

Assessing the Economic Viability of Protein Fraction Production as an Innovative Bio-Based Fertiliser

Main results / outcomes

The economic assessment of producing protein fraction-based fertilizers - protein fraction (BBF1) and protein fraction upgraded (BBF2) shows that the cost-based pricing method is significantly more viable than the nutrient price method. The latter method shows that results are consistently negative in profitability across all scenarios. The cost method demonstrates a notably improved financial outlook, particularly when using own input. With BBF2 production, costs are reduced by 9–10% compared to purchased input. Additionally, the prices for both BBF1 and BBF2 remain consistent between the two countries – for example, in case studies, Norway and Italy, regardless of whether raw materials are purchased or self-supplied. These findings highlight the clear advantage of leveraging own resources and applying a cost-based pricing strategy to ensure economic feasibility.

Practical recommendations

Establishing closed-loop systems or partnerships that secure internal raw material supplies can enhance economic performance and reduce dependency on external markets. To improve profitability, producers are advised to use self-sourced materials for BBF2 production, which can reduce costs by 9–10% compared to using purchased inputs. Since BBF1 and BBF2 prices are consistent between different regions, for example, Norway and Italy, regardless of input source, producers can plan production and pricing strategies without needing to account for significant regional price variation.

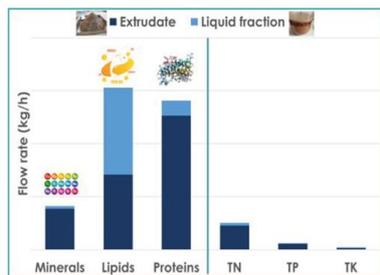


Figure 1. Flow rate distribution in the TMC processing unit

Protein fraction- BBF1 and protein fraction upgraded-BBF2	Cost method							
	BBF1 (protein fraction) PRODUCED	BBF2 (protein fraction upgraded) PRODUCED	Net profit (EBIT)	Gross margin (GM)	Return on investment	Payback period (PP)	PRICE BBF1	PRICE BBF2
Norway								
purchased input	753,00 ton/year	2.205,00 ton/year	1.324.381,01	34,51%	12,33%	8,11 years	2.300 eur/ton	955 eur/ton
own input	753,00 ton/year	2.205,00 ton/year	1.331.296,01	38,21%	12,39%	8,07 years	2.080 eur/ton	870 eur/ton
Italy								
purchased input	753,00 ton/year	2.205,00 ton/year	1.325.269,33	34,53%	12,33%	8,11 years	2.300 eur/ton	955 eur/ton
own input	753,00 ton/year	2.205,00 ton/year	1.332.184,33	38,23%	12,40%	8,07 years	2.080 eur/ton	870 eur/ton

Figure 2. Cost method main results for protein fraction-based BBFs

Further information

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

About this abstract

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

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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



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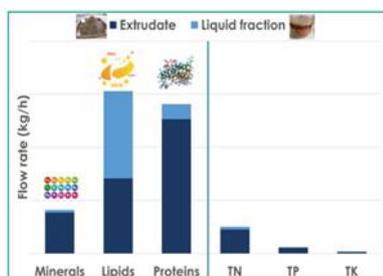
Procjena ekonomske isplativosti proizvodnje proteinske frakcije ribljih ostataka

Glavni rezultati/ishodi

Ekonomska procjena proizvodnje proteinske frakcije ribljih ostataka pokazuje da je metoda određivanja cijena na temelju troškova znatno održivija nego metoda cijene nutrijenata, što rezultira dosljedno negativnom profitabilnošću u svim scenarijima. Troškovna metoda pokazuje znatno poboljšane financijske izgleda, posebno kada se koriste vlastite sirovine što smanjuje troškove za 9-10% u usporedbi s proizvodnjom koja koristi kupljene ulazne sirovine. Osim toga, prodajne cijene za proteinske frakcije ostaju dosljedne između različitih regija kao što su npr Norveška i Italija, bez obzira na izvor ulaznih sirovina. Ovi rezultati naglašavaju jasnu prednost povećanja vlastitih resursa i primjene strategije određivanja cijena koja se temelji na troškovima kako bi se osigurala ekonomska isplativost.

Preporuke

Uspostavljanje sustava „zatvorene petlje“ ili partnerstva koja osiguravaju unutarne opskrbe sirovinama mogu poboljšati ekonomske rezultate i smanjiti ovisnost o vanjskim tržištima. Za poboljšanje profitabilnosti, proizvođačima se savjetuje da koriste materijale iz vlastitih izvora za proizvodnju proteinske frakcije, što može smanjiti troškove za 9-10% u usporedbi s korištenjem kupljenih sirovina. Budući da su prodajne cijene proteinske frakcije dosljedne u različitim regijama, kao što su Norveška i Italija, bez obzira na izvor sirovina, korisnici mogu planirati proizvodnju i strategije prodajnih cijena bez potrebe za lociranjem u različitim regijama.



Slika 1. Raspodjela protoka u TMC procesnoj jedinici

Protein fraction- BBF1 and protein fraction upgraded-BBF2	Cost method							
	BBF1 (protein fraction) PRODUCED	BBF2 (protein fraction upgraded) PRODUCED	Net profit (EBIT)	Gross margin (GM)	Return on investm ent	Payback period (PP)	PRICE BBF1	PRICE BBF2
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Slika 2. Glavni rezultati troškovne metode za biognojiva na bazi proteina

Više informacija

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

Opširnije o praktičnom sažetku

Autor: IPS Konzalting d.o.o. za poslovne usluge

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



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