

Hemoglobin powder – a valuable resource for aquafeed



EAPA

EUROPEAN ANIMAL PROTEIN ASSOCIATION

Hemoglobin powder a valuable resource for aquafeed



Hemoglobin powder offers a locally produced option to improve the quality of diets in aquaculture. It is nutritionally dense with good biological availability promoting efficient feed conversion. And, as a by-product of the meat processing industry, it has a good environmental profile.

Aquaculture is a fast-developing industry within Europe. As the industry grows, sourcing suitable feed ingredients is a challenge because fishmeal cannot be used in a vastly scaled up industry due to cost and environmental concerns.

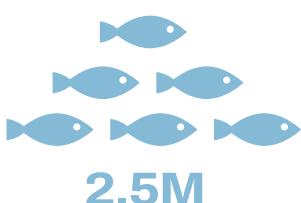
Plant sources of feed, particularly soy, are used but are not without drawbacks. Carnivorous fish are poorly adapted to eat a diet rich in plant material.

What is hemoglobin powder?

Hemoglobin powder is a by-product of the meat processing industry. It is made from dried red blood cells and is a valuable source of nutrients and minerals in compound feeds such as aquafeed and petfood.



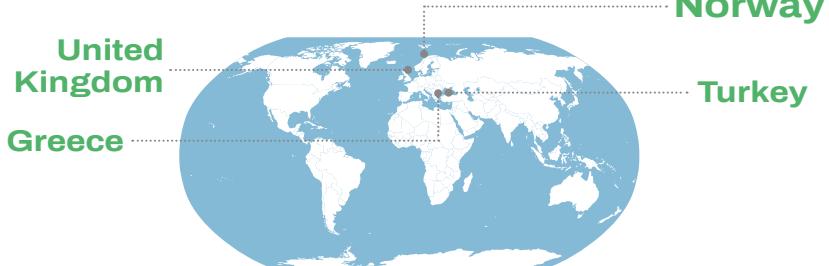
Aquaculture – Key facts



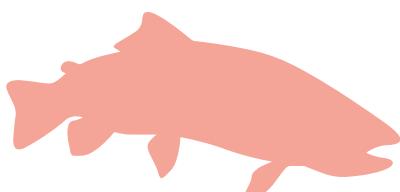
2.5 million tonnes fish produced by aquaculture in Europe. (FEAP)

18.8%

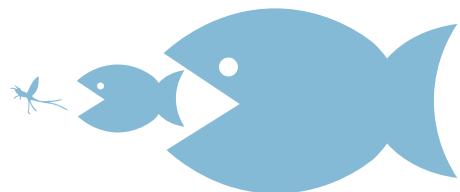
Forecast to grow by 18.8% between 2018 – 30 (FAO).



In Europe, Norway is the single biggest producer, accounting for over half of production. Turkey, United Kingdom and Greece are other major producers.



5 important species:
Salmon, Trout, Seabream, Seabass, Carp



Carnivorous species require a protein rich diet to substitute for insects and fish consumed in the wild.

According to the FAO, growth in aquaculture rearing high value carnivorous species is likely to be limited by the cost and availability of fishmeal. Consequently, finding suitable substitute products that do not affect fish health or growth rates is a high priority.

Protein sources for aquafeed



Fishmeal

Made from captured wild fish. It is nutritionally excellent in fish diets but is not sustainable for a growing aquaculture industry because it relies on fishing already under-pressure wild fish stocks. In addition, it is expensive compared to alternative products, increasing the cost of production and therefore prices for consumers.



Hemoglobin powder

Hemoglobin powder can replace some of the fishmeal in aquafeed with no loss in performance. Its high protein content and good digestibility results in efficient feed conversion which is beneficial to aquaculture producers. Hemoglobin powder is widely produced and available within Europe.



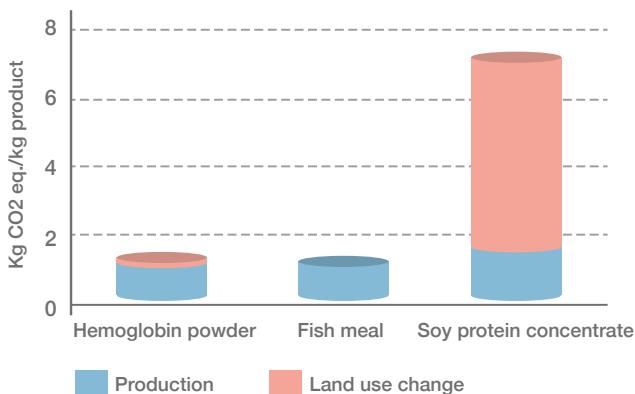
Plant based

Soy is commonly used in fish diets. It is widely available and relatively cheap but there are difficulties with nutrition if vegetable feedstuffs like soy are used in high quantities in aquafeed. It has an unbalanced amino acid profile, lower digestibility, high fibre content and the presence of anti-nutritional factors. There are also water protection issues because of an increase in nitrogen excretions. In addition, soy is linked to direct land use change in producing countries causing a larger environmental footprint.

Environmental footprint

Hemoglobin powder has a similar carbon footprint to fish meal without any of the downsides of capturing wild fish stocks. It has a much smaller footprint than soy protein which has a high carbon footprint due to land use change. The impact of land use change is a significant concern for food supply chains and is difficult to effectively track because it takes place outside the European market.

Carbon footprint of hemoglobin and other protein sources according to GFLI standards



Protein source	Production (Kg CO ₂ eq. / kg product)	Land use change (Kg CO ₂ eq. / kg product)	Total (Kg CO ₂ eq. / kg product)
Hemoglobin powder (economic allocation)	1.15	0.10	1.25
Fish meal	1.16	0.00	1.16
Soy protein concentrate	1.62	5.51	7.13

EAPA's datasets are integrated into the GFLI database which is compliant with the FAO-LEAP (Livestock Environmental Assessment and Performance) and EU-PEF methodologies, and this is an international initiative for disclosing industry-specific environmental information.

Towards a circular economy

Using hemoglobin powder in aquafeed is an important step in building a circular economy. EAPA and many other organisations are keen to optimise



the use of co-products and by-products to close nutrient cycles and minimise the loss of raw materials.

An important element of a circular economy is reusing material in a way that adds the most value.

For example, feed is higher added value than energy recovery (incineration). Using hemoglobin powder in aquafeed represents a high added value use as it produces a healthy and desirable source of protein like salmon.

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About EAPA

European Animal Protein Association (EAPA) was founded in 1988 to represent companies that specialise in the production and supply of high-quality natural animal proteins. These are valued ingredients in food products, in feeds for farm animals and pets, and in aquaculture feeds.

They also fulfil important roles in many pharmaceutical products. Animal proteins offer an excellent way of retaining the value from by-products of the meat processing industry that otherwise would be used in less valuable applications.

For more information visit www.eapa.biz

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