

AlpBioEco

Best Practice Brochure

Potentials of eco-innovative bioeconomy business models in EU Alpine regions



Dear reader,

This brochure is the result of the collective work of the AlpBioEco project partners. We would like to give you an insight into the business models we have developed and validated during our project, displaying the potential of the bioeconomy in the Alpine regions.

Together, let's make the bioeconomy grow!

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1. ALPBIOECO PROJECT

The AlpBioEco project addresses the bioeconomy potentials in six Alpine regions of the European Union (EU). It uses innovative methods to foster sustainable development in the Alps, raises awareness regarding the economic potential in bioeconomy and actively supports interdisciplinary and supra-regional cooperation for the development of innovative business concepts. It thus stimulates the creation of new jobs in the Alpine regions.



The AlpBioEco project partners in Avignon, France.

1.1 ALPBIOECO TEAM

We are an interdisciplinary project group consisting of 13 partners from 5 different countries in the Alpine Space (Austria, France, Germany, Italy and Slovenia). We comprise research, business, innovation centres, academia, local entities, NGOs and Chambers of Commerce. Together, we are looking for new ways to create economic value from vegetable products. For this purpose, the value chains of walnuts, apples and herbs are examined in terms of their bioeconomic potential. Together with various stakeholders involved in the project, we develop and validate eco-innovative bioeconomic business models that are transferable to other crop products and, in the long term, to other regions.

1.2 PROMOTING BIOECONOMY IN THE ALPS

Bioeconomy has a huge innovation potential for Green Growth and professional development and is thus considered as a key discipline of the 21st century. According to the 2012 EU Bioeconomy Strategy, bioeconomy can be defined as the production of renewable biological resources and their conversion into vital products and bioenergy. The strategy, which was updated in 2018, emphasises in its action plan the rapid deployment of local bioeconomies across Europe¹. Expanding bioeconomy, particularly in rural areas, represents a major development potential, especially in terms of job creation. The overall objective of AlpBioEco is to foster the sustainability of the local economy in the Alpine Space through the valorisation of innovative bioeconomic potentials along bio-based food and botanical extract value chains. By choosing the value chains of apples, walnuts and herbs, AlpBioEco is focusing on important regional value chains in the Alpine regions of its project partners and is committed to the development of a local bioeconomy in harmony with the territories. AlpBioEco increases capacities of SMEs to jointly develop bio-based innovative products and contributes to better cohesion and integrated territorial development, since rural regions become connected in new bio-based value chains. High value jobs are thereby generated in the agricultural sector. On a macro-regional level, AlpBioEco contributes to lower disparity in the Alpine Space regions.

¹EU bioeconomy policy available at: <https://ec.europa.eu/research/bioeconomy/index.cfm?pg=policy&lib=strategy>

2. ALPBIOECO PROJECT STEP BY STEP

2.1 ANALYSIS OF BIOECONOMIC VALUE CHAINS



In the **first work package**, the AlpBioEco team mapped and analysed the value chains of apples, walnuts and herbs (including Alpine hay) in the Alpine Space under the leadership of project partner Competence Center for Nutrition Bavaria, Germany. The main goal was to examine the value chains for novel (raw) compounds, key actors, innovation gaps and missing partners in these value chains as well as to find fields of bioeconomic potentials and new application possibilities. The results of the value chain analyses can be found in a comprehensive [report](#) on the AlpBioEco website.

In addition, a general guideline to analyse value chains with bioeconomic aspects was developed, using the findings from the AlpBioEco value chain analysis processes: the so-called “[Replicable Roadmap](#)”. The main aim of the Replicable Roadmap is to make value chain analysis easier for interested businesses and organisations searching for new bioeconomic potentials in interesting or own value chains. Although the value chains studied in the AlpBioEco project have their particularities, the steps taken in the course of the analysis and the structure of the analysis can be generalised and standardised. This was accomplished, and the Replicable Roadmap is now an easy-to-use guideline even for firms and other interested organisations outside the AlpBioEco project.

2.2 DEVELOPMENT OF ECO-INNOVATIVE BUSINESS MODEL BLUEPRINTS

The results of the analyses conducted in the first work package served as a base for the activities in the **second work package**: the development of eco-innovative business models targeted at the examined untapped economic opportunities. To develop these new business models, the AlpBioEco team conducted 22 interactive workshops, involving SME, cluster, academic and other societal actors, in 9 different locations in 5 AlpBioEco countries under the leadership of Management Center Innsbruck, Austria.



Workshop on walnut business models at the InnoCamp in Sigmaringen, Germany.

As an output, 26 business model ideas were developed, targeting the sustainable exploitation of the identified innovation opportunities. Of those, the seven most promising business model ideas – two for each value chain and one transversal business model – were then selected and developed further as “business model blueprints” – ready to be implemented, tested and validated with local businesses and organisations in the next work package. Detailed descriptions of selected business models can be found in a comprehensive [report](#) on the AlpBioEco website.

2.3 VALIDATION OF THE BIO-BASED BUSINESS MODEL BLUEPRINTS



In the **third work package**, under the leadership of the Chamber of Commerce and Industry of Slovenia, the seven selected business model blueprints were validated and tested to check them for feasibility. To do so, small and intensive group interviews were conducted – so-called focus group workshops.

In these focus group workshops, in-depth discussions on the business models took place: the business models were first examined in detail and then further developed, also looking for relevant implementation hurdles, together with small and medium enterprises (SMEs), industry representatives, researchers, marketing experts and other actors. The AlpBioEco team conducted 17 focus group workshops in 9 different regions. In addition to the focus group workshops, the AlpBioEco team visited several existing companies that are active in similar or neighbouring businesses to discuss the implementation possibilities and opportunities in bilateral meetings and to test the business model on site in the companies. In total, 16 online and offline business visits took place in 6 different regions.

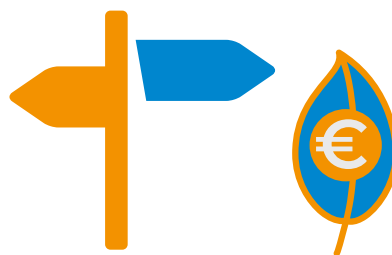
In response to the COVID-19 crisis, all AlpBioEco workshops and other activities were completely shifted to online formats from mid-March onwards. The results of this practice-related work package are presented in this Best Practice Brochure. This entails validating the business models as well as highlighting existing best practices. This report builds the basis for the upcoming and final work package, which aims at the development of policy guidelines on how business model implementation and eco-innovation in the Alpine regions can be supported. Furthermore, guidelines will be developed to transfer implementation procedures to other Alpine Space regions or projects.



Harvesting of the eternal flower, business visit in Krkavče, Slovenia.

