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INNOVATION ANALYSIS OF *LEADER* PROJECTS ON NON-WOOD FOREST PRODUCTS IN THE UNITED KINGDOM AND SWEDEN

Abstract: This study reveals the major factors behind the success of innovative companies dealing with non-wood forest products (NWFPs) from Wales (UK) and Sweden. In order to identify these companies, the database of EU-LEADER instrument 2007–2013 has been used. LEADER is an EU level policy initiative which supports innovative projects in EU rural areas. Subsequently, interviews were conducted with managers of companies and LEADER Action Groups officers in order to acquire relevant data regarding aspects of the innovative process of the businesses and the role of LEADER in it. The methodological design includes systemic innovation approach analysis of chosen projects. This analysis is applied in three case studies of NWFPs companies with the aim to disclose the key factors that have led to their success. The findings show that stakeholders' education plays a significant role in the success of innovative businesses due to providing necessary knowledge for production processes, marketing, fulfilling legal issues and applying creativity. Also, the LEADER policy tool provides vital support for the development of NWFPs projects in terms of finances, advice, network building and adding to stakeholders' education.

Key words: *Non-wood forest products (NWFPs), LEADER instrument, innovation, Sweden, Wales*

1. INTRODUCTION

The importance of non-wood forest products increased in the last decade in European countries and therefore timber is no longer the only forest product which is competitive on the market. In favour of this Hellstadius (2011) expressed that: 'Forests are more than trees and a study made by Mattsson and Chuan-Zhong (1993) indicated that the non-timber value accounted for a considerable portion of the total forest value'.

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The decreasing price of wood products, the rising demand for environmentally friendly products, and the rural development policies are the main driving factors of growing interest in non-wood forest products and services in Europe (Niskanen et al. 2007). Sustainable harvesting of mushrooms, berries, medical herbs, moss and other NWFPs not only contribute significantly to national economic but also to maintaining local culture and tradition. Nevertheless, the importance of NWFPs has not been recognised enough in Europe, especially compared to the production of timber. This study deals with entrepreneurship related to NWFPs in Sweden and the United Kingdom and thus contributes to increasing awareness of the importance of these alternative forest products and promotes sustainable use. Innovative projects on NWFPs are the focus of this paper, as innovation is vital for viable business. Innovation is considered a core factor for economic growth, competitiveness and employment according to economic research and this is significant for all industries, sectors and economies including forestry and rural areas (Rametsteiner & Weiss 2006). In order to decrease competition with timber production and to generally improve the marketability within the forestry sector, innovative NWFPs solutions have great potential. Sweden and the UK are both economically developed and yet utilisation and significance of forests and NWFPs are different. National policies and government support differ as well in this regard. However, since these countries are members of the European Union, there are some common policies implemented in both. One such policy is LEADER (Liaison Entre Actions de Développement de l'Économie Rurale). This policy promotes sustainable development in European rural areas addressing economic, social and environmental concerns. It is an innovative approach with a goal to build local capabilities and to find out the new ways of meeting the needs of rural communities (EC 2013). It has been used within the EU since 1991 and has so far proved to be a successful method which involves cooperation between non-profit, public and private sector, for sustainable development of rural areas (Swedish Board of Agriculture 2010). LEADER is an EU level policy which supports innovative projects in forestry. Therefore, successful LEADER applications related to non-wood forest products in Sweden and the UK are discovered and analysed in this paper. The core of this study are projects on NWFPs such as berries, mushrooms, nuts, medical plants and other products used for different crafts, rather than non-wood forest services (NWFSs) such as hunting, conservation, tourism and recreation. This is because the NWFPs are significantly less covered in European scientific literature comparing to NWFSs.

The final goal of this study is to promote the importance of NWFPs in the economic, social and cultural regard. Also, the aim is to disclose and present the various ways of using these products that can be applied in other countries as well. Thus, there is an attempt to answer these questions in the paper:

- 1) What are important factors for the success of innovative projects on NWFPs in the UK and Sweden?
- 2) What is the role of the EU LEADER approach in these projects?

2. INNOVATION AND INNOVATION ANALYSIS

Innovation is ‘a matter of producing new knowledge or combining existing elements of knowledge in new ways’ (Edquist 2005). Leonard and Swap (1999) find that: ‘Innovation is the embodiment, combination, and/or synthesis of knowledge in novel, relevant, valued new products, processes, or services.’ Generally, the innovation refers to the introduction of novelties to the market (Rametsteiner *et al.* 2005; Weiss *et al.* 2011).

Since economists have recognised that innovation is the main impetus for economic progress around 20 years ago, policy makers expressed concern over the issue, which resulted in the adoption of innovation policies on national and the EU level (Weiss 2011). One such policy that supports innovative projects in rural areas of Europe is LEADER and was first launched in 1991. LEADER is one of the main EU level initiatives which support innovations in forestry and therefore in NWFPs. Weiss (2011) underlines that innovation in forestry and forest-based industries is as important as in other sectors in order to maintain the competitiveness of the market.

