

DIGESTIVE WELFARE



3 innovative solutions
to manage the risk of digestive troubles
of pigs from birth to finish



THE CHALLENGE: MANAGING DIGESTIVE TROUBLES



Factors influencing digestive welfare

Digestive troubles represent the main cause of young piglets' mortality and trigger severe economic losses along with an almost systematic use of antibiotics.



- **PATHOGENS:** *E. coli*, *Clostridium sp.*, viruses, coccidiosis, *Enterococcus*
- **METABOLISM DEVELOPMENT:** digestive tract, immune system and gut flora are immature
- **MODERN PRACTICES:** large litter size, early weaning
- **FEED:** colostrum quality and quantity, transition from milk to feed, creep feed quality, antibiotics
- **ENVIRONMENT:** temperature, humidity, ventilation, ammonia level, density



DID YOU KNOW?

Independently of the involved causative agent, digestive troubles lead to dehydration and a poor absorption of nutrients. Litter homogeneity is affected and late growth at weaning is observed.

OLMIX TECHNOLOGIES

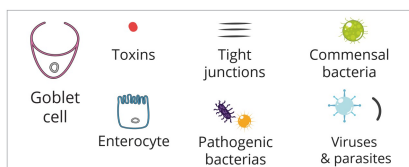
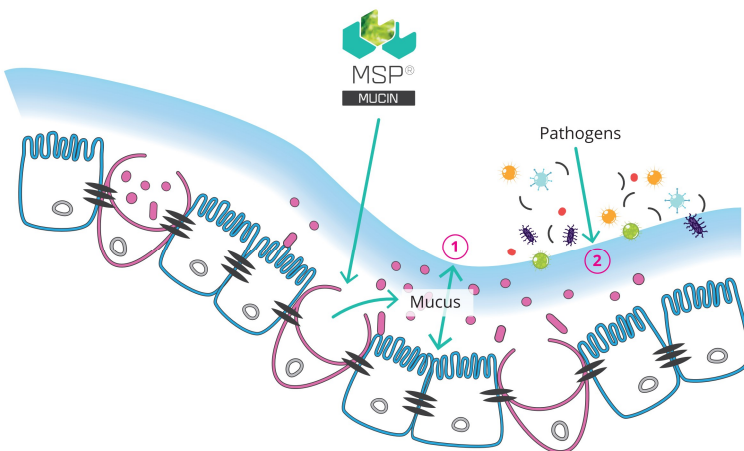


MSP® technology

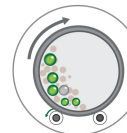
Olmix unique biorefinery technologies allows the extraction of biologically active compounds (sulfated polysaccharide) from marine algae, called OLMIX MSP®.

Olmix MSP®_{MUCIN} has demonstrated its ability to stimulate the production of mucins (components of the protective intestinal mucus layer) from goblet cells. MSP®_{MUCIN} reinforces the mucus layer all along the intestine, allowing:

- ➔ a stronger protective epithelial barrier;
- ➔ the reduction of the ability of different pathogens to reach the epithelial cells.



- 1 Increase of mucus layer thickness
- 2 Slow down the progression of toxins and pathogens



Micronized montmorillonite & clinoptilolite

Olmix has developed a **soft grinding process of silicates to potentiate their efficacy**. The process preserves the structure of the silicates while improving their physical properties:

- **Micronized montmorillonite***: preserves layered clay structure with higher capacity to adsorb toxins & swelling properties to form a protective gel with water
➔ **better gut protection**.
- **Micronized clinoptilolite**: preserved microtubular structure allowing higher ammonia adsorption
➔ **better gut integrity**.

*Micronized montmorillonite clay (bentonite): increased contact surface up to 20m²/g



Zn

Micronized ZnO

Olmix has developed a **potentiated zinc**, thanks to a dedicated technological micronization process that increases its contact surface to:

- make it dispersible in water
- optimize its efficacy (the MIC towards *E. coli* is 75 times lower than with standard ZnO)
- reinforce its action on tight junctions functionality
➔ **better gut health**

Thus, it can be incorporated at levels that remain below the regulatory limit.



Managing digestive troubles all along the pig cycle while reducing antibiotic usage is possible provided a collaborative approach that relies on strong technical management support together with the use of **unique natural products based on innovative technologies developed by Olmix**.

NEWBORN

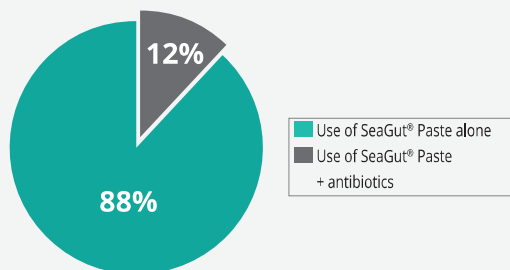
SeaGut® Paste

Digestive welfare of newborn piglets

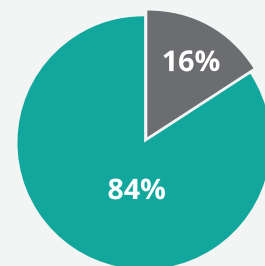
READY TO USE: association of key ingredients to manage neonatal disorders:

- MSP[®]MUCIN & micronized montmorillonite (bentonite)
- Yeast & essential oils to balance microflora
- Electrolytes, dextrose and protein source (spirulina) to maintain homeostasis.