2.4 DEVELOPMENT OF POLICY GUIDELINES AND TRANSFER OF RESULTS

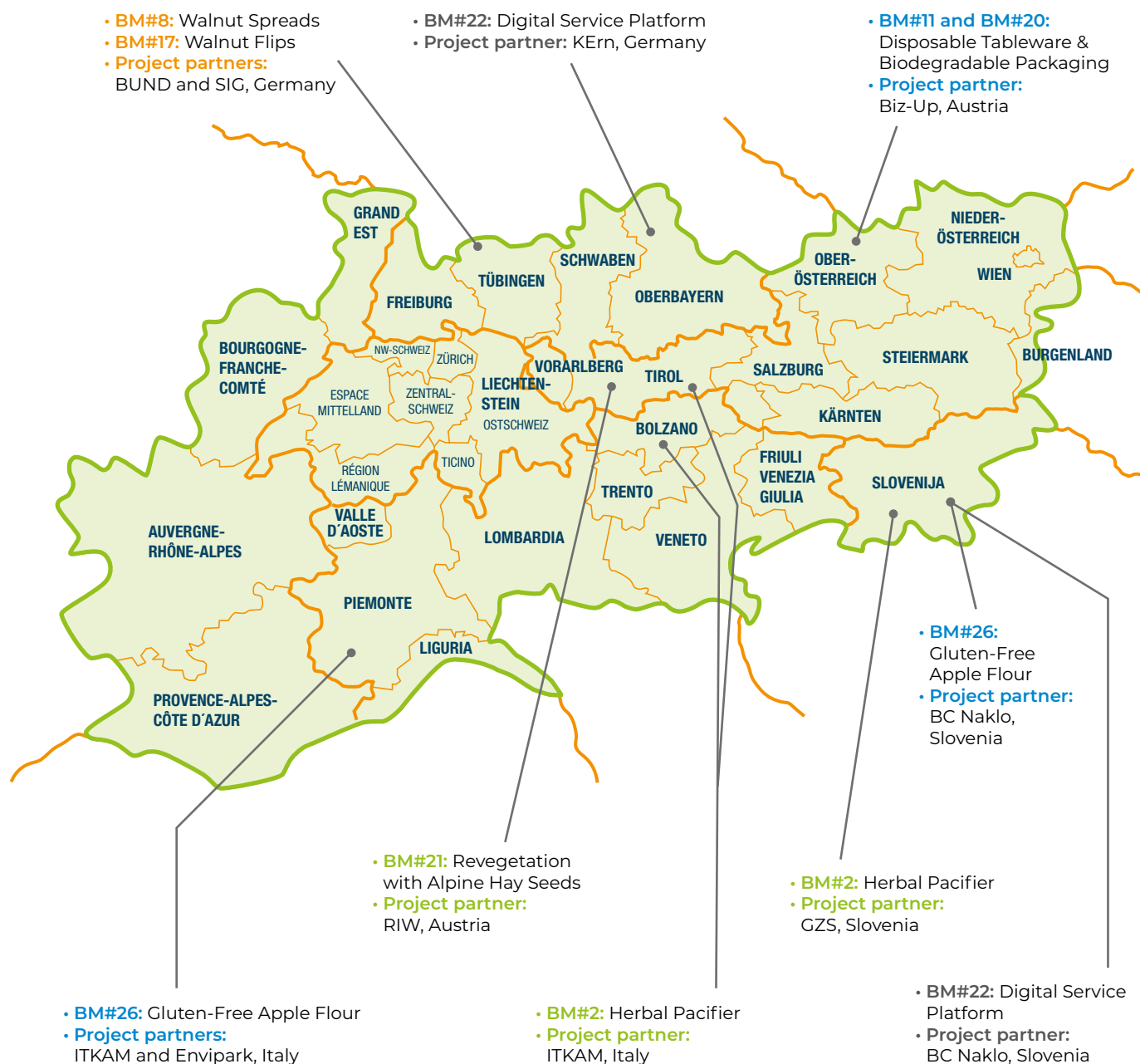
In August 2020, the **fourth** and last **work package** began under the leadership of Business Upper Austria. In this work package, the AlpBioEco team transfers the results from the previous work into policy learning. This will be done through the establishment of up to 12 regional advisory boards that will support the AlpBioEco project partners in developing regional policy guidelines. These regional policy implementation guidelines will be available at the end of 2020 for all AlpBioEco regions, aiming to promote the implementation of the selected business models in defined regions.



3. PILOT ACTIONS ON ECO-INNOVATIVE BUSINESS MODELS

In this chapter, we present to you the main results of our work in our third work package and highlight best practices. During the last seven months, the AlpBioEco project partners have worked with local businesses and research institutions to further develop and validate seven selected business models. In this chapter, we have now summarized the most relevant information, including information about the product, about business and marketing opportunities, about implementation hurdles and also about suggested next steps for all seven selected business models.

The map below shows the region and the project partner for each business model developed.



Friends of the Earth Germany, Regional Association Bodensee-Oberschwaben / Bund für Umwelt und Naturschutz, Regionalverband Bodensee-Oberschwaben = BUND; City of Sigmaringen = SIG; Competence Center for Nutrition Bavaria / Kompetenzzentrum für Ernährung Bayern = KErn; Business Upper Austria = Biz-Up; Italian Chamber of Commerce for Germany = ITKAM; Regio Im Walgau = RIW; Chamber of Commerce and Industry of Slovenia – Chamber of Agricultural and Food Enterprises (CCIS - CAFE) = GZS; Biotechnical Center Naklo = BC Naklo



3.

Apple
business
models

BM #26: GLUTEN-FREE APPLE FLOUR

PRODUCT DESCRIPTION

Apple flour is gluten-free and can be used either for human nutrition or for natural cosmetics. Basically, there are two ways that apple flour can be produced: One way is to process apples directly into apple flour, and the second is to process finely milled, dried apple pomace. Apple pomace is a by-product of apple juice production and is composed of apple pulp residues, peels and seeds. Apple pomace is often considered as waste, but it still contains a high amount of nutrients, which makes apple pomace interesting and valuable for human nutrition and skin care.



Apple flour bread sample, business visit in Barge, Italy.

ITALY



In the project, apple flour was produced by using apple pomace originating from ancient organic varieties of Italian apples. These ancient varieties are more resistant to parasites and contribute to local biodiversity. No chemical substances have been used at any stage in the production process. The apple flour produced still contains high quantities of sugars, fibres, pectin and different antioxidants with anti-radical activities. Given these characteristics, it is possible to produce an apple paste by rehydrating and homogenising the flour, thus obtaining a more water-soluble product. In the project, apple flour was used in different bakery products (sponge cake, bread, shortbread cookies and cereal bars). Moreover, the apple paste served as a functional ingredient for the realisation of three cosmetic products: face cream, micellar water and shower gel. This cosmetics line is 100% organic, rich in natural antioxidants and sustainable.

BUSINESS AND MARKETING OPPORTUNITIES

In the Piedmont Region, more than 4 thousand companies annually produce 230,000 tons of apple; the total Italian apple production amounts to 2.2 Mio tons per year available for further processing. Of this volume, about 2.3 - 2.5% (50,600 – 55,000 tons) are side streams – residues from primary and secondary production, mainly apple pomace. The possibilities to use and further process these quantities of apple pomace could lead to an increase in the profitability of the companies by diversifying the incomes. Especially interesting is further processing into ingredients for the food industry, in particular for the gluten-free sector. Moreover, apple flour could be also used for production of functional and nutraceutical foods. Additionally, the chemical characteristics of apple flour make it interesting for applications in the cosmetic sector due to its high content of different types of antioxidants. It even serves as a major ingredient for different types of cosmetic formulas.

In both application cases, the market penetration of apple flour should be strictly correlated to the concept of territoriality and sustainability, by using an effective storytelling approach.

IMPLEMENTATION HURDLES

For successful production, a dedicated logistical process needs to be set up in order to further process apple pomace into apple flour immediately after the production of apple pomace or to ensure immediate refrigerated storage in case of post-production. This is especially important, as the food industry and cosmetic companies require products with high levels of standardisation in terms of chemical characteristics as well as taste, texture etc. Thus, the entire production process needs to consider these requests from all points of view (logistic, quality assurance, etc.), which is difficult due to the different origins of the apple pomace and the different varieties included in the apple pomace.

As apple flour is not water-soluble, its use in the cosmetic sector is difficult. As an alternative, apple paste can be used. It is water soluble and suitable for all cosmetic categories but is produced at higher costs. Apple paste production requires more processing and the use of more technologies.



