

PRODUCING HIGH QUALITY PIGLETS

2. Only a healthy pig can be a happy pig

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Animal welfare is used as an umbrella term for the health, quality of life and well-being of farm animals and is also mentioned as a core element in the implementation of the European Green Deals. Animal welfare measures can also be implemented by feeding, as one of the overall objectives is to keep animals healthy through feeding. What can this mean for the fattening pig?

ANIMAL WELFARE AND THE LINK TO HEALTH

In the public's perception, animal welfare in fattening pigs is often reduced to housing, but the issue is much more complex than can be solved by providing more space per animal or offering straw or other roughage. The topic of 'animal welfare' is already mentioned in the European Green Deal but is not yet underpinned by concrete goals or measures.

The so-called 'Eco-Schemes' specify practices for the implementation of the Green Deal for agriculture – here exemplary measures are demanded such as 'prevention in relation to animal health: to reduce the risk of infections

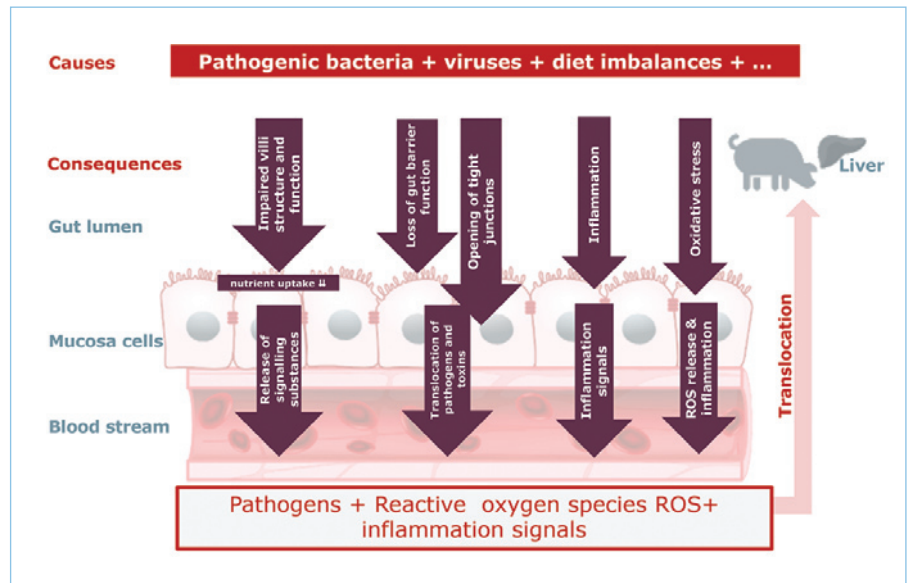


Fig. 1. Causes and consequences of diarrhoea in pigs.

requiring antibiotic treatment' – with clear reference to feeding (European Commission 2021).

Thus, feeding measures that serve to support the maintenance of healthy animals are also basic elements of animal welfare. Since healthy animals are also efficient, the conservation of resources and the avoidance of the emission of excess nutrients into the environment also have an effect.

Furthermore, this closes the circle to the definition of 'animal welfare' when assessed through the 'Five Freedoms Concept' (FAWC 1993), which lists the fundamental conditions of good treatment to ensure the animal's welfare, including 'freedom from hunger, thirst and malnutrition – to maintain full health and vigour' and 'freedom from pain, injury and disease – by prevention or rapid diagnosis and treatment'.

Table 1. Typical diarrhoeal diseases/pathogens in pigs, and affected age groups.

Disease pathogens	Suckling piglet	Weaning piglet	Fattening pig
Enterotoxigenic E. coli (ETEC)	++++	+++	+ (early fattening)
Rotavirus	++++	+++	+ (early fattening)
Transmissible gastroenteritis (TGE)	++++	+++	+++
Clostridium perfringens	++++	rare	rare
Coccidiosis	++++	++	+
Salmonellosis	+	++	++++
Dysentery B. hyodysenteriae	+	++	++++
Porcine intestinal adenomatosis (PIA) L. intracellularis	rare	++	++++

DIARRHOEA – ONLY A PROBLEM IN WEANED PIGLETS?

