

Feeding silage to organic weaning piglets: diarrhoea, gastric health and growth

Problem

Diarrhoea around weaning is common in organic piglet production, even with an extended lactation period and access to grass/clover silage. It results in not only poor growth and production but also impaired animal health and welfare.

Solution

Silage with a high inclusion of chicory (*Cichorium intybus*) was fed to piglets before and after weaning. The innovation practice aimed to evaluate the potential to include chicory silage in diets (without dietary zinc oxide) and its effect on pig health and growth.

Benefits

Chicory forage (see figure 1) has a high content of uronic acids, which forms pectin. Plant-origin pectin can be used as a soluble fibre feed ingredient and can increase colon microbiota diversity and *Lactobacillus amylovorus* population. Thus, silage with chicory can have beneficial effects on gut health. Moreover, silage increases satiety and the possibilities for the pigs to perform foraging and rooting behaviour. Thus, it can reduce the level of stress and occurrence of diarrhoea and thereby promote pig health and growth.

Practical recommendation

- Pigs with chicory silage (see figure 2) gained most weight during the 14-day test period (on average 1.15 kg) compared with pigs that received grass/clover silage (on average 0 kg) or no silage (on average 0.37 kg).
- Even though there were some health problems caused by a Lawsonia infection and weaning diarrhoea, the pigs fed chicory silage recovered fast (compared with pigs that received grass/clover silage or no silage).
- The results from the test indicate that silage with a high inclusion of chicory can have a boosting effect on the pigs' gastric health and is positive for piglet growth around weaning.
- Silage can help to improve pig health through behavioural enrichment and lower stress around weaning.
- Use an early harvested ley crop chicory silage that is tender, with a low proportion of fibres. The silage should have good hygienic quality and be served fresh (i.e. new silage rations every day). Feed the silage at sufficient feeding space, or at several places in the pen, to allow all pigs to feed at the same time.
- Establishing chicory in the crop rotation, after the pigs have been grazing the fields, can enhance nitrogen uptake from the soil.
- For high palatability, the chicory could be combined with e.g. white clover when seeded.
- More obvious positive effects of chicory silage may be achieved by feeding the silage for a longer period.

Applicability box

Theme

Pigs, Feeding and ration planning, behaviour enrichment

Context

To be included in crop rotation, growing season

Summer

Required time

During seeding and harvesting season

Period of impact

July-September (northern Europe climate)

Equipment

Requires ensiling process technique

Best in

All category of pigs



Figure 1. Chicory ley and flowers Photo: Emma Ivarsson. Cut-in picture: Pixabay, under the creative commons licence.



Figure 2. Pigs eating silage with chicory. Photo: Magdalena Presto Åkerfeldt/HIR Skåne.

Further information

Video

- Check the following video "[Silage with chicory to weaning pigs in multi-family pens](#)".

Further reading

- Presto Åkerfeldt, M., Nihlstrand, J., Neil, M., Lundeheim, N., Andersson, H.K., Wallenbeck, A. 2018. Chicory and red clover silage in diets to finishing pigs—influence on performance, time budgets and social interactions. *Org. Agr.* DOI: 10.1007/s13165-018-0216-z
- Wallenbeck, A., Rundgren, M., Presto, M. 2014. Inclusion of grass/clover silage in diets to growing/finishing pigs – Influence on performance and carcass quality, *Acta Agri. Scand. A — Anim. Sci.* DOI: 10.1080/09064702.2015.1006668
- Presto, M., Rundgren, M., Wallenbeck, A. 2013. Inclusion of grass/clover silage in the diet of growing/finishing pigs – Influence on pig time budgets and social behaviour, *Acta Agri. Scand. A — Anim. Sci.* DOI: 10.1080/09064702.2013.793734
- Ivarsson, E. 2012. Chicory (*Cichorium intybus* L) as fibre source in pig diets. 2012. Dissertation, Uppsala, Sweden. SLU, Swedish University of Agricultural Sciences, *Acta Universitatis Agriculturae Sueciae*, 1652-6880; 2012:19. ISBN 978-91-576-7655-9
- Liu, H., Ivarsson, E., Dicksved, J., Lundh, T., Lindberg, J.E. 2012. Inclusion of Chicory (*Cichorium intybus* L.) in Pigs' Diets Affects the Intestinal Microenvironment and the Gut Microbiota. *Appl. Envir. Microbiol.* DOI: 10.1128/AEM.07702-11

Weblinks

- Check the [Organic Farm Knowledge](#) platform for more practical recommendations.

About this practice abstract and OK-Net EcoFeed

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Project website: ok-net-ecofeed.eu

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