SUGGESTIONS FOR THE NEXT STEPS

The next steps for the implementation of the apple flour business model are related to the different market opportunities. In the case of the food sector, food design has to be completed with further development of recipes as well as laboratory analysis and sensory studies. In addition, a more detailed analysis of market trends and opportunities to enter niche markets (like organic and gluten-free) still has to be done.

In the case of the cosmetic sector, further product development and quality management are also necessary. Policy requirements also have to be addressed: firstly, apple paste should be registered with the International Cosmetic Ingredient Nomenclature Committee (INCI), which provides the systematic name for the identification of a cosmetic ingredient. Then, apple paste should receive the declaration of safety and approval for use according to the relative directives. Moreover, a complete formula design for the cosmetic line is needed, together with the developing of a solid cosmetics branding strategy.



AlpBioEco plantable seed postcard and apple paste.

PROCESS AND MILESTONES

NOVEMBER 2019	JANUARY 2020	FEBRUARY 2020	MARCH 2020	APRIL 2020	JUNE 2020
<ul style="list-style-type: none"> • business model development • contact with Azienda Agricola Magnarosa interested in the implementation 	<ul style="list-style-type: none"> • collaboration with project partners working on the business model • Conducting preliminary-research for the focus group workshop 	<ul style="list-style-type: none"> • technical focus group workshop for implementation of apple flour 	<ul style="list-style-type: none"> • development and production of apple flour prototypes • analysis of the apple flour 	<ul style="list-style-type: none"> • production of food products with apple flour 	<ul style="list-style-type: none"> • production of cosmetic products with apple flour

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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the gluten-free apple flour business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partners from Italy:

→ Envipark, Barbara La Licata:

barbara.lalicata@envipark.com | www.envipark.com

→ Italian Chamber of Commerce for Germany, ITKAM, Sonia Barani:

SBarani@itkam.org | www.itkam.org

For the development of this business model, we have worked with the following company from Italy:

→ Azienda Agricola Magnarosa:

info@magnarosa.com | www.magnarosa.com



SLOVENIA



In Slovenia, apple flour is relatively new on the market, but it is considered as a product with a high potential, as it can be used in gluten-free food production. Production and use were discussed during a focus group workshop with experts from Slovenia. Later, the apple flour was tested in gluten-free pastry production and its parameters evaluated.



Gluten-free pastries made with apple flour at BC Naklo, Slovenia.

BUSINESS AND MARKETING OPPORTUNITIES

Business and marketing opportunities were discussed according to the customer segments, such as end consumers and users using apple flour as an additive to the final product. In the case of end consumers, the material and design of the packaging must be such as to inform the customer that it is a natural product and that this product represents the specific values mentioned above. Among bakers, confectioners, innkeepers and restaurant managers, it is necessary to find those who share similar values as those

represented by the product. In kitchens of public institutions that are tied to public procurement, a different approach is needed in terms of green public procurement. The consumer market has increased interest in zero waste and circular economy food production. A product such as apple flour being based primarily on leftover material and offering a gluten-free alternative to traditional flour offers excellent opportunities for successful marketing positioning.

IMPLEMENTATION HURDLES

First of all, it is still unclear how large the market for apple flour in Slovenia is. This makes it hard to estimate the costs and benefits. Although gluten-free products are more and more in demand on the market, apple producers see gluten-free apple flour as a niche product with strong competition on the market. In addition, apple flour production from apple pomace has many technical and investment-related hurdles. To process the apple pomace, special machinery is needed. As many businesses don't yet own such a machine, investments into equipment would be needed. Also, the logistics of the apple flour tend to be demanding in terms of storage conditions and packaging material.

SUGGESTIONS FOR THE NEXT STEPS

Connecting apple growers with food processing companies and product development and testing are two important next steps, including aspects of quality, taste and standardisation. In addition, raising the awareness of consumers, promoting and educating them about bio-based food products, the development and implementation of marketing activities and gaining support and funding from government institutions are crucial for the implementation of the business model.

In Slovenia, the conditions for mass production of gluten-free apple flour and international marketing are currently limited due to a lack of appropriate technical equipment in the food industry to produce such products. Thus, it is necessary to develop a product that targets certain groups of early adopting customers and consumers who value the special advantages of the product, such as sustainability, regionality and circularity.



PROCESS AND MILESTONES

MARCH 2020	APRIL 2020	MAY 2020	JUNE 2020	JULY 2020
<ul style="list-style-type: none"> • collaboration with project partners working on the business model • conducting preliminary-research for the focus group workshop 	<ul style="list-style-type: none"> • planning of the focus group workshop 	<ul style="list-style-type: none"> • focus group workshop with experts from Slovenia on the topic of apple production and food processing 	<ul style="list-style-type: none"> • online business visit an apple producer 	<ul style="list-style-type: none"> • focus group workshop for experimenting with gluten-free pastry recipes and carrying out the evaluation

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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the gluten-free apple flour business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partner from Slovenia:

→ Biotechnical Center Naklo, | www.bc-naklo.si

Mihela Špelko (*project coordinator, food technology and nutrition expert*):

mihela.spelko@bc-naklo.si

Nuša Levičnik (*project office manager*):

nusa.levicnik@bc-naklo.si



BM #11/20: DISPOSABLE TABLEWARE AND BIODEGRADABLE PACKAGING

PRODUCT DESCRIPTION

Bio-based and bio-degradable packaging based on apple pomace is a highly promising alternative to existing conventional plastic products in order to reduce environmental pollution caused by plastic waste. Its relevance will become even greater when single-use plastic products will be forbidden due to EU legislation by 2021. Disposable tableware and bio-degradable packaging made from apple pomace is likely to be accepted by consumers due to their increased awareness of this topic and their increasing need for better alternatives to conventional plastic.



Biodegradable straws made of apple pomace.

AUSTRIA



For the project, we collaborated with a research centre for scientific analysis of apple pomace. The aim was to gain deeper knowledge about the raw material, e.g. whether and how different varieties of apple pomace require different production parameters, and which raw material is more or less promising for further research in this field of application. Four different samples were analysed. To compare the different samples, they were all subjected to the same procedure. The same solvents, temperature and duration were used for the extractions. The results of the analysis show that the drying process of the apple pomace has an influence on the composition of the ingredients and nutrients. This is an important aspect, because apple pomace containing a high amount of important nutrients should not be used for packaging. Instead, it could preferably be used for further processing into products for human consumption or as animal feed, since the high content of e.g. sugar and protein is also beneficial to animals.

BUSINESS AND MARKETING OPPORTUNITIES

A large amount of apple pomace is currently used for animal feed. For apple juice producers, selling apple pomace to packaging companies (which produce and/or sell the disposable tableware and biodegradable packaging) would be an attractive opportunity to increase the valorisation of their by-product. The first choice for the marketing of disposable tableware and packaging products would be business to business – “B2B”. For example, standardised products and single-use dishes can be sold and distributed via gastronomy suppliers and via wholesalers. A second promising opportunity would be B2B marketing through cooperation with food producing companies, which are in need of more sustainable, alternative packaging materials. For example, a great opportunity lies in the replacement of conventional plastic yoghurt cups. In general, biodegradable packaging is perceived as a possibility to stand out from the competition, as it offers a unique selling point on the market, which can in turn have a positive effect on the companies.

