CO-creating sustainable and competitive FRuits and vEgetableS' value cHains in Europe

Deliverable 6.5
Second batch of practice abstracts

Responsible partner: UHOH

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History of changes

Version	Author	Date	Comments
1.0	Michael Bregler	21.04.2023	Initial Version

Table 1: History of changes

Table of Contents

1. Executive Summary

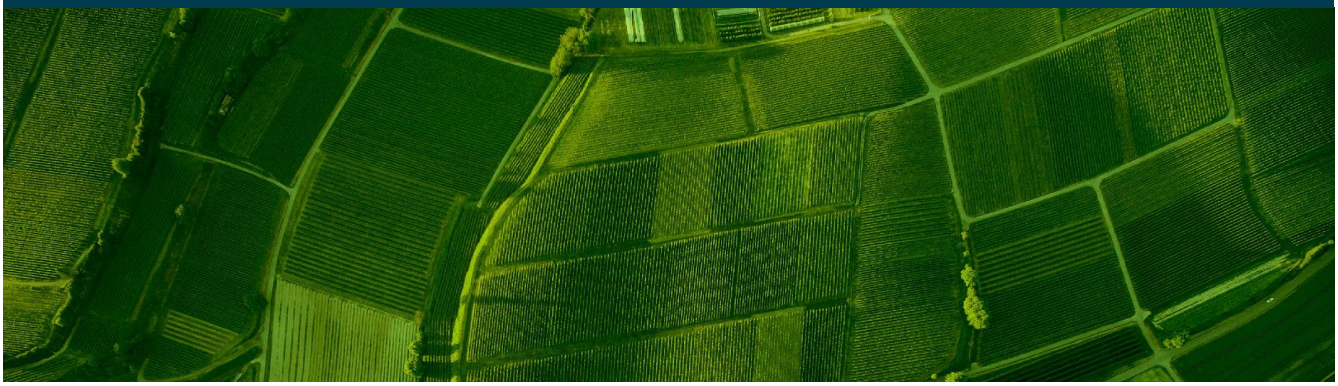
In this second batch of practice abstracts, between 30 and 45 Practice abstracts have to be delivered. This deliverable contains a total of 31 of EIP-AGRI practice abstracts, bringing the total number of practice abstracts to 43 when combined with those submitted in Deliverable 6.4.

The practice abstracts in this report are provided in a template created by UHOH. In addition to this deliverable the practice abstracts will be submitted to EIP-AGRI in the common format.

2. Annexes

Practice Abstract No 13

Sustainable pork meat production: The case of Porc Fermier Cénomans as a Label Rouge for consumers.



Description

The Porc Fermier Cénomans Label Rouge is a flagship product of 30 Sarthois craftsmen and breeders and over 200 retailers in France. With groups of producers, food manufacturers, wholesalers and meat packers, is a network of 300 companies that promote quality pork production "made in Sarthe".

The Label rouge certifies that a product has a higher quality level than a similar common product. In the case of pork and pork-based products, the criteria include livestock feed, rearing conditions, age of slaughter, meat grading and product development methods. The attachment to tradition guided their approach and pigs are raised on straw with access to an outdoor run, on a surface area much larger than that required by regulations. It is fed with a non-GMO, exclusively vegetable, mineral and vitamin feed. The general aim of the consumer study conducted within co-fresh project is to evaluate the consumers' perceptions, preferences and willingness to pay for meat of the Porc Fermier Cénomans Label Rouge. According to the results, consumers agreed that the most potential development proposals to improve the sustainability of the Porc Fermier Cénomans Label Rouge are:

- Cenomans Label Rouge pig farmers should be fairly compensated for their work.
- Cenomans Label Rouge pig farm should be certified as a fair trade product.
- Cenomans Label Rouge pig farm should be fed with French vegetable proteins.
- Cenomans Label Rouge pig farm should reduce its environmental impact related to breeding.

Findings showed that consumers are willing to pay a premium price for pig meat certified as "The Porc Fermier Cénomans" and for meat from pigs fed with local feed.

Author(s)

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University of Hohenheim.

Stakeholders

Consumers, retail

Country/Region

France

Keywords

The Porc Fermier Cénomans, label rouge, consumers' preferences, willingness to pay.

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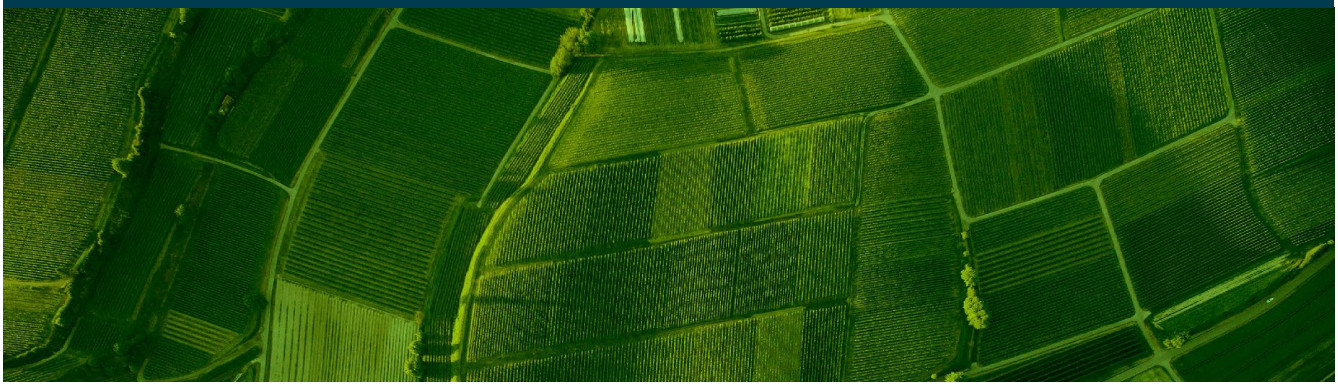
Practice Abstract No 13

Production durable de viande de porc: le cas du Porc Fermier Cénomans en tant que Label Rouge pour les consommateurs.



Description

Le Porc Fermier Cénomans Label Rouge est le produit phare de 30 artisans et éleveurs sarthois et de plus de 200 détaillants en France. Avec les groupements de producteurs, fabricants d'aliments, grossistes et conditionneurs/salaisonniers de viande, c'est un réseau de 300 entreprises qui valorisent la production porcine de qualité "made in Sarthe". Le Label rouge certifie qu'un produit a un niveau de qualité supérieur à celui d'un produit courant similaire. Dans le cas du porc et des produits à base de porc, les critères portent sur l'alimentation du bétail, les conditions d'élevage, l'âge d'abattage, le classement des viandes et les méthodes d'élaboration des produits. L'attachement à la tradition a guidé leur démarche et les porcs sont élevés sur paille avec accès à un parcours extérieur, sur une surface bien supérieure à celle exigée par la réglementation.

L'objectif général de l'étude menée auprès des consommateurs dans le cadre du projet co-fresh est d'évaluer les perceptions, les préférences, et la disposition á payer des consommateurs à l'égard de la viande de Porc Fermier Cénomans Label Rouge.

