#LEADFARM 5.0

Newsletter #1

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1 Welcome to the #LEADFARM 5.0 project

The #LEADFARM 5.0 project has been started with the mission to "improve the capacity of agri-food cooperatives, accelerating the development and assimilation of future competences based on digital innovations". The project aims to continue the LEADFARM Project, approved in 2017 in the framework of the ERASMUS + KA2 programme, presenting a clear evolution that allows expanding the impact on each territory (it addresses different target audiences such as Governing Boards, Cooperative Managers, Cooperative Workers, Farmers, etc.).

The consortium of entities is led by ICOS, Irish Co-Operative Organisation Society, and the other partners are AGACA (Asociación Galega de Cooperativas Agroalimentarias), from Spain; CONFAGRI (Confederação Nacional de Cooperativas Agricolas e do Crédito Agricola), from Portugal; SNRSS (Association of Social Cooperatives of Poland); LLKC (Latvian Rural Training and Counselling Center); Grifo Multimedia (Italian technology expert company); Changemaker AB (Swedish pedagogical innovation expert company); and MEDATLANTIA S. Coop. Galega (an expert consultancy firm in European projects from Spain).

The objectives of #LEADFARM 5.0 are to analyse the emerging employment opportunities offered by digital innovations for a Society 5.0; to diagnose the future skills and competences needed in the agri-food cooperative sector; to develop innovative learning methodologies and support smart specialization mechanisms aimed at cooperatives and new farmers and livestock farmers; to promote scientific dissemination through new forms of accessible learning that guarantee equal opportunities for groups at risk of exclusion, and to encourage the participation of women in the new emerging jobs detected and promote the cooperative culture and values needed in the 5.0 Society.

2 First steering committee meeting (Kick-off meeting)

The first Steering Committee and Kick-off meeting of #LEADFARM 5.0 project took place at the headquarters of ICOS in Dublin, Ireland, on the 24th and 25th of May 2022. The first day begun with welcome words from the CEO of the host partner, Mr. TJ Flanagan, followed by a brief presentation of each partner. #LEADFARM 5.0 involves eight partners from six different European countries: Ireland, Spain, Portugal, Poland, Latvia, Italy and Sweden. In this section, partners got the opportunity to present their respective organizations, their experience on the project topics and their expectations on it.

Afterwards, the project was introduced, its legal, administrative and financial conditions, and management tools. The main features of #LEADFARM 5.0 revolve around detecting, analysing and developing a training strategy that encompass the skills and competences needed to transform the co-operative and agri-food sector into an innovative digital Society 5.0. An important part of #LEADFARM 5.0 is inclusion, ensuring equal opportunities for groups at risk of exclusion, women and youth in every issue raised within the #LEADFARM 5.0 scope.

Among other topics, the organisation of the project was introduced, established in five Work Packages (WP1: Coordination and Management; WP2: Dissemination and Communication; WP3: Developing a competency framework for the EU agri-food co-operatives 2030; WP4: Designing a competence-based training curricula for the EU agri-food cooperatives and digital training resources; and WP5: EU deal for an agri-food co-operative community more inclusive, more ecological and more digital).

The second day of the meeting was dedicated to reviewing the Intellectual Outcomes foreseen for the project, as well as agreeing on the workload that every partner is going to assume, the action plan and targeted dates for actions.

These two days of meeting allowed partners to reflect on the concepts, actions and planning of the project in depth, and also to have the opportunity to start building a long-lasting relationship.

3 News from the project partners

Spain

Sustainability in the agricultural and cooperative world

Within the framework of the project objectives of orienting us on new knowledge and skills in the field of environmental sustainability, in AGACA we presented on November 29 the Guide of good practices for the integration of the SDGs (Sustainable Development Goals) in the agri-food cooperatives of Galicia. The 2030 Agenda and its SDGs are the global roadmap for a sustainable future. The 2030 Agenda is articulated in 17 Sustainable Development Goals approved by all member countries, which are embodied in more than 230 indicators and 169 targets covering a wide range of interconnected issues across the economic, social and environmental dimensions of sustainable development, which governments, businesses, civil society and individuals must embrace and adapt to their contexts. The 2030 Agenda is a universal call to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030, that is, to build "an inclusive, sustainable and resilient future", "leaving no one behind". The SDGs are a useful framework because they provide at the macro level guidelines for governments, entities and sectors to make the necessary systemic changes, and, at the micro level, a roadmap for organizations and businesses to plan, assess and communicate progress on sustainability. They establish a common language and a shared roadmap.