IMPLEMENTATION HURDLES

Since packaging and tableware made from apple pomace are new products, there are many uncertainties that still need clarification. Firstly, the amount of packaging material that can be produced from regional raw material is limited depending on the availability of raw material in the region, which again might vary from season to season. Importing the necessary volumes of raw material appears

not to be desirable, because it would mean losing the economic effects on the region. Secondly, developing the product in such a way that it meets all hygiene and food technology requirements (e.g. shelf life of the food, no residues, e.g. from pesticides, in the produced packaging) represents another hurdle. A major challenge is that apple pomace is normally not obtained from a single variety of apples but from an unknown mixture. Consequently, there is a broad range in the quality levels and materials characteristics, which is likely to result in varying quality of the final packaging/tableware products. Furthermore, the different treatments such as drying of the raw material can also make it difficult to produce packaging with the same hygiene and food technology properties. Thirdly, it is important to distinguish between different types of raw materials in order to ensure sustainability: some raw materials still contain a lot of high-quality nutrients. In this case, the processing needs to be set up to ensure that nutrient rich apple pomace remains usable for human consumption or as animal feed. Another technical implementation hurdle is the compatibility with existing machinery: are the new packaging materials compatible with existing machinery? Producers will be asking for assurance that the alternative material will also work with their equipment. Otherwise, the companies would have to develop or buy new, costly machines, which would be big obstacle for implementation. Additionally, bio-degradable packaging has to withstand conventional solutions from an economic point of view. If they do not offer similar margins and features, it will be difficult to make companies enthusiastic about the product.



Apple pomace samples, Austria.

SUGGESTIONS FOR THE NEXT STEPS

As a first step, market research on the availability of raw materials is needed to find out how much raw material is available and how much packaging/tableware could be produced from that raw material. As a second step, more interested companies need to be identified and connected: companies that provide the raw material, a research centre or research company with relevant expertise, a packaging company that wants to work on the development of the product and a machine manufacturer, if needed. In addition, a further laboratory analysis of the raw material is needed (e.g. hygienic testing of the packaging material, testing machinery, shelf life of food products packaged in biodegradable packaging) as well as comprehensive product development to find the most suitable raw material. Based on the results, the financial resources need to be calculated in detail, including the price of the raw material, certification costs and costs for logistics/marketing. In addition, it is useful to look for investors and sponsors for the development of biodegradable packaging.



PROCESS AND MILESTONES

MARCH 2020	APRIL 2020	MAY 2020	JUNE 2020	JULY 2020
<ul style="list-style-type: none"> conducting preliminary-research for cooperation and focus group workshop 	<ul style="list-style-type: none"> focus group workshop with German speaking experts 	<ul style="list-style-type: none"> start of raw material analysis bilateral exchanges with experts 	<ul style="list-style-type: none"> conduction of several business visits analysis of raw material 	<ul style="list-style-type: none"> presentation of results of raw material analysis

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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the disposable tableware and biodegradable packaging business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partner from Austria:

→ Business Upper Austria, Heidrun Hochreiter:

heidrun.hochreiter@biz-up.at | www.biz-up.at | www.lebensmittel-cluster.at

For the development of this business model, we have worked with the following organisation from Austria:

→ University of Applied Sciences Upper Austria, FH OÖ Forschungs- und Entwicklungs GmbH, DIⁱⁿ Dr.ⁱⁿ Bettina Schwarzingner:

research@fh-ooe.at | forschung.fh-ooe.at/en/



A close-up photograph of several walnut shells and kernels. The shells are brown and have a deeply textured, wrinkled surface. Some kernels are visible, showing a lighter, smoother texture. The background is a solid orange color.

3.2

Walnut
business
models

BM #17: WALNUT SPREADS

PRODUCT DESCRIPTION

Walnut spread is a high quality, vegetarian spread with healthy and regional ingredients. The spread is made with walnut press cake (the residue from the walnut oil production) from regional oil mills that process regional walnuts. Therefore, it contributes to the cultivation of walnut trees in the region and regional consumption. The walnut spread tastes great with bread but also goes well with grilled vegetables or pasta. The flavours can vary and range from sweet to savoury.



Walnut spreads, focus group workshop in Bodnegg, Germany.

GERMANY



In the project, we produced several walnut spreads with up to 20% share of walnut press cake. The flavours are tomato-walnut, paprika-walnut, mint-walnut and chocolate-walnut-cinnamon, with varying shelf-lives. Some of the spreads were produced as fresh products with a comparably short shelf-life of max. 2 weeks, and some spreads have been conserved with pasteurisation.

BUSINESS AND MARKETING OPPORTUNITIES

Producing and selling regional walnut spreads is an interesting opportunity for oil mills to make their regional walnut oil production more profitable. In addition, the production and selling of walnut spreads is also interesting for catering-services or spread/pesto producers as well as walnut farmers (selling only). Many plant-based, often vegetarian spreads are already available on the German market. As this market continues to grow, walnut spreads offer a promising market potential. Yet, given its characteristic walnut taste and, most importantly, its content of nut allergens, walnut spread is not suitable for everyone. To place the product on the market, the aspect of regionality needs to be considered: in the area of Ravensburg-Oberschwaben, a market study in 2018 counted a total of 93 tree owners with 355 trees that produce 20 tons of fresh walnuts available for regional marketing. After drying, 10 tons of dried walnuts remain and only 5 tons after

cracking. Of those 5 tons, a total of 2.5 to 3 tons of oil can be produced. This means that 2 to 2.5 tons of walnut press cake are available for further processing, e.g. as spreads. If one produces 300g glasses of spreads with each containing approx. 20% walnut press cake, this would amount to 4,166 glasses of walnut spread. The regional selling of walnut spreads on the conventional food retail market (e.g. REWE, EDEKA) would be problematic due to the low production volumes. Likewise, it would be difficult to get into the product portfolio as a “newcomer” with only one product. Thus, direct selling e.g. in small shops or directly to catering firms seems more appropriate. To market the spreads, an effective “storytelling” approach is required that highlights the regional, circular and health aspects as well as the preservation of regional walnut trees. A relation to the Alpine area could also be an idea to market the product, especially to tourists.

IMPLEMENTATION HURDLES

There are several technical, logistical and legal aspects making the implementation of the business model difficult. Firstly, processing walnuts is costly due to the lack of adequate sorting machinery. Most frequently, the walnuts are sorted manually after cracking. This makes regional walnut products labour intensive and expensive. Furthermore, there is also the risk that there are still parts of the wooden shell in the cracked nut kernels. Secondly, in Southern Germany, many oil mills often do contract manufacturing for private persons. They are provided with the already cracked walnuts to produce oil, and then they are “allowed” to keep the walnut press cake. This walnut press cake consists of many different varieties with different tastes. In addition, the storage of the nuts also varies. This has two major consequences: firstly, it makes it difficult to work with only one standard recipe for the spreads, as the taste of the walnut spread can change from batch to batch.

Secondly, it also increases the need for a quality management system for good taste and for food safety, e.g. to minimise the risk of processing rancid or moulding walnut press cake that was not stored well. Not knowing how the nuts were stored before the processing comes with a risk. Thirdly, the amount of available walnuts varies from season to season. Finally, these reasons make it almost impossible to get one of the desired certifications of an organic product. In addition to these hurdles, strict food declaration laws that need to be followed are difficult to be met by smaller businesses. For businesses that don't yet own machinery to process the press cake into walnut “flower” and finally spreads, the investment costs might be a considerable implementation hurdle.

SUGGESTIONS FOR THE NEXT STEPS

The existing networks of walnut farmers or walnut tree owners need to be opened-up. Further market research is needed on the availability, walnut varieties and seasonal availability of the regional walnuts and walnut press cake. This is necessary in order to find out about the availabilities and material costs for production. Based on that, the opportunities for walnut cooperatives need to be explored. A full cost calculation will be needed, including costs for all processes and activities, including logistics, administration and marketing. This would be done by the interested business, to take into consideration the specifications of the operator: this could for instance either be an oil mill a service provider, a catering service or a cooperative. Also, the possibility to certify the walnuts as organic walnuts from different farms needs to be explored. Lastly, further development of the recipes and production is needed to create spreads with a long-enough shelf life, good taste and high quality. To do this, laboratory analyses are required. When using press cake from varying actors, a good quality management protocol needs to be developed and set up for ensuring good storage of the walnuts before processing.

