Source of organic zinc, manganese and copper did not influence average daily litter gain or number of weaned piglets per litter

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Background

Partial replacement of inorganic with organic trace minerals may have positive effects on litter weaning weight, but results are contradicting. It may be speculated whether bioavailability of different sources of organic trace minerals can explain different results.

Objective

The aim of this experiment was to test the effects of feeding identical levels of two different sources of organic trace minerals to hyper-prolific sows on average daily litter gain and number of weaned piglets per litter.

Materials and Methods

- The trial was conducted in a commercial Danish herd with 1,900 sows using DanBred genetics.
- All sows were randomly allocated to two treatment groups based on parity at the previous farrowing, and thus the study included only second to seventh parity sows.
- All diet formulations and feeding curves were similar in both treatment groups and the only difference was the partial replacement of inorganic sources of trace minerals (Figure 1).

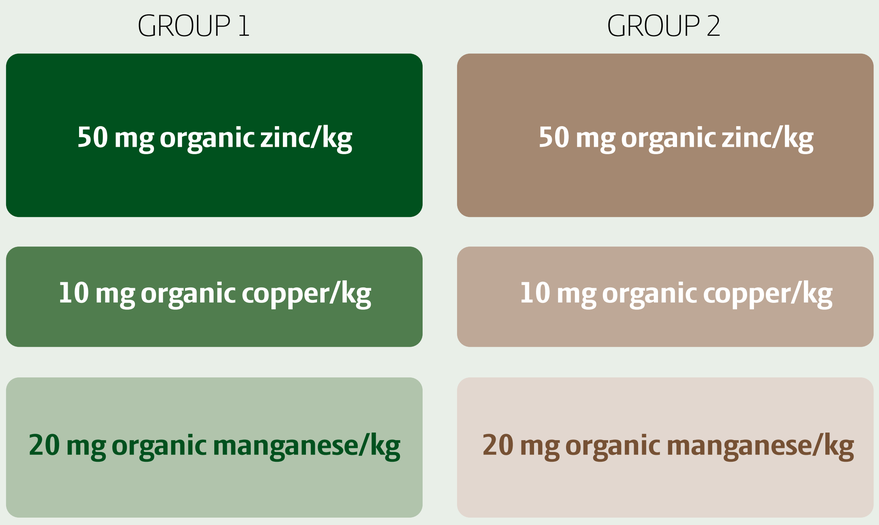

FIGURE 1. Description of partial replacement of inorganic trace minerals with their organic counterparts in group 1 (■; B-TRAXIM 2C, Pancosma) and group 2 (■; Availa® Performance Minerals, Zinpro Corporation), respectively. Inorganic trace minerals were added to adjust the total content of trace minerals to fulfill Danish nutrient standards per energy unit (100 mg zinc; 17 mg copper, 40 mg manganese).

- Sows received the same dietary treatment throughout the previous lactation and gestation periods as well at the current lactation period.
- A total of 147 and 144 sows and their litters were included in the data set for groups 1 and 2, respectively.
- All sows were standardized with a litter size of 14 medium to large piglets 12-24 h post farrowing, and no piglets were moved between groups.
- Data was analyzed in R considering each sow and its litter as the experimental unit. Results are presented as LSMeans and 95 % CI unless otherwise stated.

Results

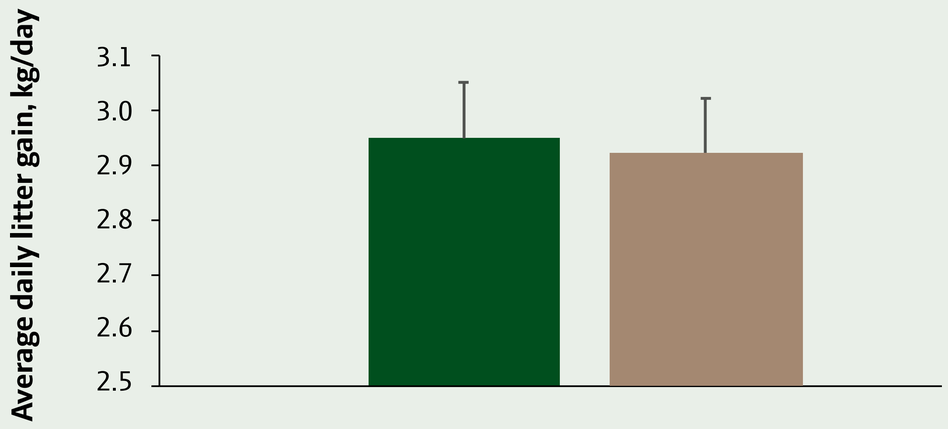

FIGURE 2. Effect of source of organic trace minerals, either glycinates (■) or 1:1 amino acid chelates (■) on average daily litter gain (P=0.599).