Selon les résultats, les consommateurs ont convenu que les propositions de développement les plus potentielles afin d'améliorer la durabilité du porc Fermier Cénomans Label Rouge sont les suivantes:

- Les éleveurs de porcs Cénomans Label Rouge devraient être rémunérés équitablement pour leur travail.
- L' élevages de porcs Cénomans Label Rouge devrait etre certifié en tant que produit du commerce équitable.
- L' élevages de porcs Cénomans Label Rouge devrait etre nourri avec des protéines végétales françaises.
- L' élevages de porcs Cénomans Label Rouge devrait réduire son impact environnemental lié à l'élevage.

Les résultats ont montré que les consommateurs sont prêts à , la plupart des consommateurs sont prêts à payer un prix plus élevé pour la viande de porc certifé "Le Porc Fermier Cénomans" et pour la viande de porc nourris avec des aliments locaux.

Author(s)

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University of Hohenheim.

Stakeholders

Consumers, retail

Country/Region

France

Keywords

The Porc Fermier Cénomans, label rouge, consumers' preferences, willingness to pay.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Additional Information (context, links, etc.)

https://www.porcsdelasarthe.fr/porc-fermier-cenomans/

Pictures

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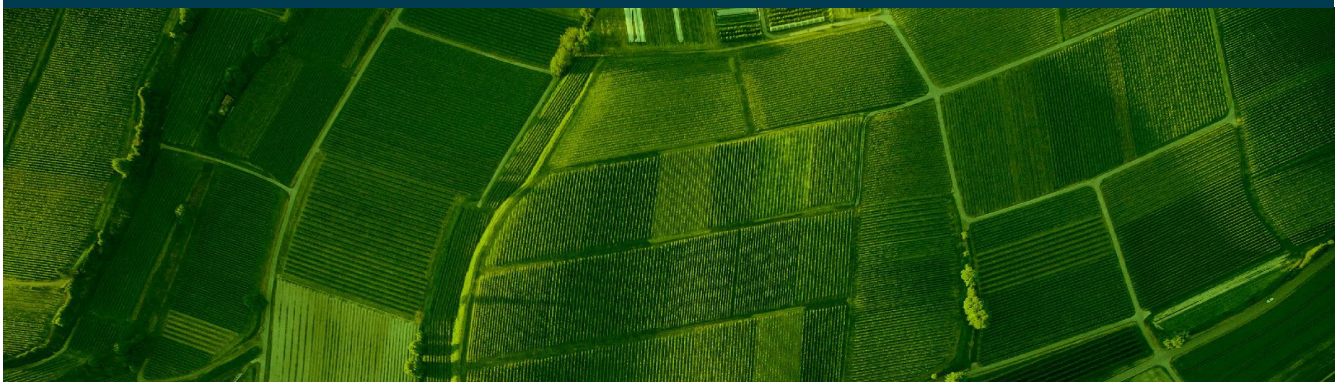
Practice Abstract No 14

A new consumer food cooperative in the North of Italy



Description

Consumer food cooperatives have appeared as an organizational innovation, alternative to the traditional supermarket distribution model. A consumer food cooperative is a non-profit form of organization in which the consumers actively participate in the distribution of food products, by playing multiple roles: owner, customer and volunteer worker. This collaborative model was initiated in the 1970s by Park Slope Food Coop in New-York, and several similar initiatives have been flourishing since a decade in Europe.

Stadera Società Cooperativa is the first food cooperative in Ravenna, in the Emilia-Romagna region of Italy. It was created in 2020 by Enrico de Sanso, who already founded and leaded the BEES Coop in Belgium. Stadera wants to offer quality food products, mostly local and organic, at an affordable price, as well as enhancing social relationships within the (member) community. To allow inclusive participation, the minimum membership fee to enter the cooperative is kept low (25 euro). Each member then contributes around three hours per month of volunteer work, depending on individual capabilities, on tasks ranging from purchasing to cash registering. The complementarity of skills of the members, their energy and motivation, as well as the transparency and democratic governance, are key for the success of this initiative. Despite the COVID-19 pandemic crisis, that represented a big obstacle for social interaction, already more than 300 people have joined. To scale-up, Stadera Società Cooperativa recently developed a partnership with other community-based consumer groups to develop a regional purchasing platform for reducing transaction and logistic costs.

Author(s)

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Stakeholders

Consumer, Local Producers

Country/Region

Italy

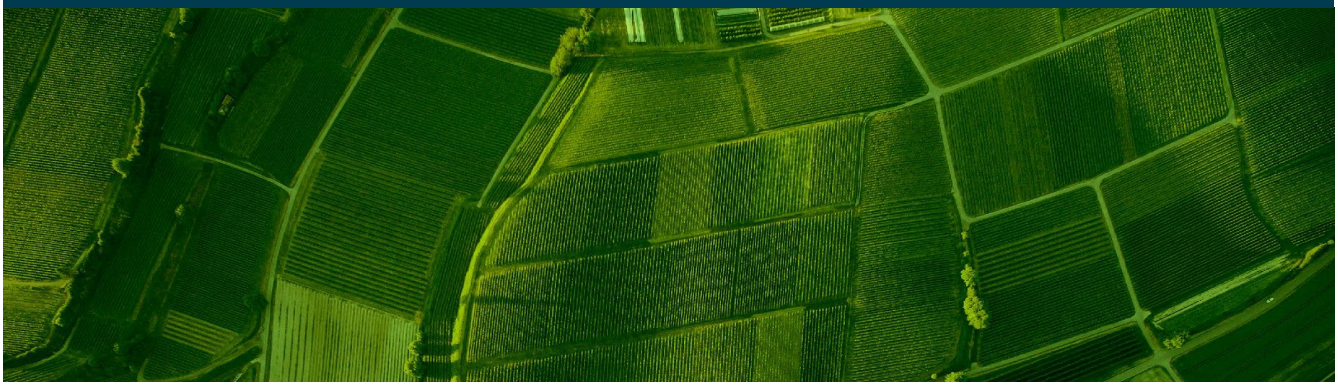
Keywords

Consumer food cooperatives, Local and organic products, Volunteer work

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 14

Una nuova cooperativa di consumo nel settore alimentare nel Nord Italia



Description

Le cooperative di consumo nel settore alimentare sono apparse come un'innovazione organizzativa, in alternativa al modello tradizionale di distribuzione dei supermercati. Una cooperativa di consumo è una forma di organizzazione senza scopo di lucro in cui i consumatori partecipano attivamente alla distribuzione dei prodotti alimentari, svolgendo molteplici ruoli: proprietario, cliente e lavoratore volontario. Questo modello collaborativo è stato avviato negli anni '70 dalla Park Slope Food Coop di New-York, e diverse iniziative simili sono nate nell'ultimo decennio in Europa.

Stadera Società Cooperativa è la prima cooperativa alimentare di Ravenna, in Emilia-Romagna. È stata creata nel 2020 da Enrico De Sanso, che ha già fondato e guidato la BEES Coop in Belgio. Stadera vuole offrire prodotti alimentari di qualità, per lo più locali e biologici, ad un prezzo accessibile, oltre che valorizzare le relazioni sociali all'interno della comunità (dei soci). Per permettere una partecipazione inclusiva, la quota minima è mantenuta bassa (25€). Ogni membro contribuisce poi con circa tre ore al mese di lavoro volontario, a seconda delle capacità individuali, su compiti che vanno dagli acquisti alla registrazione di cassa. La complementarità delle competenze dei membri, la loro energia e motivazione, così come la trasparenza e la governance democratica, sono la chiave del successo di questa iniziativa. Nonostante le conseguenze della pandemia COVID-19, che hanno ostacolato l'interazione sociale, già più di 300 persone hanno aderito. Stadera ha recentemente sviluppato una partnership con altri gruppi di consumatori basati sulla comunità per sviluppare una piattaforma di acquisto regionale per e ridurre i costi di transazione e logistici.