According to J. Schumpeter — the initiator of the introduction of innovation in economic studies (Godin 2008), there are five types of innovation: 1) new products; 2) new methods of production; 3) new sources of supply; 4) the exploitation of new markets; and 5) new ways to organize business (Schumpeter 1912; Weiss 2014). Edquist (2005) finds the difference between *product* and *process* innovation, where product innovation is a new (or better) material goods, also new intangible services, while process innovation is a new way of producing goods and services (Edquist 2005). Besides the new technologies, innovations are also new business models or new marketing methods which enhance the business (Weiss *et al.* 2011). Schumpeter (1912) initially held that entrepreneur has a central role in the innovation process and later he claimed that this role has a great company (Schumpeter 1942; Godin 2008). Yet, there are other numerous factors that affect the innovation process. Consequently, the study of innovations faces a challenge due to multiple processes involved in the creation and implementation of novelties (Weiss 2011). There are several different levels in innovation process analysing: linear, systemic, national, regional and sectoral model (approach) (Weiss 2014). In order to explicitly present the innovation process of the successful companies dealing with NWFPs, I applied Systems of Innovation Approach in the analysis of the case studies. The SI approach is first introduced in science by Freeman (1987), Lundvall (1992) and Nelson (1993) (Edquist 2001). This approach encompasses all the important aspects that have a role in the innovation process. SI approach refers to all relevant economic, social, political, organisational, institutional and other factors that influence the development, diffusion and use of innovations (Edquist 2005). According to Edquist (2005), the main parts of the Systems of Innovation are *institutions* and *organisations* and the central focus is *learning process*. He explains the *institutions* as ‘the rules of the game’ laws, norms, routines that affect the innovation process and *organisations* as ‘players or actors’ which could be competitors, customers, suppliers, universities, government bodies etc. Since the innovation is the

production of a new knowledge, thus the *learning process* is of vital relevance in studying innovation process. Weiss and Rametsteiner (2005) add that *interactions* between actors and institutions are relevant in the innovation process.

3. MATERIAL AND METHODS

3.1 Study areas

Two study areas have been chosen for this thesis: Sweden and the United Kingdom. These two countries are selected due to a great difference in forest cover, availability and importance of NWFPs, policies regarding forestry and NWFPs, culture and tradition in general. Nevertheless, both countries are members of the European Union and some common policies are applied, such as the Common Agricultural Policy. An important tool of this policy is the LEADER instrument, which supports innovative projects in forestry and thus in NWFPs at the EU level. However, after the search for NWFP projects in the UK, I only found cases in Wales and no cases in Scotland and England. Nevertheless, there is the possibility that there are cases in Scotland and England as well, but not visible in the online database.

3.2 Identifying the LEADER projects related to NWFPs

Search for the relevant projects was carried out through three sources. The first source is the website of the European Commission, the second is the website of the Ministry of Agriculture of Wales and Sweden and the third source is contacting professionals from the UK and Sweden who deal with NWFPs.

Regarding all sources of information, I identified four projects in Wales and no projects in Scotland and England. Considering all sources of information, only three projects on NWFPs were identified in Sweden.

Table 5 shows the number of projects related to forestry, NWFPs and NWFSs supported by LEADER, which was found during the research I conducted. Therefore, these figures relate only to the projects that I have found. It is possible that there are more, but not visible in the online database.

Table 5: LEADER forestry projects in the UK and Sweden 2007–2013

	No of LAG	Projects related to Forestry management	Projects relates to NWFSs	Projects related to NWFPs	Funding from LEADER awarded to these projects
UK	108	14	14	4	£179 877 (€251 670)
Sweden	63	8	7	3	SEK 4 189 478 (€451 811)

3.3 Methods of data collection

After the most prominent projects (companies) on NWFPs from UK and Sweden were chosen, the interviews were held with project holders (managers) and LAG representatives in August 2014. Two projects are chosen from Wales in the

UK: *Fine Pluck* and *Out to Learn Willow*. These projects are selected due to their interesting, innovative idea which can be applied anywhere else in Europe and due to greater availability of information regarding these projects than the other two. One project was chosen from Sweden: *Truffles of Sweden*. Since truffle production is a novelty in the whole of Scandinavia and because the LAGs of the other two projects did not show the interest to cooperate, the project-Truffles of Sweden from all Swedish projects was selected.

Regarding the *Fine Pluck* project, the interview with Bruce and Sara Stanley — the owners of the company was conducted. In order to collect relevant information concerning *Out to Learn Willow* project, the interview with Clare Revera—one of the founders of *Out to Learn Willow* was conducted. Finally, in order to acquire the data regarding *Truffles of Sweden*, the interview with Susanne Welin-Berger and Olof Thomsson who are actively involved in this project was carried out.

The questionnaires for the owners of companies comprised qualitative open-ended questions which covered aspects of the innovative process of the project. These aspects (as previously explained in the 2nd chapter) are: actors, institutions, interactions and knowledge and learning. Thus, the questions were related to: 1) background of the company and the main products 2) actors and interactions in the development and production 3) the role of the LEADER policy and other institutions and 4) sources of knowledge. The interviews with stakeholders were conducted in person. Additionally, I used literature, newspaper articles and website of the companies and other organisations that are involved.

Further on, case studies are written for each project. The case studies follow Systemic Innovation Approach for the analyses of projects, as explained in the 2nd chapter.

4. RESULTS

4.1 *Fine Pluck*

4.1.1 *Introduction and background of the company*

Fine Pluck is a small-scale company situated in the countryside of Powys County in Middle Wales, which deals with innovative herbal tea production. The company uses only the plants which grow well in the local area and creates tea packages which always consist of a blend of three different herbs. Powys is a county of east-central and by far the largest county in Wales.

Herbs for the *Fine Pluck*'s tea producing are mainly picked in the Cambrian mountain farm in Wales but also come from the area close to the farm. The unique characteristic of the production process is that the herbs are plucked exclusively by hand. Some herbs are native to the area, but all are grown within the surroundings of the house of the *Fine Pluck* owners. The tea is only locally grown, thus creating the new Welsh brand. Bruce Stanley (founder of *Fine Pluck* together with his wife Sara Stanley) exerts that the tea they produce is the only exclusively Welsh tea on the market.

