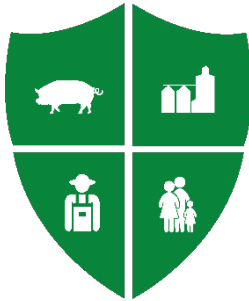


Aim for zero: the ambitious total approach from Nuscience



Nuscience has developed a global approach to reduce dependency of pig producers toward antibiotics and Zinc oxide in a context of growing challenges for livestock production. It avoids the detrimental effects of antibiotics and Zinc oxide on the microbiota and vital organs of animals. At the same time this program provides an economically favourable and technically proven alternative to farmers, simplifies feed mills operations and contributes positively to the image of animal production from the end users' point of view.

Aim for zero: a collaborative program with 3 pillars

Nuscience has enlarged the approach of Nutrition and Health concepts by creating the Aim for Zero program for pigs. Three synergistic pillars provide personalized weaning solutions to farmers:

- 1) **Collaboration:** The first step consists of gathering information about the current situation in the farm. [An online survey](#) containing 30 simple questions about practices and performances of the farm is completed. Three sections are included about Management, Health and Nutrition and focus on practices known to impact weaning quality. The resulting report helps the farmer to compare its practices with the trends of pig production globally or only for comparable situations (region, weaning age, genetics, ...). This feedback is a major part of the program. It generates an objective exchange between the farmer and Nuscience specialists. A sample of the report is provided in figure 1.
- 2) **Expertise:** Based on the report, the experts of Nuscience identify, with the farmer or consultants of the farm, levers to increase weaning efficiency and animal performances. Resulting advices can include managerial actions or nutritional recommendations.
- 3) **Solutions:** When necessary, recommendations toward Nuscience solutions are made. Solutions can be specific concepts from Nutrition 4U or products from Health 4U ranges. Vitazero, the new nutritional safety concept, is at the heart of the program. It creates an exogenous defense shield that protects the weaning pig by killing or capturing bacteria and their toxins, preventing toxins' contact at gut surface and, finally, keeping the gut barrier optimal.

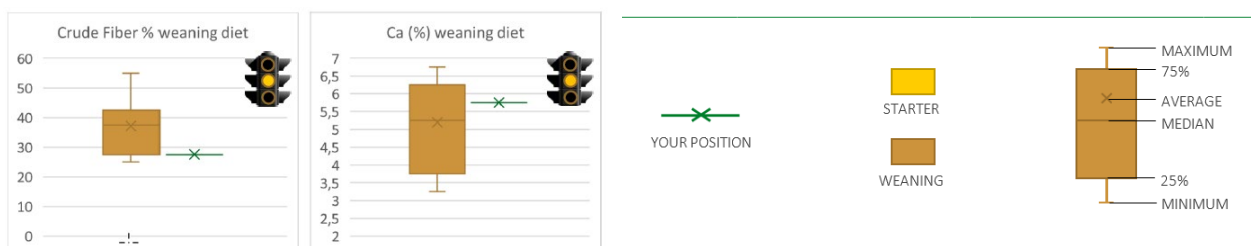


Figure 1: Sample of Aim for zero report

Maintenance of gut health: target of the Aim for zero program

The gastro-intestinal tract is the most impacted organ at weaning. Stressing factors such as transition from liquid to solid feed contribute to dysbiosis, oxidative stress, villi degradation and gut inflammation. The resulting diarrhoea and drop of feed intake and feed efficiency can be objectivated by the farmer. The 3 pillars of the Aim for zero program act together at different levels to preserve microflora balance, mucosa integrity and gut morphology:

- Upstream, via the questionnaire and the report to identify and reduce some of the risks factors around weaning.
- Downstream, via the use of Nuscience solutions to reduce diarrhea, inflammation and overstimulation of the immune system, preventing loss of energy and protein for growth purposes. Among the panel of solutions, Vitazero concept will create an exogenous defense shield.

Vitazero®: A concept acting at both the microbiota and host levels

The mode of action of Vitazero® focusses on creating an exogenous shield to protect the gut using 4 different approaches:

- 1) **Killing of incoming pathogens** as early as in the stomach by a patented mixture of 4 medium chain fatty acids (MCFAs), preventing the disruption of piglets' microbiota.
- 2) **Agglutinating pathogenic bacteria** at duodenum and colon levels by a specific health fiber combination, preventing damages to the gut villi.
- 3) **Blocking receptors** from endotoxins' binding by the health fiber combination, preserving intestine from inflammation and the resulting activation of local immune system.
- 4) **Fortifying gut barrier** against pathogens and toxins invasion by using a unique mixture of polyphenols, countering the oxidative stress inside the intestine.

The synergies between the Aim for zero program and Vitazero concept will lead to improved zootechnical performances of the animals, as shown in figure 2.

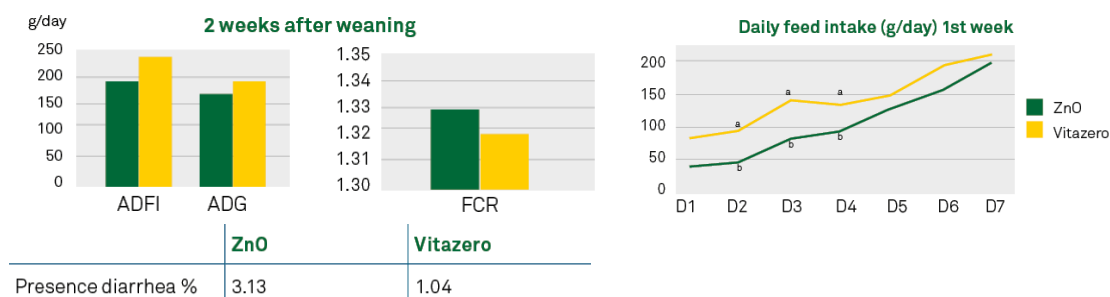


Figure 2: Results of a trial comparing the effects of ZnO and Vitazero on zootechnical performances of post-weaning pigs

