Phode: How to Maximise the Sow's Chances to Perform at the Next Cycle?

Lactation is a very demanding phase in the sow reproduction cycle.

During this period, the sow's energy is mainly dedicated to milk production. The sow can mobilise its body reserves to support milk production due to an undersupply of nutrient caused by insufficient feed intake.

Maximising milk production while maintaining body condition is key to litter growth. It is also key for sow longevity as body reserves depletion can negatively impact oocyte development leading to smaller litters in the next production cycle. Success in this period is determined by proactive feeding and management strategies.

Why is it key to maintain sow feed intake during lactation?

During lactation, sow feed intake is key to piglets' development. One additional kilogramme of average daily feed intake can lead to an additional 300 g of litter weight gain (Bussières, 2003). It can also affect the upcoming production cycle leading to +0.7 piglets at the following farrowing (Bussières, 2003). On the contrary, a sow losing too much body condition can show impaired performance in its following farrowing (e.g., more than 2 mm of backfat loss leads to a decrease in the number of piglets born by 0.2 at the following farrowing, Huard, 2010).

Sow feed intake is put to the test during lactation

At farrowing the sow experiences several stresses. This impacts its physiology and psychosocial state. The sow needs to recover very quickly from this event to produce high quality colostrum and milk for her piglets to survive. In order to survive, piglets need to receive at least 200 g of colostrum (Devillers et al., 2011). To do so, the sow needs to get up fast after farrowing and to eat. This is not an easy job for this new mom of nearly 15 newborns.

The high temperatures maintained for the piglets' comfort (23 – 25°C) in its environment

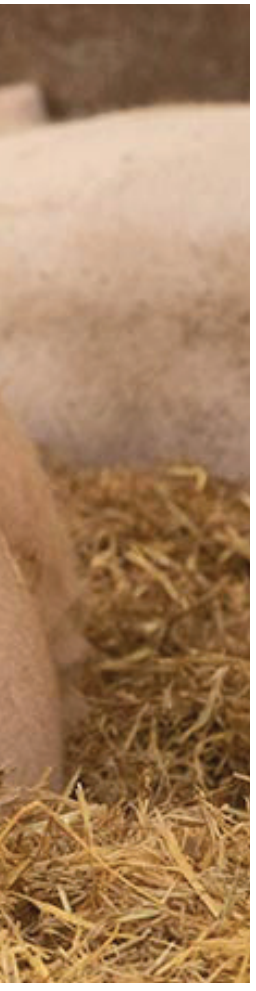

Figure 1: Average daily feed intake of lactating sows supplemented with a *Citrus sinensis* based feed additive.

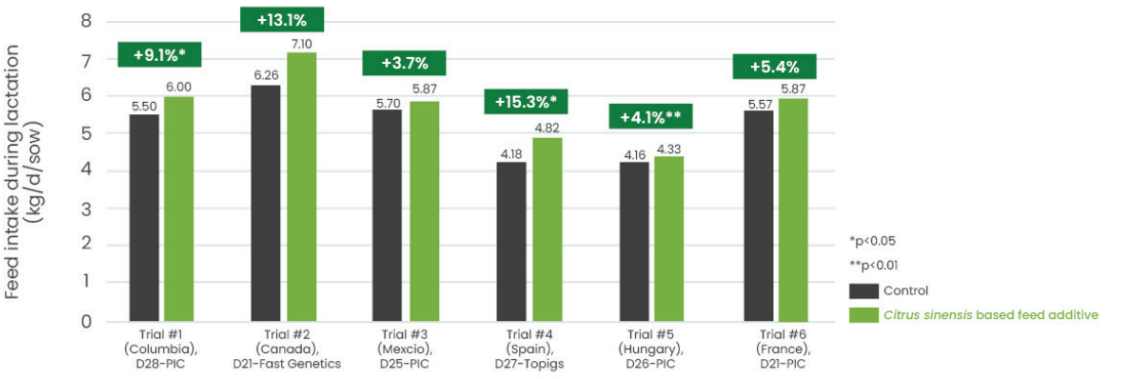

Table 1: Effect of supplementing the diet of pregnant and lactating sows with *Citrus sinensis* based feed additive on reproductive performance

Japan, 2024	Control (11 months)	*Citrus sinensis* based feed additive			*Citrus sinensis* based feed additive total of 3 periods	Benefits
		Period I (11 months)	Period II (12 months)	Period III (12 months)		
Return in heat after 1st AI, %	11.3	7.5	6.3	6.0	6.6	-4.7 pts
Fertility rate, %	88.7	92.5	93.7	94.0	93.4**	**+4.7 pts**
No. of abortion	22.7	12.8	7.3	6.8	9.0**	-13.7 pts
Abortion, %	4.7	2.7	1.6	1.4	1.9	**-60%**
Farrowing rate, %	84.6	90.0	92.3	92.6	91.6*	**+7.0 pts**

*p<0.05
**p<0.01

do not help the sow to recover its appetite. Thermal stress during lactation also adds another challenge. Several studies highlight the negative effects of heat stress on sows' reproductive performance, and pigs' growth. In lactating sows, a rise of temperature from 18°C to 29°C decreased intake by 600 g per day and milk production between 12 and 26%, thereby impacting litter growth (on average -15 kg of litter weight; Quiniou et al., 2000; Renaudeau and Noblet, 2001)

Long term consequences of feed intake reduction in lactating sows

Maintaining feed intake during lactation is critical to ensure optimal reproductive performance and maximise longevity. Sow body condition at weaning can impact its weaning to service interval and its fertility. Sows with a backfat < 9 mm will have a weaning to service interval > 8 days (Gautier, 2024). Body condition at artificial insemination and in gestation will influence the number of piglets born thereby affecting the number of piglets weaned. Sows with low backfat will have more chances to be culled early in their career.

How to maintain feed intake during lactation?

Several nutritional and management strategies are implemented to help to maintain the feed intake of the sow during lactation:

-Feeding the sow three times a day instead of two times with fresh feed;

-Providing ad libitum access to clean water (a lactating sow can drink ~27 l a day);

-Mitigating the impact of hot temperatures by feeding the sow during the coolest time of the day;

-Ensuring sow comfort and well-being;

-Adapting the formulation of the diet to make it appetent and to meet the nutritional requirements.

The two last points can be improved by using feed additives to help with feed consumption, stress release or pain management.

Supplementing the lactation diet with a Citrus sinensis based feed additive can help to maintain the sows' feed intake, support body condition and litter growth.

A citrus-based sensory feed additive to unlock feed intake and boost reproductive performance through stress release in sows

Focusing on feed additives, Phodé aims to develop solutions to relieve the stress experienced by the sow during critical periods and to support its feed intake.

Several trials led by Phodé demonstrated a consistent increase in average daily feed intake (+8.5% on average) when sows were supplemented with a feed additive based on Citrus sinensis during lactation (figure 1). These increases in feed intake were correlated with increased litter weight gains and lower backfat loss during the lactation.

A long-term study, led in Japan, showed an improvement in conception rates by +4.7% in sows which received the feed additive in gestation and lactation (table 1). It also helped to decrease the number of abortions, thereby improving the farrowing rate.

In conclusion, supplementing the lactation diet with a Citrus sinensis based feed additive can help to maintain the sows' feed intake, support body condition and litter growth.

Furthermore, adding this feed additive to the gestation diet can help to optimise long-term reproductive performance and the longevity of the herd.

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