PROCESS AND MILESTONES

JANUARY 2020	FEBRUARY 2020	APRIL 2020	MAY 2020	JUNE 2020
<ul style="list-style-type: none"> • presentation of project idea at nature conservation days at Lake Constance • collaboration with project partners working on the business model 	<ul style="list-style-type: none"> • focus group workshop with German speaking experts • presentation of business model idea at International Fair „Fruchtwelt Bodensee“ 	<ul style="list-style-type: none"> • creation of the oil mill map • business experiments with walnut presscake • business visits via phone calls • product prototyping 	<ul style="list-style-type: none"> • bilateral exchange with businesses • business visits via phone calls • business experiments with walnut presscake 	<ul style="list-style-type: none"> • business visit • business experiments with walnut presscake



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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the walnut spreads business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partners from Germany:

- Friends of the Earth Germany, Regional Association Bodensee-Oberschwaben / Bund für Umwelt und Naturschutz, Regionalverband Bodensee-Oberschwaben, BUND, Ulfried Miller: ulfried.miller@bund.net | www.bund-bodensee-oberschwaben.net
- City of Sigmaringen, Anna Bäuerle: alpbioeco@sigmaringen.de | www.sigmaringen.de

For the development of this business model, we have worked with the following companies from Germany:

- Feines aus dem Hegau Delikat essen, Markus Bruderhofer: info@feines-aus-dem-hegau.de | www.feines-aus-dem-hegau.de
- Fruchtbare von lebendigen Böden, Angela Abler-Heilig: info@fruchtbares.de | www.fruchtbares.de
- Inntalnuss, Korbinian Heiß: info@inntalnuss.de | www.inntalnuss.de



BM# 08: WALNUT FLIPS

PRODUCT DESCRIPTION

Walnut flips are puffed snacks or puffed additives for cereals or energy bars made mostly from starch, e.g. potato, wheat or corn, and walnut press cake. The flips can vary in size and form: as small pellets, they can be part of breakfast cereals. As larger flips, similar to the well-known peanut flips, the walnut flips could be a snack to be served with an aperitif, at business events or back home as a healthier, more regional alternative to potato crisps.

Walnut flips can be produced in two ways. One option is to use already made starch extrudates that are subsequently coated with oil, spices and walnut press cake. The second option is to include walnut press cake in the extrudate mass and then process the mass into puffed extrudates, so that the starch extrudate also contains walnut press cake. For smaller businesses, the first option appears to be more attractive, as it requires less product development, less technological know-how and smaller investments into production facilities. The following business and marketing opportunities therefore only refer to the coated version.



Walnut flips prototypes, tasting in Ravensburg, Germany.

GERMANY



In the project, we produced several types of walnut flips with different starches, oils and flavours: As a base, we used extrudates made from oats (pellets and pillows) and millet. By coating these three extrudate types with different spices, oils and amounts of walnut press cake, we produced over twelve varieties in two stages, such as walnut-chili, walnut-paprika, walnut-herbs or also walnut-vanilla-cinnamon. The favourite savoury flips were made with walnut oil, walnut press cake, paprika and salt. The favourite sweet version was made with walnut oil, walnut press cake, sugar and cinnamon and was preferred as a muesli additive.

BUSINESS AND MARKETING OPPORTUNITIES

There is considerable interest from regional retailers, walnut farmers and oil mill owners in the business model for the reason that it represents an innovative product that is not yet available on the market and could add additional value to walnut oil production. It offers a possibility for oil mills to process walnut press cake, which is often used as animal feed or even thrown away. For the retailers, it appears to be an interesting regional and healthier substitute for conventional peanut flips. Yet, the business and marketing opportunities for walnut flips still require some research, since no detailed market study has taken place. The flips can be produced and sold directly by oil mills. In addition, the production and selling of walnut flips could also be interesting for existing snack or cereal producers – they have relevant knowledge and necessary technological equipment – or a service provider. If further allergens can be avoided (e.g. using potato starch instead of wheat to make it gluten-free) and regionality and health aspects are considered, the flips could be interesting for people who care about a healthy diet and regional products. However, both for the spreads and for the flips the aspect of regionality makes



the production, market placement and development of a suitable marketing strategy of regional flips difficult. Selling walnut flips regionally on the conventional food retail market (e.g. REWE, EDEKA) is hardly possible due to low production volumes, open issues of certification and seasonality aspects. Direct selling thus appears to be the preferable option. A successful marketing strategy needs good “storytelling” to highlight the regional origin, the health-related features and the ecological aspect of preserving the old cultural heritage of regional walnut trees. One strategic option to achieve this could be regional cooperatives of walnut farmers. The raw materials required for the coating are oil and by-products of oil extraction, which makes the snack more sustainable than existing, comparable products. In addition, business relationships are to be established that will make it possible to bring the walnut flips to the end consumer on a larger scale. Conceivable here are (walnut-)farm-shops, farmers-markets, regional retailers, supermarkets, drugstores, cinemas, schools, universities, cafeterias or catering services and similar companies.

IMPLEMENTATION HURDLES

The lack of a detailed market study is the first hurdle. To date, it is not clear whether and under which circumstances this product would be successful on the market. In addition, to implement this business model, investments into product development, expertise and equipment are needed. Likewise, the available product prototypes need further improvement regarding food design. To produce walnut flips, a mill or a cutter is needed to mill the walnut press cake. In addition, a coating machine and a packaging machine are needed. Like any other natural raw materials, the quality variations in the processed walnut press cake represent another challenge. Many oil mills process walnuts from different owners, not knowing about the varieties or the previous treatment of the walnuts. This increases the need for sound quality management and flexibility in the production. Given that the taste and composition of the press cake could significantly vary across different batches, quality management and reproducing a steadily similar taste are difficult. In addition, the product itself might be sensitive in terms of distribution and shelf life due to the fats it still contains after processing.

SUGGESTIONS FOR THE NEXT STEPS

As a first step, profound market research on raw materials, competition and market demand is needed to figure out which walnut flip product seems more promising: cereal pellets or flips (as a crisps substitute and healthy snack). At the same time, further research on the product and product development is necessary to ensure a good taste and longer shelf-life. In any case, oil mills play a central role. Based on this information, a cost-benefit analysis could be done to check the economic benefits for the walnut oil mills.

PROCESS AND MILESTONES

JANUARY 2020	FEBRUARY 2020	APRIL 2020	MAY 2020
<ul style="list-style-type: none"> • presentation of project idea at nature conservation days at Lake Constance • collaboration with project partners working on the business model • conducting preliminary-research for the focus group workshop 	<ul style="list-style-type: none"> • focus group workshop with selected stakeholders and experts • presentation of business model idea at International Fair „Fruchtwelt Bodensee“ 	<ul style="list-style-type: none"> • product prototyping by the company Sinne & Sensorik, Cornelia Ptach • tasting of 12 different coatings • bilateral exchange with coating companies on the possibilities to produce extrudates 	<ul style="list-style-type: none"> • bilateral exchange with businesses on product • bilateral exchange with research institutions on the possibilities to produce extrudates



ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the walnut flips business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partners from Germany:

- Friends of the Earth Germany, Regional Association Bodensee-Oberschwaben / Bund für Umwelt und Naturschutz, Regionalverband Bodensee-Oberschwaben, BUND, Ulfried Miller:
ulfried.miller@bund.net | www.bund-bodensee-oberschwaben.net
- City of Sigmaringen, Anna Bäuerle:
alpbioeco@sigmaringen.de | www.sigmaringen.de

For the development of this business model, we have worked with the following company from Germany:

- Sinne & Sensorik, Cornelia Ptach:
cornelia@ptach.de | www.ptach.de





3.

