

Innovation Networks of Cork, Resins and Edibles in the Mediterranean basin - INCREDIBLE

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Deliverable 3.5 - Dissemination Material from Crosscutting Seminar

Second cross-cutting seminar: Innovative Businesses and Entrepreneurship for Non-Wood Forest Products

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Structure of the document

This deliverable aims to summarize main contents and outputs emerged during the second cross-cutting seminar (CCS). In the context of INCREDIBLE project, each CCS aims to create cross-sectorial partnerships and supporting NWFP actors and practitioners in the development of innovative solutions for NWFP management.

The present document, in the first part (up to page 28), aims to supply an overview of the event, providing the main objectives, the agenda, the list of attendees, a summary of presentations and exercises held during the event and main take-home messages.

Whereas, a SWOT analysis of businesses dealing with NWFP is presented through an infographic (page 29). Furthermore, some of the entrepreneurship cases presented during the event are summarized through factsheets (according to the format developed in Task 2.1; page 30). The factsheets included in this deliverable are published in the Knowledge Repository for Non-Wood Forest Products (<https://repository.incredibleforest.net>). The infographic included in this deliverable is published in the INCREDIBLE project website (<https://incredibleforest.net>; high resolution files available). Finally, fruitful interactions from the B2B meetings are collected in the last section (page 31).

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Reference

Mauri, E. (2021) Dissemination Material from Crosscutting Seminar - Deliverable 3.5. H2020 project no. 774632 RUR-2017-1 European Commission, 31 pp.

List of abbreviations

The following acronyms have been used across this document:

- **CCS** Cross-cutting seminar
- **OIC** Open innovation challenge
- **NWFP** Non-wood forest products



1. Topic of the first cross-cutting seminar

The second CCS was titled “Innovative Businesses and Entrepreneurship for Non-Wood Forest Products”. It was held in-person in Barcelona (Spain), 27 and 28 February 2020. The seminar focused on how innovative business ideas and models can be applied to entrepreneurship around NWFP, a field where traditional knowledge is abundant yet open to innovation as any other industry or service.

The CCS had two differentiated days. The first day held the seminar sessions and round tables, as well as a workshop to develop a SWOT analysis of businesses in NWFP. The second day had a series of business pitches and a marketplace of entrepreneurs where the attendees could exchange and network with the entrepreneurs. The attendance to the two days was independent, but organisers encouraged participants to attend both.

The attendance to the CCS was part of the acceleration service awarded to the five winners of the INCREDIBLE project OIC (<https://incredibleforest.net/content/open-innovation-challenge>), organised by ETIFOR. The winners, start-ups dealing with NWFP, presented their business during the business pitches as part of the support received during the two-week acceleration programme.

2. Agenda

Thursday 27 February: seminar and round tables	
9:00	Registration Installation of the stands starts at 9:00.
9:30	Welcome and opening Introduction to the event and presentation of the INCREDIBLE project.
9:50	Session 1 - Seminar: State of the art and future of businesses in NWFP <ul style="list-style-type: none"> • Giulia Muir (FAO, by video conference): a global overview of NWFP value chains and the general challenges and opportunities for NWFP commercialisation • Colm O'Driscoll and Jacopo Giacomoni (ETIFOR): NWFP businesses in Italy and how to discover and support entrepreneurship through open innovation • Carmen Avilés (UPM) and Pablo Macías (Khora Urban Thinkers): NWFP businesses in Spain and portrait of the future Spanish entrepreneurs in forest bioeconomy <i>With coffee break at 11:05</i>
12:05	Session 2 - Workshop: SWOT analysis of businesses in NWFP <ul style="list-style-type: none"> • Animated and facilitated by Steven Libbrecht (ESSET)
13:30	Networking lunch <i>With access to stands</i>
14:30	Session 3 - Round table: Disseminate Testimonials of business innovation and creativity in entrepreneurship and rural development around NWFP. <ul style="list-style-type: none"> • Eduard Peralta (Parc de les Olors): organic aromatic and medicinal plants producer • Jordi Bosch (Provital Group): secondary processing industry of aromatic and medicinal plants • Christine Fischer (Sitka Services): truffle and mushroom tours in Spain • Rodrigo Gómez (CESEFOR): online hunting auctions to improve market intelligence and rural development
15:50	Coffee break
16:10	Session 4 - Round table: Cross-pollinate What can NWFP businesses learn from other sectors? <ul style="list-style-type: none"> • Stéphane Person (Forest Goods Growing): NWFP in South-Saharan African countries • Leith Tlemçani (UNObio and Herbiotech aroma): association of organic farming value chain actors in Tunisia • Joachim Englert (SocialForest): social integration through forest works • Eduard Barcons (Consell Comarcal del Berguedà): rural development in central Catalonia

17:25	Conclusions <ul style="list-style-type: none"> • Reviewing the ideas for businesses in NWFP • Conclusions, remarks and next steps
18:00	End of day
Friday 28 February: business pitches and marketplace	
8:30	Registration Installation of the stands starts at 8:30.
9:00	Welcome and opening Introduction to the day.
9:05	The INCREDIBLE project Open Innovation Challenge and Acceleration Service <ul style="list-style-type: none"> • Jacopo Giacomoni and Colm O'Driscoll (ETIFOR)
9:25	Business pitches: NWFP for human consumption <ul style="list-style-type: none"> • Álvaro León (Bellota y Raíz)*: exploring new value chains for oak nuts based products • Jesús Fernández-Moya (Aromas del encinar)*: improving the consumers' experience by making them be a key participant in the sustainable management of forest with shrubby wild aromatic and medicinal plants • Richard Splivallo (Nectariss)*: an innovative technology to produce natural truffle flavour • Alexander Christensen (Resource Foods): landscape architecture CANCELLED
10:45	Coffee break with access to stands
11:00	Business pitches: services and non-edible products <ul style="list-style-type: none"> • Giuseppe Uras (Corkymat)*: an innovative technology for the creation of complex cork objects • Albert Hereu (Cork Recycling 4.0): promoting the circular economy of wineries by recycling their cork waste • Mokhtar Baraket (RETUFO)*: economic impact on the local population of resin extraction from Aleppo pine: increase income through improved exploitation techniques • Stéphane Person (Forest Goods Growing): expanding NWFP consultancy services from South-Saharan Africa to Mediterranean countries • Lot Amorós (Dronecoria): opensource drones for global reforestation
12:40	Commercial presentations of interest for NWFP entrepreneurs <ul style="list-style-type: none"> • Astrid van Ginkel (Fitomón): how to adapt your products to market regulations to overcome entry barriers before it is too late • Carmen Avilés (UPM) and Pablo Macías (Khora Urban Thinkers): Urban Forest Innovation Lab – project-based learning, mentoring, incubation and business acceleration for innovative ideas on forest bioeconomy



13:20	Conclusion, instructions for the marketplace and next steps
13:30	Networking lunch with access to stands
From lunch to 18:00	<p>Marketplace and B2B meetings</p> <p>Entrepreneurs, start-ups, established companies and public agencies dealing with non-wood forest products or related sectors, having pitched or not in the morning, will have their stands to present their business idea, start-up, products or services. Fourteen stands registered.</p> <p>Rooms will be available for private business meetings.</p>

* Winners of the INCREDIBLE project OIC.