Author(s)

Celia Cholez & Giustina Pellegrini (WUR)

Stakeholders

Consumer, Local Producers

Country/Region

Italy

Keywords

Consumer food cooperatives, Local and organic products, Volunteer work

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Additional Information (context, links, etc.)

https://www.staderacoop.it/

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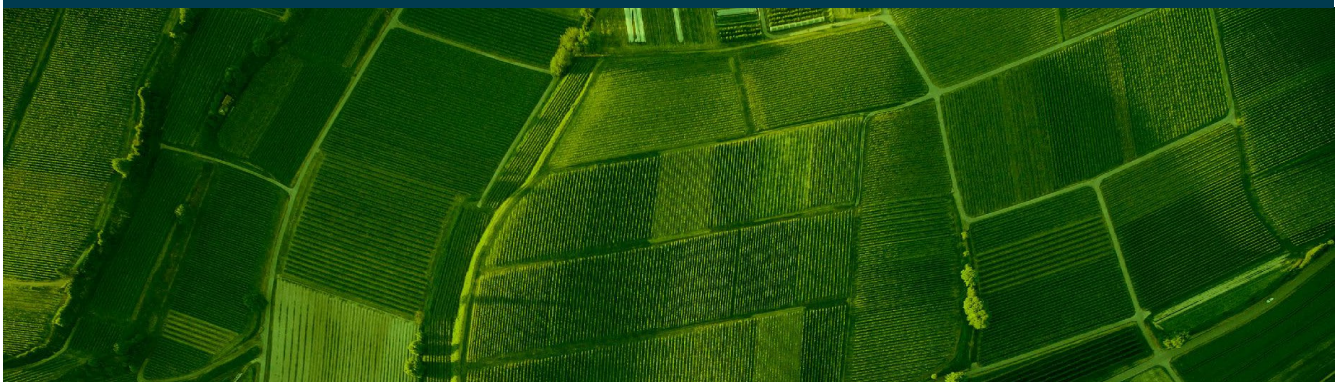
Practice Abstract No 15

Sustainable innovation along agri-food value chains: types of innovation, production phases and policy support.



Description

The constant introduction of innovation along the supply chains is one of the main elements that can guarantee the agri-food sector ever greater sustainability in economic, social and environmental terms. These innovations, however, should not only concern individual production stages.

Technological innovations must be introduced from the primary production stages (e.g. varietal improvement, variable input technologies, biological means of defence) to the distribution stages (e.g. stock management by means of artificial intelligence, use of e-commerce platforms) via processing (e.g. biodegradable packaging, reuse of by-products). The introduction of management innovations can also play a key role in this respect, by improving coordination and cooperation (vertical and horizontal) between supply chain actors, as in the case of short supply chains. Finally, one should not forget the role of so-called 'institutional innovations' (rules and regulations that can have an impact on the sustainability of supply chains) such as the adoption of protocols that protect the conditions of workers (e.g. GLOBAL G.R.A.S.P.) and the participation in schemes that protect the typicality of certain productions (such as Geographical Indications).

Within the European panorama, there are numerous opportunities to support the introduction of such innovations. Here are some of the most relevant ones

- participation in Producer Organisations and Interprofessional Organisations;
- participation in Operational Groups for Innovation;
- participation in the Horizon 2020 programme;
- participation in Regional Operational Programme calls.

Author(s)

Unibo

Stakeholders

Supply chain actors, Producer and Interprofessional Organisaztions, Policy-makers

Country/Region

Italy

Keywords

Agri-food sector, Sustainability, Technological innovations, Supply chain actors

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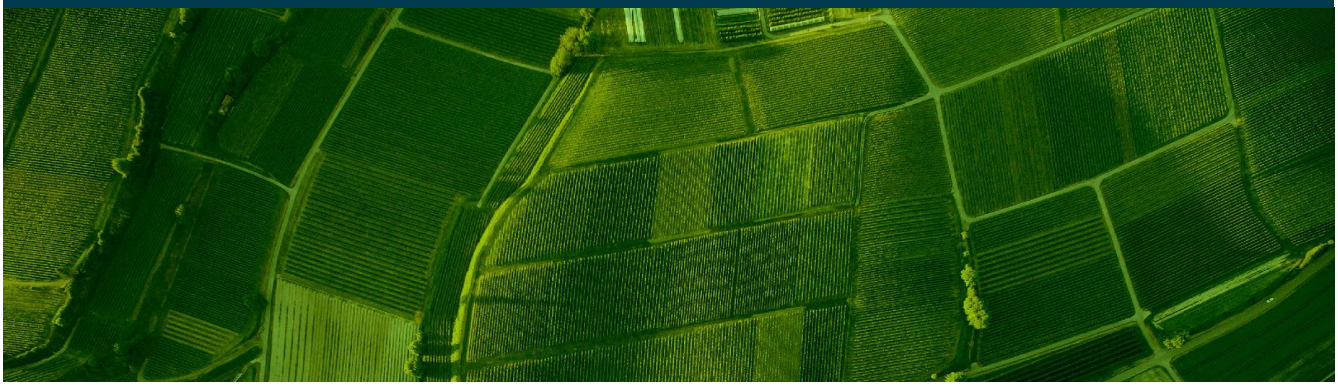
Practice Abstract No 15

Innovazione sostenibile lungo le filiere agroalimentari: tipologie di innovazione, fasi della filiera e supporto delle politiche.



Description

La costante introduzione di innovazione lungo le filiere è uno degli elementi principali che può garantire al settore agroalimentare una sempre maggiore sostenibilità in termini economici, sociali ed ambientali. Tali innovazioni, però, non devono riguardare solo singole fasi produttive.

Innovazioni tecnologiche devono essere infatti introdotte dalle fasi di produzione primaria (p. es. miglioramento varietale, tecnologie ad uso variabile di input, mezzi biologici di difesa) alle fasi di distribuzione (p. es. gestione degli stock per mezzo di intelligenza artificiale, impiego di piattaforme di e-commerce) passando per la trasformazione (p. es. packaging biodegradabili, reimpiego di sottoprodotti). Anche l'introduzione di innovazioni di natura gestionale può giocare un ruolo chiave a tal proposito, migliorando il coordinamento e la cooperazione (verticale ed orizzontale) tra gli attori della filiera, come nel caso delle filiere corte. Infine, non bisogna dimenticare il ruolo delle cosiddette "innovazioni istituzionali" (norme e regolamenti che possono avere un impatto sulla sostenibilità delle filiere) come l'adozione di protocolli che tutelano le condizioni dei lavoratori (p. es. GLOBAL G.R.A.S.P.) e la partecipazione a schemi che tutelano la tipicità di certe produzioni (come le Indicazioni Geografiche).

All'interno del panorama Europeo, numerose sono le opportunità atte a supportare l'introduzione di tali innovazioni. Di seguito alcune tra le più rilevanti:

- partecipazione ad Organizzazioni di Produttori ed a Organizzazioni Interprofessionali;
- partecipazione a Gruppi Operativi per l'Innovazione;
- partecipazione al programma Horizon 2020;
- partecipazione ai bandi del Programma Operativo Regionale.