Herbs
business
models

BM #02: HERBAL PACIFIER

PRODUCT DESCRIPTION

The implementation of this business model is about the production of a herbal pacifier made of organic rubber. The dummy contains vessels with Alpine herbal fluids and can be used to treat the most common disorders of early childhood (toothache, colic, insomnia, skin diseases, etc.). The herbal pacifier can be divided into two different products, which can be purchased together or separately: a dummy made of organic and eco-sustainable materials and vessels containing herbal fluids. Once the therapy is finished, the vessels can be returned to the point of sale through a returnable vacuum system inspired by the “Pfand”-system of German-speaking countries.



Herbal pacifiers may help provide better pain relief for many children.

ITALY



During the validation and implementation phase, we collaborated with Christoph Kirchler, an expert in the Alpine herb value chain that is interested in the development of innovative products to foster local small-scale economies. Since the herbal pacifier can potentially be used to treat a variety of disorders, we first needed to select a health claim to focus on for the pilot project. In order to gauge

the interest of the target group in the product and to find out which early childhood ailments are the most difficult to treat, ITKAM carried out a market analysis involving both parents and experts who accompany the parent in early childhood: paediatricians, midwives and pharmacists. The results are available on the project website.

BUSINESS AND MARKETING OPPORTUNITIES

The herbal pacifier can be used to treat a variety of early childhood ailments, including insomnia, toothache, colic, cough, etc. Potential customers are parents that buy the product for their babies. In particular, the typical consumer is a medium-to-high income parent that is environmentally aware and accustomed to buying biological and organic products. Paediatricians and midwives also play an important role, as they often advise parents on products to buy for early childhood.

The herbal pacifier is a totally innovative product: if traditionally dummies are a comfort device for babies, in this case it is used to treat pain in a totally natural way using herbs as raw material. This product is regionally replicable and enables promoting small-scale economies: for pacifiers sold in South Tyrol, Alpine herbs can be used, for pacifiers sold in France, Provençal herbs, and likewise for other regions. The herbal pacifier can be sold as a botanical product in organic shops and supermarkets, pharmacies and herbalist shops, both online and offline.

IMPLEMENTATION HURDLES

The realisation of this product has some technical criticalities that need to be addressed. A first critical point concerns the form in which the herbs will be administered to the child: among the options still under consideration are hydrolysates and aromas. Being a product intended for infants, it will be necessary to carry out the appropriate toxicological analysis, once the prototype is ready. A second



critical point concerns the taste of the fluids administered: as the herbs naturally have a bitter taste, there is a risk that the child will reject the pacifier. This problem can be solved with the use of natural sweeteners such as cyclodextrins or manuka honey. Furthermore, as there is no quality protocol for the cultivation of Alpine herbs in South Tyrol, these herbs cannot be sold in pharmacies as medicinal herbs. The product will belong to the category of botanicals, not medical devices. As it is an innovative product, it is not possible to determine in advance the interest of the target group (parents) in the product.

SUGGESTIONS FOR THE NEXT STEPS

Once the results of the market analysis are available, the herbs to be used in the trial recipe need to be selected, and the first tests need to be carried out in order to determine the most suitable form in which the herbs will be administered. Appropriate toxicological tests will also have to be carried out. Several South Tyrolean Alpine herb producers have declared their interest in collaborating in the implementation of the business model. At this point, it is necessary to form a partnership with a local bio-rubber producer. This material will be used to produce the dummy. Afterwards, a cost-benefit analysis must be done to calculate the optimal product price. Partnerships with local points of sales are also needed in order to put in place the returnable vacuum system. Eventually, due to the very innovative character of the product, a marketing campaign is necessary to arouse the interest of the target group in the product.

PROCESS AND MILESTONES

JANUARY 2020	FEBRUARY 2020	MARCH – APRIL 2020	MAY 2020	JUNE – JULY 2020	AUGUST 2020
<ul style="list-style-type: none"> • collaboration with project partners working on the business model • conducting preliminary-research for the focus group workshop 	<ul style="list-style-type: none"> • contact with the company Ecopassion, interested in the business model implementation 	<ul style="list-style-type: none"> • organisation of focus group workshops with selected experts 	<ul style="list-style-type: none"> • online business visit at the company Ecopassion 	<ul style="list-style-type: none"> • market research 	<ul style="list-style-type: none"> • end of market research • presentation and discussion of the market research's results

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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the herbal pacifier business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partner from Italy:

→ Italian Chamber of Commerce for Germany, ITKAM, Sonia Barani:
sbarani@itkam.org | www.itkam.org

For the development of this business model, we have worked with the following company from Italy:

→ Azienda Ecopassion:
www.ecopassion.com



SLOVENIA



Alternative medicine for treating skin diseases has been in the focus of the herbal pacifier in Slovenia. Due to difficulties with clinical testing and needed research about the herbal pacifier as a vessel for essential oils and hydrosols, the focus in Slovenia was on the choice and product development of the fluid products, such as herbal essential oils and hydrosols. The essential oils and hydrosols are made of locally grown and indigenous medicinal plants called everlasting flower (lat. *Helichrysum italicum*) and lemon balm (lat. *Melissa officinalis*). Hydrosols are particularly good for eliminating skin problems, because they act on the connective tissue of the skin and as a disinfectant and mild antiseptic. Moreover, with its production, the typical cultural landscape of Slovenian Istra is maintained, along with the creation of new job opportunities in the area.



*Distillation of the eternal flower (lat. *Helichrysum italicum*), business visit in Krkavče, Slovenia.*

BUSINESS AND MARKETING OPPORTUNITIES

Herbal essential oils and hydrosols made of locally grown indigenous herbs have excellent business and marketing opportunities at the local as well as national level in Slovenia, as regionality is an important aspect for customers. At present, herbal essential oils and hydrosols are already being sold in supermarkets, specialized stores and via the internet and could additionally be sold in pharmacies and local stores. In the long-term, the international distribution of these products could also be an interesting business opportunity. In addition to the production and selling of the herbal fluids, setting up a small distillation centre with a small-scale laboratory and educational content, such as demonstration units, lectures and practical workshops, all related to herb production and herb processing, is also seen as a great business opportunity. Eventually, the post-distillation fresh plant material can be used as compost or as a raw material to produce pellets for heating. This highlights an exceptionally good example of sustainable, circular use of side stream products in the herb processing industry.

IMPLEMENTATION HURDLES

The biggest implementation hurdle is clinical testing of the product, especially if it is considered as a medical product. Usually, clinical tests are very expensive, time consuming and involve a large number of people and therefore can hardly be financed by SMEs. In addition, well-developed marketing of the product is seen as a hurdle. The product needs to be carefully made, as it addresses various types of consumers, primarily mothers and children. One of the hurdles related to the herbal pacifier as well as essential oils and hydrosols is also related to financing. Finding appropriate regional or national funding schemes for this type of business is a major success factor.



SUGGESTIONS FOR THE NEXT STEPS

For the implementation of the business model, awareness of consumers needs to be further emphasised and encouraged. This can be better done together with universities and research institutes that can help valorise the product in terms of medical effects. For the official clinical testing of the product, funding must be ensured and the appropriate institutions must be selected to perform the clinical testing appropriately.

Further research is also needed in terms of testing different varieties of herb plants and their medicinal substances for healing various child illnesses. In the case of high market demand for essential oils and hydrosols in the future, the agricultural land covered with herbs must be enlarged or the collection of fresh cut herbs from other local farmers must be encouraged.