Another innovative product is a poster 'Free teas' which shows 42 herbs growing in Wales which can be plucked for tea. The poster also contains advice about foraging each plant. The company as well holds courses and workshops in foraging and tea growing, processing and blending.

Unlike to other tea producers in the UK, Fine Pluck doesn't use mechanisation for plants harvesting. 'This means we're able to select only the best fresh ingredients' this company states on its website. The owner of the company stated in the interview that Fine Pluck applies permaculture principles in the business design which is another novelty.

4.1.2 Actors and interactions

In general, business development of Fine Pluck neither had many actors nor much cooperation. There was no cooperation whatsoever with other companies with similar products. The owners find that it was unnecessary as their own knowledge could provide them with enough information to be successful entrepreneurs. Also, they don't have ambition to become a great company and prefer to develop slowly and thus network development is not particularly needed. However, Fine Pluck had to fulfil the numerous legislative measures related to food security, and thus many institutions and government actors related to this issue are involved in the business development of this company.

The cooperation which was extremely important for Fine Pluck is the one they had with Glasu agency which implements LEADER and which provided them support for the business. They received support from Glasu in terms of funding and advising at the initial phase. Glasu is a local partnership of public, private and voluntary/community organizations and its main aim is to support a sustainable future for people in Powys in Wales (Glasu 2011). This organisation is a part of Powys Rural Partnership set up in 2000 which is responsible for managing the Rural Development Plan in Powys and therefore represents LAG for this region. Glasu supports the business projects with funding or different information providing.

Bruce Stanley underlined in the interview that the support Fine Pluck received from Glasu (LEADER) was vital for their business development. He added that they possibly wouldn't have started with the business at all or would probably have had a much smaller volume of production without this support. Fine Pluck had some difficulties with water quality, as it did not meet the food regulations standards. Even though they do not use any water in the products whatsoever, it is important for water which is used for cleaning to be of impeccable quality. The LEADER provided funding for water filtration system. Funding and some advice were the only categories of support Fine Pluck received from LEADER (Glasu). This company found that they did not need any kind of network or cooperation development initiated from LEADER, as their goal is to remain small-scale producers. In general, half of the money invested in the whole project the owners provided from its own budget. In total, a few thousands of British Pounds is invested in the company.

Furthermore, the company received relevant support from EHIA (European Herbal Infusions Association), in terms of information. The owners followed the

inventory of herbs suitable for use in teas, which they found on the EHIA website. Fine Pluck used Guidelines for Good Agricultural and Hygiene Practices (GAHP) for raw materials used for herbal infusions which are also taken from EHIA website. The authorities responsible for food safety, the Environmental Health Agency in Wales (EHA), requested the documents proving that Fine Pluck products are completely safe and again, EHIA provided valuable information on microbiological limits of safe herbal tea infusions. This was not needed only at the beginning of the production, but Fine Pluck has to undertake tests every year and report to the local Council Environmental Health Agency. Before Fine Pluck started with production, they had a visit from Environmental Health Officer who gave them advises about the necessary measures that must be taken in order to ensure proper production (Stanley & Stanley (1) 2012). The officer pointed out that all principles of HACCP (Hazard Analysis and Critical Control Points) must be applied as the Food Safety Management System is based on it. Regarding information on the use of plants and special precautions for certain categories of users, the owners found it on the website 'Plants for the future'. Fine Pluck also received advices from Katie Pressdee, a Food Technologist at UWIC (University of Wales Institute, Cardiff) regarding preserving stock by vacuuming before packing (Bruce & Sara Stanley (1) 2012).

During the development of different blends, Fine Pluck engaged taste testers to help them to discover interesting flavours and finally decide which ones will go on the market. Regarding customers and distribution — Fine Pluck supplies three local cafes and their tea sells for a slightly higher price per cup than some other teas. The owners explain this as fair as their tea is special and genuine. Approximately seven local health food shops sell Fine Pluck's tea packets. Some local chefs use the blends of herbs created by Fine Pluck in the specialities such as flavoured risotto and dessert syrups (Bruce & Sara Stanley (2) 2012), which is a rather unusual application of the tea company innovation.

Fine Pluck planned to engage other people to produce tea herbs for them and earn some income this way, but the company faced the lack of interest from locals to cooperate. For instance, this company offers others to grow fennel, which is self-seeding plant, and even are willing to pay for maintaining during the year and for final harvesting as well. Although the response is minimal currently, the owners still hope to raise the interest of village inhabitants to grow tea for them in the future.

4.1.3 Knowledge and learning

The owners already had a strong knowledge base when Fine Pluck was founded. Bruce Stanley's background in graphic design contributed to the design of the website, package of the products and advertising. Sara Stanley's knowledge in food technology was important in the production phase. Both of the owners grew up in the countryside which provided good background knowledge for planting. Particularly Sara Stanley was already very knowledgeable about wild plants and her background in the food industry was also important in this regard. The owners of Fine

Pluck read many books about tea producing and took a few courses in foraging to add to their existing knowledge. 'Finally, the moment came when our knowledge was beginning to overtake', Sara said.

Accordingly, all the knowledge that the owners are applying in their business came from four sources: 1) universities that the owners completed (Food Technology and Graphic Design); 2) traditional knowledge of planting and wild herbs they have acquired while growing up in the countryside; 3) books about foraging; and 4) foraging courses. The two more sources, that are to be applied as well during the development of business are 5) 'learning by doing', which refers to knowledge gained from experience in business; and 6) the knowledge from research they are continuously conducting.