Author(s)

Unibo

Stakeholders

Supply chain actors, Producer and Interprofessional Organisaztions, Policy-makers

Country/Region

Italy

Keywords

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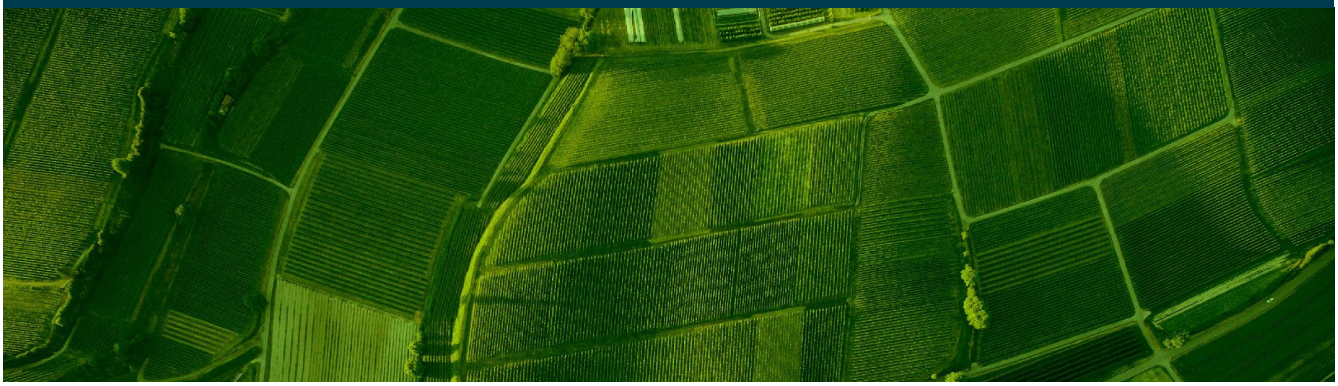
Practice Abstract No 16

Augmented Reality systems can help communicate information for packaging environmental sustainability



Description

Bee2Side is a 4.0 Augmented Reality label developed with the aim to create and communicate sustainability guidelines for food packaging; applied to smart packaging, Bee2Side is able to inform the consumer on the correct methods of food packaging disposal.
This innovative packaging solution was designed with the aim to connect digital contents developed by the food company and the physical world of the product. Contents (such as videos, social networks, 3D animations, images and so on) are displayed overlapping and in real time of on the packaging so useful information can be passed on to the consumer (in addition to the traditional information printed on the label). Bee2Side helps to launch unconventional, interactive and engaging communication campaigns.
The main Bee2Side target is a young consumer interested in having more information about the food and the supply chain but preferring to watch a video rather than read a text.
Bee2Side is an opportunity able to revolutionize communication with consumers because the information are presented in a completely new way and it is possible to gather data about consumer preferences and behavior. The environmental impact is mainly related to the improvement in waste separate collection but more in general to a greater consumer awareness.

Author(s)

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Marco Guarino,
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Stakeholders

Food industry

Country/Region

Italy

Keywords

Sustainable food packaging,
Augmented Reality,
Communication strategies,
Separate collection

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Practice Abstract No 16

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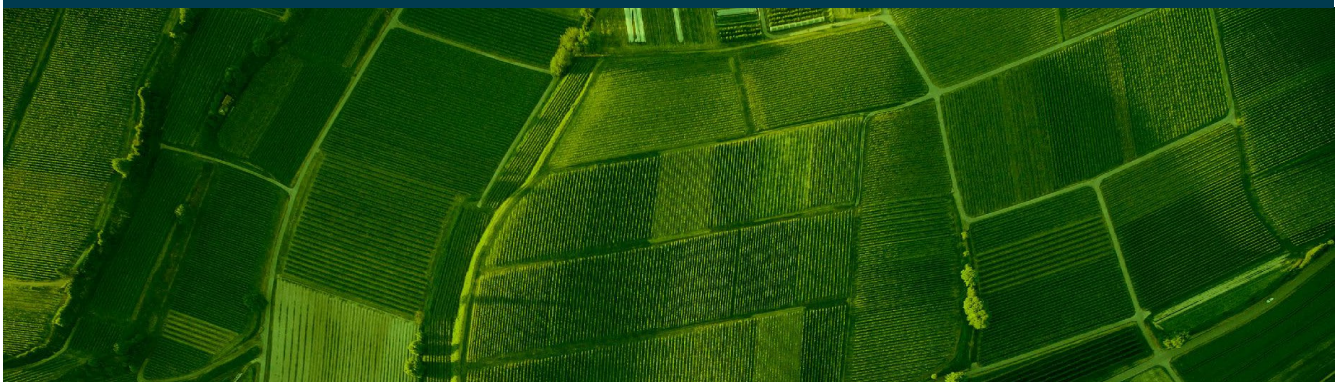

Description

Bee2Side è una etichetta 4.0 in Realtà Aumentata sviluppata per creare e comunicare linee guida sulla sostenibilità per gli imballaggi alimentari; applicata allo smart packaging è in grado di spiegare al consumatore come smaltire correttamente i singoli imballaggi.
Questa soluzione innovativa è stata ideata con lo scopo di creare un ponte tra i contenuti digitali sviluppati e aggiornabili dall'impresa ed il mondo fisico del prodotto. Attraverso la visualizzazione, in sovrapposizione e in tempo reale, di contenuti e informazioni sulla confezione dei prodotti (video, social, animazioni 3D, immagini) si aggiungono informazioni a quelle già presenti sul packaging contribuendo a lanciare campagne di comunicazione non convenzionali, interattive e coinvolgenti. Target principale sono i giovani consumatori interessati ad avere più informazioni sull'alimento e la filiera ma che preferiscono guardare un video piuttosto che leggere un testo.
Bee2Side è un'opportunità in grado di rivoluzionare la comunicazione con i consumatori, poiché le informazioni possono essere presentate in un modo completamente innovativo ed è possibile al tempo stesso raccogliere dati sulle preferenze e sui comportamenti dei consumatori.
L'impatto ambientale è legato al miglioramento delle performance della raccolta differenziata ma più in generale ad una maggiore consapevolezza da parte del consumatore.