PROCESS AND MILESTONES

FEBRUARY 2020	MARCH 2020	APRIL 2020	MAY 2020	JUNE 2020
<ul style="list-style-type: none"> • selecting stakeholders for the selected business models on herb value chain • meeting with the director of Slovenian Innovation Hub European Economic Interest grouping and the coordinator of SRIP Health – Medicine 	<ul style="list-style-type: none"> • presentation of business model idea at the EU project Green-cycle final event in Maribor, Slovenia 	<ul style="list-style-type: none"> • inviting selected stakeholders to the regional focus group workshop • presentation of two selected herbs business models to the stakeholders at the regional focus group workshop 	<ul style="list-style-type: none"> • in-depth online and phone interviews with the company Bonistra 	<ul style="list-style-type: none"> • business visit at the company Bonistra • harvesting and distillation of everlasting flowers

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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the herbal pacifier business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partner from Slovenia:

→ Chamber of Commerce and Industry of Slovenia – Chamber of Agricultural and Food Enterprises (CCIS – CAFE), Dr.^{ing} Vesna Miličič:
vesna.milicic@gzs.si | www.gzs.si/zbornica_kmetijskih_in_zivilskih_podjetij/

For the development of this business model, we have worked with the following company from Slovenia:

→ Bonistra Ltd., Jana Bergant:
jana@bonistra.si | www.histriabotanica.si



BM #21: ALPINE HAY SEEDS

PRODUCT DESCRIPTION

In the Alpine area, the hay meadows (rough pastures) can be used to produce seed material. Every three years, the flowers of Alpine hay meadows can be harvested with a specific machine, cutting off only the top parts of the meadows to harvest the flower heads, still leaving enough hay standing on the meadows for the farmers to harvest it as conventional hay to be fed to animals. The harvested flowers are then dried, stored and packed into large sacks in order to be sold for revegetation purposes. To complete the offer, a revegetation service or advice can be booked, as some knowledge is required to successfully seed Alpine hay flowers. Regional seed material is particularly interesting for the revegetation of building sites, road construction sites, embankments, roofs or other renaturation projects. In addition, the harvested material can also be used for the cosmetics industry, serving as a basis for the production of hay flower distillates and essences. The produced seed material can be used for approximately three years before it loses its germination capacity.



Harvesting Alpine hay seed material for revegetation use in Austria.

AUSTRIA



For the project, we have worked together with a small horticultural business that is already producing Alpine hay seed material in a test phase, harvested from regional hay meadows owned by farmers for a fee.

BUSINESS AND MARKETING OPPORTUNITIES

Experience shows that there is a small but growing demand for local seed material in Vorarlberg, Austria. The main target groups of the products and its related services are architects, property developers, public institutions and also private persons. At present, not many are producing regional seed material from Alpine hay meadows. Although many farmers own hay meadows, they often solely produce animal fodder. By offering their meadows for a fee every three years to a business that wants to harvest, produce and sell Alpine hay seeds from their meadows, the farmers can get more economic value from their meadows. Mowing the flower heads of these meadows every three years to produce Alpine hay seeds doesn't affect the productivity or biodiversity of the meadows in a negative way. Also, the farmers can still mow their meadows for fodder production. Thus, this concept is economically interesting for local farmers and for the Alpine hay seeds producer, who doesn't have to own meadows to get the needed raw material. In addition, the business model contributes to a greater appreciation of Alpine hay meadows, the farmers and farming. This business model is interesting for horticultural businesses, as they can cater to a specific demand with regional seed material. As the awareness of the importance of biodiversity and regional ecosystems is growing, it is expected that the demand will also grow. In addition, harvesting Alpine hay flower heads is also interesting for businesses from the cosmetics sector: they can use fresh but also "older" hay seed material that cannot be planted anymore and might be cheaper than fresh material. Lastly, when the material is too old to be seeded or used in the cosmetic industry, it can still be used as animal fodder.



IMPLEMENTATION HURDLES

To successfully implement the business model, the benefits of regional seed material need to be communicated to the potential consumers and target groups. Currently, there is only mild awareness among consumers of its relevance and benefits. In addition, the aspect of time is an implementation hurdle. The production of regional hay seeds needs to be planned way in advance, as the seeds are only harvested once per year and then still need to be dried. Public institutions, however, often do not plan that far in advance when and how much seeds they need for revegetation undertakings. Often, there are also no existing requirements on the characteristics of seeds, specifying the need for regional seed material in the tender texts.

At the beginning of the season, it is not yet possible to estimate how much seed can be sold at the end of the year. As such, estimating the needed production volume is difficult and can easily result in over- or underproduction. Additionally, the harvest naturally depends on weather conditions and on the availability of meadows and the willingness of the farmers to cooperate. Finding a sufficient number of meadows is another hurdle that would probably require collaborating with farmers across regions. Finally, the logistics also appear to be difficult. To produce the seeds, suitable machinery, adequate storage space and the required workforce for manual processing are needed.

SUGGESTIONS FOR THE NEXT STEPS

As a first step, it is important to expand the network of relevant actors for this business model. Farmers, horticultural businesses, architects, environmental organisations promoting biodiversity and businesses from the cosmetic industry must be linked by means of this business model. Founding and growing a network for regional hay seed production can be useful, as it enhances the visibility of the product and those involved, eases communication between cooperating businesses and strengthens cooperation. In addition, it increases the identification with the product and region. In this context, marketing of the network and the specific benefits for members is essential. Further, lobbying work and raising awareness of the product regarding its benefits for biodiversity and regional value creation are needed.

PROCESS AND MILESTONES

FEBRUARY 2020	MARCH 2020	MAY 2020	JUNE 2020	JULY 2020
<ul style="list-style-type: none"> • collaboration with project partners on the business model • conducting preliminary research for the focus group workshop 	<ul style="list-style-type: none"> • focus group workshop with farmers, biologists, SMEs and local public authority • general information and brainstorming 	<ul style="list-style-type: none"> • business visits (via phone) at the companies HELFE GmbH & Co KG and Daniel Gartenbau • online focus group workshop with focus on how to gain more rough pastures to harvest 	<ul style="list-style-type: none"> • zoom meeting with steering group with focus on marketing and internal organisation • start of harvesting Alpine hay seeds • informing farmers of the region about the project 	<ul style="list-style-type: none"> • harvesting Alpine hay seeds • presenting the project at meeting of delegates of Regio Im Walgau



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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the Alpine hay seeds business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partners:

- Regio Im Walgau (Austria), Marina Fischer:
marina.fischer@imwalgau.at | www.walgau-wunder.at
- City of Sigmaringen (Germany), Anna Bäuerle:
alpbioeco@sigmaringen.de | www.sigmaringen.de

For the development of this business model, we have worked with the following companies from Austria:

- Daniel Gartenbau, Daniel Meusburger:
info@daniel-gartenbau.com | www.daniel-gartenbau.com
- HELFE GmbH & Co KG, Alexander Heller:
office@helfe.com | www.helfe.com





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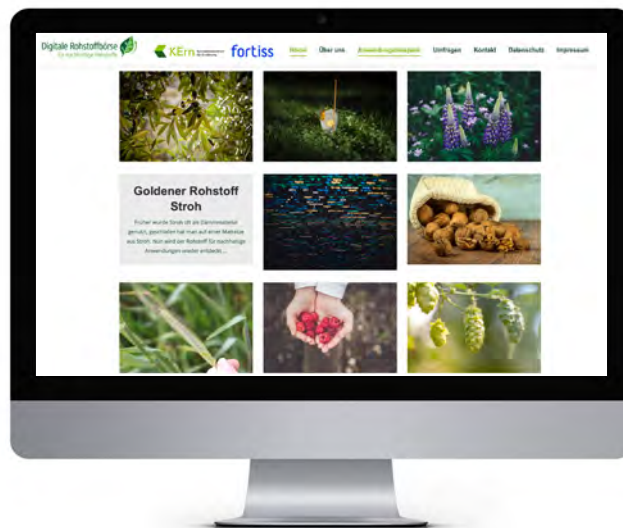


Overarching
business model
for **apples, walnuts**
and **herbs**

BM#03: DIGITAL SERVICE PLATFORM

PRODUCT DESCRIPTION

The digital service platform is meant to create a virtual, digital marketplace for all kinds of bio-based products: raw materials, manufactured products and bio-based “waste” material. The platform enhances trading of materials with bio-economic potentials. At the same time, it serves as a virtual place to share and exchange information and ideas on these materials. Small companies, farmers and private persons can offer their products here and also search for products to buy. Such a digital service platform brings together the issues of digitisation, sustainability, reducing food losses, improving value chains and future food products. The supplier and the buyer both benefit from this offer. Such a digital platform is not limited only to walnuts, apples or herbs but offers a wide variety of products and ingredients. A digital platform is a digital product that offers selling by-products online, that were considered as “waste” materials. Both the supplier and the buyer benefit from this offer.