3. Attendees

As not all attendees gave their consent to disseminate their personal data, therefore aggregated figures of the attendance are presented here.

Day	Registered	Attended	Stands
27 February: seminar and round tables	45	38	7
28 February: business pitches and marketplace	44	38	14
Total unique individuals (attended at least one day)	55	45	16

Country of origin	
Belgium	1
Croatia	3
France	1
Italy	6
Spain	29
Switzerland	2
Tunisia	3
Grand Total	45

Type of organisation	
Business idea	3
Established private company	13
Public or non-profit organisation	17
Start-up	8
(blank)	4
Grand Total	45

Position in the value chain	
Consultancy, training	3
Marketing & consumers	1
Primary producer	8
Processing industry	9
R&D	14
R&D, marketing and consumers	1
R&D, training, assessment	1
Transversal	4
(blank)	4
Grand Total	45

Sector of activity	
Agriculture	2
Agroforestry	1
Agroforestry, Indigenous communities, Permaculture	1
Aromatic and medicinal plants	3
Cork	3
Entrepreneurship	1
Forestry	2
Green chemistry	1
Innovation	1
Mushrooms & Truffles	2
Nuts & berries	2
NWFP	1
NWFP, agriculture	1
NWFP, forestry	8
NWFP, forestry, agriculture	8
NWFP, tourism	2
Resin	1
Rural development	1
(blank)	4
Grand Total	45

4. Seminar and round tables

Access to the presentations:

https://incredibleforest.net/sites/default/files/resource/files/2nd_ccseminar_agenda_presentations.pdf. Presentations contain bibliographical references not listed in this report.

4.1. Seminar: State of the art and future of businesses in NWFP

Objective of the session: share the state of the art of businesses in NWFP

A global overview of NWFP value chains & general challenges and opportunities (FAO)

“Non-wood Forest Products consist of goods of biological origin other than wood, derived from forests, other wooded land [and trees outside forests].” (FAO, 1999). NWFP cover (1) wild products: forest is not managed specifically to produce a given NWFP; (2) managed products: forest is managed to include the production of a given NWFP; (3) cultivated products: NWFP is managed as a crop, usually needing a forest environment to be produced. They include: mushrooms, fruits, nuts, herbs, aromatic plants, game, fibres (used in construction, clothing or handcrafts), resins, gums, saps, and products used for medicinal, cosmetic or cultural scopes.

For most of human history, forest products other than timber were more valuable for nourishing, clothing, healing and for providing shelter. Species like rubber, quinine, oil palm, and cocoa were brought into cultivation around the world, and NWFP species like brazil nuts, gum Arabic and rattan were harvested on an industrial scale. Most high value NWFPs became agricultural crops.

FAO estimates that globally, NWFP generated US\$88 billion in 2011. 76 million tonnes of food from the forest were consumed on average in 2011. 1 billion people are thought to depend on wild foods. 80 percent of the population of developing countries rely on traditional medicines, mostly plant drugs, for primary health care. However, at global level, production and trade data is incomplete for some of the identified NWFP, as these products do not have their own statistical category and are usually reported within the ones from agricultural origin. Therefore, it is hard to get a clear picture.

In Rio Summit, in 1992, NWFP commercialisation was viewed as a simple solution for conservation and improved livelihoods. However, some challenges emerged:

- dispersed, poorly developed, “faddish” markets;
- long product development;
- limited scope and value of markets;
- high barriers to entry (sophisticated technology, market/certification requirements, intellectual property rights issues, intensive harvesting & resource depletion);
- “trades away important traditions”;
- lack of resource access (finance, skills, technologies), market information, basic infrastructure;
- adds value much higher in the supply chain (processing stage) thus excluding smallholders, especially women.

“In most countries the governance of this important but broad category of products has been ineffective or counter-productive to the objectives of sustainability and livelihood improvement. The problem begins with the definition of species and products covered by regulations, and continues to encompass an absence of strategies, clarity of objectives, poorly formulated laws,

and flawed implementation.” *Governance of NTFPs: ensuring effective laws and policies in practice*. 2010. Sarah A. Laird, Rachel P. Wynberg & Rebecca J. McLain

However, there are economic successes when national policies allow product differentiation, when there is a better understanding of and access to markets, when product quality respects the standards, and when there is cooperation across the value chain and institutional support.

The strategy “one size fits all” cannot be applied to NWFP. Some can be mass produced, with single large scale enterprises, vertically integrated, producing quantities of standardized, mass-market oriented products. Other are speciality or niche products, with SMEs supplying limited quantities of high quality products oriented to niche markets, with high added value via processing. Speciality or niche products can be either traditional or innovative. Better prices can be obtained if the product can be stored for a longer time period can be sold throughout the year.

Moreover, NWFP embed several positive externalities. NWFP can be considered as services, or an activity of the tertiary sector, and be marketed as part of larger forest packages (e.g. mycotourism, chestnut/truffle picking, hunting, etc.). Geographic Indication labels, territorial marketing and certification are tools to support and disseminate the services that NWFP provide.

Prospects of NWFP:

- the revalorisation of traditional wild products and practices linked to regional identity;
- emerging niche and experiential NWFP-based markets;
- growing consumer interest towards what is natural/wild – in part due to the mounting evidence on the salutary benefits of forests, the declining nutritional content of domesticated crops and concerns about the safety, ethical, ecological and social credentials of food;
- policy shift from calories to nutrients – articulated in the New Global Research Agenda for Food.

Take home messages:

- Many challenges... but also unprecedented opportunities to contribute to build more biodiverse and nutritious food systems and support emerging bio-economies with innovative NWFP value chains.
- Need to collaboratively work on enabling environment, from assuring raw material to product development and building consumer demand
- New era for NWFP/wild products?

NWFP businesses in Italy and how to discover and support entrepreneurship through open innovation (ETIFOR)

Italy is the country in Europe with the highest value of NWFP when compared to the domestic value of industrial roundwood. Total value of Italian NWFP equals 160% of the value of Italian roundwood. In Portugal, 2nd country ranked, NWFP equals 110% of Portuguese roundwood, while in Spain, 3rd, this value is 60%. At European level, this ratio has been increasing since the end of 1980's.