Author(s)

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Stakeholders

Food industry

Country/Region

Italy

Keywords

Sustainable food packaging,
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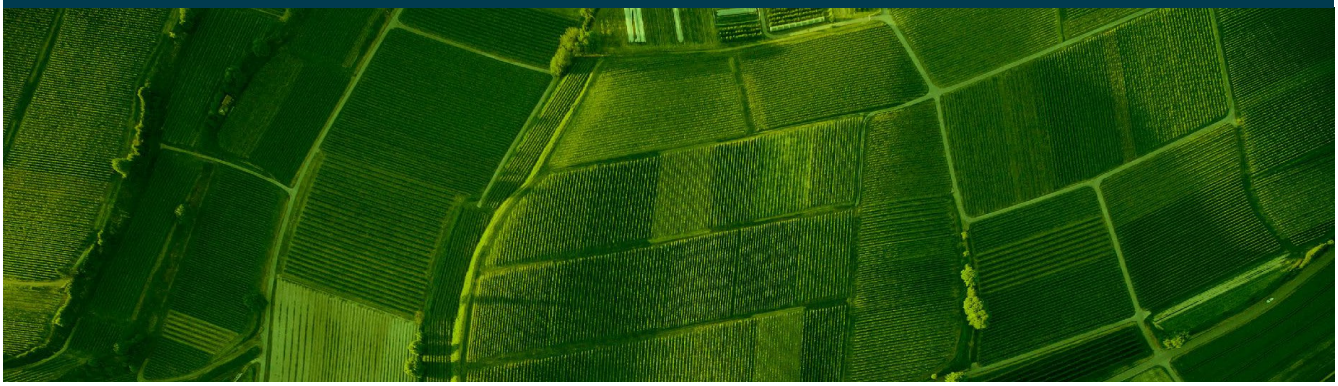
Practice Abstract No 17

Mitigating the impacts of climate change by establishing agroforestry systems on arable land



Description

The association RAKár is actively engaged in the introduction of agroforestry systems on arable land, and thus, in mitigating the negative impacts of climate change and traditional industrial agricultural production on the environment and the landscape. The activities of RAKár include the establishment of tree plantations, care and maintenance and also provision of consultancy in the field of fruit trees growing (focusing on old species of fruit trees), regenerative agriculture and agroforestry. Agroforestry is a combined cultivation of trees together with field crops or animal husbandry in the same place. Such systems help to increase biodiversity, mitigate soil erosions, improve soil quality and have a beneficial effect on the hydrological regime (water retention and flood regulation) and restoration of the production potential of degraded areas. RAKár is creating a "living lab" – agroforestry area in the form of alley cropping, on which it is verifying the effectiveness of innovative agroforestry systems in local conditions. For a farmer, the benefits of agroforestry systems on arable land include:

- greater total output per unit of the tree/crop/livestock combination than the output produced by any component alone,
- more productive plants and livestock protected from strong winds and direct sun,
- increased financial diversification and flexibility of the farm through introduction of new products.

The created areas of modern agroforestry systems on arable land also serve as inspiration for other farmers and can be an incentive for them to switch to regenerative farming in their fields with a positive impact on the environment.

Author(s)

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Stakeholders

Farmers, agri-practitioners

Country/Region

Slovakia

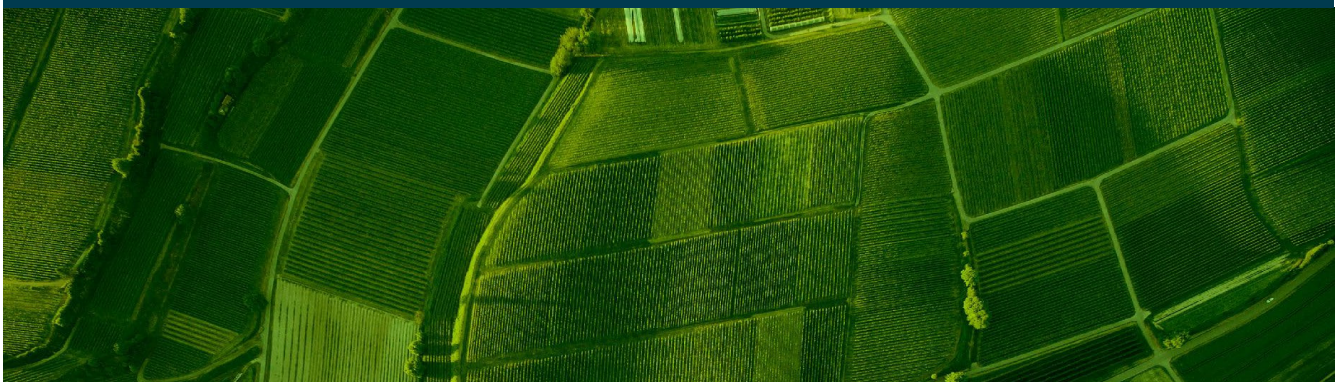
Keywords

agroforestry, climate change mitigation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 17

Zmierňovanie dopadov klimatickej zmeny prostredníctvom zakladania agrolesníckych systémov na ornej pôde



Description

Občianske združenie RAKár sa aktívne podieľa na zavádzaní agrolesníckych systémov, a tým na zmierňovaní negatívnych dopadov klimatickej zmeny a klasickej priemyselnej poľnohospodárskej výroby na životné prostredie a krajinu. K aktivitám združenia patrí zakladanie výsadieb drevín, ich ošetrovanie a údržba na verejne dostupných priestranstvách, tiež poskytuje poradenskú činnosť v oblasti ovocinárstva (so zameraním na staré odrody ovocných drevín), regeneratívneho poľnohospodárstva a agrolesníctva. Agrolesníctvo predstavuje kombinované pestovanie stromov spolu s poľnými plodinami alebo chovom zvierat na jednom mieste. Takéto systémy pomáhajú zvyšovať biodiverzitu, redukovať množstvo erózií, zlepšovať kvalitu pôdy a priaznivo vplývajú na hydrologický režim (zadržiavanie vody a regulácia povodní) a obnovu produkčného potenciálu degradovaných území. RAKár vytvára agrolesnícke plochy vo forme tzv. alejových výsadieb, na ktorých overuje efektivitu inovatívnych agrolesníckych systémov v lokálnych podmienkach. Výhody agrolesníckych systémov na ornej pôde pre farmára zahŕňajú:

- celkový výstup na jednotku plochy kombinácie stromov/plodín/hospodárskych zvierat je väčší ako výstup produkovaný ktorýmkoľvek komponentom samotným,
- produktívnejšie rastliny a hospodárske zvieratá, a to vďaka tomu, že sú chránené pred silným vetrom a priamym slnkom,
- väčšia finančná diverzifikácia a flexibilita poľnohospodárskej výroby cez nové produkty zaradené do výroby.

Navyše, vytvorené plochy moderných agrolesníckych systémov na ornej pôde slúžia aj ako inšpirácia pre ostatných farmárov, čo môže byť podnetom pre ich prechod k regeneratívnemu obhospodarovaniu pôdy s pozitívnym vplyvom na životné prostredie.

Author(s)

Daniel Ács, Miriam Ácsová (Bioeconomy Cluster)

Stakeholders

Farmers, agri-practitioners

Country/Region

Slovakia

Keywords

agrolesníctvo, zmierňovanie dopadov klimatickej zmeny,

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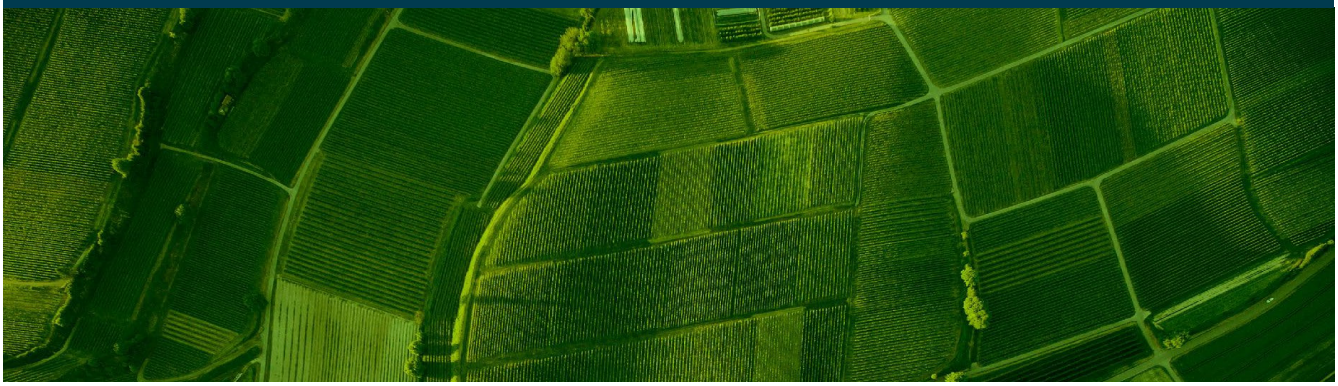
Practice Abstract No 18