The issue of sustainability is central in the agricultural sector because of its ability to fulfil a global and essential need: food. Feeding the world's current and future population, estimated at 8.6 billion in 2030, depends on primary activities such as agriculture, livestock and fisheries. Food security, availability and quality are presented in different SDGs, and take centre stage in SDG 2: Zero Hunger, and especially in goals 2.3, on agricultural productivity, and 2.4, on sustainable agricultural systems. Agricultural activity also plays an irreplaceable role in the defence and protection of the environment. The development of ecosystem services, i.e. nature's resources that benefit humans, depends largely on agricultural activity. The protection of biodiversity or adaptation to climate change will not be viable without the active participation of agri-food producers. Moreover, the implementation of sustainable agricultural practices, agroecology or regenerative agriculture requires maintaining an approach based on data and scientific evidence, balancing the transition with market response and productivity. A transition that does not combine social and economic sustainability with environmental sustainability will not be viable in the long term. It therefore requires leveraging on three key points: training for the dissemination of best practices (SDG 4), the development of innovative solutions (SDG 9) and collaboration between actors (SDG 17).

In this context, AGACA presents the Guide addressed to the managers of cooperatives and their partners, given that the future competitiveness of the agri-food sector is linked to sustainable transition. Spain, and Galicia in particular, has a consolidated and very rich fabric of companies that, subject to numerous challenges and a very high level of requirements, manage to offer the market high quality products, combining innovation and tradition. In this respect, cooperatives – a business format that puts people at the centre and is based on principles such as democratic management, cooperation or commitment to the community – are in a privileged position to lead this transition.

With this vision, AGACA has developed a guide to inspire and accompany cooperatives in their contribution to sustainable development. This project takes as its guiding thread the global roadmap for sustainable development: the 2030 Agenda and its 17 SDGs. The SDGs are a powerful tool to promote sustainable development as they allow us to act independently of our activity or size and to do so in a comprehensive way, in different areas of environmental, social and economic impact.
This guide identifies inspiring good practices, concrete actions and monitoring indicators in each of the 17 SDGs, to be used by cooperatives regardless of their starting point. By reinterpreting the challenges as opportunities and turning them into a source of differentiation and competitiveness, we will ensure that agri-food cooperatives position themselves and make themselves visible as transforming agents, making an irreplaceable contribution to a sustainable and shared future.

Portugal

Presentation of the project in technical magazine 'Espaço Rural'

In Portugal, CONFAGRI published an article about the presentation of the #LEADFARM 5.0 project in Technical magazine Espaço Rural. This project dissemination work in this initial phase is very important for the involvement of stakeholders in order to collaborate in the activities of the project, namely to diagnose the skills and future competences necessary in the cooperative agri-food sector.

1. REUNIÃO DO PROJETO

LEADFARM 5.0 – PROJETO PARA MELHORAR A CAPACIDADE DAS COOPERATIVAS AGROALIMENTARES, ACELERANDO O DESENVOLVIMENTO E A ADOÇÃO DAS COMPETÊNCIAS NECESSÁRIAS NO FUTURO BASEADAS EM INOVAÇÕES DIGITAIS

TEXTO
DOMINGOS GODINHO
CONFAGRI

Por convite da ICOS, a organização Irlandesa das Cooperativas agroalimentares, a CONFAGRI integrou um consórcio de Cooperativas e Empresas de inovação digital Europeias, com o objetivo de melhorar a capacidade de adaptação das Cooperativas agroalimentares aos grandes desafios que surgem das alterações climáticas e da transformação digital, através do desenvolvimento de uma nova estratégia de formação, baseada em inovações metodológicas e digitais que contemplem a melhoria das competências, novas capacidades dos agricultores e conhecimentos necessários para mantê-los atualizados, considerando os desenvolvimentos tecnológicos esperados para a Sociedade 5.0.

No consórcio, além de Cooperativas Irlandesas e Portuguesas, estão as organizações das Cooperativas Galegas, Polacas, da Letónia e organizações tecnológicas da Suécia, de Itália e de Espanha.
O projeto surge do interesse em melhorar o conhecimento, as capacidades e as competências das Cooperativas agroalimentares no que diz respeito às inovações digitais, para se adaptarem aos novos modelos e substituírem os modelos tradicionais. Além disso, surge do interesse em sensibilizar e preparar as Cooperativas e explorações agrícolas europeias, no que diz respeito às necessidades futuras de

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Latvia

The experience of improving the knowledge of teaching staff and educating young farmers in Latvia

The professional and modern competence of professional schoolteachers plays an important role in educating young people about the agricultural sector and applying innovative solutions in the future. Therefore, since 2021, SIA "Latvian Rural Advisory and Training Centre" organizes various activities for the teaching staff of these schools, so that they are able to train young agricultural professionals as best as possible. Training and experience trips can be mentioned as one of the activities.