The annual value of marketed NWFP in Italy is estimated around 100 M €, but the statistics may be largely incomplete. The Italian trade of honey is estimated in 38 M €: transhumance of hives to the woods affects honey quality and organoleptic traits determined by the forest species that provide pollen and nectar. Italy is the 3rd European producer of truffles, with a turnover of over 19

M €/year), and the 2nd largest European chestnut (*Castanea sativa*) producer for fresh and dry products and flour; walnut (*Juglans regia*) production is 10,500 tons per year.

Among 111 nature-based start-ups in Italy scouted by ETIFOR, those based on NWFP rank 2nd in quantity (22%) and deal with 24 different NWFP (mainly insects, mushrooms and aromatic plants); they are followed by agriculture. The most abundant nature-based Italian start-ups are those dealing with ecotourism.

Nature-based Italian start-ups promote themselves mainly through f6s, ECOSTAR network and LinkedIn platforms. Those dealing specifically with NWFP mainly use f6s, ECOSTAR network and BugBurger. These platforms, and to a lesser degree other, are the preferred ones for outbound recruitment for acceleration services and investors.

NWFP businesses in Spain and portrait of the future Spanish entrepreneurs in forest bioeconomy (UPM)

Cork, pine nuts, chestnuts mushrooms, truffles and resin are the main NWFP in Spain.

Cork annual production (raw cork) oscillates between 50,000 and 70,000 tons per year. Cork production has strong oscillations but the tendency is to decline in recent decades. It is also important to highlight the loss of quality and the decrease in prices in the period 2000-2015. As a result, many Spanish companies have been absorbed by two large groups: Amorim (Portugal) and Diam (France). In the near future, production in Spain should increase as a result of the repopulations carried out with the support of the CAP and helped by a market that does not present problems to absorb the increase in supply of processed cork products.

Pine nuts annual production oscillates between 2,000 and 12,000 tons per year. Pine nuts production has declined significantly in recent years, as a result of the *Leptoglossus occidentalis* pest that, currently, is the most important limitation for this sector and that has caused the disappearance of the most important Spanish company, moving to Italy the control of international product markets. The business sector is concentrated in the province of Valladolid and, to a lesser extent, in the provinces of Huelva and Córdoba.

Chestnuts annual production oscillates between 10,000 and 50,000 tons per year. Chestnut production is currently affected by several pests and diseases, some recently emerged. Production and the main processing companies are concentrated in Galicia (Lugo and Orense provinces) and León province, although there are also significant nuclei in Extremadura and Andalusia. Smallholder farming (minifundiums) is the biggest problem in the sector. The demand for the product is growing and the market price is stable.

Mushrooms annual production oscillates between 10,000 and 25,000 tons per year, while truffles annual production, between 2,000 and 10,000 tons per year. The mycology sector has grown considerably and has great potential to continue to do so if its exploitation is regulated. The estimated turnover of the mushroom sector is 200 M€ per year, although the real amount will be higher, as there are no transparent marketing channels and there is also a high percentage of self-consumption and local consumption. As for truffles, wild production is currently very small and what has developed exponentially is truffle cultivation, which has doubled in size and is concentrated in some regions of the Iberian System.

Resin annual production has steadily increased from 2,000 tons in 2010 to 13,000 tons in 2017. More than 80% of production in Spain is concentrated in Castilla y León. The decrease in exports from China and the rise in prices paid to the producers are the main causes of this increase. On the other hand, the deficit of raw materials and derivatives is very significant in the EU, so there is ample room to expand resin tapping to new areas of production. Large Portuguese and Brazilian companies have entered the Spanish market in recent years.

The increase in forest area and rural abandonment has led to a notable increase in big game hunting in recent decades, to the point that a more intense control policy for hunting species than at present is necessary due to problems of the natural environment's capacity to sustain populations. However, small game hunting has been reduced by the increase in predators and by the disappearance of its traditional agricultural ecosystems and is maintained through artificial releases. The economy associated with this sector, mainly in external services, is very important for the conservation of the rural environment.

According to a Spanish survey of entrepreneurship in forestry, forest/green entrepreneurs are:

- Mainly male (78%),
- Relatively old when compared to other sectors of activity (38 years-old average),
- Urban (70% live in cities),
- Highly educated (80% have post-secondary education),
- Experienced (mostly with more than one entrepreneurial experience) but...
- ... with no entrepreneurial training (65% have none).

When compared to other Spanish entrepreneurs, forest/green entrepreneurs are less prone to start their business out of necessity. They mainly do it in part out of necessity and in part by opportunity. Their supporter are mainly family and friends, networks of entrepreneurs and chambers of commerce. The main obstacles they face are:

- Context of uncertainty
- Regulatory framework
- Education System
- Subsidies
- Self-employment fee¹

Key supports that enhance the chances of business success are:

- Incorporating innovation as value proposal
- Providing bioeconomy-based solutions
- Being active in networks and associations
- Participating in business accelerators, incubators, and other similar initiatives
- Making the most of synergies with other actors

Presenting organisations:

- Food and Agriculture Organisation (international): <http://www.fao.org/home/en/>
- ETIFOR (Italy): <https://www.etifor.com/>
- Universidad Politécnica de Madrid (Spain): <https://www.upm.es/>

¹ In Spain, self-employment monthly fee is a fixed amount, independent of income.

- Khora Urban Thinkers (Spain): <https://khoraurbanthinkers.es/en/home-en/>

4.2. Round table: Disseminate

Objective of the session: provide testimonials on NWFP business innovation and creativity in rural development

There are two main common elements in the four businesses showcased in this session (besides being passion-driven): they are strongly integrated in the value chain of NWFP and they diversify their activities.

Integration is achieved primarily through the development of partnerships. The showcased example is how Parc de les Olors supplies some of the aromatic and medicinal plants to Provital Group: the former can guarantee over time the quantity and quality of plants required by the latter. This long-term contract allows Parc de les Olors to programme crops, fosters innovation in their production and guarantees fair prices to the farmers; and allows Provital Groupe to secure a long-term supply of raw material.

Integrations includes also collaboration with other actors outside the NWFP value chain. The black truffle discovery tours organised by Sitka Services do not strictly stick to this produce. The company relies on several tourism agents (restaurants, wineries, agro-food industries, cultural guides, etc.) to provide a full culinary and cultural tour around regions where black truffle is harvested. As the founder of Sitka Services stated: “critical to my business has been the cultivation of relationships with people who share our values for supporting rural economies and culture.”

Diversification of activities provides robustness and resilience to a company. Parc de les Olors not only produces aromatic and medicinal plants for secondary industries. The company also produces and sells first and second transformation products directly to customers (herbal teas, essential oils, soaps, etc.), organises informative and educational activities, such as guided tours for schoolchildren and tourists, where they can learn about the cultivation, use and transformation of aromatic and medicinal plants, as well as workshops on techniques to produce products based on aromatic and medicinal plants. NWFP can be highly experiential products, with high levels of perceived authenticity, and can create a strong connection between the product and the customer. This allows NWFP to diversify into tertiary activities such as tourism and education.

