

Lactic acid bacteria supplements for organic broilers

Problem

A healthy intestinal system in broilers is important to ensure optimal growth and lower mortality. Adding lactic acid bacteria to drinking water or feeding maize silage, could improve performance and have a positive effect on the digestibility of nutrients.

Solution

Three treatments were tested in an on-farm study with broilers in mobile houses (Figure 1). One control house (A) with no added lactic acid bacteria, one house (B) with lactic acid bacteria culture added to drinking water and one house (C) fed with maize silage. 10% of the chickens were weighed at 1 day old and at 4 and 8 weeks of age. At 8 weeks of age, 12 chickens from each treatment were randomly selected for digestive tract analyses.

Benefits

Adding lactic acid to drinking water can increase “good” bacteria in the digestive tract.

Using maize silage contributes to 100% organic feeding in poultry and can benefit gastrointestinal health, due to the content of lactic acid bacteria and its rough structure. May improve nutrient digestibility and performance.

Practical recommendation

- The test indicates that an increased concentration of lactic acid bacteria in the intestinal system can improve the health of chickens.
- Adding lactic acid bacteria to drinking water or feeding maize silage, are reasonably simple to do for most organic poultry producers.
- Treatment groups B and C had higher concentrations of lactic acid bacteria (Figure 2) in the digestive tract. The concentration of E-coli was generally low in all the chickens, but was lowest in chickens from treatment C. This indicates that a higher concentration of lactic acid bacteria, and thus lower pH in the digestive tract (Figure 3), can reduce the concentration of unwanted bacteria. An acidic environment gives bacteria like E-coli poorer growth conditions.
- The chickens fed maize silage showed a higher level of activity in the outdoor area than chickens from the other two groups, which can be positive for leg health and meat quality. A higher activity level may explain the lower growth rate in treatment C (Figure 4), even though they had a higher feed consumption. The feed conversion ratio was 2.64 (A), 2.79 (B) and 2.94 (C).
- Maize silage contributes nutrients but does not have the same high content of protein and amino acids as the compound feed. The rough structure has a positive effect on the development and activity of the gastrointestinal tract, especially the gizzard.

Applicability box

Theme

Broilers, Feeding and ration planning

Context

Global. Where it is possible to have free-range, organic broilers. To use lactic acid bacteria to positively influence intestinal health.

Application time

Possible all year round, but not in mobile houses during cold winters.

Required time

Daily application in drinking water or feeding maize silage. Preparation of lactic acid bacteria culture.

Period of impact

Immediate impact

Equipment

Equipment to culture the lactic acid bacteria. A 10 l barrel with a lid, a thermometer, organic sugar beet molasse and product made from organic herbs, which are fermented with lactic acid bacteria at 35 degrees for 5 days, Material for storage of maize silage, such as vacuum- packaging for smaller bales.

Best in

Broilers and layers.



Figure 1. Broiler chickens on outdoor area with grass and herbs and access to a small forest close to the mobile house, at Poultry Farm Gothenborg. Photo: Sanna Steinfeldt, Aarhus University