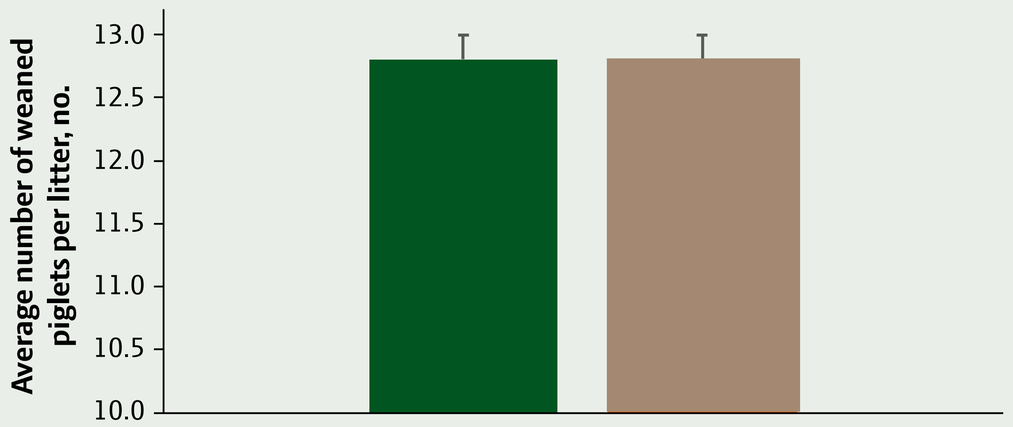

FIGURE 3. Effect of source of organic trace minerals, either glycinates (■) or 1:1 amino acid chelates (■) on number of weaned piglets per litter (P=0.761).

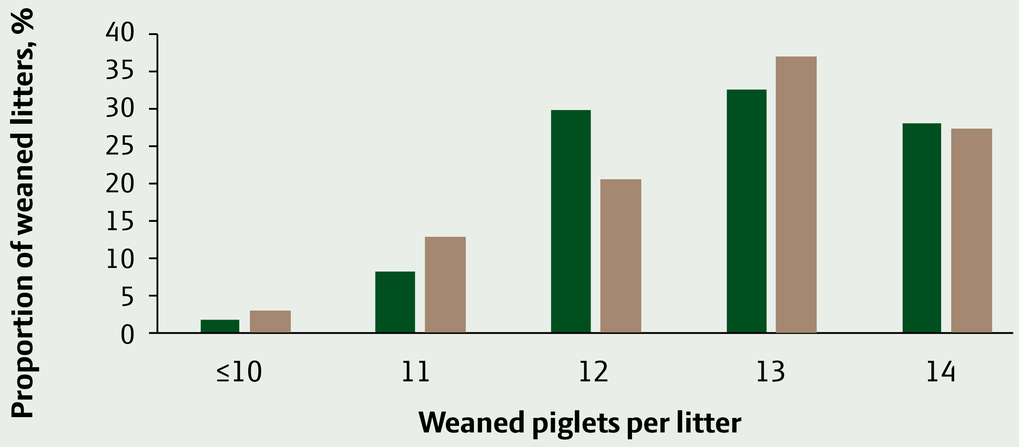

FIGURE 4. Descriptive statistics showing the distribution of weaned piglets per litter of sows fed two different sources of organic trace minerals, either glycinates (■) or 1:1 amino acid chelates (■).

Conclusion

Replacing the source of organic trace minerals from glycinates to 1:1 amino acid chelates did not affect the average daily litter gain or the number of piglets weaned per litter.

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SUPPORTED BY
Danish Pig Levy Fund

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