Diversification is also achieved when the added value of the NWFP is created by the same business, although this requires the appropriate know-how. Multi-faceted products and services highlight the importance of coupling knowledge and experience in your products or services to give sustainability to the business model.

Finally, the online hunting auctions website developed by CESEFOR showed how improved market intelligence can contribute to rural development. This website allows hunters to bid themselves, removing the roles of the broker (how bids and resells the hunting permits). For hunters, permits become cheaper because there is no intermediary. For regional authorities, they know exactly the increase of the auctions' prices (e.g., to better adjust starting prices in future auctions) and they get access to the dates and origin of hunters how will visit the region. This web-based service can be easily scaled-up to other hunting reserves and regions.

Presenting organisations:

- Parc de les Olors (Spain): <http://parcdelesolors.com/>
- Provital Group (Spain): <https://www.provitalgroup.com/en>
- Sitka Services (Spain): <https://www.sitkaservicesllc.com/>
- CESEFOR (Spain): <http://www.subastasdecaza.com/es>

4.3. Round table: Cross-pollinate

Objective of the session: discover what can NWFP businesses learn from other sectors

In this session, four speakers presented their experience in sectors that can contribute to development of NWFP in the Mediterranean basin.

Organisation	Contribution
Forest Goods Growing (France)	NWFP production and marketing in tropical countries
UNObio (Tunisia)	Union of organic farmers
Social Forest (Spain)	Converting a typical primary sector activity into a tertiary one
Berguedà County Council (Spain)	Rural development

NWFP production and marketing in tropical countries (Forest Goods Growing)

NWFP entrepreneurship in the Mediterranean may share some similarities with the situation in developing countries: business may start with low investment, this limiting access to some expensive technologies; there is a lack of business experience in most of the entrepreneurs; there is poor access to training in entrepreneurship in rural areas or developing countries; and the sector is fragmented.

Forest Goods Growing, with 20 years of experience in the field of rural development and natural resources management for rural entrepreneurs, proposes to adapt efficient tools and approaches used in/inspired by tropical areas for the “northern” context for specific targeted actors:

- Adapted guidelines for small rural entrepreneurs (means and funds limited), pragmatic approach to build their business step by step;
- Find “low tech” solutions more adapted for the targeted actors through workshop, and collaborative knowledge exchange (e.g., *L’atelier paysan*, <https://www.latelierpaysan.org/English>, a French-speaking collective of small-scale farmers who contribute to a toolbox of farmer-driven technologies and practices);
- Design a sustainable forest management for private owners/municipalities valorising a large range of products but focused on one promising species.

Union of organic farmers (UNObio)

In some countries, a common situation between farmers and NWFP producers is the fragmentation of their sectors. This is the case of organic agriculture in Tunisia: even if organic farming area has increased exponentially since the beginning of the century, these produces are mainly exported to foreign markets and the production is mainly monocultural and controlled by big landlords, being difficult for small farmers to be certified organic even if their traditional

agricultural techniques respect most of the organic schemes' requirements. Moreover, getting the certification may be a bureaucratic burden for small producers.

To help small organic producers to be certified, the National Union of Organic Producers (UNObio) was created in 2019. This professional union brings together farmers, processors and distributors of natural and organically processed agricultural products.

UNObio President Leith Tlemçani: "People who want to get started, especially those who want to make something other than olives and dates, face a lot of problems. The criteria in the specifications are so fierce that sometimes you spend two or three years looking for land. On top of that, you need a lot of labour, a source of water capable of regenerating, a clean neighbourhood, a minimum of infrastructure to be able to transport the production and transform it. »

UNObio is supporting small organic producers by:

- Supporting farmers to achieve the organic schemes' requirements;
- Standardising and complying with the organic farming quality and ethical rules of to all operators and stakeholders, to give the best possible image of the organic sector in Tunisia;
- Contributing to a better structure of the organic market (supply and sales circuits, etc.);
- Encouraging synergy between the various operators in the sector (farmers, processors, distributors including exporters);
- Ensuring better promotion of Tunisian organic products.

Converting a typical primary sector activity into a tertiary one (Social Forest)

NWFP can be highly experiential products, but forestry works also. Social Forest shows how forestry works can have a value beyond the execution of the work itself. The company offers:

- Teambuilding events in the forest for the employees of their customers. By interacting with the environment, Social Forest creates awareness. Employees can directly participate in forestry projects to ensure a direct social and environmental impact.
- Forest Coaching: a unique concept taking advantage of the therapeutic effect of the forest in order to make youngsters under risk of exclusion to acquire professional skills, competences and soft skills in an easy and natural way. These young people experience a positive transformation of attitude towards themselves and their lives by learning and working in the forest.

In Social Forest, most of its value comes from these tertiary sector activities, rather than the typical primary sector activities of forestry works.

Rural development (Berguedà County Council)

Due to their ecological specificities and requirements, NWFP are strongly linked to the territory. Therefore, they can become key players of the rural development. Local or regional development organisations should:

- connect and motivate economic actors and organisations on the territory;
- foster knowledge transfer between these economic actors and organisations;
- be a "cocreation" agent.

Rural and intelligent development should provide efficient economic development providing leadership, a territorial strategy, and the vision of the territory and its actors as a whole system
More precisely:

- an agenda for all the sub-region;
- entrepreneurial leadership that is organised, demanding and coherent;
- adoption of key priorities, sectors, and locations;
- increasing the capacity to implement projects;
- a variety of tools available for financing;
- a variety of loan vehicles that attract external investment;
- resolution of problems with a focus on project management;
- an economic agenda featuring solid partnerships with the local public sector as well as the local and regional private sector;
- a collaborative leadership that guides, gives autonomy, and is centred on global outcomes and makes the most of its resources to obtain results.

Berguedà county (Catalonia region, Spain), 40,000 inhabitants and 1,200 km², is lying partly in the Pyrenees and partly in the Catalan Central Depression, and about 100 km north of Barcelona. Primary and secondary sectors have higher shares in its economy than in the Catalan average. During the 20th century, mining, forestry and textile were the main industrial activities, but they have been declining since the end of the last century. Tourism is now a strong sector (mainly outdoor activities and wild mushroom picking), thanks to its mountainous scenic landscapes, its road network and its vicinity to Barcelona. Since 2013, Berguedà county has its own development agency, which set up a territorial strategy. The objective of Berguedà's strategy is to "renew the idiosyncrasy of Berguedà to build opportunities for future and territorial brand". Some examples of these opportunities are:

- create an innovation ecosystem: cluster of activities (e.g., textile and agro-food cluster), entrepreneurship culture, etc. → Agro-food sector includes professional harvesting of NWFP and their primary and secondary transformation;
- set up a research and innovation county strategy for smart specialisation on circular economy;
- foster local food valorisation → including edible NWFP, especially wild mushrooms (for which the country has a high reputation in Catalonia);
- become a sustainable tourism destination → including wild NWFP that tourists harvest as a recreational activity (mainly wild mushrooms);
- encourage rural diversification;
- support sport and leisure with a specific county strategy → including the linkage of outdoor activities with NWFP.