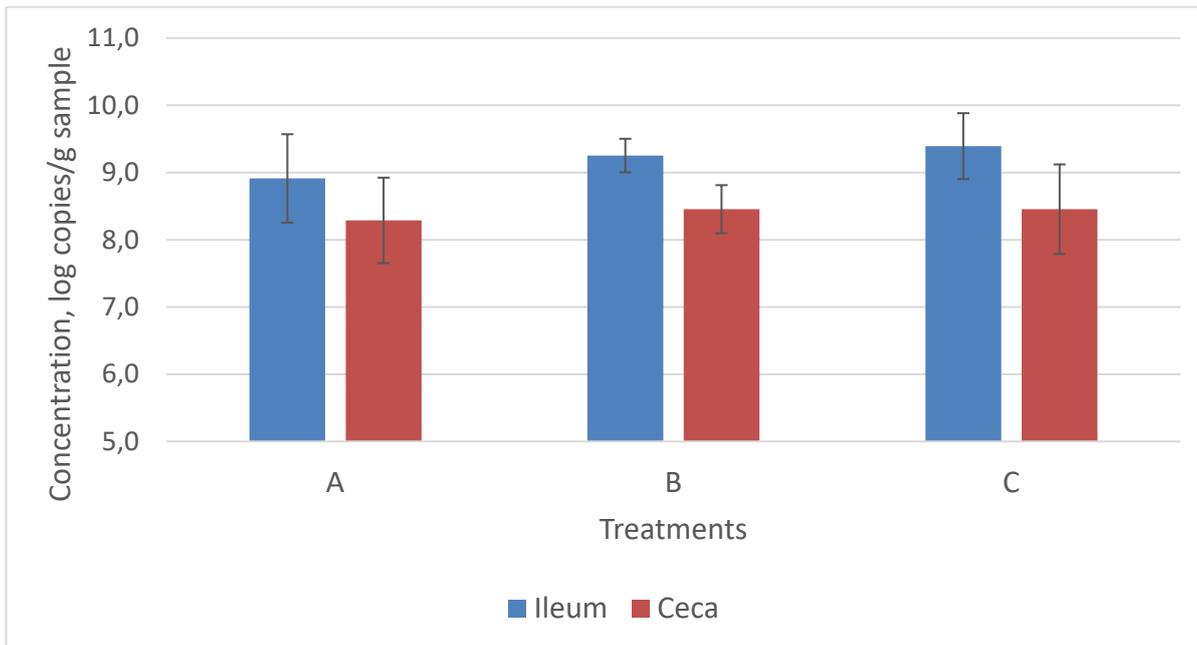


Figure 2. Concentration of lactic acid bacteria in ileum and ceca from broilers at 8 weeks of age

