

# Perspective

## Challenges in the nutrition of organic pigs

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**Abstract:** The need to develop feeding strategies for organic pig husbandry is discussed. Successful performance of the farming system can only be achieved if the production process is optimised and controlled and essential inputs are available. When monogastric livestock such as pigs are integrated into an organic farming system, some nutritional inputs may be scarce. In the nutrition of organic pigs, two areas might be identified as the most important challenges: (1) balancing the supply and requirements of essential amino acids without relying too much on external feedstuffs and (2) developing and implementing nutritional concepts which help to improve animal health status.

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### INTRODUCTION

One of the basic concepts of organic agriculture is the integration of livestock into the whole farming system, thereby forming a cyclical system which can be seen to function in a similar way to organisms.<sup>1,2</sup> One consequence of this principle is that the nutrition of livestock must be based on home-grown feeds, thereby aiming for intact nutrient cycles at farm and regional levels and for optimal feed quality.<sup>3</sup>

The development of organic agriculture during the past few decades has caused organic farmers to rely on livestock with a very high genetic potential for primary performance traits. However, the genetic progress in these traits has not been accompanied by a similar increase in feed intake capacity. The gap between increased nutrient requirement and limited feed intake capacity is usually closed by feeding diets with high nutrient and energy densities, but it is much more difficult to formulate these high-density diets under organic management than in conventional pig production.

For the implementation of any feeding strategy in organic agriculture, several principles have to be considered.<sup>4</sup>

- Livestock must be provided with the amounts of nutrients and energy appropriate for a sustainable level of production.
- Diets must be formulated from feedstuffs that allow the species-specific physiology of the animals to function in an optimal way.

- The animals must be allowed to perform natural feeding behaviour by being offered naturally structured feedstuffs provided via animal-friendly feeding techniques in a proper environment.
- Goals and values intrinsic to organic farming must be considered, such as environmentally sound production methods, intact nutrient cycles and low use of critical, non-renewable resources.
- Allowance must be made for farmers' economic interests.

Unlike in the case of ruminants, concepts of how to integrate greater numbers of pigs into organic farming systems are rare. Nutritional issues are among the most important reasons for this.<sup>4</sup> Since growing pigs and lactating sows do not use high-fibre feedstuffs efficiently, they require highly digestible feedstuffs which are either not available in sufficient amounts on organic farms or are otherwise sold for human consumption. Additionally, there is a general lack of feedstuffs rich in high-quality protein, such as feedstuffs of animal origin or certain industrial by-products, which would help to balance the dietary amino acid pattern in a way that fits the requirements of pigs without supplementing the diet with synthetic amino acids.<sup>3–5</sup>

### DEMANDS ON ORGANIC PIG PRODUCTION

Market actors such as slaughterhouses and processors, consumers and the public have various expectations about organic pig production. Ideally, carcasses

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