Regenerative Agriculture in Agricultural Cooperative Krakovany - Stráže



Description

"Let's save the soil for our children's children" is the motto of the Agricultural Cooperative in Krakovany-Stráže, which decided to change the way their fields are managed almost 10 years ago. Conventional agriculture, which still prevails in Slovakia, degrades the soil and causes higher demands for synthetic fertilizers, irrigation and other inputs to maintain crop growth. Unlike conventional, regenerative farming is in harmony with nature, respecting its ecological and biological processes, which brings life back to the soil. In Krakovany, they realized the change is needed and they stopped ploughing their fields, keep the fields covered (after the main crop a cover crop is sown, which is allowed to freeze over the winter, and in the subsequent spring, main crop is sown on the frozen residues), they stopped using synthetic fertilizers, insecticides and fungicides and began to apply organic fertilizers and composts, but only on the surface of the soil without incorporation. As the results in Krakovany show, regenerative agriculture is more economical, since ploughing machines do not drive over the field several times a year; it is more ecological, since they do not use synthetic fertilizers and CO2 is sequestered to the soil. In addition, risk of erosion is mitigated and the water retention function of the soil is increased. As this farming method proved to be effective, Krakovany decided to spread information and educate other farmers about regenerative agriculture, its principles, practices and benefits through regular presentations on their fields and organization of events aimed at its promotion.

Author(s)

Daniel Ács, Miriam Ácsová (Bioeconomy Cluster)

Stakeholders

Farmers, agri-practitioners

Country/Region

Slovakia

Keywords

regenerative agriculture, carbon farming, healthy soil

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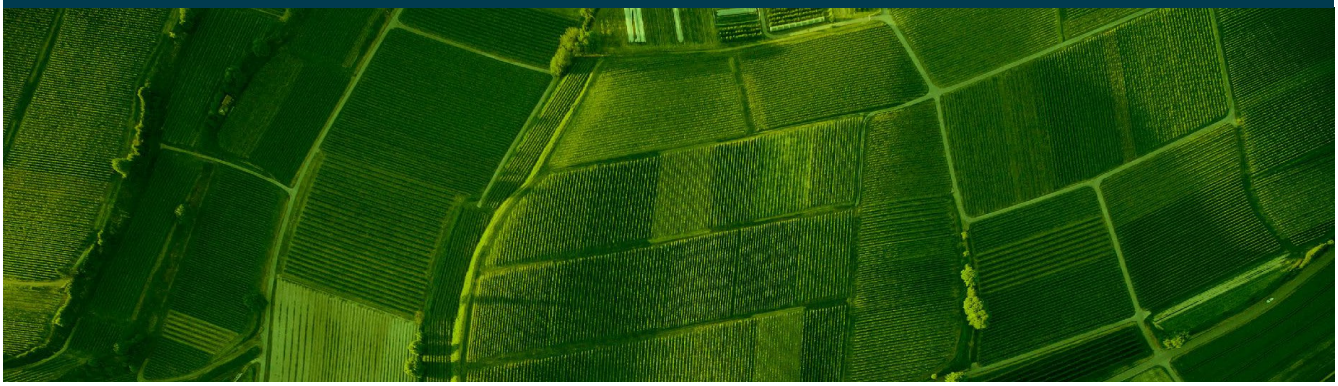
Practice Abstract No 18

Short summary for practitioners in Slovak



Description

"Zachráňme pôdu pre deti našich detí" je motto Poľnohospodárskeho družstva v Krakovanoch, ktoré sa takmer pred 10 rokmi rozhodlo zmeniť spôsob, akým obhospodaruje pôdu. Konvenčný spôsob farmárčenia, ktorý je v dnešnej dobe na Slovensku veľmi rozšírený, v podstate degraduje pôdu, čo spôsobuje, že plodiny potrebujú viac syntetických hnojív, zavlažovanie a iné vstupy, aby boli schopné rásť. V Krakovanoch to však začali robiť inak – princípom regeneratívneho farmárčenia. To, na rozdiel od toho konvenčného, funguje v harmónii s prírodou a rešpektuje jej prirodzené ekologické a biologické procesy, vďaka ktorým sa do pôdy vracia život. V Krakovanoch prestali orať, dokonca nerobia ani podmietku, pôdu majú stále pokrytú (hlavnú plodinu sadia do zbytkov z predchádzajúcej plodiny, následne nasadia medziplodinu, ktorú v zime nechajú vymrznúť a nasledujúcu jar sadia do vymrznutých zbytkov), nepoužívajú umelé hnojivá, insekticídy a fungicídy a aplikujú organické hnojivá a komposty, ale iba na povrch pôdy bez zapravenia. Ako sa v Krakovanoch ukázalo, takýto spôsob obhospodarovania pôdy je ekonomickejší, keďže neutláčajú pôdu mnohonásobným prechodom techniky; je ekologickejší, keďže nepoužívajú umelé hnojivá a navyše CO2 je sekvestrované do pôdy, čím je pravdepodobnosť erózie významne nižšia a vodozádržná schopnosť pôdy je lepšia. Keďže sa družstvu tento spôsob farmárčenia osvedčil, rozhodli sa šíriť informácie a vzdelávať aj ostatných poľnohospodárov o jeho princípoch, postupoch a výhodách cez pravidelné prezentácie priamo na poliach a organizáciou podujatí s cieľom propagovať regeneratívne poľnohospodárstvo.

Author(s)

Daniel Ács, Miriam Ácsová (Bioeconomy Cluster)

Stakeholders

Farmers, agri-practitioners

Country/Region

Slovakia

Keywords

regenerative agriculture, carbon farming, healthy soil

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Additional Information (context, links, etc.)

https://www.regenerative.sk/

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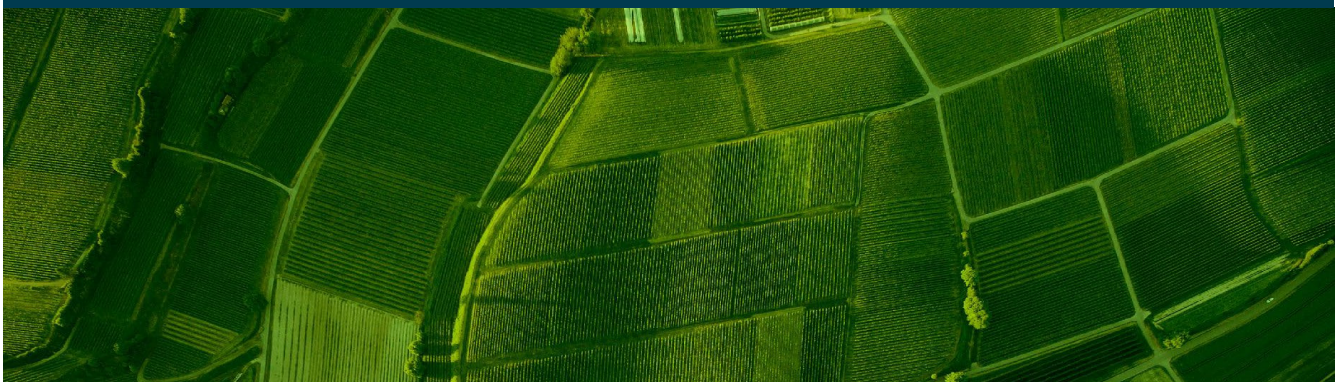
Practice Abstract No 19