The owners of the Fine Pluck continue to enrich the knowledge, mainly by doing research on their own project. Their aim is to create new blends and thus new flavours of tea, which requires both creativity and skill. Another goal is to use the land in the most suitable way, and therefore they monitor how particular herbs are growing on certain sites in order to discover which conditions plants prefer and experiment with planting many different herbs and bushes in order to discover the new possibilities and maximise the potential of their land. Furthermore, in order to improve the soil quality and conditions for plant growing, the owners plant some nitrogen fixing species and some trees and shrubs as a windbreak.

The traditional knowledge contributed to knowing wild plants and planting technique, but contemporary knowledge added to drying herbs in glass house with fans on electricity. There is also a plan to use solar panels, which would be highly modernized sustainable production.

Finally, the types of knowledge that are applied in Fine Pluck's business could be categorized as both traditional and contemporary. Regarding this, Sara Stanley expressed that in their innovative business development the contemporary knowledge was more important than the traditional one.

4.2 Out to Learn Willow

4.2.1 Introduction and background of the company

Out to Learn Willow is a small company dealing with willow weaving, based in south Wales, in Ogmores-by-Sea, Vale of Glamorgan. The company provides a wide range of workshops and willow courses such as making traditional crafts from willow and also planting a living willow structures. The target groups are: primary schools, secondary schools, community groups, youth services, other voluntary and statutory agencies. Generally, any community member can be engaged in the projects or courses on offer. Out to learn willow deals with projects on the community level but also they are offering bespoke design service that can reach customers out of the community. Working shops run through a whole year, where in the summer they practice making crafts with dry willow branches and during

the winter — the living willow structures making, such as domes, tunnels and arbours are on the schedule. Mel Bastier and Clare Revera are the founders of Out to Learn Willow.

The main activity of Out to Learn Willow is teaching willow weaving, as the main turnover of the company comes from it. They also produce traditional baskets and other willow crafts which can be specially ordered. Quite innovative products are willow sculptures of animals, which require special skills and creativity. The market of the company is mainly local and one of the owners expressed that she prefers if it remains that way. The founders of the company asserted that the most innovative in their business are workshops as ‘no one in the region is doing it in the same way’ and they are always trying to improve it and make more interesting.

Sustainable business and production of material for crafting is the main guideline of Out to Learn Willow. This company has founded willow plantations which are sources of material for their business. These ‘willow beds’ belong to the local community. The production is completely sustainable since rotation period is around 30 years, as Clare stated in the interview. There is no need to destroy a whole tree during harvesting. In fact, the same tree can be used productively for 30 years. This way the company is afforesting a small area in the Vale of Glamorgan, which has a positive ecological impact and there is no need to exploit the other willow forests in the surrounding area. In addition to above mentioned the sustainable use of willow branches, the company is applying the idea in the maintenance of plantations. They are using a recyclable cover over the soil in order to disable weed development and spreading. This way they are saving the time and the money which would be spent for weed fight and also the fuel which would be used for a mower and the transport to the plantation. The cover also prevents water losses and drying out of the soil and thus positively affects the growth of the willow trees. There are no expenses for planting either, just exchange of services with local people. As for the question of free branches harvesting from the locals, it relies on trust. Out to Learn Willow also offers the opportunity to people who live nearby to help them with planting and in return, they are allowed to harvest some branches for their own use. Apart from this, the company runs willow cultivation courses which lead to more afforesting promotion in the region.

4.2.2 Actors and interactions

Mel and Clare cooperate with quite many institutions and organisations. Courses and workshops are held in some primary and secondary schools, with community groups, therapeutic groups with mental disorders, sight and hearing difficulties, homeless people and all other kinds of categories who are interested in learning willow weaving. They also work with professionals and participate in different projects. Out to Learn Willow strives to increase cooperation with different organisations and to participate in various projects and events in order to advertise their services and exchange the knowledge.

The owners gained the knowledge of weaving at several different courses. First, they learned this skill on courses in Devon. After, they enhanced existent knowledge

by attending courses from several different teachers such as Joe Hogan from Ireland and the teachers from the Schumacher College in Dartington.

Out to Learn Willow company is the member and the main initiator of Welsh Basketmakers South Wales Group. This group is formed in 2009 by new basketmakers and gathers all enthusiasts of willow weaving once per month (Welsh basketmakers 2013). Also, Out to Learn Willow is a member of Welsh Basketmakers group.

Mel and Clare run courses in National Botanic Garden of Wales in Carmarthen and their work can be seen there in the willow playground in the form of beautiful woven willow raised beds. They also hold workshops on the Willow Festival which is organised in June in Llanidloes. Out to Learn Willow made the traditional Welsh baskets which are used for Prince Charles wedding in 2005 and again, they were asked to make a replica of the Queen's Coronation Crown for the Physic Garden in Cowbridge to celebrate the Queen's Jubilee in 2012.

Vale of Glamorgan Local Council has a great role in the Out to Learn Willow project. The owners of Out the Learn Willow contacted the local council in order to find out about possible funding for their business and thus discovered the LEADER. The company received the LEADER funding contacting the council which forwarded their request to Creative Rural Communities- the organization within the council dealing with the Rural Development and representing the LAG in Vale of Glamorgan region. The initial funding was for promotion and marketing of the company and to support them to try new initiatives such as a residential course for people to make willow coffins.