In September 2022, for example, a group of teachers from Latvian vocational education schools went to the Czech Republic for an exchange of experience in order to gain an insight into the methods used by the owners there. Several farms were visited, where the impact of agricultural production on the environment was studied, what methods are used to limit it, and how farms use innovative solutions in their operations. In the practical lessons, the teachers had to evaluate the resources of economic production – the location of the farm, natural and technical resources (technique, sheds, equipment), labour resources, examples of good practice and efficiency of energy consumption. It was found out that in the Czech Republic, a large part of farms implements the approach "field-to-table", growing the produce themselves, processing and selling it. Innovative solutions (raw milk vending machine, modern sheep milking parlour, precise technologies in crop cultivation, etc.) are used in farm activity, as well as more efficient energy technologies for operators. The acquired knowledge was compiled, compared with the situation in Latvia and passed on to young people who will use the acquired knowledge in the development of the agricultural sector in Latvia.

In addition, learning experience trips are organised for young farmers, including about the values and importance of cooperation. In August 2022, a group of Latvian young farmers went to Estonia for an exchange of experience, where they studied the operation of the largest international cooperative in the Baltics "SCE E-piim", where Latvian and Estonian dairy farmers have united. The purpose of the trip was to find out the future vision of the cooperative's development and evaluate the possibility of becoming its members, since dairy farming is one of those industries where owners actively cooperate. The dairy factory is currently under construction; its promises are going to be one of the most modern and efficient production facilities in Eastern Europe. It was established that the produced milk would have to ensure high quality standards, a certain amount, which forced the young farmers to evaluate whether it would be possible to ensure it on their farms.

The training was held under the Latvian Rural Development Program 2014-2020, in the sub-measure "Professional education and skills acquisition measures", financed by the European Union.

4 Articles

Sweden

Emotional and social intelligence competences

Anders Pettersson – Changemaker AB

One of the sets of competences that the #LEADFARM 5.0 project will develop regards the Emotional and social intelligence. But what do we mean with it?

Emotional intelligence (EI) is the ability to recognize our own and other feelings. It is gradually gaining attention in the workforce, in education and in leadership development. Further, a growing number of experts are coming to the conclusion that emotional intelligence is a more effective predictor of success in the workplace than IQ.

Both Emotional intelligence and self-efficacy showed the positive significant relationship with both attitude and social entrepreneurial intentions. Emotional intelligence is a skill that refers to one's ability **to understand, process, and express one's feelings**, as well as recognise and be able to **engage with the feelings of others.**

This skill is essential for **building relationships** with other people. It's also key to **understand yourself and your needs**. Emotional intelligence can help you handle difficult moments in your life. Developing emotional intelligence can help your career because it makes you a more stable and cooperative team member.

The interrelationship between emotional intelligence, communication effectiveness, and strategic alignment plays a vital role in the growth and success of organizations.

According to research, there are four domains in emotional intelligence: Self-Awareness, Self- Management, Social Awareness and Relationship Management. The first two domains are personal, while the second two are social and have to do with a person's ability to manage relationships with others.

Italy

Innovative technologies for more effective agriculture: what are they and what are their benefits?

Alessandro Mei – Consiglio Nazionale delle Ricerche CNR

Over the years, agriculture has found itself having to face economic and environmental scenarios that have led to a decrease in terms of both product quantity and quality. The European Parliament's Committee on Agriculture and Rural Development has predicted that the world population will grow to around 9 billion by 2050, and therefore believes that, in the coming years, not only the globally cultivated area will increase significantly, but also an increasingly varied diet will be required.

In this context, through technological innovation, there is the possibility of developing innovative and eco-sustainable cultivation systems. Furthermore, the application of innovative methodologies in the agricultural sector has led to the development of sustainable agriculture capable of achieving various forms of quality certification.

Therefore, in recent years there has been a strong propensity to adopt innovative technologies in order to improve production yield on the one hand and reduce costs on the other. As mentioned, the considerable benefit linked to the reduction of the impact on the environment through the rationalized use of plant protection products, soil conditioners or water for irrigation purposes should also be considered. Lately, attention has been increasingly placed on the latter aspect as there is an increasing need for water (increase of 30 % in recent years) for agricultural purposes.

