

## The use of high doses of zinc oxide in piglet feed

There is currently a lot of focus on the use of high doses of zinc oxide to reduce and treat post weaning diarrhoea in piglets. It is allowed to include a total 150 ppm Zn in piglet feed without a prescription, and a total of 2500 ppm Zn, when prescribed by a veterinarian. However, there are several disadvantages of adding high amounts of zinc to piglets feed, including:

- Environmental problems
  - *Inclusion of high amounts of zinc oxide in piglet diet during the first 2 weeks after weaning results in a high level of zinc being excreted into the environment, where it accumulates. Since 1998 the amount of Zn in the pig manure has increased by 23.9% in Denmark<sup>1</sup>. This is a major problem for the environment, the crops and the soil, as it cannot be removed.*
- Development of bacterial resistance
  - *Zinc oxide has in some cases shown to be causing selective pressure for zinc-resistant and multidrug resistant bacteria such as MRSA<sup>2</sup>, and also multiresistant E. coli<sup>3</sup>. The transfer of these multiresistant bacteria to humans are of great concern.*

At Nor-Feed, we have developed different strategies to reduce or completely avoid including the high levels of zinc oxide in piglet diets.

If you want to know more about our suggestions to reduce the high levels of zinc oxide in piglet diet, please contact [office@dumas.dk](mailto:office@dumas.dk)

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<sup>1</sup> The report "Belysning af kobber og zinc i jord", DCE, Aarhus University (2015). Summary in English available.

<sup>2</sup> Slifierz M.J., R. Friendship and J.S. Weese. 2014. An investigation into the effects of zinc oxide in pig starter rations on the persistence of antibiotic resistance. Proceedings of 33rd Centralia Swine Research Update. II-20-II-21.

<sup>3</sup> Bednorz, C., Oelgeschläger, K., Kinnemann, B., Hartmann, S., Neumann, K., Pieper, R., Bethe, A., Semmler, T., Tedin, K., Schierach, P., Wieler, L. H., Guenther, S. (2013). The broader context of antibiotic resistance: Zinc feed supplementation of piglets increases the proportion of multi-resistant *Escherichia coli* in vivo. International Journal of Medical Microbiology, 303, 396-403.