The support Out to Learn Willow received from LEADER was very useful and helped them to make one step further in the business. One of the owners stated that it was not crucial for their company, it rather accelerated the development. As the business was running for five years already when they received the grant, they were successful and stable at the time. Out to Learn Willow just needed some additional financial support for some equipment and tables purchasing and LEADER provided it to them. With this support Out to Learn Willow was able to move from part-time to full-time job. Without this help, the company would surely continue with progress, but just in a much slower manner probably, Clare believes. Generally, the owners of Out to Learn Willow are satisfied with the support they received from this EU funding. Clare Revera finds that the only a small difficulty for this company is the short time-frame of funding, where LEADER supports only until the end of the funding programme and then the entrepreneurs are left with their own recourses. Luckily, the company remained in contact with the local council and thus stayed informed about other future funding opportunities.

Overall, apart from LEADER, Out to Learn Willow did not receive any other grant neither credit. The other investments were provided solely from the owners' own budget.

After the support from this organization terminated, Out to Learn Willow continued the cooperation with the local council, participating in their initiatives for cultural heritage preserving and contributing to cultural development of community.

4.2.3 Knowledge and learning

One of the founders of Out to learn Willow, Clare Revera, used to work as a school teacher and another founder, Mel Bastier is a graphic designer. These skills undoubtedly contributed to the business development, where a pedagogic attitude is an important part of teaching children to weave different crafts. Mel Bastier's designer skills are especially needed for living willow features and sculptures. However, Clare expressed in the interview that both of them are very creative. She also added that Mel has a good background in Internet Technologies and social networking which helped them in the business advertising. The owners regularly update Out to Learn Willow website, blog and social network pages and share the information on their activities and events online. Apart from working as a teacher, Clare has experience with marketing and she underlined in the interview that she is very knowledgeable in this field. She finally added that all of those skills that they have were quite sufficient for successful business.

The owners learned willow weaving by attending several courses with three different teachers and practising by themselves at home as well. Apparently, constant upgrading of the education and skills is very important part of the Out to Learn Willow business.

Overall, traditional and contemporary knowledge is both important in Out to Learn Willow business. Traditional skills of willow weaving prevail in their courses and workshops in making baskets, coffins and other crafts from the vicar. However, contemporary knowledge is also applied in willow sculptures making and in advertising of the company.

4.3 Truffles of Sweden

4.3.1 Introduction and background of the project

Truffles of Sweden is a project that deals with the development of truffle industry on the island of Gotland in Sweden. Production of truffles introduced new products and services on this island and the whole country. It can be said that the Gotland's truffles are the novelty in the entire of Scandinavia. The black truffle is usually associated with France, Italy and Spain but recently it can also be harvested in Sweden, on the island of Gotland in the Baltic Sea (Plogander 2010). The presence of 'black diamond' on this island was first recorded in 1978, however, its distribution and abundance on Gotland suggest that it existed there for a much longer period (Wedén 2004). There is no tradition in eating and searching for truffles in Sweden and it must be a reason, in addition to its underground fruit bodies, why these fungi are discovered so late in here (Wedén & Danell 1998).

The main product of the Truffles of Sweden project is a fresh truffle. This kind of product is mainly sold to truffle wholesalers, who then sell it to the restaurants or local stores. However, approximately one-third of all harvest are small pieces of truffle which are not of the best quality and cannot be sold as fresh ones. These pieces are used as ingredients of numerous different truffle products such as truffle

salt, truffles marinated in whisky, Tryfflioly (spread with truffles), French macaroon with truffles and whisky (the cookie), butter, mayonnaise and cheese with truffles etc. After cleaning of fresh truffles, the leftovers are spread on the top of the soil in order to have a new growth from spores. This is an example of sustainable production where each part of harvested mushroom is used.

The price of fresh truffles in the store is about 10 SEK per gramme or 10.000 SEK per kg (€ 1070 /kg). Regarding the international market, fresh truffles are exported to Norway. More distant export is still a challenge to producers due to volatile nature of these mushrooms.

An interesting fact is that the majority of land owners, truffle hunters, processors and other persons involved in business with truffles on Gotland are women (Tryffel of Sweden 2010).

The idea to develop the truffles project was initiated by Professor Eric Danell from the University of Uppsala. Consequently, the research that was conducted in 1998 revealed that there is a much greater quantity of precious underground mushrooms on the island of Gotland than it was thought before (Gotland Truffle Association 2009). The research was performed by then PhD student Christina Wedén and Eric Danell-the supervisor at the Department of Forest Mycology and Pathology, Swedish University of Agricultural Sciences, Uppsala in collaboration with the University College of Gotland in Visby (Wedén et al. 2001; Samils 2002). At the beginning, Christina Wedén organised blind tests which are conducted by French experts who showed that Gotlandic black truffles are of the same quality as the French ones (Plogander 2010). The aim of the research was also to discover if the black truffle (*Tuber aestivum*) can be cultivated on the island, and right after in 1999, 10 experimental black truffle orchards were founded with 240 seedlings of oak and hazel brought from French nurseries (Wedén 2004). These trees were Gotlandic provenances and also inoculated with truffles from Gotland. In the following two years, another 3000 seedlings were planted on the greatest Swedish island due to a rise of interest among landowners in truffle cultivation (Wedén 2004). Later on, in 2004, four orchards were inoculated with a red truffle (*Tuber rufum*), which is native to Gotland.

After the establishment of orchards, Gotland Truffle Association was founded in 2000, as a body for the exchange of information regarding truffle growing. Ever since it is seriously devoted to the truffle industry development (Project Leader Gotland 2010).