Presenting organisations:

- Forest Goods Growing (France): <http://forestgoodsgrowing.com/>
- UNObio (Tunisia): <https://www.linkedin.com/company/unobio-tunisie/>



- Social Forest (Spain): <http://socialforest.org/>
- Berguedà County Council (Spain): <https://www.bergueda.cat/>

5. SWOT analysis of businesses in NWFP

5.1. Methodology

Participants to the first day of the CCS worked in four groups, animated by a facilitator, to elaborate a SWOT analysis of companies and entrepreneurs working with NWFP. The SWOT analysis below merges the conclusions of the four groups. As the elements in each one of the cells (strengths, weaknesses, opportunities and threats) are quite abundant, they have been classified and grouped in seven categories, according to their main nature: economic, ecological, entrepreneurial, knowledge (of skills) or innovation, marketing, policy or institutional, societal. Each one of the four cells of the SWOT analysis is followed by an explanatory text derived from the exercise and the round tables of the CCS.

See infographic from the SWOT analysis in section 7 *Outputs described through infographic.*

5.2. Summary

The environment for innovation in NWFP is conditioned, on the one side, by global environmental and societal change, but also by the intrinsic elements rooted in the essence and nature of NWFP. They are produced in social-ecological systems and thus have production cycles and uncertainties that cannot totally be controlled or even foreseen. Upstream, they are at the fringe of agriculture, forestry, agroforestry and sometimes recreational activities, while downstream they diversify into food, feed, cosmetic, chemical, and manufacturing sectors. In consequence, they are subject of considerable policy and market fragmentation. Also, in many cases NWFP move from local traditions to sophisticated products and services for urban markets, offering then all the opportunities but also pitfalls of unexplored territories.

5.3. Strengths

Categories	Strengths
Economic	<ul style="list-style-type: none"> Low investment needed at seed and start-up stages Low overhead expenses Potential to deliver a high added-value product/service with low costs Passion-driven consumption: stable sales resilient to volatile fashions
Ecological	<ul style="list-style-type: none"> High resilience of Mediterranean forests Proximity of the product to the processing facility Low carbon footprint High availability of some NWFP
Entrepreneurial	<ul style="list-style-type: none"> “Do-it-yourself” business, it depends (only or mainly) on the entrepreneur Passion-driven businesses Short and/or local supply chains Some needed knowledge or skills are part of the traditional knowledge
Knowledge or innovation	-
Marketing	<ul style="list-style-type: none"> NWFP convey an image of quality, close-to-nature, sustainability and tradition to customers The global market is eager for new “green” products No substitutes in their markets due to their uniqueness Strong connection with the customer

	<p>Some NWFP can deliver a diverse portfolio of transformed products</p> <p>Possibilities of customisation, especially in artisanal productions</p> <p>High nutritional quality of wild edible products (vs. cultivated)</p> <p>Access to organic produces labels</p> <p>Territorial marketing, integration into local/regional events to promote their products</p>
Policy or institutional	-
Societal	<p>Contribution to rural development and social inclusion</p> <p>Companies can easily integrate into diverse regional networks promoting traditions, landscape, gastronomy, etc.</p>

On many occasions, products derived from NWFP have not substitutes in their markets due to their performance and associated environmental and social benefits (e.g. cork). NWFP hold relevant public goods and social and cultural benefits embedded, making them appealing for aware and responsible consumers. They are very appropriate to generate value in rural areas, through the collection, transformation and marketing of products and through territorial marketing approaches (e.g., through protected geographical indication) at the heart of regional-based development strategies. Moreover, they have the potential for diversification of rural income and allow part-time dedication, both in agricultural and forestry holdings. They are friendly to gender balance and to ethical business models, and in many cases represent living traditions, leading to greater recognition and social acceptance.

NWFP are varied and diversified. In many cases, they required limited upfront investments in relation to the added value generated by their intrinsic properties (e.g., super-foods) or derived from their cultural and social values. On many occasions, both the production and their consumption are passion-driven and, thus, stable and resilient to volatile fashions. Entrepreneurship is propelled by social values and community-based approaches.

Consequently, the development of NWFP will greatly benefit from (but also have a strong potential to contribute to) integral territorial development strategies, promoting coherent and synergic actions by all involved stakeholders.

5.4. Weaknesses

Categories	Weaknesses
Economic	<p>High harvest costs due to the distribution of the resources across the landscape</p> <p>Low profitability of raw or slightly transformed NWFP</p> <p>Small markets can be easily overflowed</p> <p>Long-term recovery of the investment</p> <p>High cost or even impossibility for small businesses to scale up their production</p> <p>Illegal collection reduces profitability</p>
Ecological	<p>Seasonality of the products/services affecting employment</p> <p>Uncertainty about available amount of resources due to yearly variability of natural production</p>

	Perishable products (especially the edible ones) need to be sold or processes quickly
Entrepreneurial	<p>Lack of business experience of most of the entrepreneurs</p> <p>Poor access to training in entrepreneurship in rural areas</p> <p>Fragmented sector: populated by few old traditional players and a myriad of short-lived initiatives</p> <p>Limited networking capability of small companies</p> <p>Difficulties to implement quality controls</p> <p>Risk for the entrepreneur to become disconnected from landscape</p>
Knowledge or innovation	<p>No or very limited research capability for improvement, development or innovation</p> <p>Lack of science-based ecological knowledge about some resources</p>
Marketing	<p>Lack of commercial or marketing skills, or capacity to acquire them</p> <p>Difficulties to understand local or regional demand</p> <p>A traditional NWFP may look old fashioned by some consumers</p>
Policy or institutional	<p>High cost of being self-employed in some countries</p> <p>Difficulties to meet legal requirements for highly regulated products</p> <p>Complex and diverse regulatory frameworks and requirements depending on the final markets of similarly produced raw materials</p> <p>Entrepreneurs not prepared for administration bureaucracy, they need support</p> <p>Scarce public infrastructures in rural areas</p>
Societal	<p>Loss of local and traditional heritage and of knowledge due to generational gap</p> <p>Cultural limitations regarding some products</p>

In many cases, NWFP entrepreneurs lack the necessary knowledge and skills in marketing, regulatory framework and they are almost completely out of the scope of advisory services and the AKIS. A fragmented sector, often populated by few old traditional players and a myriad of short-lived initiatives, lacks, in general, sectoral organisations that can help negotiate unnecessary competition and organise functional lobby activities that could increase policy attention. In the case of wild products, the predominance of grey markets hinders proper understanding of the economic dimension of NWFP further weakening its policy relevance.