Innovative technologies
The set of all the technological tools applied in the agricultural field converge in the definition of the so-called Precision Agriculture (PA) or Site Specific Crop Management (SSCM). When "remote" or "proximal sensing" sensors are used for the realization of the latter, the field of Digital is entered.

The PA is therefore based on a detailed knowledge of the spatial variability of the main properties of the soils and of the characteristics of the plant species to be studied and is aimed at structuring a Decision Support System (DSS) capable of optimizing the cropping system. For the acquisition of soil and vegetation data, spectrometers in the ultraviolet-visible-infrared (VIS-NIR-SWIR) and thermal (TIR) fields come into play. In the case of precision viticulture, for example, it defines a set of methodologies capable of monitoring various aspects of vineyard cultivation such as the vigour and vegetative-productive balance of the plants or the monitoring of the differentiated ripening of the grapes.

The activities related to the PA are therefore multiple and include disciplines that are also very different from each other. In this context, the application of techniques relating to environmental geomatics certainly adds value to the circumstantial analyses allowing obtaining a synoptic vision of the state of the places and of the physical-biological dynamics within the individual production units, which can be updated over time. Among these tools, there are certainly topography, geodesy, remote sensing and Geographical Information Systems (GIS). The concept of PA is obviously associated with innovative instrumental technologies such as the use of aerial or terrestrial drones, multi- or hyperspectral cameras, thermal cameras, radiometers and sensors that can detect meteorological, pedological, vegetational and atmospheric pollution parameters.

A constantly growing market
The ever-increasing propensity of companies to activate procedures and technologies that are increasingly specific to the type of crop in relation to their specific geographical location, is linked to the ever-increasing possibility of accessing innovative products as well as the birth of specialized companies in the sector. This growth is reflected in the international scientific research of the sector; the large number of public/European funding, publications, and specialized journals are just some of the effects of the exponential growth of scientific and market interest linked to PA.

From a global market perspective, PA represents an effective response (CAGR = 12.2 % in 2014-2020) and has a market value of $ 4.55 billion (2020). The agricultural industry sector ($ 2 trillion market and a CAGR of 3-4 %) is attracting new investment opportunities thanks to the application of new technologies that are giving rise to the AgTech ecosystem (2015: 4.6 billions of dollars of investments). In particular, this sector makes systematic use of various technologies such as mobile apps, field sensors, digital mapping, smart farming equipment, big data and autonomous aerial field vehicles.

The AgTech sector is therefore mainly based on ICT and SAPR technologies and brings extremely diversified innovative solutions according to the agricultural sector. The application of such systems can therefore facilitate the growth of some sectors such as that of viticulture in regions that are not properly renowned in this sector. At national level, the agriculture 4.0 sector is worth around 540 million euros and is growing steadily despite the pandemic period resulting from COVID-19.

Difficulties in accessing innovation
Until some time ago, the market referred to by the AP was linked to large-sized companies, which were able to access these (very expensive) specialist services.
Generally, therefore, small and medium-sized enterprises, due to their lower economic capacity, have had greater difficulty in accessing innovative technologies and therefore in benefiting from such services. Depending on the geographical area (e.g. Calabria Region), one can in fact observe a fragmentation of the agro-food sector (turnover produced by a large number of small companies) and the prevalence of sole proprietorships. This context is also made complex by an inadequate agro-industrial fabric presenting an incompleteness of the production chains generating various production inefficiencies. Furthermore, the propensity to disseminate innovation as well as the weight of certified and guaranteed productions may be low.

In the Calabrian wine sector, for example, one of the main problems is the different innovative development between agronomic aspects (low) and enology and marketing aspects (high). In fact, it is a sector that thrives above all on image, where the innovation conveyed to companies very frequently comes from other parts of the world and is expressed in standardized protocols that do not take into account the peculiarities of each company and the territory. Therefore, in a broader context we find:

- Scarce structural relationships between research and companies favoured by a high fragmentation of Italian research, which makes the coordinated transfer of innovation difficult;
- Lack of experimentation also because the socio-economic context is very fragmented, with a high number of small businesses strongly linked to tradition;
- Pinpoint character of innovation is linked more to certain realities that have entrepreneurial skills, creativity and the ability to develop relationships, to certain territories that are more receptive than others, to structured companies where there is product integration and personnel available to transfer innovation, to those realities where an integrated supply chain system is developed.