4.3.2 Actors and interactions

Truffle of Sweden shows a very complex and diverse cooperation between many actors and institutions from the project initiation up to the present day. In this project, the whole new industry is developing, since truffles are a novelty in the whole of Scandinavia. New knowledge platform has already been formed and is yet to be complemented in the following years. Therefore, the education centres (Universities, Institutes etc.) play a significant role in this project. Also, truffles growers from France and Italy are an important source of information for Truffles of

Gotland. A great number of food producing companies is cooperating with Truffles of Gotland and also truffle whole-sellers distribute Gotlandic truffles to whole Sweden and Norway. Hence, the LEADER initiative provided considerable support to this project in terms of funding and advising. President of Truffle Growers Association-Susanne Velin-Berger asserted that the aim of Truffles of Sweden project is to increase collaboration with other companies on Gotland, Sweden and even abroad. Also, she stated that they endeavour to become a member of European truffle associations which gather the best truffle growers, in order to receive and exchange the knowledge.

The main role in truffle project initiation had the research conducted by Christina Wedén at the University of Uppsala. Consequently, right after the truffle cultivation, the Truffle Growers Association (Gotlands tryffelodlarförening) was found in 2000 and the truffle cooperative-Tryffel of Sweden as well. The membership is not exclusively reserved for landowners, anybody interested in truffle growing can become the member of the association. The head of the Truffle Growers Association is Susanne Velin-Berger. An active role in this association has Olof Thompson too, Susanne's husband. Both of them are as well working in the truffle cooperative Tryffel of Sweden and also founded their own- Östergarn Tryffel company. Most of the truffle products on Gotland are sold through Tryffel of Sweden. This cooperative is founded with a goal to provide one face of the market for truffle industry of Gotland, which is beneficial for everyone involved in this industry. Susanne and Olof have their own truffle orchard and two truffle hunting dogs. Truffle Growers Association is the organisation which applied for LEADER support and its main goal is to work on the development of truffle industry on Gotland. The association makes an effort to educate all producers and improve the quality of the entire production of truffles to the top level. LEADER Action Group Gotland gave an important support to the development of the truffle industry. The LAG Gotland is referred to as a non-profit organisation and LEADER is implemented through it. Olof stated that the LEADER support was of great benefit for the association and the entire truffle industry on Gotland. Without it, certainly wouldn't be as developed as it is now. This support was multilateral, in the form of funding, network and marketing developing and education providing. LEADER provided support for Gotland's chefs training in truffle specialities preparing and bringing the researchers from Hungary and United States to teach them about truffle growing. International contact developing was also supported, where some members of association went to Italy to learn about truffle business. They also visited the international festivals and then shared the experience with other members of the association. Susanne stated that there would be only a few truffle products in the assortment without LEADER support and not as many as they have it at the moment.

Apart from LEADER, the development of the truffle industry was supported by the local bank's foundation-Swedbank's Alfa Savings Foundation (Alfa sparbanksstiftelsen).

There are several stores in the downtown of the capitol of Gotland, city of Visby, which order truffle products from Tryffle of Sweden and sell it together with other genuine Gotlandic products.

Gotlandic chef Karl Van Jankvist is an important actor in promoting Gotlandic truffles to other chefs and the restaurants in Sweden.

In addition to the cultivation, truffle industry demands to breed and train dogs (Project Leader Gotland 2010). Training dogs is an important part of the truffle industry and that is the role of the Gotlandic club-Lagotto Romagnolo klubben. Some land owners train dogs by themselves as well. There are about 50 trained dogs on the island at the moment and around 10–15 people are working as truffle hunters. The association has for many years organised Truffle Weekend events, where the truffle dog competition was taking place under the supervision of Italian referees. After the competition, the dinner with truffle products has been served. Recently, this event is brought up to a higher level where it is named into Truffle Academy. Seminars about truffle growing and food specialities preparing are held in there. The president of the Truffle Academy is Cecilia Schelin Seidegård, who is also a Governor of Gotland. Another local event related to truffles is-Gotland Truffle Festival and it was first held in November 2014.

Tourist Association has cooperation with some landowners in Djurgården on Gotland and organises truffle safaris. After the hunt, some courses about truffles are held and finally some delicious dishes with truffles are prepared in the restaurants of the hotels.

The business with truffles on Gotland involves a lot of activities and actors but no one is having full-time job in truffle industry so far. All of these activities mentioned above are part-time jobs and in order to provide enough earnings, these actors are mainly working in other fields as well.

4.3.3 Knowledge and learning

The actors of truffle industry development- Susanne and Olof both hold degree in Agricultural Sciences obtained at the University of Uppsala, what certainly had a stake when it comes to research, planting, growing and maintaining of truffles. Olof reached PhD level in Environmental Systems Analysis and believes that his scientific way of thinking helped him in problem-solving in a project with truffles.

Right after the Truffle Growers Association was founded, the members took some courses about truffle harvesting and searching with dogs. Association also organised the trip to France with the aim to visit truffle growers, wild truffle hunters and famous chefs there and learn from their experience. Some research on truffles is done in Centre for Practical Food Technology (LivsTek) on Gotland. However, Olof asserted that the most knowledge about truffles they gained from Christina Wedén.

The association is attending seminars about research on truffle growing every second year and this way keeps the information updated. Also, they organise meetings on Gotland and try to gather all truffle growers and introduce them into truffle aroma recognising. Susanne stated that they are constantly doing the

research in order to improve the quality of truffle products, to keep original aroma and preserve the products during the transport.

Quite a lot of knowledge is gained during the time and being over a decade in this business, Olof Thompsson agrees. Here is an example of ‘learning by doing’ as another source of knowledge. It is particularly important as the truffle industry on Gotland is a pioneer in a whole Scandinavia.

