

# BResilient



Funded by the  
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## RESILIENCE SKILLS HUB FOR SMES

### WHAT IS THE “SKILLS HUB”?

A skills hub is created in the framework of B-Resilient project with the aim to support European Food Production SME's resilience. This skills hub is **a word document tool** with links to different resources, that will be made available for SMEs regularly, and that **will be gathering knowledge on biomass valorisation and zero waste in general during the project lifetime**; this skills hub is specifically created and will be fed by the partners themselves to help the SMEs to improve their resilience by the optimal use of their biomass.

### FIVE THEMATICS PRIORITISED:

Five specific value chains have been prioritised for the scope of the project in order to help the partners to explore more deeply the challenges and opportunities in the biomass market. These value chains are cereals and wheat bran, dairy, spent grains, stone fruits and apples, and grapevine & winemaking. You will find in that skills hub specific biomass analysis as well as articles or videos dedicated to these value chains. You will also find content about other value chains in part IV.

### WHAT IS B-RESILIENT PROJECT?

The B-Resilient project aims to increase the use of available raw materials and the valorisation of secondary streams into biobased ingredients. In particular, it will enable SMEs in food production and processing to become more resilient through the optimal use of biomass.

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## 1 CEREALS AND WHEAT BRAN

### 1.1 Valorisation of wheat bran: state of art

Sum up of the content: Wheat bran, consisting of bran and middlings, is the primary byproduct of the milling industry, accounting for 14 to 19% of the materials resulting from wheat crushing. It is excluded from white flour due to the negative perception linked to its dark colour. In Belgium, the main valorisations for wheat bran are in energy biomass and animal feed. It can also occasionally be reintroduced in the formulation of whole-grain bread and pasta.

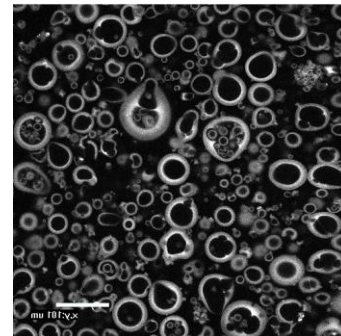


Click on the link to know more about it: <https://info.wagralim.be/en/blog/durabilite-5/valorisation-of-wheat-bran-state-of-the-art-217>

## 2 DAIRY

### 2.1 Doing without additives and relying on the specific properties of milk proteins!

Sum up of the content: Started in 2014, the French collaborative project PROFIL cumulates nearly 60 years of research and development, condensed into 6 years! PROFIL stands for Functionalized Milk Protein Assemblies for Innovation in the Dairy Industry. PROFIL focuses on the properties of serum milk protein assemblies to replace preservative and texturising additives in dairy products.



Click on the link to know more about it: [https://www.pole-valorial.fr/en/success\\_stories/profil-2/](https://www.pole-valorial.fr/en/success_stories/profil-2/)

## 3 SPENT GRAINS

### 3.1 Brewery's spent grain : market situation and example of valorisation

**Sum up of the content:** Brewer's spent grain (BSG) is a by-product of the brewing industry that makes up 85 percent of brewing wastes. It is obtained as a mostly solid residue after wort production in the brewing process. This article describes market trends of BSG and example of valorisation.

SUBTITLES :

- Global market for spent grain based products
- Valorisation of Brewery's Spent Grain