NWFP are subject of very complex and diverse regulatory frameworks and requirements depending on the final markets of similarly produced raw materials (e.g. food, chemical and pharmaceutical regulations, in addition to agricultural and environmental). Moreover, this regulation changes from country to country, even within the European Union, affecting the registration and commercialisation of products.

Collection (wild plants, mushrooms, berries, ...) and harvesting (cork, resin, ...) are costly operations as the resources are generally present along large areas in low densities, leading to low profitability at the base of the value chains and transferring production towards low income and/or highly productive areas. In many cases, it is not possible to increase production neither to enhance economies of scale, thus leading to precarious labour conditions. In some cases (e.g., pine nuts in Iberian Peninsula), illegal collection is commonplace, but tolerated from administrators unwilling to invest efforts against this subsistence activities, further debilitating the production base.

5.5. Opportunities

Categories	Opportunities
Economic	<p>Access to specific funds for activities that contribute to climate change reduction, carbon sequestration increasing or greenhouse gases reduction</p> <p>Access to specific subsidies for companies located in rural areas or that train or hire rural employees</p> <p>Many niches and opportunities to add value</p> <p>Increasing number of retailers commercialising NWFP</p>
Ecological	Increase in areas under agroforestry means more areas for NWFP production
Entrepreneurial	Access to incubators, acceleration services and similar in-kind support
Knowledge or innovation	Increased access to knowledge for entrepreneurs thanks to ICT
Marketing	<p>Trending market value for natural products and sustainable/organic labels</p> <p>ICT help small producers to access markets, connecting urban consumers to rural producers</p> <p>Low competition in niche/specialised products/services</p>
Policy or institutional	<p>NWFP and rural areas are rising topics in the European economy</p> <p>NWFP embed numerous positive externalities</p> <p>ICT help in complying with traceability regulations</p>
Societal	<p>High social acceptance because of workers being hired in rural areas and providing fair trade conditions</p> <p>Business being gender-inclusive, allowing work-family balance or providing a complementary revenue</p>

As biological products and nature-based services, NWFP respond to the strong societal megatrend that favours sustainable, bio-based (aka *green*) products, wild super-foods, experiential tourism, as well as *slow-food*, *0-km* type of initiatives, respectful with local traditions and local wellbeing. This is opening new opportunities in consumer preferences and access to markets (e.g., some large retailers paying attention to NWFP), but also in terms of access to finance and, maybe to a lesser extent, in policy attention.

In many places in the Mediterranean and around the globe there is a renewed interest in rural areas and increased policy attention to rural innovation and entrepreneurship. As part of this trend, there is a significant number of new well educated young urban professionals that are settling in rural areas and looking for opportunities to innovate.

Digitalisation provides new means to build upon the above strengths. On the one side, it improves relationship with customers (e.g., distant customers) through traceability and quality/origin assurance (this is relevant for big and small producers). On the other hand, it facilitates access to market for small productions through direct selling approaches and unexpansive online stores based on social media networks. In addition, digitalisation facilitates access to knowledge for entrepreneurs-to-be and eases their initial steps.

5.6. Threats

Categories	Threats
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Economic	Limited access to financial resources Uncertainty about subsidies and loans
Ecological	Emerging pests and diseases, natural hazards and climate change increase uncertainty about variability, quantity and quality of resources
Entrepreneurial	Competition from other local companies with different business models Fragmented sector
Knowledge or innovation	Traditional sector that may be innovation averse
Marketing	Global competition, especially with commodities and similar foreign products NWFP are prone to substitution effect, from agriculture (for edible products) or from fossil resources (for non-edible products) Similar products of different origins may be difficult for customers to compare and assess Extensive black market for some NWFP, including illegally harvested products Lack of trust from customers
Policy or institutional	Policy dependence and policy uncertainty Bureaucracy and administrative burden before and after establishing the business Legal constraints, market regulations and standards to respect may vary depending on the country Unregulated, unexplored or non-adapted working regulation Lack of targeted public policies
Societal	Lack of available workers in depopulated rural areas Low social consideration for forest jobs Extensive black market for some NWFP Rural abandonment and small forest lots leading to unmanaged forests Lack of societal awareness of positive externalities of NWFP

Resource availability is a key issue for the more commoditised products, as cork or resin, where supply capacity cannot increase rapidly and meet the increased demands to supply a developing bioeconomy. Irregular supply with fluctuating weather conditions poses additional threats in the case of aromatic plants, mushrooms and truffles, where domestication seems to be a necessary step. These pressures on the resources are exacerbated by climate change through forest degradation, increased impact of existing and novel pests and diseases, and increased fluctuation in production levels or available periods for harvesting².

Globalisation creates fierce competition in the markets for NWFP (e.g., Mediterranean resin, nuts, sanded cork vs. Brazilian, Pakistanis or Chinese counterparts), among bio-based products (e.g.

² Increased, irregular aridity can jeopardise territorial marketing strategies based on, for example, wild mushroom collection. Competition for water with agriculture, can jeopardise forests and resin production in central Iberian Peninsula, while diseases like *Leptoglossus* or *Coraebus* are already impacting production of pine nuts and the quality of cork, respectively.

resin derivatives vs. tall oil derivatives) as well as among bio- and fossil-based near equivalents (e.g. resin, cork products, truffle extracts vs. their fossil-based counterparts).

Rural abandonment threatens all rural activities and also the production and collection of NWFP. Lack of skilled labour is a relevant threat, as in most cases salaries are low, even when NWFP support strong value chains (e.g., cork in Iberian Peninsula, essential oils in Tunisia) or because the traditional knowledge and skills have gone or are reduced to few elder people. Global competitiveness puts additional pressure on prices and is jeopardising the capacity to produce raw materials in high income regions that in some cases have kept industrial capacities based on imported materials (e.g., cork in Catalonia and France or resin in the Iberian Peninsula).

In some emerging markets (e.g., green cosmetics, wild foods) there are many new initiatives, and this could saturate the market, stress resource capacities and eventually lead to loss of trust from customers due to incapacity to supply in quantity and quality (B2B) or because failing to maintain high quality levels and supply traceability information (B2C).