Overall, contemporary knowledge dominates in the development of Truffles of Sweden project. Although the members of Truffle Growers Association consulted truffle growers from Italy and France who apply many centuries long traditional knowledge, Scandinavia has different climate and no tradition in harvesting nor in consuming truffles. Therefore, Truffle Growers Association relies mainly on knowledge from own research and experience.

5. DISCUSSION

5.1 Background of the projects

Regarding the Welsh cases, the businesses are developed from activities that they ‘very much like to do’, which inspires them and what used to be kind of ‘refuge’ from their regular jobs. Hence, in these two cases, hobby developed into a serious business. The owners of both companies find that enthusiasm and passion are the most important prerequisites for success. Also, they added that it was important to be ‘proactive’ as the majority of the business depends on themselves. In the background of Truffles of Gotland stands research which discovered plenty of truffles on the Island of Gotland. A sudden business opportunity has been created for the stakeholders in the development of truffle industry and they used it. However, Susanne and Olof (managers of the Truffles of Sweden) are showing great enthusiasm and engagement from the very beginning of the idea, with the main goal to raise the quality of the Gotlandic products from truffles to the top level.

All stakeholders of the three case studies had other jobs while they were founding their own companies, the owners of Fine Pluck and Out to Learn Willow did not have financial problems, they could develop slowly and without pressure. Even today, both Fine Pluck owners and most of stakeholders in Truffles of Gotland project- still have the business as a part-time job. It takes many years to reach full-time job, such Out to Learn Willow achieved. Also, none of all three companies (projects) had income generation as the main impetus. Even Truffles of Gotland primarily strives to increase the quality of their products.

In the background of the Welsh projects (Out to Learn Willow and Fine Pluck) is also the fact that willow forests and wild herbs for tea are native to the area and successfully grow due to favourable climatic conditions. The development of Truffles of Sweden is a bit specific as the main resource is only recently discovered and immediately launched the whole truffle industry. However, due to characteristics of vegetation and soil on Gotland Island, professor Danell from the University of Uppsala began to suspect that this land might host the truffles, and he was right.

The willow weaving craft production has a long historical background in Wales, but truffle production is entirely new in Sweden. Swedish innovative case of truffle production has no roots in tradition and the main trigger for the idea of this project is the result of scientific research.

Company Truffles of Sweden stated on its website that the majority of stakeholders in truffle industry are women. Considering Welsh companies, one is engaging only women and other both, man and woman. In two projects, entrepreneurs were married couples. This ratio somewhat confirms the statement of Phillips (2014) that gender diversity creates information, opinion and perspective diversity too, which is an excellent platform for the innovation.

5.2 Importance of interactions (LEADER support is very significant)

All three projects have shown many diverse actors in their businesses. However, Fine Pluck involved many actors in the initiation of the company, but not later when the business has been developed.

A particularly important actor in each case was the LAG which implements LEADER in the regions where these projects are initiated. A vital role in the development of Fine Pluck's business had Glasu agency which implements LEADER in Powys area in Wales and which helped them to solve technical problems and provided some funding. Very important actors in business development for Welsh willow weaving company and Swedish truffle producers were LAGs from their own regions- Creative Communities in Vale of Glamorgan and LEADER Gotland in the Island of Gotland. This fact proves that is very conducive for rural areas development to have a body such as LEADER Action Group, to support local businesses.

Comparing to Out to Learn Willow and Truffles of Sweden, Fine Pluck has a smaller number of actors in their business activities. They do not participate in any associations, partnerships or form another type of collaboration with actors in the same sector. Also, they did not need to engage experts in any phase of their business development. Many scientists argue that cooperation between companies is vital for the success of the business. Hence, Maso et al. (2011) finds that small companies usually have limited capability to undertake all actions necessary for viable business due to lack of knowledge or staff resource, which emphasises the need for participation in networks in order to receive relevant information and improve production. Fine Pluck shows that there are exceptions in this respect. Their own knowledge, expertise and information available on the internet provided them independence in the business. In contrary, Out to Learn Willow and Truffles of Sweden have cooperation with many actors from the same branch, they are members of some associations and in general much more actors are involved in their businesses than in Fine Pluck's. Also, they are constantly increasing the number of actors and interactions in the business and find it particularly important for the progress and success.

Each case has a considerable participation of public and private actors in each phase of the innovation process. This result confirms that involvement of both

private and public sector interests highly affects successful innovations (Niskanen et al. 2007).

All the cases demonstrate cross-sectoral cooperation, where apart from NWFPs they engage other sectors as well. This cross-sectoral interaction is of particular significance in NWFPs and NWFSs development as 'these mostly do not belong to traditional forestry activities but have rather affinities to other sector or societal groups' (Weiss and Rametstainer 2005). Fine Pluck engages food technology, culinary, trade, hospitality and education sector. Out to Learn Willow engage education, handicraft, health therapy, entertainment sector and Truffles of Sweden cooperate with tourism, education, culinary, trade, catering and food technology sector.

Swedish project on truffles showed great endeavour in expanding contacts outside the country as well as finding ways to better promote the product and exports, while Welsh companies did not show great interest neither to export their products nor to establish cooperation with foreign companies. 'Acting locally' is their preference and aim. Here is an example of successful businesses without a necessity to extend cooperation on the national or international level. In fact, Fine Pluck did not demonstrate the need for cooperation development with other companies in the area whatsoever after the introduction of the project to the market. However, this company felt confident with this way of business management as they offer quite unique products to the customers. In contrary, other two companies have already achieved diverse cooperation with other similar companies with the aim to receive or exchange the knowledge (Out to Learn Willow case) or build partnerships (Truffles of Sweden case). The explanation of this exception could be found in the fact that Fine Pluck is a young company, just a few years in a business, while the other companies operate around ten years already. The owners of Fine Pluck stated that their company did not face any impediments in business so far and that their good knowledge base is enough for further progress. It would be preferable to conduct the research again in ten years and see if this strategy was viable. Network cooperation provides in addition to the exchange of knowledge, the experience exchange as well. This aspect is particularly important in overcoming unexpected difficulties which may arise in a course of business.