Precision viticulture
Wine production contributes to a variety of environmental loads, mainly due to the use of pesticides and fertilizers in the vineyard (Villanueva-Rey et al., 2013). Precision viticulture, i.e. the set of technologies that can make possible a rational viticulture strongly based on sustainability and enhancement of the territory, has innovation and research for sustainable soil and vineyard management among its priorities, also through use of robotics in the vineyard. Through these techniques, there is the ability to trace critical elements related to climate change, the adaptation of plants to sudden changes in temperature, and the management of water resources.

In hill viticulture, for example, within the same vineyard there are areas with different soil composition and structure, humidity, lighting and microclimate: the crop responds accordingly to these differences, highlighting different states of physiological expression, with different of vegetative vigour. Vigour maps can be used to make harvest choices (at vineyard or district level) and provide the possibility of carrying out cultivation operations not in a generalized but targeted way, both spatially and temporally (precision harvest). The application of precision technologies in the wine sector is also useful in contributing to the rationalization of anti-downy mildew strategies, especially if associated with monitoring systems capable of identifying (through vigour maps) in a preventive and reliable way the presence of disease symptoms in vineyards.

From an operational point of view, the aims of precision viticulture are many, such as: management of the heterogeneity of the vineyards through the differentiated fertilization of various portions of the vineyard (combined use of prescription maps and variable rate machines), reduction costs and environmental impact of treatments, differentiated management of green pruning and defoliation according to vigour and microclimatic needs, uniformity of grape lots at harvest (selective harvest), quantification of production loss due to failures. These products are in line with the indications of the MIPAAF as well as the instruments used to achieve the pre-set results.

Enabling technologies and environmental sustainability
The manufacture and use of fertilizers and pesticides, the energy requirement deriving mostly from fossil energy sources linked to agricultural activities, are some of the most demanding factors from the point of view of resource consumption and of energy.

Therefore, in addition to the significant impact that PA has in terms of improving employment conditions and product diversification (increase in quantity and improvement in the quality of the final product) and market positioning, the use of these innovative approaches can be considered with high environmental sustainability. This is guaranteed by the reduction of water consumption for irrigation purposes, by the possibility of reducing the use of fertilizers and plant protection products by introducing them only where necessary. In 2013, for example, a total of 41.1 million quintals of fertilizers were distributed, while the quantity of phytosanitary products distributed for use in the protection of agricultural crops is equal to over 118,000 tons (source: ISTAT).

These approaches are in line with the strategic line of the European Technology Platform Food for Life which defines sustainable food production as the most important challenge for the European agri-food industry.

Various actions have been identified as part of the National Smart Specialization Strategy in order to create new value chains aimed at the generation of innovative products and services as well as the development of key enabling technologies. The purpose of these technologies is linked to the improvement of products and their simplification in capillary distribution and is aimed at the development of new jobs that are long-lasting. In this sense, the development of precision agriculture and the agriculture of the future are among the most prospective development trajectories.

Therefore, an increasing use of AP techniques allows companies to improve their management capacity with reference to the ex-ante situation, which can be described in terms of an increase in performance parameters relating to production, greater environmental sustainability and an improvement in the quality of agricultural production. The improvement of production cycle management systems and therefore the optimization of times and costs of agricultural activities will become all the more effective when these specialist services are made available at moderate cost and therefore accessible to most small and medium-sized companies. The transdisciplinary characteristics of the PA must therefore make it possible to establish a virtuous circuit of cooperation between the tertiary sector, AgTech services and the agricultural sector, promoting productivity and agricultural efficiency in the specific case.

Original article: https://www.agendadigitale.eu/smart-city/tecnologie-innovative-per-unagricoltura-piu-efficace-quali-sono-e-i-benefici/

Recommended articles

SNRSS (Poland) recommends two interesting articles:

An article about 4C 21st century skills: Schnell, Z., Podeschi, C. "A novel methodology of international discourse: online joint course across cultures." Humanit Soc Sci Commun 9, 216 (2022). https://www.nature.com/articles/s41599-022-01233-1

An article about coach approach in learning & training: Kevin Kruse. "Use a 'Coach Approach' to overcome the knowing-doing gap in learning and development", Forbes, Nov 7, 2022. https://www.forbes.com/sites/kevinkruse/2022/11/07/use-a-coach-approach-to-overcome-the-knowing-doing-gap-in-learning-and-development/?sh=34679c995557

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