„Digitale Rohstoffbörse“ – A digital marketplace to sell and buy raw and processed materials, that creates bio-based economic cycles, ensures short distances and promotes regional trade in Bavaria, Germany.

GERMANY AND SLOVENIA



At present, no such marketplace exists in Germany, besides a prototype developed by another research project: “Digitale Rohstoffbörse”. The “Digitale Rohstoffbörse” provides similar services with similar aims. Therefore, we researched and tested the platform based on this existing platform.

BUSINESS AND MARKETING OPPORTUNITIES

Most of the marketing and sales strategy focuses on the online business. Greater awareness of the platform can be achieved through word-of-mouth by as many users and participants registering on the platform as possible or with the help of online social networks. The target group includes people from different areas: the start-up scene as well as farmers, private persons and also industry actors can benefit from these services. Promotions and coupons via subscription to encourage the use of the digital platform can be one of the marketing strategies. It is important that the issue of regionality is further supported and remains in the foreground. New economic cycles should be created and a big step towards sustainability should be taken by reusing products. Of particular interest are the possibilities to improve the supply and availability of raw materials, to influence sustainable development and networking (e.g. in the Alpine region), how digitisation can contribute to more sustainability in the value chain and how transparency can be implemented. From the point of view of the project partners, the „Digital Raw Materials Exchange for Sustainable Raw Materials“ is well suited as an innovative portal to improve interregional networking and market transparency with regard to raw and residual materials in the future.



IMPLEMENTATION HURDLES

The main implementation hurdle is seen in finding the differentiating factor for this platform from the existing competition on the market. Another implementation hurdle is finding a partner or existing platform and connecting the business idea with their platform. It requires a partner with long-term technical and financial know-how to further develop this platform, adapt it to the needs, maintain databases, obtain registrations and continuously build the network. Only in this way can the success of the platform be guaranteed.

Finding the differentiating factor (e.g. "what makes us better than the competition") for this product from the existing competition on the market. One of the implementation hurdles is also finding a partner or existing platform and connecting the business idea with their existing platform.



A digital platform for bio-based products could improve the exchange of materials with bioeconomic potential and foster information transfer.

SUGGESTIONS FOR THE NEXT STEPS

A more detailed analysis of the strengths, weaknesses, opportunities and threats ("SWOT" analysis) and a market analysis are needed. In addition, the potential distribution channels need to be explored. For the further development of the platform, it is also crucial to find a responsible person who can invest time and energy in the regular maintenance of the platform. Especially important for the long-term optimal use of the platform are first users in the initial phase that can provide feedback. Creating a mobile app for the platform could be beneficial, as this could make it easier to use the platform spontaneously or lead to more frequent searches.

PROCESS AND MILESTONES

MARCH 2020	APRIL 2020	MAY 2020	JUNE 2020	JULY 2020
<ul style="list-style-type: none"> familiarisation with the BM and the existing „Digitale Rohstoffbörse“ collaborative work with platform partners 	<ul style="list-style-type: none"> planning and development of a workshop based on the existing platform 	<ul style="list-style-type: none"> conduction of the focus group workshop with German speaking experts from the food industry, science, technology, research 	<ul style="list-style-type: none"> follow-up work and public relation activities evaluation of the „Digitale Rohstoffbörse“ with regard to the integration of BM-aspects 	<ul style="list-style-type: none"> discussions and reflections on the long-term future of the platform

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ADDITIONAL INFORMATION AND CONTACTS

You can find additional information about the digital service platform business model → [here](#).

If you want to get more information about this business model or on our related research activities, you can contact the following AlpBioEco project partners:

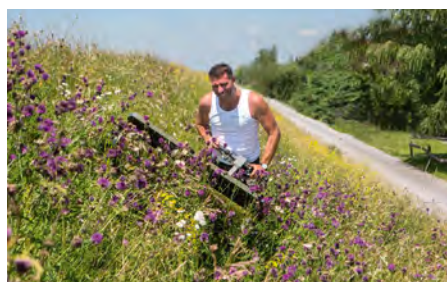
- Competence Center for Nutrition Bavaria / Kompetenzzentrum für Ernährung Bayern, KErn (Germany), Robin Ehrhardt:
robin.ehrhardt@kern.bayern.de | www.kern.bayern.de
- City of Sigmaringen (Germany), Anna Bäuerle:
alpbioeco@sigmaringen.de | www.sigmaringen.de
- Biotechnical Center Naklo (Slovenia), Mihela Ferlinc:
mihela.ferlinc@bc-naklo.si | www.bc-naklo.si

For the development of this business model, we have worked with the following organisations:

- Competence Center for Nutrition Bavaria / Kompetenzzentrum für Ernährung Bayern, KErn (Germany), Silvia Hrouda:
silvia.hrouda@kern.bayern.de | www.digitale-rohstoffboerse.de
- fortiss GmbH – Research Institute of the Free State of Bavaria associated with Technical University of Munich / fortiss GmbH – Landesforschungsinstitut des Freistaats Bayern und An-Institut der Technischen Universität München (Germany), Rainer Diesch:
diesch@fortiss.org | www.fortiss.org



7. CONCLUSION



Together,
let's make the
bioeconomy
grow!

The Alpine bioeconomy has huge potential for eco-innovation and Green Growth. Unlocking these potentials is to be considered as a key discipline of the 21st century. Expanding bioeconomy, particularly in rural areas, represents a major development potential, especially in terms of the creation of new jobs and sustainable economic growth.

This brochure is the result of the collective work of the AlpBioEco project partners. It presents the results of the testing and validation of the business model concepts that have been developed during the project to promote eco-innovation and to exploit the potentials of the bioeconomy in the Alpine regions.

The AlpBioEco project focuses on relevant regional value chains in the Alpine regions of its project partners involved and is committed to the development of a local bioeconomy in harmony with the territories. During the project, seven eco-innovative business model blueprints from three value chains (apples, walnuts and herbs) were further validated and tested in business practice. It is important to note that the business models are not at the same level of market maturity. Some of them are still at the phase of research and

development, while others already developed a product that is ready for market. The different level of development depends on the type of the business model and mainly the technology available for creating the product and market opportunities for selling the product.

The AlpBioEco team conducted 17 focus group workshops in 9 different regions. In addition, the AlpBioEco team visited several businesses to check the implementation possibilities and opportunities and to test the business model on site in the selected companies. In total, 16 business visits in 6 different regions took place. Due to the COVID-19 situation starting in mid-March, the AlpBioEco workshops and other activities were conducted in an online format.

The results of this report build the basis for the upcoming final work package that aims at the development of policy guidelines to support future implementation of eco-innovative business models and their transfer to other Alpine Space regions or projects.



CONTACT PERSON

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