

Starfish as feedstuff

Problem

An increase in demand for organic feedstuffs is expected to limit protein availability. Therefore, new and more sustainable protein-rich ingredients are needed.

Solution

Starfish are caught to reduce predation on farmed mussels. Starfish meal contains 38-70% protein and can be used to partially replace other protein-rich ingredients in monogastric animal feed.

Benefits

Feeding starfish meal gives comparable growth to feeding fishmeal in piglets. For layers, egg production and quality are maintained at normal levels when feeding up to 8% starfish meal.

Practical recommendation

- Starfish should be harvested, at the earliest, three months before spawning to have highest protein and lowest ash content.
- High calcium levels limit the inclusion level of starfish meal in piglets' diets to around 5%.
- Starfish meal is not organically certified but can still be used because it is not of agricultural origin.
- Starfish meal is already commercially available in Denmark.
- Diets can be optimized regarding amino acids and with lower crude protein.



Figure 1: Starfish before processing. Photo: Jan Værum Nørgaard



Figure 2: Boat specialized in fishing starfish. Photo: Pia Sørensen

Applicability box

Theme

Processing and handling of harvested feed

Context

Coastal countries

Application time

February-May

Required time

Time of feeding

Period of impact

Immediate

Equipment

No extra equipment needed for feeding

Best in

Piglets, layers

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
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- Sørensen, P., and J. V. Nørgaard. 2016. Starfish (*Asterias rubens*) as feed ingredient for piglets. *Animal Feed Science and Technology* 211:181-188.
- van der Heide, M. E., L. F. Møller, J. K. Petersen, and J. V. Nørgaard. 2018. Annual variation in the composition of major nutrients of the common starfish (*Asterias rubens*). *Animal feed science and technology* 238:91-97.
- van der Heide, M. E., D. Carlson, and J. V. Nørgaard. 2018a. Growth performance of weaned pigs fed different levels of starfish meal. *Animal feed science and technology* 238:84-90.
- Ter Beek, V. 2016. Can piglets be fed on starfish meal? *Pig progress*, 32 (3), pp 28.

Weblinks

- Check the Organic Farm Knowledge platform www.organic-farmknowledge.org for more practical recommendations

About this practice abstract and OK-Net EcoFeed**Publishers**

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Project website: ok-net-ecofeed.eu

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