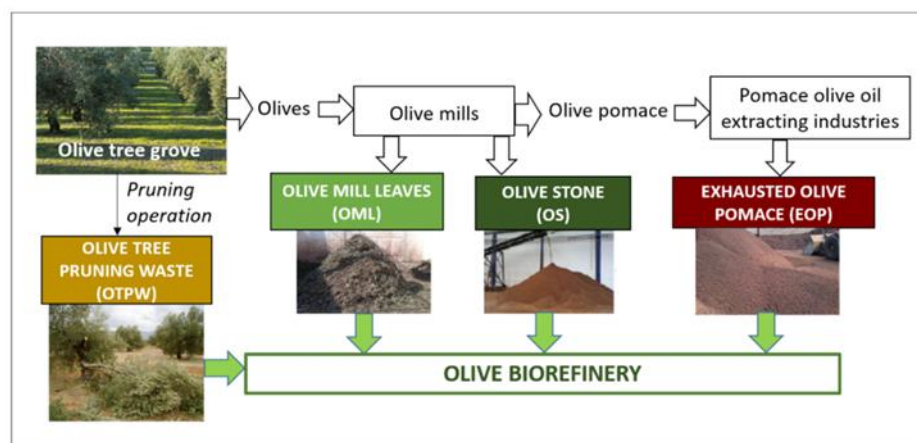
Click on the link to know more about it: [Brewerys-Spent-Grain-Market-situation-and-example-of-valorisation-1.pdf \(pole-innovalliance.com\)](https://www.pole-innovalliance.com/Brewerys-Spent-Grain-Market-situation-and-example-of-valorisation-1.pdf)

## 4 STONE FRUITS & APPLE

### 4.1 Location of Biorefineries on Olive-Derived Biomass in Andalusia, Spain

**Sum up of the content:** The olive biorefinery involves a multi-product process from different raw materials: olive leaves, exhausted olive pomace, olive stones and olive tree pruning residues. Biorefinery processes associated with these wastes allow their valorization

to produce bioenergy and high value-added renewable products. In this work, using



geographic information system tools, the biomass from olive crop fields, mills and olive pomace-extracting industries, where these wastes are generated, was determined and quantified in the study area (provinces of Jaén, Córdoba and Seville), making it possible to identify the best locations for the implementation of the biorefineries based on olive-derived biomass.

Click on the link to know more about it: <https://www.mdpi.com/1996-1073/14/11/3052>

## 5 GRAPEVINE & WINEMAKING

### 5.1 Organic mulches in viticulture

Sum up of the content: Organic mulches have emerged as a promising and sustainable solution for enhancing cultivation practices worldwide. Unlike traditional synthetic materials, organic mulches are derived from natural sources such as plant residues, compost, straw, or even post-cultivation substrates like mushroom remnants. Their increasing popularity comes from the numerous benefits they bring to various agricultural systems, including the cultivation of crops like vineyards.



Click on the link to know more about it:

<https://www.clusterfoodmasi.es/wp-content/uploads/2023/09/Skills-Hub-october-1 - Organic-Mulches-in-Viticulture.pdf>

### 5.2 Winemaking By-Products

Sum up of the content: The by-products of grapes are the materials or components obtained as a result of the winemaking process. These by-products can be recovered and used for various purposes, or in some cases, they are sought to



be avoided due to their potential negative impact on the final product. The most common by-products include grape pomace, grape seeds, wine lees, and wine acids.

Click on the link to know more about it: <https://www.clusterfoodmasi.es/wp-content/uploads/2023/09/Skills-Hub-october-2 -Wine-byproducts.pdf>

## 6 OTHER VALUE CHAINS

### 6.1 In Morbihan (France), Terremo'logic eggshells are a hit

Sum up of the content: This company has created an innovative solution for recycling eggshells as an agricultural amendment. It has invested 800,000 euros in its manufacturing process. It is reaching saturation point, and a second line is being studied.



Terremo'Logic will transform 6,000 tonnes of eggshells this year, collected from five Breton "casseries". Located in Lizio (Morbihan), the Terremo'Logic team will then grind and heat these shells using a unique and confidential process.

