



Business Model 1. FVG

Business Model scenarios Friuli Venezia Giulia (Italy)

SHORT SUMMARY FOR PRACTITIONERS

EN version

Residues from fruit and vegetables are produced in significant amounts in Friuli Venezia Giulia region (Italy), but not fully valorised to date. RUSTICA provides a technical solution for recovering nutrients and organic matter from wastes to convert them into innovative bio-based fertilisers (RBBF) of high quality.

To maximise the viability of RBBF production, feasible and robust value chains (VC) and business model (BM) scenarios need to be developed tailored to the region. This aim was achieved following a bottom-up approach in a multi-actor framework, considering stakeholders' contributions in defining BM scenarios fitted to current region conditions and needs. Two potential BM scenarios were identified based on the regionally established network of inter-municipal waste management companies integrating RUSTICA technologies in their current waste treatment processes.

The viability of the proposed BM scenarios can be increased by finding low-cost feedstocks, enhancing the production scale, integrating different conversion processes in the same plant, and properly considering the long-term positive effect of RBBF on soil fertility and ecosystem functions.

SHORT SUMMARY FOR PRACTITIONERS

NATIVE version

In Friuli Venezia Giulia si producono quantità significative di scarti di frutta e verdura che non sono al momento attuale pienamente valorizzati. RUSTICA offre una soluzione tecnica che consente di recuperare nutrienti e sostanza organica dagli scarti e di convertirli in fertilizzanti a base biologica (RBBF) innovativi e di alta qualità.

Per massimizzare la redditività del settore dei RBBF, è necessario sviluppare catene del valore e modelli di business solidi e sostenibili, adatti alla specifica regione. Questo obiettivo è stato raggiunto seguendo un approccio dal basso in un contesto multi-attoriale, prendendo in grande considerazione il contributo dei portatori di interesse del settore nella definizione di scenari di modelli di business adatti alle condizioni ed esigenze attuali della regione.

Sono stati identificati due potenziali scenari di modelli di business, basati sulla consolidata rete regionale di aziende municipalizzate per la gestione dei rifiuti e l'integrazione delle tecnologie Rustica nei correnti processi di trattamento dei rifiuti utilizzati dalle aziende.

La fattibilità degli scenari di modello di business proposti può essere aumentata identificando scarti con costo minore, aumentando la scala di produzione, integrando diversi processi di conversione nello stesso impianto e considerando adeguatamente l'effetto positivo a lungo termine dell'applicazione dei RBBF sulla fertilità e le funzioni ecosistemiche del suolo.



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CONTEXT

Residues from fruit and vegetables are produced in significant amounts in Friuli Venezia Giulia (Italy), but their nutrient and organic matter content is not fully valorised to date. Their recovery as fertilising products is relevant to decrease the use of mineral fertiliser and maintaining soil fertility, contributing to the sustainability of agricultural productions. RUSTICA provides a technical solution to convert residues in innovative bio-based fertilisers (RBBF) of high quality

PROBLEM

In order to maximise the viability of the RUSTICA end products, viable and robust value chains and business model (BM) scenarios need to be developed tailored to each region's specific economic, social, and environmental conditions.

SOLUTION

Values chain and BM scenarios were defined following a bottom-up approach in a multi-actor framework. In particular, the contribution of stakeholders to the definition of BM scenarios was highly considered in a series of 6 consecutive regional workshops. In this way, it was possible to consider the specific crop needs, pedoclimatic conditions, farmer requirements and locally available resources. This enabled the definition of robust and viable BM scenarios tailored to the region's actual conditions and needs.

OUTCOME

Two potential BM scenarios were identified, both based on the regional established network of inter-municipal waste management companies already operating in the region, and the integration of the new RUSTICA technologies in the current anaerobic digestion and composting processes to produce BBF blends.

The first business model scenario and value chain is based on an inter-municipal company, assuming that, apart from producing compost, it would also produce insect biomass and insect frass. In this BM scenario also biochar is needed, and it is foreseen that the coffee processing industry, generating significant amounts of organic wastes, will utilise them to produce biochar. The second BM scenario is based on two inter-municipal companies, that form a cooperation for producing a RBBF blend. One inter-municipal company produces insect biomass and frass, but only frass is sent for RBBF production. The second inter-municipal company produces biochar from green waste and microbial protein from degradable waste, utilising energy (heat) from the pyrolysis process for drying the microbial protein.

PRACTICAL RECOMMENDATIONS

- The viability of identified BM scenarios and the competitiveness of RBBF in the region can be increased by finding low-cost feedstocks for the conversion processes (especially for pyrolysis) and increasing the amount of available waste to increase the production scale.
- Integration of different conversion processes in the same plant, utilising energy and byproducts from a process to enhance another process, allows for a decrease in RBBF cost production.
- High energy prices in Italy make the pyrolysis technology especially attractive in this country.
- Feasibility of the proposed BM scenario will be increased by the appropriate valorisation of the long-term positive effect of blend application to land on soil fertility and ecosystem functions, such as, for example, the acknowledgment of carbon credits.