Regenerative urban agriculture in Nitra



Description

Regenerative Agriculture describes farming and grazing practices that, among other benefits, help to mitigate climate change by rebuilding soil organic matter and restoring degraded soil biodiversity – resulting in both carbon sequestration and improving the water cycle in the conditions of a city or any other urban area. Urban farm Gazda z mesta, which covers around 1 000 m2 is situated in abandoned area in the outskirts of the city of Nitra, which has been used for agricultural purposes in the past as well. There are several original greenhouses, in which the farm is producing only organic quality vegetables. The main goal is to build sustainable urban farm and to encourage other farmers to follow this system of agriculture and to help local people live healthier life in healthier environment.

The main target of the farm is to sell the products locally and as fresh as possible. That is why the farm is selling most of its production to local restaurants, grocery stores and to local people. It is also planned to run regular farmers market (once a week) and to start local delivery service, building on the principles of community support agriculture.

Author(s)

Katarína Blicklingová (Bioeconomy Cluster)

Stakeholders

Consumer, local restaurants and retail

Country/Region

Slovakia

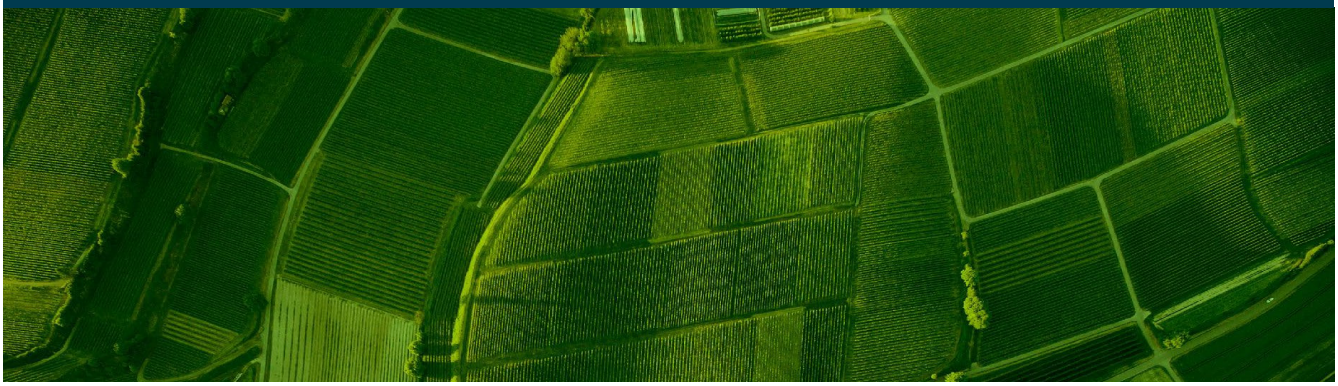
Keywords

Regenerative agriculture, Urban farm, Local food systems

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 19

Regeneratívne mestské poľnohospodárstvo v Nitre



Description

Regeneratívne poľnohospodárstvo zahŕňa poľnohospodárske a pastevné postupy, ktoré okrem iných výhod pomáhajú zmierňovať klimatické zmeny prostredníctvom obnovy organickej hmoty v pôde a obnovy degradovanej biodiverzity – výsledkom čoho je lepšia sekvestrácia uhlíka a zlepšenie kolobehu vody v podmienkach mesta alebo v akejkoľvek mestskej oblasti.

Mestská farma Gazda z mesta o rozlohe približne 1 000 m2 sa nachádza v opustenom areáli v okrajovej časti mesta Nitra, ktorý bol aj v minulosti využívaný na poľnohospodárske účely. Nachádza sa tu viacero pôvodných skleníkov, v ktorých farma produkuje zeleninu v bio kvalite. Hlavným cieľom je vybudovať udržateľnú mestskú farmu a povzbudiť ostatných farmárov, aby nasledovali tento systém hospodárenia na pôde a pomôcť miestnemu obyvateľstvu žiť zdravší život v zdravšom prostredí.

Hlavným cieľom farmy je predávať produkciu lokálne a čo najčerstvejšie. Preto farma predáva väčšinu produkcie miestnym reštauráciám, obchodom s potravinami a miestnemu obyvateľstvu. Plánuje sa tiež organizovanie pravidelných farmárskych trhov (raz týždenne) a spustenie miestnej doručovacej služby v súlade s princípmi komunitnej podpory poľnohospodárstva.

Author(s)

Katarína Blicklingová (Bioeconomy Cluster)

Stakeholders

Consumer, local restaurants and retail

Country/Region

Slovakia

Keywords

Regenerative agriculture, Urban farm, Local food systems

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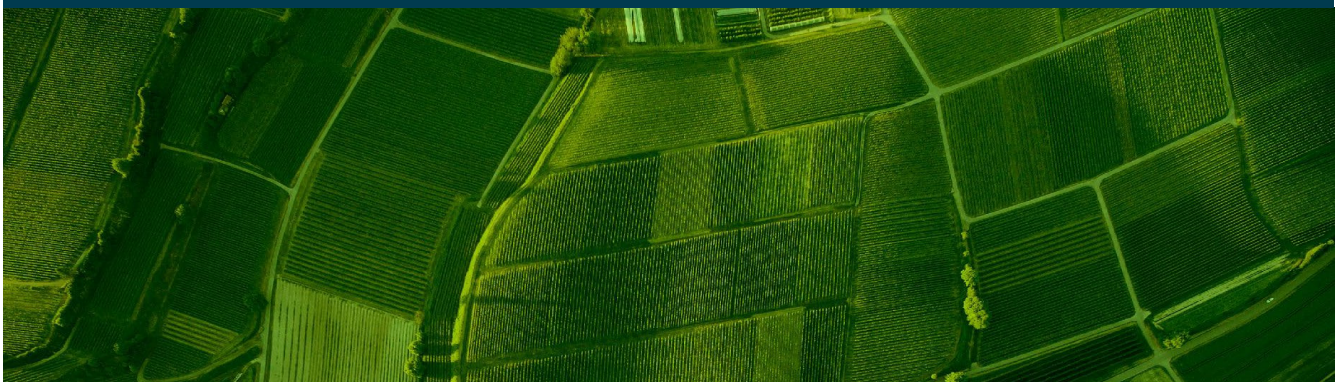
Practice Abstract No 20