Click on the link to know more about it: [https://www.pole-valorial.fr/voy\\_content/uploads/2023/03/article-terremologic-22-3-23.pdf](https://www.pole-valorial.fr/voy_content/uploads/2023/03/article-terremologic-22-3-23.pdf)

### 6.2 The tomato skin by-product: a source of innovation for the market

Sum up of the content: Two examples of tomato skin valorization: on the cosmetic market and on biopolymers. The processing of tomato fruit into puree, juices, sauces, etc, produce numerous by-products in the form of tomato pomace, which includes peel and seeds. These by-products are rich in water and difficult



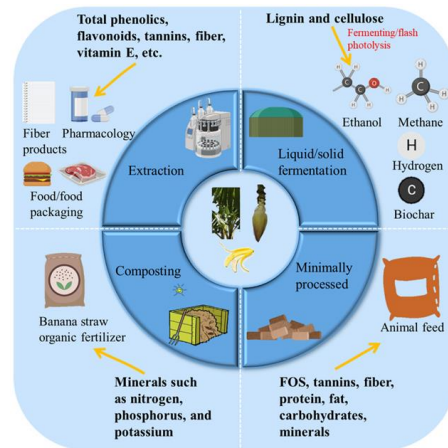
to transport and must be consumed quickly after their production. Furthermore, in addition to the technical difficulty of their exploitation, the economic reality of valuing such a by-product is also an issue.

Click on the link to know more about it: [https://pole-innovalliance.com/wp-content/uploads/2023/09/B-Resilient-1.3-INA\\_Tomato-skin.pdf](https://pole-innovalliance.com/wp-content/uploads/2023/09/B-Resilient-1.3-INA_Tomato-skin.pdf)



## 6.3 The Valorization of Banana By-Products: Nutritional Composition, Bioactivities, Applications, and Future Development.

Sum up of the content: A great deal of waste and by-products is produced during banana harvesting and consumption, including stems, leaves, inflorescences, and peels. Some of them have the potential to be used to develop new foods. This paper summarized the composition information, functions, and comprehensive utilization of banana by-products. Moreover, the problems and future development in its utilization



Click on the link to know more about it: <https://www.mdpi.com/2304-8158/11/20/3170>

## 6.4 A closer look at the MiRaDi project

Sum up of the content: Migino, Ranobo and Didess joined hands 2 years ago. Together they founded the MiRaDi partnership on nut processing. Together with Flanders' FOOD and VIVES and with the support of VLAIO, they developed an extensive product range with a focus on zero-waste. From mayo to croquette, discover MiRaDi's zero-waste nut buffet here.



Click on the link to know more about it: [A closer look at the MiRaDi project - Flanders' FOOD \(flandersfood.com\)](https://www.flandersfood.com)

## 7 GENERAL ELEMENTS/RESOURCES ON RESILIENCE FOR FOOD PRODUCING AND PROCESSING SMES

## 7.1 How to innovate the use of food residues in high added value products in a context of accelerated climate change, in which circular economy is more important than ever? (Vidéo)

Sum up of the content: Clust-ER Agrifood organized an online public event on April 12 at 16:00 to discuss a priority theme: how to innovate the use of food residues in high added value products in a context of accelerated climate change, in which circular economy is more important than ever. In partnership with the SPES Value Chain (“Valorization of by-products and waste – chemistry from biomass in the agrifood sector”) of the Agrifood Clust-ER, 6 questions were discussed, as follows:

1•What are the top 5 trends in new ingredients from traditional value chains (traditional primary products such as wheat, stone fruit, grapes, etc.)?

2- What are the top 5 trends in new ingredients from non-traditional value chains (such as algae, insects, bio-based proteins)?

3•What are the main obstacles to allowing a wider diffusion of these new trends?

4•What is the added value of these new trends compared to what exists at the moment?

5•What are the best tips and tricks learned in the Emilia-Romagna region to create a constructive environment to support new developments?

6•What are the main needs (finance, research, startup/scaleup facilities, business support, right partners, ...) to create new resilient value chains?

The opportunities offered to SMEs by the EUROCLUSTER "B-Resilient" project were also presented - namely the "lump sum" Mobility, Business Continuity Plan, Innovation & Internationalization calls - which aim to finance innovative products generated by primary or secondary productions using the biotechnology.