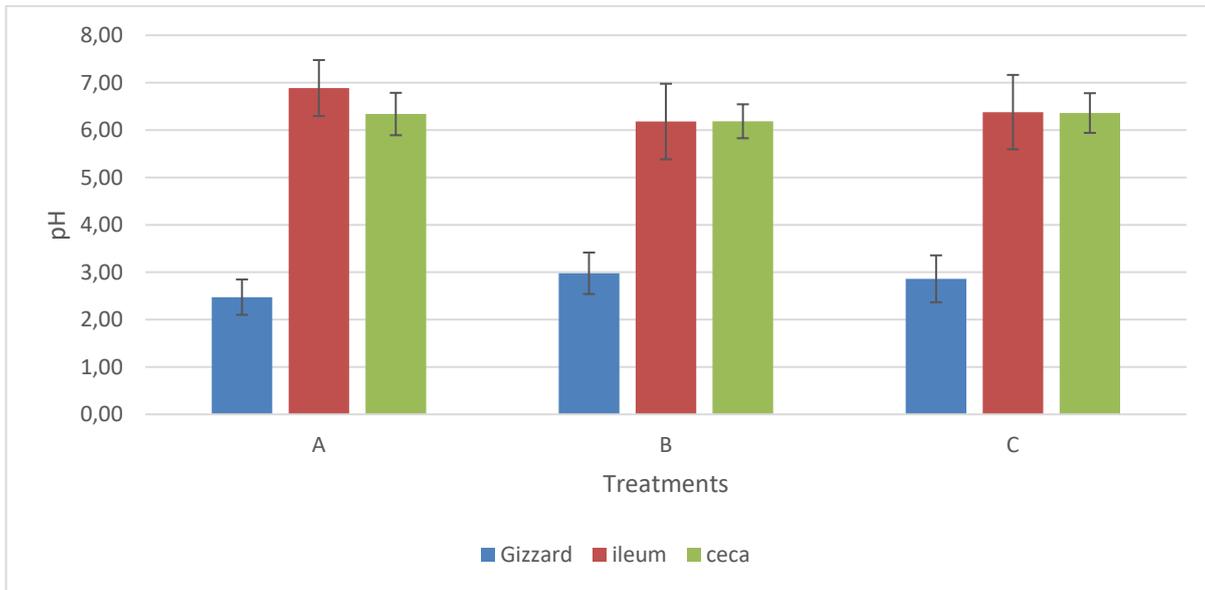


Figure 3. pH of gizzard, small intestine and ceca in broilers at 8 weeks of age

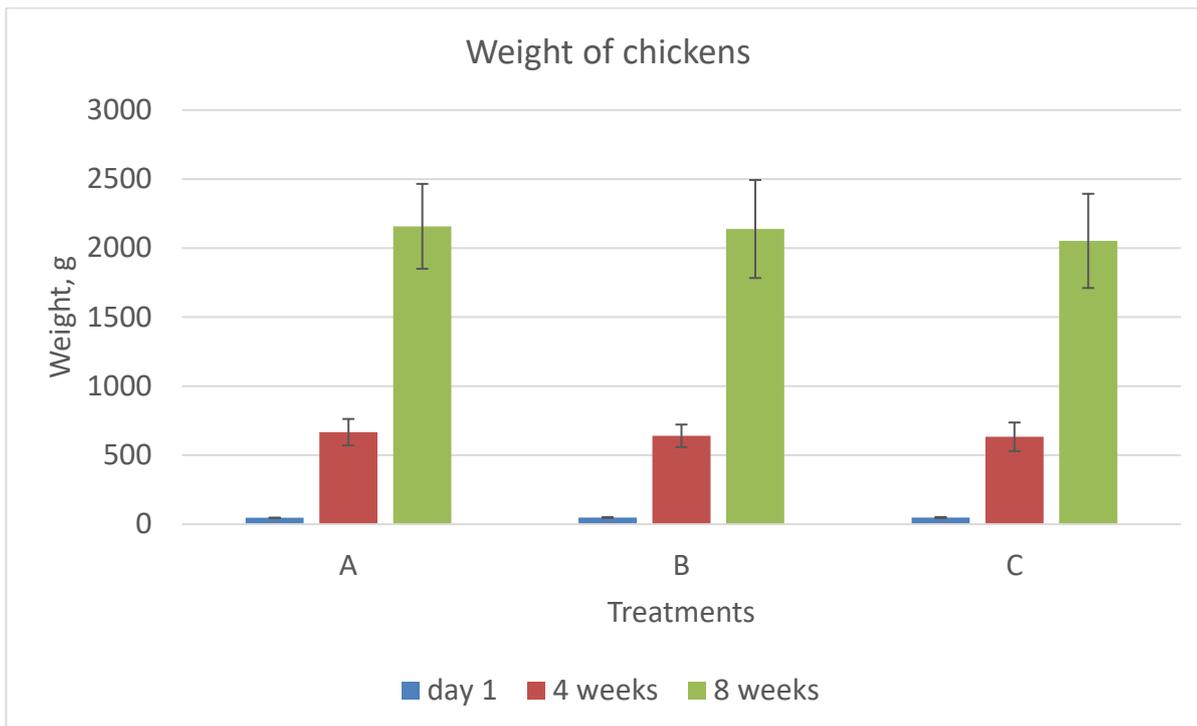


Figure 4. Weight of chickens from 0-8 weeks (average of female and male chickens)

Further information

Video

- Check the video "[Adding lactic acid bacteria via maize silage or to drinking water in organic broilers](#)"
- Check the video "[Adding lactic acid bacteria to drinking water or via maize silage for organic broilers](#)"

Further reading

- L.Z. Jin, Y.W. Ho, N. Abdullah & S. Jalaludin (1997): Probiotics in poultry: modes of action. *World's Poultry Science Journal*, 53:4, pp351-368. <https://doi.org/10.1079/WPS19970028>
- S. Steinfeldt a; J.B. Kjaer b; R.M. Engberg (2007): Effect of feeding silages or carrots as supplements to laying hens on production performance, nutrient digestibility, gut structure, gut microflora and feather pecking behaviour. *British Poultry Science*, 48:4, pp454—468. <http://dx.doi.org/10.1080/00071660701473857>

Weblinks

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

About this practice abstract and OK-Net EcoFeed

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