



OPTICELL supports sows beyond the fiber effect

The needs of gestating sows require multi-layered strategies

Lignocellulose-based feed additives can be a high-quality source of fiber. However, while the importance of an adapted fiber profile of the ration is increasingly recognized, it is less well known that not all fiber sources, not even all lignocellulose supplements, have the same physiological value.

Not all lignocellulose is the same

OPTICELL is a lignocellulose source that has been successfully used in animal nutrition worldwide for over 20 years. Its positive effects lie in the unique combination of bark and trunk wood from selected tree species. This provides a portion of slowly fermentable, insoluble fiber that supports the microbiome throughout the colon. Conventional lignocellulose is obtained exclusively from trunk wood, which provides only inert (non-fermentable) fiber with a purely structural effect that can regulate intestinal transit. In addition, bark has other physiological effects due to its property as the outer protective layer of the tree. Bark is particularly rich in secondary plant ingredients such as phenolic compounds and terpenes. Therefore, the value of the bark lies not only in its advantageous fiber profile; the secondary metabolites have also been shown to have pronounced antioxidant effects (data available on request).

Oxidative stress in sows has far-reaching consequences

In sows, oxidative stress occurs especially in late pregnancy and lactation due to the greatly increased energy required for the growth of the placenta and fetuses as well as for milk production. With high oxidative stress, various non-specific symptoms can accumulate. These include disturbed birth processes, placental retention, higher proportions of weak, underweight or stillborn piglets as well as increased sow losses during lactation.

OPTICELL supports the performance of sows – can the good effect be explained by dietary fiber alone?

A large number of trials worldwide prove the excellent effects of **OPTICELL** on the well-being and performance of sows. On average, sows receiving **OPTICELL** during pregnancy have a 42-minute shorter farrowing time, with 0.75 more live-born piglets with 3.2% higher birth weights. In addition, behavioral observations and cortisol measurements show a reduction in stress levels during pregnancy and lactation.

In part, these effects can be explained by the higher production of short-chain fatty acids (SCFA) in the large intestine, as **OPTICELL** optimizes fiber fermentation. SCFAs support the sow's energy balance and contribute to satiety, intrauterine piglet growth and energy supply during farrowing.

However, the metabolic energy from the SCFA can fluctuate as the needs of the intestinal epithelium increase. Various stressors can lead to a higher turnover and thus a higher energy requirement of the intestinal cells. When influences such as heat stress or disease pressure are added to the physiological challenges of pregnancy, oxidative stress increases, which puts additional strain on the intestinal wall as the free radicals lead to damage to the epithelium. As a result, the local use of SCFA as an energy source for intestinal cell renewal increases and its importance for the systemic energy supply of the sow and fetuses decreases.

However, the experience with **OPTICELL** shows a very reliable effect on the performance parameters mentioned above, despite fluctuating test conditions, as Table 1 shows.

The success rates of over 75% for all parameters suggest that it is not only the sow's energy balance that is supported by **OPTICELL**. The antioxidant effect of the secondary ingredients from the bark is an important additional factor. They can support the oxidative balance of the colon environment in order to get the most out of the SCFA. If, on the other hand, the oxidative status in the intestine is stable, the antioxidant components are also likely to have a systemic effect and support the physiology of the sow during pregnancy.

Table 1: Proportion of positive and negative test results with **OPTICELL** across the total number of tests and parameters. (Source: A&P Nutrition research)

Parameter	Total Attempts	Of which the result of the OPTICELL Group:		
		Positives	Negative	No difference
Farrowing duration	17	16 (94,1 %)	/	1
Live-born piglets	22	18 (81,8%)	2	2
Piglet Birth Weight	17	13 (76,5%)	3	1
Weaning weight piglets	16	15 (93,8%)	1	/

The ideal combination

The combination of slow-fermentable dietary fiber and bioactive components from the bark creates an interaction of SCFA and antioxidant effect. This ideally meets the needs of the pregnant sow and makes **OPTICELL** a reliable support in this demanding phase.