As a relatively unexplored domain in the fringes of agriculture, forestry and agroforestry, NWF often suffer from absent or unfit regulation. This is especially noticeable in relation to resource management, where regulation can be very restrictive or unpredictable (e.g., access rights for collection or establishment of truffle plantations), or unable to secure sustainable harvest/collection levels, or to mediate in conflicts between occasional and professional harvesters, as it can happen in the wild aromatic plants and mushrooms. Regulation can also fail to adequately mediate water rights for irrigation (e.g., jeopardising cultivated truffles or resin production due to ground water use for agricultural crops). On the other extreme of the value chains, regulation often fails to guarantee fair and transparent markets, due to missing market data, inadequate recognition of qualities, origins and embedded ecological and social values in trade regulations and labelling of NWFP. Is the case, for example, of pine nuts, where nuts from countries with pine species producing edible nuts compete in the local markets as perfect substitutes.

6. Business pitches and marketplace

The business pitches were intended for:

- Business ideas (development stage) or start-ups AND dealing with or having a direct application to non-wood forest products, or
- Established business NOT currently working with non-wood forest products BUT with a business idea aiming to start doing business with this kind of products

Access to the presentations:

https://incredibleforest.net/sites/default/files/resource/files/2nd_ccseminar_agenda_presentations.pdf

Some of these presentations are also published as factsheets in the [Knowledge repository for Non-Wood Forest Products](#). See section 8 *Entrepreneurship cases described by factsheets*.

6.1. NWFP for human consumption

Álvaro León. Bellota y Raíz: exploring new value chains for oak nuts-based products

Bellota y Raíz is a business idea aiming at producing food based on forest seeds and roots from Spain, recovering traditional knowledge from rural areas, where these products were consumed during periods of famine and were abandoned with the arrival of more prosperous times. The first product they are working on is an acorn-based spread. They want to provide low impact food, merging innovation and tradition and bring to consumers new attractive flavours. Their main challenges are the creation of a market and the food regulation.

Jesús Fernández-Moya. Aromas del encinar: improving the consumers' experience by making them be a key participant in the sustainable management of forest with shrubby wild aromatic and medicinal plants

Aromas del encinar is a Spanish start-up which started the production of essential oils from forest plants in central Spain in 2019. They take advantage of an opportunity and get profit from a very abundant and under used natural resource: aromatic and medicinal plants from the shrubland associated to Mediterranean holm oak forests. This is an opportunity for rural development as they provide an alternative use for currently abandoned forest systems. They also offer customers the possibility to harvest themselves the plants that will be distilled in a family estate near Madrid that was abandoned in 1970. Besides essential oils, they aim to produce hydrosol, hydroalcoholic extracts and dried plants for human consumption.

Richard Splivallo. Nectariss: an innovative technology to produce natural truffle flavour

Nectariss is a Swiss start-up producing natural aroma truffle concentrates for truffle & oil wholesalers. Their offer a diversity of truffle flavours with geographical traceability in order to differentiate from unauthentic truffle flavours. With their patented method, they can release through fermentation the aroma potential of truffles on demand and can do it from waste products as well as laboratory grown truffles. Their products already have the regulatory approval by the EU and started their sales in 2019.

6.2. Services and non-edible NWFP

Giuseppe Uras. Corkymat: an innovative technology for the creation of complex cork objects

Corkymat (Sardinia, Italy) proposes a state of the art injection moulding process to generate objects made of cork granulate reducing the costs and the amount of plastic used compared to current injection moulding processes used for cork granulate. They started beta testing in 2020

with surf pads, commercialised under the brand Suru. Because surf pads are made of plastic and glued on the surf board, a cork-based pad has the advantage that it can be biodegraded if it is lost in the sea while surfing.

Albert Hereu. Cork Recycling 4.0: promoting the circular economy of wineries by recycling their cork waste

Wineries produce cork stoppers waste. Cork Recycling 4.0 aims to minimize the cork stoppers waste, demonstrating the importance of cork material to consumers and valorising the stoppers using them as a cork urban tree covers eliminating the use of synthetic rubber and plastic resins. Cork waste and unused stoppers are collected in stoppers factories and wineries, ground and mixed with bio-based resin derivatives to achieve a tree cover with high porosity, high perimeter adjustment, environmentally friendly and at a low cost. Field tests have already taken place and next steps are to ensure the stock of raw material, commercialise the product through prescribers (resin manufacturers and distributors, municipal public entities, etc.) and scale-up.

Mokhtar Baraket. Resin Tunisia Forest (RETUFO): economic impact on the local population of resin extraction from Aleppo pine: increase income through improved exploitation techniques

RETUFO is an initiative to develop a community of resin tappers in Tunisia. It addresses the issues of low employment in Tunisian rural areas, the lack of knowledge and appreciation of the importance of resin tapping and the fact that the knowledge of resin extraction is very limited or even non-existent. RETUFO will offer a training and networking resin platform to:

- Disseminate a method of training services to people living in rural areas in order to give them income sources towards sustainable resin extraction and giving value to the natural Tunisian forests;
- Facilitate the creation of an attractive community of resin distillers;
- Promote networking opportunities between farmer and the industry: workshops, open days, field visits, etc.

In February 2021, RETUFO should have identified the areas for resin tapping, trained the tappers and contacted the Tunisian companies interested in buying the resin for its processing.

Stéphane Person. Forest Goods Growing: expanding NWFP consultancy services from South-Saharan Africa to Mediterranean countries

Stéphane Person, consultant for individual roles within a co-operative in rural forestry in southern countries and tropical areas, wants to expand the market of Mediterranean forest fruits to the strawberry tree (*Arbutus unedo*) fruit by following the example to other tropical remunerative and promising market of superfruits (with his professional experience with the baobab pulp). The strawberry tree fruit is a local Mediterranean superfruit. Rich in vitamin C and E, polyphenols, potassium and zinc, it is an abundant resource with monospecific stands, a resilient species with a good resistance to drought and with the capacity to be coppiced. Recent initiatives of innovative process of the fruit (compote, beer) confirmed the commercial potential of arbutus-based products. Forest Goods Growing proposes to adapt efficient tools and approaches used/inspired by in tropical areas for the “northern” context may be more adapted (context and means often limited) for specific targeted actors:

- Adapted guidelines for small rural entrepreneurs (means and funds limited), pragmatic approach to build step by step his business;
- Find “low tech” solutions more adapted for the targeted actors through workshop and collaborative events (e.g., *L’Atelier Paysan*, in France);

- Design a sustainable forest management scheme for private owners/municipalities valorising a large range of products but focused on one promising species.

The exploitation of this fruit would be an incentive to manage Mediterranean forests prone to forest fires and to abandonment.

Lot Amorós. Dronecoria: open-source drones for global reforestation

Dronecoria is an open-source drone designed with easily accessible materials that aims to transport and disperse seeds coated with layers that nurture them. Its main goal is to contribute to restore plant communities in degraded forest areas by seeding large areas quickly and at a low cost. It can transport up to 10 kg of coated seed, able to seed 1 ha in 10 min of flight. Being open-sourced means that the plans to build it are freely available to any person or organisation all over the world. Sister projects around Dronecoria are the one to find the best materials for ecological coating of seeds and the development of a germination chamber to test germination success of plants. Dronecoria is supported by COACT, an environmental tech accelerator & innovation hub in Barcelona (Spain).