EVENTO VALUE CHAIN SPES  
12 APRILE 2023 - ONLINE



Innovare l'uso dei residui  
alimentari nei prodotti ad  
alto valore aggiunto nel 2023  
mercoledì 12 aprile | 16:00 - 18:00

Click on the video link to know more about it: <https://youtu.be/iPILgR4VhF8>

## 7.2 Reusing by-products: a flagship theme for the Walloon Region as well as for Europe

Sum up of the content: According to the ADEME's definition, a by-product is something that is created during the process of producing a product, whether or not this is intentional. The by-product is intended for a specific use, different from that of the product from which it is derived. So it is somewhere between an original product and waste.

What are the obstacles that get in the way of your by-products?

Click on the link to know more about it: <https://info.wagralim.be/en/blog/durabilite-5/reusing-by-products-a-flagship-theme-for-the-walloon-region-as-well-as-for-europe-192>

Click on the video link to know more about it: <https://youtu.be/iPILgR4VhF8>

### **7.3 Business Continuity Plan when valorising Food biomass : discover the dedicated lump sum in the framework of B-Resilient project**

Sum up of the content: B-Resilient project offers the opportunity to be partly financed if you are an SME working on valorising food biomass and you are facing disturbance in logistic, production, raw material...

Click on the video link to know more about it: <https://youtu.be/OC81K4DD-Ck>

### **7.4 MixMatters project to optimize the value derived from mixed biological waste**

Sum up of the content: The MixMatters Integrated System is a smart and multi-purpose solution that makes valorisation of a wide range of mixed bio-waste streams containing impurities from the agri-food industry a viable option.

The system consists of a Separation Unit and the Valorisation Hub, encompassing a range of advanced technologies into an Integrated System that is mobile, modular, multi-purpose and smart.

The overall objective of MixMatters is to set up the system and demonstrate the separation and valorisation of mixed agri-food biowaste containing impurities such as plastic, cardboard or metal and coming from three streams from the agri-food industry (wholesale markets, greenhouses, and the food and drink industry) into six high-value outputs: powdered ingredients, sugar concentrates, recombinant proteins, green fibres, bioactive compounds, and plastic monomers.

Click on the article link to know more about it: <https://www.clusterfoodmasi.es/wp-content/uploads/2023/11/MixMatters-Project.pdf>

### **7.5 The agrifood system of Emilia-Romagna region**

Sum up of the content: The Emilia-Romagna Region has published a brochure in English entitled "The agrifood system of Emilia-Romagna region" which is now available online;

it reports the most significant data of the agri-food system of the Emilia-Romagna region; its structure, economy and excellence. From territorial to economic data, from production chains to import-export data, from excellent products (Labels) to sustainable production techniques (organic and integrated), the publication paints a complete picture of the characteristics of quality, safety, traceability, and sustainability of production which have given Emilia-Romagna that leading role in agri-food which has been recognized for years both in Italy and abroad.

Click on the article link to know more about it: <https://agricoltura.regione.emilia-romagna.it/internazionalizzazione/pubblicazioni/the-agrifood-system-of-emilia-romagna-region/@@download/publicationFile/agrifood-2021-accessibile.pdf>

## 7.6 B-Resilient Webinar: how to secure the supply chain for food raw materials?

Sum up of the content: Innov'Alliance, in collaboration with Valorial and Wagralim, have organised a webinar on the theme of "how to secure the supply chain of food raw materials?" to help companies understand what a business continuity plan is. The B-resilient project offers financial assistance in this area.

Click on the video link to know more about it: <https://pole-innovalliance.com/events/webinaire-b-resilient-comment-securiser-la-supply-chain-des-matieres-premieres-alimentaires/>

## 7.7 Business Continuity Plan training : comprehension and B-Resilient help for European SMEs

Sum up of the content: Organisations that work on sustainability and digitalisation are more resilient, less susceptible to crises and outperform their competitors. Will you be a front runner? A training has been organised to perform cluster managers and staffs' comprehension on the 'Business continuity Plan', and inspire them with new ideas.

Click on the video link to know more about it: <https://www.youtube.com/watch?v=pBJOImth6rk>