

Blue mussels as feedstuff

Problem

Organic production should use 100 % organic protein in 2025, but the availability of organic protein is limited.

Solution

Mussel meal can replace other less sustainable protein-rich ingredients, in particular fishmeal, in the diets of organic pigs and layers. Furthermore, mussels can lessen water eutrophication by uptake of nitrogen and phosphorus.

Benefits

Feed intake, weight gain and egg-laying are sustained at normal levels when feeding mussel meal to grower-finisher pigs or layers. Egg quality remains good with a more orange yolk colour compared to feeding fishmeal (Figure 1).

Practical recommendation

- Mussels are harvested from nutrient-rich water before maturation.
- Mussels are deshelled by boiling, dried and processed into meal with approximately 60 % crude protein.
- Mussel meal is included in the diet at a maximum 8% in layer hen diets to avoid off flavour in eggs (Figure 2).
- No maximum inclusion rate has been established in piglets.
- Diets can be optimised for essential amino acid requirements and will often include less crude protein.

Applicability box

Theme

Processing and handling of harvested feed

Context

Coastal regions

Application time

All year after harvest of blue mussel

Required time

Time of feeding

Period of impact

Immediate impact

Equipment

No special machinery needed for feeding

Best in

Piglets, layers



Figure 1: Differences in egg yolk colour. Photo: Marleen van der Heide



Figure 2: Feeding diets with mussel meal to layer hens. Photo: Marianne Hammershøj

Further information

Further reading

- Afrose, S., M. Hammershøj, J. V. Nørgaard, R. M. Engberg, and S. Steinfeldt. 2016. Influence of blue mussel (*Mytilus edulis*) and starfish (*Asterias rubens*) meals on production performance, egg quality and apparent total tract digestibility of nutrients of laying hens. *Animal Feed Science and Technology* 213:108-117. (Article) doi: 10.1016/j.anifeedsci.2016.01.008
- Jönsson, L., and K. Elwinger. 2009. Mussel meal as a replacement for fish meal in feeds for organic poultry—a pilot short-term study. *Acta Agriculturae Scand Section A* 59(1):22-27.
- Jönsson, L., H. Wall, and R. Tauson. 2011. Production and egg quality in layers fed organic diets with mussel meal. *Animal* 5(3):387-393.
- Nørgaard, J. V., J. K. Petersen, D. B. Tørring, H. Jørgensen, and H. Lærke. 2015. Chemical composition and standardized ileal digestibility of protein and amino acids from blue mussel, starfish, and fish silage in pigs. *Animal Feed Science and Technology* 205:90-97.
- Petersen, J. K., B. Hasler, K. Timmermann, P. Nielsen, D. B. Tørring, M. M. Larsen, and M. Holmer. 2014. Mussels as a tool for mitigation of nutrients in the marine environment. *Marine pollution bulletin* 82(1-2):137-143.
- Wallenbeck, A., M. Neil, N. Lundeheim, and K. Andersson. 2014. Mussel meal diets to growing/finishing pigs: influence on performance and carcass quality. In: *Book of Abstracts of the 65th Annual Meeting of the European Federation of Animal Science*, p 249.

Weblinks

- Check the [Organic Farm Knowledge platform](https://www.organic-farmknowledge.org/) for more practical recommendations.

About this practice abstract and OK-Net EcoFeed

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Project website: [ok-net-ecofeed.eu](https://www.ok-net-ecofeed.eu)

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