Statement of Belcher & Schreckenber (2006) that collaboration through market cooperatives in order to supply the main markets has to be planned along with the development of new products, with the goal to meet future demand- is entirely implemented in project Truffles of Sweden. As this project is successfully dealing with the development of truffle industry, at the beginning, Tryffel of Sweden Cooperative has been founded with the goal to provide 'one face of the market' to all truffle products on Gotland.

5.3 Knowledge and learning as the key factors

The stakeholders of project development of each case are highly educated, which certainly had a significant contribution to the success of the business. Education was essential in terms of project feasibility and marketing. For instance, Fine Pluck did not need to engage any professionals during the project development as the

owner's background allowed them to do all by themselves and thus save a lot of money and time. Similarly, Out to Learn Willow demonstrated skillfulness in many fields important for business development such as marketing, social networking, graphic design, willow trees planting etc. In a case of Truffles from Gotland, education background was particularly strong which enabled stakeholders to develop the truffle industry, broad collaboration with many other companies on Gotland, Truffle Festival and Academy.

The owners of Welsh companies underlined that the rich and diverse knowledge from previous jobs and in the field of their business was both important for the success. They also asserted that the financial or other support from government matters significantly, but the main driving and creative force of successful business are themselves and their knowledge. Particularly, support (such as LEADER) usually lasts a certain period and after, the entrepreneurs are left on their own resources and skills. In order to be successful, they must primarily rely on their own engagement.

Both Welsh companies conducted research and found a gap in the market, regarding willow weaving courses and tea producing, prior starting their businesses. This is a very important point which indicates whether certain products and services are needed in the area. Each project performed some kind of research and constantly performs it in order to reveal possibilities to improve the business. In addition, all companies are upgrading their knowledge during the development of the business by taking courses in a certain field which might improve their operations. It can be concluded that constant learning process is necessary for success and progress in innovative NWFPs businesses.

According to the cases from the UK and Sweden, education had a crucial role in adding the innovative accent to traditional (Fine Pluck, Out to Learn Willow) or non-traditional NWFP projects (Truffles of Gotland).

6. CONCLUSION

The common feature of all presented successful projects is a high educational level of the owners. Apart from the university degree they hold, all of them took additional courses to further specialise in the field of their business. Thus, education seems to be a particularly important aspect in the project development and along with enthusiasm gives a solid platform for a successful business in non-wood forest products, judging by these case studies. Actually, managers of all the projects continued to add to their existing knowledge by attending courses, reading books and doing research in order to improve the business. Another type of knowledge and the central aspect of all cases is- 'learning from the experience' as all the projects are offering innovative products. Complex interactions, collaboration development and engagement of many actors from different sectors were crucial for the Welsh willow weaving company and for the Swedish truffle project. In contrast, the Welsh tea producer-Fine Pluck does not show much networking development tendency and still manages to operate successfully. The reasons for this lay in a rich and diverse education and expertise of the owners which enabled

them to work very independently and in their non-expansive business strategy. The LEADER (2017–2013) instrument had an important role in the business development in each interviewed company and thus undoubtedly contributed to the rural development of the area. This EU initiative provided funding and advice to all projects and thus accelerated the business development of Out to Learn Willow and Truffles of Sweden project, while it helped in the initiating phase of the Fine Pluck. Providing education and network development to Truffles of Sweden were another types of support from this EU initiative.

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Marija ĆOSOVIĆ

INOVATIVNA ANALIZA LIDER PROJEKATA KOJI SE ODOSE NA NEDRVNE ŠUMSKE PROIZVODE U VELIKOJ BRITANIJ I ŠVEDSKOJ

Rezime

Ova studija otkriva glavne faktore uspjeha inovativnih kompanija koje se bave nerdrvnim šumskim proizvodima (NWFP) iz Velsa (UK) i Švedske. Da bi se identifikovale ove kompanije, korištena je baza podataka EU-LEADER instrumenta 2007–2013. LEADER je inicijativa politike na nivou EU koja podržava inovativne projekte u ruralnim područjima EU. Zatim su obavljani razgovori sa rukovodiocima kompanija i službenicima Akcionih grupa LEADER-a kako bi se dobili relevantni podaci o aspektima inovativnog procesa poslovanja i uloga LEADER-a u njemu. Metodologija uključuje analizu sistemskih inovativnih pristupa odabranih projekata. Ova analiza se primjenjuje u tri studije slučaja kompanija NWFP s ciljem otkrivanja ključnih faktora koji su doveli do njihovog uspjeha. Nalazi pokazuju da obrazovanje aktera igra značajnu ulogu u uspjehu inovativnih preduzeća usljed pružanja neophodnih znanja za proizvodne procese, marketing, ispunjavanje pravnih pitanja i primjenu kreativnosti. Takođe, alatka LEADER politike pruža vitalnu podršku razvoju projekata NWFP-a u smislu finansiranja, savjeta, izgradnje mreže i dodavanja obrazovanja zainteresovanih strana.

Ključne riječi: *nedrvni šumski proizvodi (NWFP), LEADER instrumenti, inovacije, Švedska, Wels*