Providing a solution to secure gut health and piglet performance

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With the recent and projected increase in the human population and consequent demand for animal products worldwide, the identification of novel strategies to increase the efficiency of food production has become a major research focus. With respect to agricultural animals, optimisation of animal health and nutrient utilisation is a key component of improving production efficiency.

Safety issues have also highlighted the need for high quality products. These factors, combined with the progress of animal breeding and farm management requires the continuous improvement of mineral nutrition to feed high performing or high potential animals. For feed compounders this means they need solutions and partners they can trust and who can bring valuable and concrete benefits.

Piglet health

In modern swine facilities, piglets are weaned and exposed to solid feed as early as 3-4 weeks of age with the objective of increasing the number of litters and consequent production efficiency.

Unfortunately, early weaning is often associated with significant metabolic stress.

One of the most common problems, that takes place immediately post-weaning is a dramatic drop in feed intake, and it can take days for piglets to recover.

This not only limits the amount of energy and nutrients that the piglets receive, which has a negative impact on weight gain, but it also depletes the gut of nutrients at a time when its growth and development are critical.

Therefore, the challenges associated with weaning piglets are multifaceted as nutrient intake is decreased, gut development is impaired, and subsequent absorption of nutrients is sub-optimal so that the nutrients that are being ingested are not absorbed efficiently.

Consequently, there is a lack of nutrients to support the delicate immune system, so weanling piglets are highly susceptible to diseases, particularly diarrhoea, which further impair the absorption of nutrients from the gut.

In fact, decreased nutrient absorption and consequent impairment of immunity is the leading cause of mortality in piglets.

Piglet growth

When absorption of nutrients and immunity are compromised, growth of the animal also becomes sub-optimal and this has clear economic implications since body weight around the time of weaning is highly correlated with body weight at finishing.

Importantly, there does not appear to be growth compensation when animals perform poorly just after weaning. Therefore, many producers focus on strategies to increase feed intake and daily weight gain from day one post-weaning to optimise lifetime performance and economic returns. Although there are several products on the market for use in counteracting post-weaning stress, few of them exploit the normal physiology and development of the gut. In addition, the way in which feed additives are manufactured can have a marked effect on the efficacy of the product when it is used in the field.

Securing gut health

TakTik X-IN, from Pancosma, Switzerland, has successfully emerged on the market and is designed to optimise the health and development of the gut.

It targets the specific challenges faced by piglets. It contains two distinct and superposed parts. The inner core is made of Sweet Taste Enhancer (Sucram), known to increase glucose absorption improving gut structure and architecture thanks to its Gut Sensing Effect. This inner core acts to enhance feed intake and also to increase the absorption of glucose by the gut.

The outer shell of the product consists of a phytonutrient (Xtract), anethole, that demonstrated a potent gut immunity effect in vitro and in vivo, therefore minimising local inflammation and optimising gut health. The anethole found in this feed additive also has the potential to improve intestinal health since in some experiments it has been

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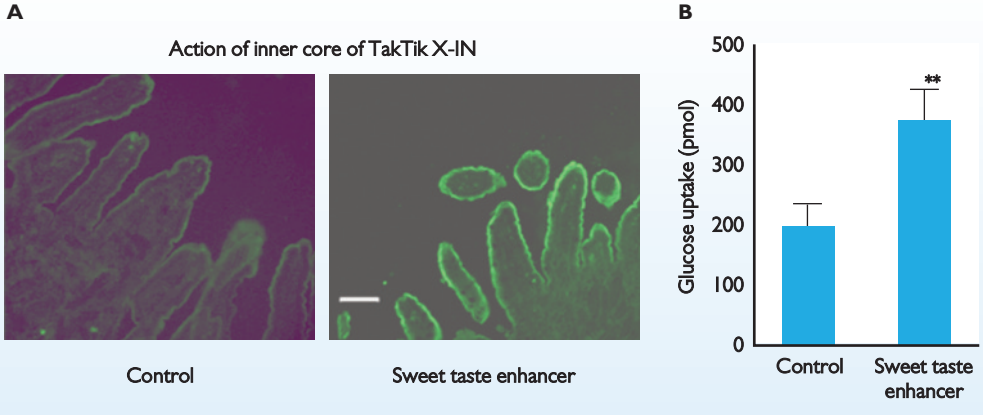
Fig. 1. The sweet taste enhancer, which is located within the inner core of TakTik X-IN, increases the expression of glucose transporters in the gut of piglets and also increases the update of glucose from the intestines (Moran et al., 2010a; Moran et al., 2010b; Wall, 2012).



