total amount of these fatty acids in a ration important, but also is the ratio in which they occur.

Too often diets fed to farm animals are deficient in the ω -3 fatty acids, especially the long chain fatty acids.



SALMATE® is a natural source of Poly Unsaturated Fatty Acids (PUFA) such as Eicosapentaenoic acid (EPA – C20:5 ω -3) and Docosahexaenoic acid (DHA – C22:6 ω -3) from quality fish oil. The fish oil provides an excellent balance of EPA and DHA in proportions that help provide the best physiological and cost effective results.

The Unique Features of SALMATE®

SALMATE® contains approximately 45% fish oil which, together with natural antioxidants, has been **encapsulated in a starch matrix** to provide the essential fatty acids:

EPA Eicosapentaenoic Acid (C20:5 ω 3)

DHA Docosahexaenoic Acid (C22:6 ω 3)

- A concentrated product allowing for a low inclusion rate or dose of administration
- A coating that prevents the oxidation of PUFA, which are very sensitive to oxygen, minerals and moisture
- A product that contains natural antioxidants
- A starch coating that allows for a target release of PUFA in the intestine
- A coating that prevents problems of feed intake often seen with other sources, and prevents handling problems in feed mills and farms (such as odors, liquid products, rancid products and storage)

The Importance of Fatty Acids

Essential Fatty Acids (EFA) are essential in the production of a group of compounds called eicosanoids. They serve as building blocks for several types of prostaglandins in the body. These prostaglandins ordinarily are involved in tissue remodeling, inflammatory response, muscle contractions, and wound healing.

EFAs also are important in producing progesterone. The role of progesterone is to support a pregnancy if one occurs until the placenta can sustain the pregnancy later in gestation. When progesterone levels drop, muscle contractions increase, and components of the immune system infiltrate the reproductive tract and serve to destroy any harmful agents (pathogens) that may be present. This mechanism depends upon the correct combination of EFAs to function effectively.

SALMATE® Research Shows Increases of Omega-3 (EPA and DHA) in Sow Body Tissue



It has been demonstrated that the addition of EPA and DHA significantly improves breeder reproductive performance.

Rob Smits, Rivalee, Australia, demonstrated that there is a two fold increase in EPA and DHA in all tissues and up to a 53% lower Omega-6 to Omega-3 ratio when SALmate® is fed at the recommended levels.

After 49 days, EPA and DHA were increased ($P < 0.05$) in blood plasma, loin muscle, intramuscular fat and ovarian tissue.

Points of Interest

- Omega-3 PUFA's highest concentration in ovarian tissue, especially as DHA
- Omega-3 PUFA's also higher in loin IMF and uterine tissue compared to adipose tissue
- In all tissue measured, there were significant increases in EPA, DHA and overall Omega-3 PUFA's, excluding α -linoleic

Omega-3 PUFA's and Embryo Survival

EPA and DHA help preserve embryos by enhancing progesterone needed for embryo growth, while inhibiting a prostaglandin that threatens embryo survival. Too much prostaglandin after fertilization can cause early embryonic death (EED). SALMATE® contains EPA and DHA in a protected form.

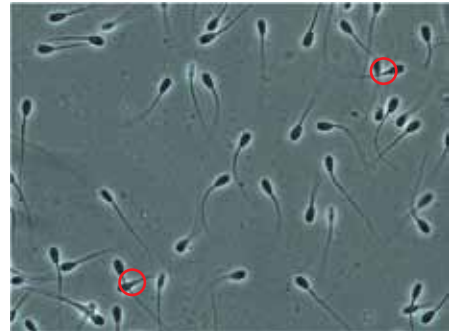
The Impact of SALMATE® on Boar Sperm

In a recent study in Taiwan, SALMATE® was fed to boars at a rate of 60g/head/day, and compared against a control group that was not fed SALMATE®. After two weeks, the sperm from both groups was analyzed under a microscope. Results are shown below.

Control Group



SALMATE® Group after 2 Weeks



From these two pictures, it can be observed that the sperm in the control group show breaks and bends, along with a smaller frequency of sperm. In the SALMATE® treated group, the sperm is in greater frequency and is healthier, with less breaks and bends.

Recommended Feed Levels for SALMATE®

- Add SALMATE® to a lactation period of 30 days at 5 kg/tonne
- For longer lactation periods up to 42 days, add SALMATE® at 3.75 kg/tonne
- Alternatively, one can add during the entire gestation and lactation at a rate of 2.3 kg/tonne