

Single-phase feeding and compensatory growth in growing and finishing pigs

Problem

Meeting growing pigs' nutrient requirements with on-farm-produced cereals and protein feed ingredients can be hard. To overcome the risk of undersupplying pigs with amino acids, diets are formulated with higher contents of protein than recommended. With 100 % organic feedstuffs, it is difficult to match the amino acid requirement without a very high level of protein. This can decrease the health and welfare of weaners and increase nitrogen losses.

Solution

A single-phase feeding strategy and utilising pigs' capacity for compensatory growth (Figure 2) can lessen the need for diets with high protein and amino acid content in the early stage of the growing phase. It can promote the use of locally produced protein feed resources in diets to organic pigs.

Benefits

Single-phase feeding of pigs followed by growth compensation might reduce nitrogen emissions, as it excludes the need for a high protein and amino acid content in the diet in the early stages of growth. It enables efficient use of locally produced protein feed resources and can reduce soya intake by pig and simplify feed manufacturing, feed handling and diet formulation at the farm level. This practice can reduce the cost of the feed for the weaners.

Practical Recommendations

- Limit the supply of essential amino acids during early growth and utilise the pigs' capacity to fully compensate for the restriction by increased protein retention and faster growth during later growth phases.
- Crude protein and lysine contents can be substantially reduced, below common standards (i.e. crude protein to 16.5% and digestible lysine between 0.70-0.80 g standardised ileal digestible (SID) lysine/MJ NE), in well-balanced diets.
- A reduction in crude protein content, from 15.5 to 14.5 g SID/g SID lysine can lower the nitrogen output by approximately 10%.
- Formulate diets on a digestible amino acid basis rather than on a total amino acid or crude protein basis.
- High-quality protein feed ingredients such as faba beans, peas, oil seed-, dairy- and cereal-based by-products, aquatic resources, etc., or a combination of them, can be used.
- At the pig level, this practice can reduce soya bean cake utilisation (14%) and increase pea utilisation (22%).
- Careful follow-up of the pigs' feed consumption, growth and health status is recommended.

Applicability box

Theme

Pigs - Animal husbandry - Feed and nutrition - Production systems - Nutritive values and needs - Ration planning

Geographical coverage

Global

Application time

All year round

Required time

Growing/finishing period

Period of impact

All year round

Equipment

Feed ration planning

Best in

Growing/finishing period



Figure 1: Growing finishing pigs: Photos: Magdalena Presto Åkerfeldt, SLU



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Growth

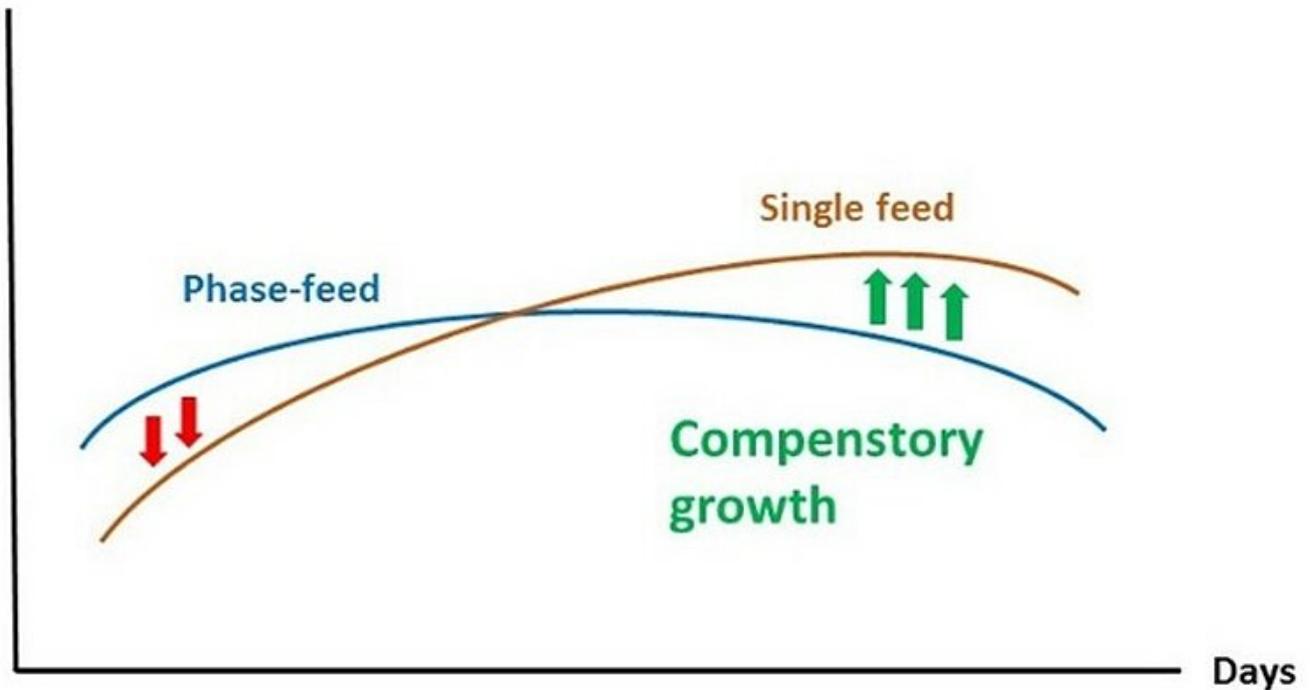


Figure 2: Pigs can compensate for a limited supply of amino acids during early growth, followed by excess dietary amino acids and faster growth during later growth phases. Illustration: Leif Göransson, modified by Magdalena Presto Åkerfeldt

Further information

Reading

- Presto Åkerfeldt, M. and L. Göransson (2019). Effects of using locally produced protein feed ingredients in low protein diets to single-phase-fed growing-finishing pigs. *Acta Agriculturae Scandinavica, Section A - Animal Science*, 68 (3), 134-141. <https://doi.org/10.1080/09064702.2019.1657175>.
- Presto Åkerfeldt, M. and J.E. Lindberg, L. Göransson, K. Andersson (2019). Effects of reducing dietary content of crude protein and indispensable amino acids on performance and carcass traits of single-phase- and 2-phase-fed growing-finishing pigs. *Livestock Science* 224, 96-101. <https://doi.org/10.1016/j.livsci.2019.04.014>.

Weblinks

- Check the [Organic Farm Knowledge](#) platform for more practical [recommendations on pigs](#) as well as [feeding and ration planning](#).

About this practice abstract and OK-Net EcoFeed

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**OK-Net EcoFeed:**

<https://orgprints.org/view/projects/OKNetEcoFeed.html>

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Project website: <https://ok-net-ecofeed.eu/>

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