

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.

Applicability box

Theme

Pigs - Crop production - Animal husbandry - Feed and nutrition - Feed processing and handling - Arable crops - Forage - Production systems - Poultry - Nutritive values and needs - Ration planning

Geographical coverage

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

Practical Recommendations

- 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

Further information

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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- 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.
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Weblinks

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

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**OK-Net EcoFeed:**

<https://orgprints.org/view/projects/OKNetEcoFeed.html>

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Project website: <https://ok-net-ecofeed.eu/>

Project partners:

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