Diarrhoea causes considerable economic losses in pig production, even beyond the piglet sector.

The causes of diarrhoea are diverse and include pathogens, viruses and unbalanced nutrition, which often interact with each other ('non-specific colitis').

One of the most important diseases associated with diarrhoea is dysentery caused by *Brachyspira hyodysenteriae*, which leads to bloody diarrhoea and high mortality. In fact, many other infectious agents also affect fattening pigs, as shown in Table 1.

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HEALTH AS A PREREQUISITE FOR HIGH PERFORMANCE

There are no concrete figures that evaluate the worldwide economic costs caused by diarrhoea. Nevertheless, there is no doubt that diarrhoea in fattening pigs means losses/reduced performance, which prolongs the fattening period, up to total failures. In the case of severe and persistent diarrhoea, the only option is to call the vet.

However, feed supplements can supportively intervene in the causes and consequences of diarrhoea. There is a close link between diarrhoea and inflammation as the diarrhoea itself as well as involved pathogens cause inflammation of the gut mucosa and damages the mucosa integrity and function, reducing the nutrient absorption and being a further entrance path for pathogens. Fig. 1 summarises the causes and consequences of diarrhoea.

An effective support for the pig by a feeding strategy will intervene in this vicious circle. One solution can be found using agromed Protect which is a novel feed supplement containing highly active phytonutrients from wood. Phytonutrients are naturally occurring bioactive compounds produced by plants. They

keep plants healthy and protect them from, for example, insects and the sun.

Widely known examples for such secondary plant compounds are vitamins or polyphenols. The phytonutrients contained in agromed Protect are highly active in the intestine, where they can strengthen the intestinal barrier, protect the intestinal mucosa from oxidative stress and mitigate diarrhoea-related inflammation.

PHYTONUTRIENTS DERIVED FROM WOOD AS A NATURAL GUT SUPPORT

The wood phytonutrients constrain bacterial growth by detraction of essential substances for the bacteria's development, and inhibit the bacterial efflux pumps, allowing a pathogen inhibitory effect.

They are effective in the gut barrier support as they prevent pathogenic bacteria from docking on to the mucosa cells and increase the transepithelial resistance (TER) of gut epithelial cells to improve the intestinal barrier properties. A further property is the inhibition of various inflammatory responses or signalling molecules involved in inflammatory cascade (for example NF-

kappa-B, pro-inflammatory cytokines) and the direct radical scavenging (reactive oxygen species).

These effects help to keep the gut healthy to maintain its absorptive capabilities while reducing the energy expenditure that inflammation causes.

Data from a practical farm in Austria (Fig. 2) show the positive effects of the use of agromed Protect – the daily gains increased with an improvement in feed conversion and a marked reduction in mortality, at the same time the final weight also increased from 107.9 to 109.5kg.

The high mortality rate in the test farm indicates that there were underlying health problems. However, the test results demonstrate the positive effects of agromed Protect in particular under suboptimal conditions.

The phytonutrients in agromed Protect effectively support the fattening pigs and help to maintain the intestinal barrier. Thus agromed Protect may offer a next level of protection to the pigs and helps them to keep their performance when confronted with subclinical gut health problems.

As shown, there is a close link between animal welfare and health. Globally, the trend continues to reduce the use of antibiotic performance enhancers and therapeutic antibiotics.

The EU has set clear targets in the Green Deal: to reduce sales of antimicrobials for farmed animals and in aquaculture by 50% by 2030. Feeding in general offers a broad spectrum for interventions and health prevention, specific support may come from novel supplements like agromed Protect and its phytonutrients, helping the pig to maintain gut health. ■

References are available on request

Fig. 2. Practical test on feeding agromed Protect to fattening pigs.