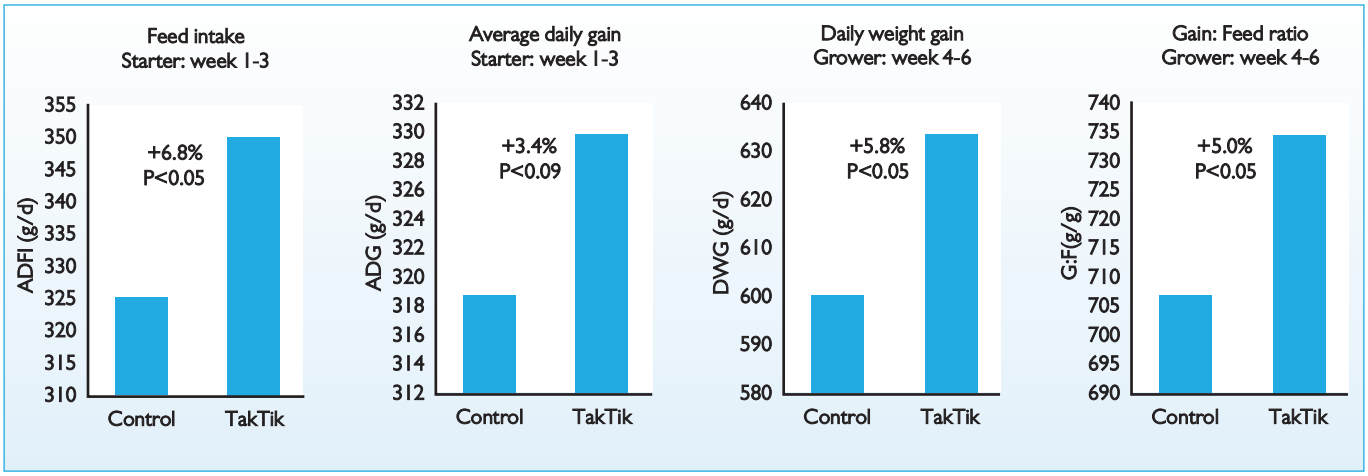


Fig. 2. An intimate combination of a high intensity sweetener and a phytonutrient improves performance of weaned piglets (Wagner et al, 2013).

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shown to decrease inflammation and the formation of free radicals.

In addition, Pancosma contributed to several publications related to the effect of anethole.

Lee (2011) could demonstrate that anethole enhances in vitro parameters of immunity and augments in vivo protection against coccidiosis.

More recently, Liu (2012) described the effects of anethole on inflammation of anethole with porcine alveolar macrophages in vitro; this highlighted how anethole could, for instance, increase cell viability of macrophages.

Improved performance

Several animal trials have been conducted to determine the effect of TakTik on feed intake and total weight gain during the post-weaning period.

Recently, a trial performed in the US demonstrated the effect of this product on piglets at different stages (Fig. 2).

During the first three weeks after weaning, piglets showed a higher intake and also better body weight gain than the control.

Later on, from 4-6 weeks, piglets showed higher body weight gain but also a better feed conversion or gain to feed ratio. This clearly highlights the fine mechanism of the product TakTik X-IN.

The improvement in gut health will help young animals, especially the weakest ones, to face weaning stress and start eating at an early stage.

Later on, the development of gut maturity will lead to a better feed efficacy for those animals.

Another recent experiment was done in Benelux with more than 1000 piglets during the pre-weaning and post weaning phase.

The results indicated that TakTik X-IN increased both feed intake (+9%) compared to a positive control. In addition to that, the percentage of veterinary treatments was lower.

This was even more true for treatments related to respiratory or intestinal diseases.

Finally, one could observe a better impact of lightest piglets with therefore an improvement of herd homogeneity for animals fed with TakTik X-IN. This confirmed the positive impact on profitability.

Improved feed efficacy

Finally, in 2013, another trial done in Germany showed how TakTik X-IN could improve feed efficacy of young piglets, in comparison with a probiotic.

Animals fed with the product showed a better feed efficacy with a reduction of FCR of 4.6% compared to the positive control.

It has been calculated that the return of investment (ROI) in those conditions was >6. Taken together, these experiments highlight that supplementation with TakTik X-IN significantly improves piglet performance by increasing feed intake and body weight gain during the post-weaning period, and it elicits superior performance when compared to other flavour enhancers on the market.

The mechanism underlying this effect involves multiple factors including a boost in immunity by anethole and an increase in glucose absorption elicited by the sweet inner core of each capsule.

TakTik X-IN is now adopted by swine professionals and experts, facing critical challenges such as feed intake and gut efficiency and looking for optimised growth and profitability.

Recent trials and research, as well as feedback from clients confirmed the efficacy and the interest for young piglets. ■