6.3. Commercial presentations of interest for NWFP entrepreneurs

Besides the business pitches for business ideas, start-ups and established business not currently working with non-wood forest products, two organisations delivered commercial presentations of interest for NWFP entrepreneurs.

Fitomón (by Astrid van Ginkel, Spain, <https://www.fitomon.com/>)

Fitomón offers consultancy services for natural products Industry to comply with European regulations; legal strategy of marketing products based on plants, regulatory affairs, product development, training, quality assurance, audits, R+D+I projects and documentation. In their task adapt your products to market regulations to overcome entry barriers, they help customers to comply with legislation related to human food, animal feed, drugs, cosmetics, chemical products, etc. Their main message is to think about legal marketing requirements since the beginning in order to adapt any new product “before it is too late”. Not doing so is a common mistake that sometimes couldn't have a solution. “It’s not the first time I have ever met someone who has grown a plant or obtained an essential oil that finally couldn’t put in the European market.” Astrid van Ginkel encourages any entrepreneur wanting to launch any new NWFP-based product to let specialised consultancy services to register it in the EU according to the European legislation.

Take-home messages:

- To know what product I want, or I have. Is it a food or a food supplement?
- Is my plant in a food positive list in Europe?
- Where and how I can sell it.
- How to comply with legal requirements.

Urban forest innovation lab, Cuenca (by Carmen Avilés and Pablo Macías, Spain, <https://uiacuenca.es/indexeng.html>)

Urban forest innovation lab, Cuenca is the programme for ventures in forest bioeconomy. It offers tutoring and training in order to develop a corporate project, open innovative solutions to companies and networking possibilities for businesses and agents related to forestry, and participate in the city's ecosystem, particularly regarding its forests. The main goal of this innovation lab is to try new solutions in response to urban challenges; see how they work in a



controlled environment and how they would respond to the complexity of real life. More precisely, it accelerates new businesses around the forestry sector in rural areas of central Spain to increase forest management and exploitation and to fight unemployment and depopulation, while exploiting underexploited forest resources (wood as well as non-wood products).

Some figures:

- +100 participants in 3 years
- 45 projects generated
- 27 entrepreneurship initiatives underway in Cuenca
- 10 initiatives from participants outside Cuenca will start in the city

7. Outputs described through infographic

7.1. SWOT analysis of businesses in NWFP

Non-wood forest products businesses: SWOT analysis, available at:

<https://incredibleforest.net/transversal-resources>

INNOVATIVE BUSINESSES AND ENTREPRENEURSHIP

NON-WOOD FOREST PRODUCTS BUSINESSES: SWOT ANALYSIS

Some products derived from NWFPs have no substitutes in their markets due to their fantastic performance or unique wildness.

They are relevant public goods and have social and cultural benefits embedded, making them appealing for aware and responsible consumers.

NWFPs have the potential for diversification of rural income and allow part-time dedication in agricultural and forestry holdings. They are friendly to gender balance and to ethical business models and in many cases represent living traditions, leading to greater recognition and social acceptance.

Some NWFPs business require limited upfront investments in relation to the added value generated.

On many occasions, both the production and the consumption of NWFPs are passion-driven, therefore stable and resilient to volatile fashions. Entrepreneurship is propelled by social values and community-based approaches.

A strong megatrend favouring sustainable, respectful with local traditions, wild and bio-based products opens new opportunities in consumer preferences and access to markets, finance, and, maybe to a lesser extent, policy attention.

A renewed interest in rural areas, rural innovation and entrepreneurship pushes a significant number of young urban professionals to settle in rural areas, looking for opportunities to innovate.

NWFPs are very appropriate to generate value in rural areas, through the collection, transformation, and territorial marketing approaches, at the heart place-based development strategies.

Digitalisation improves relationship with distant customers, improves traceability, and facilitates access to market for small productions through direct selling approaches and unexpansive online stores. It also facilitates access to knowledge for entrepreneurs-to-be.

Supply capacity cannot ramp up rapidly and meet the increased demands. Fluctuating weather conditions may cause irregular supply.

In many cases, NWFPs entrepreneurs lack the necessary knowledge and skills in marketing, regulatory framework and they are almost completely out of the scope of advisory services.

It is a fragmented sector, often populated by few old traditional players and a myriad of short-lived initiatives, lacking sectoral organisations. In the case of wild products, the predominance of grey markets hinders proper understanding of their economic dimension.

Collection and harvesting are costly operations as the resources are generally scattered, leading to low profitability, precarious labour conditions, and transferring production towards low income and/or high productivity areas. It can be difficult to increase economies of scale.

NWFPs are subject of very complex and diverse regulatory frameworks and requirements depending on the final markets of similar products from different origins. Different regulations from country to country affect their registration and commercialisation.

Climate change impacts resource availability, through forest degradation, emerging pests and diseases and increased fluctuation in production levels or available periods for harvesting.

Globalisation creates fierce competition, jeopardising the capacity to produce raw materials in high income regions that in some cases have kept industrial capacities based on imported materials.

Rural abandonment can lead to a lack of skilled labour, especially in high income regions, and/or because the traditional knowledge is gone.

In some emerging markets, many new initiatives stress resource capacities and eventually lead to loss of trust from customers due to incapacity to supply in quantity and quality (B2B), or because failing to maintain high quality levels and supply traceability information (B2C).

Absent or unfit regulation in relation to resource management, either very restrictive or unpredictable, or failing to guaranty fair and transparent markets.

8. Entrepreneurship cases described by factsheets

"Aromas del Encinar - AROEN": aromatic and medicinal plants from Madrid municipality rural areas, available at: <https://repository.incredibleforest.net/oppla-factsheet/20586>

"Nectariss": truffle flavour from real truffles, available at: <https://repository.incredibleforest.net/oppla-factsheet/20581>

Pine resin tapping in Tunisia, available at: <https://repository.incredibleforest.net/oppla-factsheet/20164>

Sitka Services: A successful company promoting mycotourism, available at: <https://repository.incredibleforest.net/oppla-factsheet/20558>

9. Outputs from the B2B meetings

The space for B2B meetings offered at the end of the CCS allowed Christine Fisher (from Sitka Services) and Lot Amorós (from Dronecoria) to initiate a collaboration in order to provide the coating for seeds with mycorrhizal inoculations. Within the seed coats of *Quercus* seeds, spores of the summer truffle *Tuber aestivum* have been included; seedling survival and mycorrhizal status will be evaluated in 2021.

Read the full article: <https://incredibleforest.net/content/innovation-skies-drone-technology-dispersion-pelletized-seeds-reforestation>