

# Reprofish

**Provimi has formulated Reprofish, a product based on the essential features of fishmeal. It has the benefits of fishmeal, and eliminated the negative effects of this ingredient. Research has proven that Reprofish ensures animal performance in pigs and poultry at a high level.**

**Provimi has identified the essential features of fishmeal:**

- It provides a high level of well digestible amino acids and ensures growth performance.
- Fishmeal contains omega-3 fatty acids (C20:5 EPA, C22:6 DHA). These fatty acids have proven positive immune modulating effects. They are known to contribute to a better fertility of sows and to more vitality of new born piglets, broilers and pullets.
- It includes carnitine that helps cells to produce energy in the mitochondria. It helps proper cell functioning the birds and it supports the liver especially in periods of negative energy balance for the piglet or the sow.
- Furthermore fishmeal is a good source of calcium and phosphorus, delivered by the fish bones.

Unfortunately fishmeal has disadvantages as well. The composition varies per type of fish, area of origin and season of the year. The quality of fishmeal is depending on freshness and manufacturing process. This significantly affects the quality of the protein. Mineral and omega-3 levels vary from batch to batch. And finally extreme price fluctuations have been seen in recent years.

Therefore Provimi has developed an alternative for fishmeal: Reprofish. It combines the highly digestible protein source Provisoy with high quality fish oil, carnitine and minerals. The product has a high and constant nutritional value. It replaces fishmeal one-to-one; correction for amino acids, energy and minerals is not needed. Reprofish has all the benefits of fishmeal without the disadvantages.

Reprofish, the  
proven fishmeal  
replacer in pigs  
and poultry

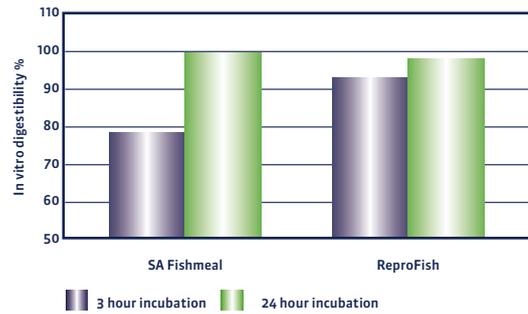
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### Essential amino acids are what counts!

Provimi has used the in house in vitro digestibility protein model to optimize digestibility of protein. This is very important for young animals. In Figure 1 a comparison of in vitro digestibility is shown. The average digestibility of the protein in Reprofish is 93%. This is higher than the protein digestibility in fishmeal (on average 78%).

Figure 1. Amino acids vs. total protein



Due to the higher digestibility the total protein of Reprofish can be lower compared to fishmeal. This is positive, as excess protein favours pathogenic bacteria proliferation in the hindgut.

### Animal performance

Multiple trials at the Provimi research farms worldwide have confirmed that Reprofish can replace fishmeal. No differences on daily gain and final weight were noticed between the piglets of the fishmeal group and the Reprofish group (Table 1). Yet the group fed Reprofish is more uniform (lower standard deviation). This is related to the gel-forming effect by Reprofish in the stomach. It results in a better digestion and more stable feed mass.

Table 1. Reprofish vs. fishmeal in piglets

	South American fishmeal <sup>1</sup>	Reprofish <sup>1</sup>
Weight at start (kg)	8.1 (1.2) <sup>2</sup>	8.0 (1.1) <sup>2</sup>
Final weight (kg)	24.1 (2.7) <sup>2</sup>	24.0 (2.2) <sup>2</sup>
Daily gain (g/d)	498	499
Feed intake (g/d)	748	772
Feed conversion ratio	1.50	1.54

<sup>1</sup>) 5% included in prestarter diets

<sup>2</sup>) Standard Deviation (SD) given between brackets

Table 2. Reprofish vs. fishmeal in broilers

	Age (days)	South American fishmeal <sup>1</sup>	Reprofish <sup>1</sup>
Weight at start (kg)	0	43	43
	7	215	215
	14	524	525
	21	998	995
	30	1.789	1.794
	37	2.473	2.486
	43	2.940	2.943
Feed conversion ratio	7	0.926	0.925
	14	1.164	1.159
	21	1.299	1.269
	30	1.411	1.407
	37	1.490	1.487
	43	1.593	1.594

<sup>1</sup>) 5% included in prestarter diets (100 gram/bird)<sup>2</sup>) Standard Deviation

Table 2 gives an overview of the results in broilers. No differences between the broilers in the fishmeal group and in the Reprofish group were measures in daily gain, final weight and feed conversion ratio. The results on our research farms are confirmed by global experiences on commercial farms.

### Reprofish, a practical and tailor made solution

Reprofish is produced in Micrum, a mini crumble. This ensures higher flowability than fishmeal. Two versions of Reprofish are marketed: one to replace Danish quality fishmeal, one to replace South American Fishmeal\*. This ensures a well applicable solution in replacing fishmeal.

### Conclusions

Both in vitro and in vivo research shows that Reprofish can replace fishmeal. Besides the cost effectiveness of the product, constant quality and higher flowability are additional advantages. Reprofish, the proven and cost effective fishmeal replacer.

\* South American fishmeal can also be replaced by 90% Reprofish Danish quality

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