

# Assessing the Economic Viability of Fish Sludge Pelleted Fertiliser Production as an Innovative Bio-Based Fertiliser

## Main results / outcomes

The analysis shows that the production of fish sludge pelleted fertilizer (FSP) using the nutrient price method results in significant financial losses, making it an unviable option. In contrast, the cost-based pricing method demonstrates much stronger economic feasibility. While production with both purchased and own input scenarios performs positively under this method, using own input leads to a nearly 30% higher gross margin and a BBF price almost 50% lower. These results highlight the clear advantage of the cost-based approach, particularly when fish waste is self-supplied. Producing the reference quantity of 1,000 tons of BBF annually requires 1,700,000 liters of fish waste.

## Practical recommendations

The nutrient price method consistently results in financial losses and should be avoided. The cost-based approach proves economically viable and should be the standard pricing model for BBF production. Where possible, stakeholders should use self-sourced fish waste, as it significantly improves profitability—raising gross margins and reducing product price. Projects should be designed to maximize internal resource efficiency, such as securing steady supplies of fish waste from within the value chain to reduce dependency on external inputs. Production should be prioritized in regions with favorable cost conditions (e.g., lower energy and labor costs) to further improve the economic viability of the model.

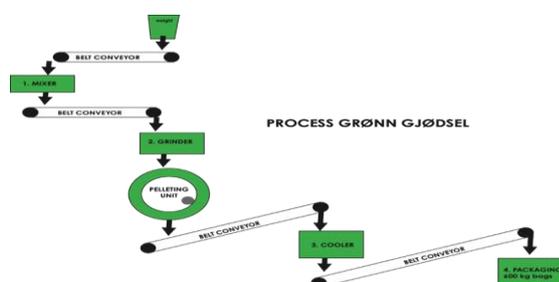


Figure 1: Fish sludge pelleted production process

Pelleted fish sludge (FSP)	Nutrient price method			Cost method			
	Net profit (EBIT)	Payback period (PP)	PRICE	Net profit (EBIT)	Gross margin (GM)	Payback period (PP)	PRICE
<b>Norway</b>							
purchased input	-223.604,32	-1,92 years	43,47 eur/t	52.925,68	16,54%	8,12 years	320 eur/t
own input	-19.604,32	-21,29 years	43,47 eur/t	52.925,68	45,63%	8,12 years	116 eur/t
<b>Italy</b>							
purchased input	-220.713,63	-1,95 years	43,47 eur/t	52.816,37	16,66%	8,14 years	317 eur/t
own input	-16.713,63	-25,72 years	43,47 eur/t	52.816,37	46,74%	8,14 years	113 eur/t

Figure 2: Main economic results for FSP production

## Further information

SEA2LAND project website - <https://sea2landproject.eu/>

## About this abstract

**Authors:** IPS Konzalting d.o.o. za poslovne usluge

**Date:** May 2025

**SEA2LAND** project is a collaborative Innovation Action (IA) funded by the EU in the frame of the Horizon 2020 programme. The project aims to provide solutions to help overcome challenges related to food production, climate change and waste reuse. Based on the circular economy model, SEA2LAND promotes the production of large-scale fertilisers in the EU from own raw materials. This solution is expected to reduce the soil nutrient imbalance in Europe. The project is running from January 2021 to June 2025.

**Website:** [www.sea2landproject.eu](http://www.sea2landproject.eu)



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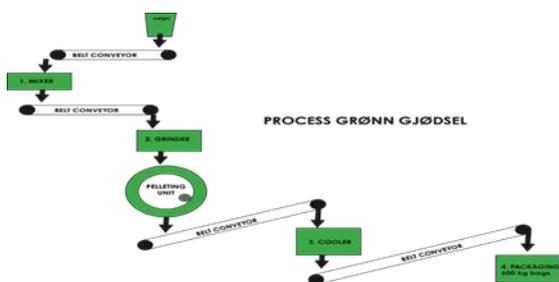
# Procjena ekonomske isplativosti proizvodnje peletiranog gnojiva ribljeg mulja

## Glavni rezultati/ishodi

Analiza pokazuje da određivanje prodajne cijene peletiranog gnojiva ribljeg mulja metodom cijene hranjivih tvari dovodi do značajnih financijskih gubitaka, što je čini neodrživom opcijom. Nasuprot tome, metoda određivanja cijena na temelju troškova pokazuje mnogo veću ekonomsku izvedivost. Dok oba scenarija i kupljene i vlastite ulazne sirovine imaju pozitivne rezultate prema ovoj metodi, korištenje vlastite ulazne sirovine dovodi do gotovo 30% veće bruto marže i prodajne cijene predmetnog biognojiva gotovo 50% niže. Ovi rezultati naglašavaju jasnu prednost pristupa koji se temelji na troškovima, osobito kada se riblji otpad već posjeduje. Za proizvodnju referentne količine od 1.000 tona BBF godišnje potrebno je 1.700.000 litara ribljeg otpada.

## Preporuke

Prodaja cijena određena metodom cijene hranjivih tvari dosljedno rezultira financijskim gubicima i treba je izbjegavati. Pristup temeljen na troškovima pokazao se ekonomski isplativim i trebao bi biti standardni model određivanja cijena za prodaju predmetnog biognojiva. Gdje je to moguće, proizvođači bi trebali koristiti vlastiti riblji otpad, jer značajno poboljšava profitabilnost—podizujući bruto marže i smanjujući cijenu proizvoda. Projekti bi trebali biti osmišljeni tako da maksimiziraju učinkovitost unutarnjih resursa, kao što je osiguravanje stalne opskrbe ribljim otpadom unutar lanca vrijednosti kako bi se smanjila ovisnost o vanjskoj ulaznoj sirovini. Proizvodnja bi trebala biti locirana u regijama s povoljnim troškovnim uvjetima (npr. niži troškovi energije i rada) kako bi se dodatno poboljšala ekonomska održivost modela.



Slika 1. Proizvodni proces peletiranog gnojiva ribljeg mulja

	Nutrient price method			Cost method			
	Net profit (EBIT)	Payback period (PP)	PRICE	Net profit (EBIT)	Gross margin (GM)	Payback period (PP)	PRICE
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Slika 2. Glavni ekonomski rezultati u proizvodnji peletiranog gnojiva ribljeg mulja

## Više informacija

SEA2LAND projektna stranica - <https://sea2landproject.eu/>

## Opširnije o praktičnom sažetku

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**Datum:** Svibanj 2025

**SEA2LAND** projekt je suradnička inovacijska akcija (IA) koju financira EU u okviru programa Horizon 2020. Cilj projekta je pružiti rješenja koja će pomoći u prevladavanju izazova povezanih s proizvodnjom hrane, klimatskim promjenama i ponovnom uporabom otpada. Na temelju modela kružnog gospodarstva, SEA2LAND promiče proizvodnju velikih količina gnojiva u EU iz vlastitih sirovina. Očekuje se da će ovo rješenje smanjiti neravnotežu hranjivih tvari u tlu u Europi. Projekt traje od siječnja 2021. do lipnja 2025. godine. Web stranica: [www.sea2landproject.eu](http://www.sea2landproject.eu)



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