→ **Efficacy of SeaGut® Paste to manage digestive disorders**, given alone or in combination with antibiotics in piglets from gilts and sows (1 dose per piglet for 1 or 2 days max.).



Testimony – Denmark



Data compilation from France, Italy, Ireland and Vietnam

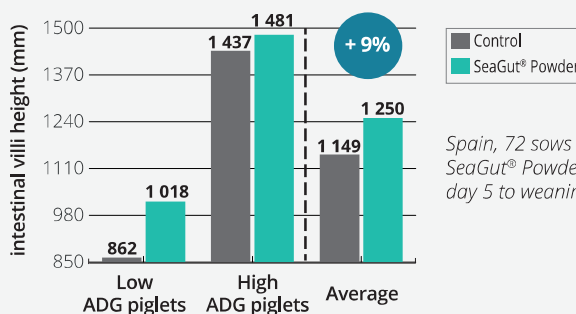
SUCKLING

SeaGut® Powder

Digestive welfare of suckling piglets

SYNERGISTIC ASSOCIATION of Olmix technologies (MSP[®]MUCIN, micronized montmorillonite and clinoptilolite) to protect the intestinal tract and support its development.

→ **Potential of SeaGut® Powder to reduce difference of intestine development between weak and strong piglets** (low ADG: <50 g/d).



Spain, 72 sows and 833 piglets.
SeaGut® Powder at 100g/day from day 5 to weaning (at 21 days).

SeaGut® Powder significantly improves gut development leading to lower the diarrhea incidence and the number of piglets treated with medication. It significantly improves growing performance: +200g at weaning.

POST-WEANING

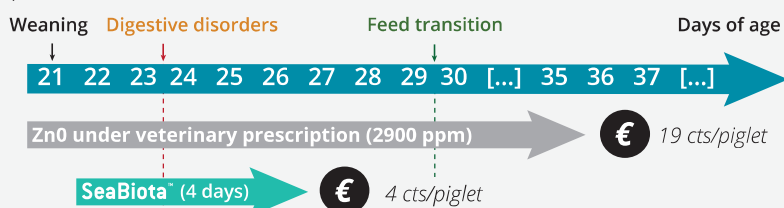
SeaBiota™

Digestive welfare of post-weaning and finishing pigs

UNIQUE HYDRODISPERSIBLE association of key ingredients protecting the digestive tract:

- OLMIX technologies (Micronized ZnO, MSP[®]MUCIN)
- Selected essential oils to balance gut microflora (eugenol, carvacrol, thymol & cinnamaldehyde).

→ **SeaBiota™ versus pharmacological ZnO on 7 batches** (8,500 piglets, France).



With the use of SeaBiota™, no digestive troubles were observed while the farm income was improved.

→ **SeaBiota™ versus colistin** (27,250 piglets, France).



SeaBiota™ reduces antibiotic use without impacting ADG and FCR.

DIRECTIONS FOR USE



	STAGE	TARGET	OLMIX TECHNOLOGIES	USAGE RATE
SeaGut® Paste	NEWBORN PIGLET	Manages the risk of neonatal digestive troubles with ready to use innovative paste 	 	1 In the event of detected early digestive troubles: as soon as sick litters are identified, 1 dose of 2 ml (1 pressure)/piglet/day 2 In case of recurrent neonatal digestive troubles: administrate during the neonatal management practices 1 dose of 2 ml (1 pressure)/piglet Supply to the whole litter
SeaGut® Powder	NEONATAL PIGLET D5 UNTIL WEANING	Controls the risk of digestive troubles and supports gut development 	  	1 Use in all litters, specially gilts: - from day 5 to weaning: 50g/day/litter (1 scoop/day/litter) from day 5 to day 10 - 100g/day/litter (2 scoops/day/litter) from day 10 up to weaning 2 In case of digestive troubles: • Early digestive troubles, before day 5: - Diluted in water: 50g/300 ml water (or 150g/1L to be distributed for 3 litters) - In powder form: 50g/day/litter • Troubles appear after day 5: - Administer from day 5 to weaning (minimum 5 days): 50g/day/litter from day 5 to day 10 - 100g/day/litter from day 10 to weaning
SeaBiota®	AFTER WEANING	Secures the challenging post-weaning period with rapid to use solution in drinking water 	 	1 On farm with regular digestive troubles: at weaning and/or around critical periods for 3 to 5 days: 1L/1000 liters of water/day or 1ml/10kg live weight/day 2 In case of digestive troubles: for 5 days upon observation of digestive troubles: 1L/1000 liters of water/day for 5 days or 1 ml/10kg live weight/day for 5 days. Can be used in association with chlorine, hydrogen peroxide used for drinking water quality and with a pH>3.5 Shake the solution constantly or every 12 hours minimum. To be distributed continuously for 3 to 5 days (i.e. 24h/day).

PACKAGING

SeaGut® Paste comes in:

- Boxes of 8 airless tubes of 100 ml
- Cartons of 50 cartridges of 120 ml + applicator or cartons of 66 cartridges of 120 ml

SeaGut® Powder comes in:

- Buckets of 5 kg
- Bags of 25 kg

SeaBiota™ comes in:

- Cans of 1 or 5 liters



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