Vermicompost for modern, sustainable and healthy plant cultivation



Description

Soil is losing its water retention function, life disappears from it, it is loaded with heavy metals and mineral salts, and it is contaminating groundwater (our drinking water) due to climate change. The Slovak company VermiVital s.r.o. is dedicated to finding and developing an alternative soil and plant nutrition that, with its organic origin and growing usefulness, will contribute to the sustainability of modern and healthy growing trends. VermiVital s.r.o. implemented a project focused on the possibilities of using vermicompost in biological farming through growing substrates and on verifying the effectiveness of a new growing substrate. The substrate is a mixture of high-quality peat, compost and vermicompost, enriched with natural nutrients in the form of vermiculite. Earthworm vermicompost is the result of a controlled vermicomposting process. The principle is based on the ability of earthworms to transform organic matter in their digestive tract into a very valuable raw material that contains a complex spectrum of nutrients, humic substances, amino acids, phytohormones, enzymes and microorganisms. The company compared the effectiveness with a competing growing substrate. The monitored crops were lettuce, tomato and pepper varieties. In particular, the speed of seed emergence, the number of germinated seeds, their growth and the overall development of the plants were monitored. The result was that the new seeding substrate is suitable for growing plant seedlings and its quality is comparable to competing seeding substrate. The company is continuously testing and comparing vermicompost with other substrates.

Author(s)

Katarína Blicklingová, Miriam Ácsová (Bioeconomy Cluster)

Stakeholders

Farmers, Gardeners, Agri-practitioners

Country/Region

Slovakia

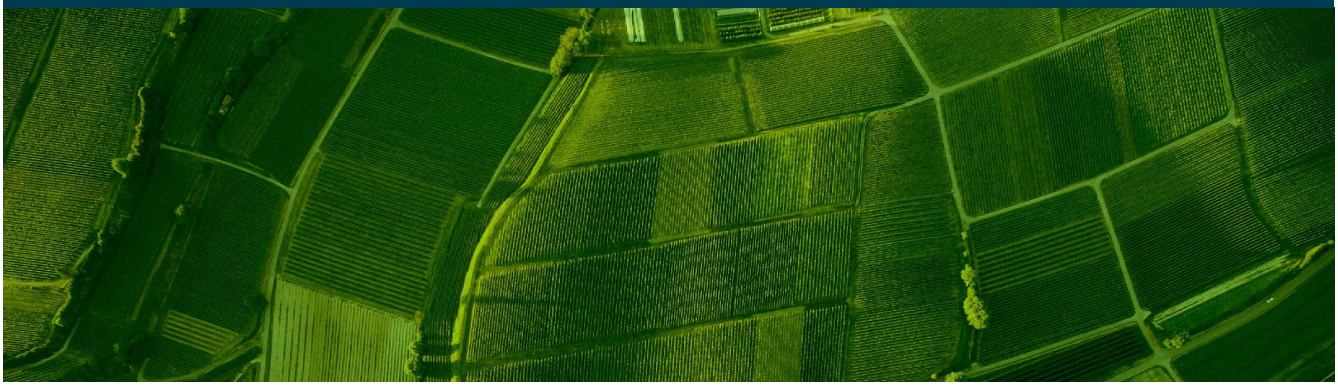
Keywords

vermicompost, Soil and Plant Nutrition, growing substrate

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 20

Vermikompost pre moderné, udržateľné a zdravé pestovanie rastlín



Description

Pôda v dôsledku klimatickej zmeny stráca schopnosť udržať vlahu, mizne z nej život, je zaťažená ťažkými kovmi a minerálnymi soľami a kontaminuje spodné vody (našu pitnú vodu). Slovenská firma VermiVital s.r.o. sa venuje hľadaniu a vytváraniu alternatívy pôdnej a rastlinnej výživy, ktorá svojím organickým pôvodom a pestovateľskou užitočnosťou prispeje k trvalej udržateľnosti trendov moderného a zároveň zdravého pestovania. VermiVital s.r.o. implementovala projekt zameraný na možnosti využitia vermikompostu v biologickom poľnohospodárstve cez pestovateľské substráty a na overenie účinnosti nového pestovateľského substrátu na výsev a množenie. Substrát je zmesou kvalitnej rašeliny, kompostu a vermikomopostu, obohatený o prírodné živiny vo forme vermikulitu. Dážďovkový vermikompost je výsledkom riadeného procesu vermikompostovania. Princíp je založený na schopnosti dážďoviek premeniť vo svojom tráviacom trakte organickú hmotu na veľmi cennú surovinu, ktorá obsahuje komplexné spektrum živín, humínových látok, aminokyselín, fytohormónov, enzýmov a mikroorganizmov. Spoločnosť porovnávala účinnosť ich substrátu s konkurenčným pestovateľským substrátom na výsev a množenie. Sledovanými plodinami boli odrody šalátu, paradajok a papriky. Sledované boli najmä rýchlosť vzchádzania semien, počet vyklíčených semien, ich rast a celkové prospievanie rastlín. Výsledkom bolo, že nový výsevný substrát je vhodný na pestovanie priesad rastlín a jeho kvalita je porovnateľná s konkurenčným výsevným substrátom. Spoločnosť aj naďalej testuje a porovnáva vermikompost s inými substrátmi.

Author(s)

Katarína Blicklingová, Miriam Ácsová (Bioeconomy Cluster)

Stakeholders

Farmers, Gardeners, Agri-practitioners

Country/Region

Slovakia

Keywords

vermikompost, výživa pôdy a rastlín, pestovateľský substrát

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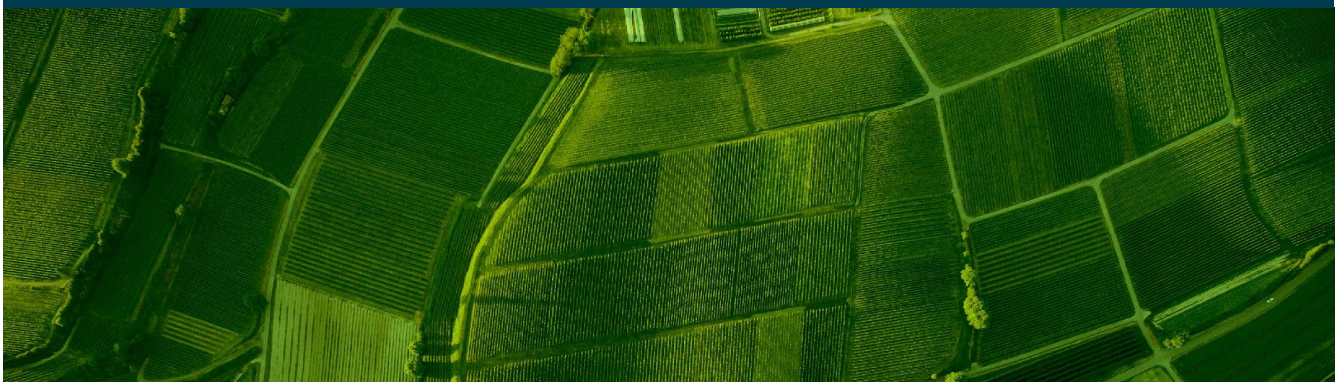
Practice Abstract No 21

Circular economy: valorising by-products by Comunità frizzante



Description

The management of by-products resulted from fruits processing is one of the major problems for agri-food and agriculture sectors. The growing demand for more sustainable, alternative processes leading to production of plant-derived preparations imposes the use of plants waste, and unwanted fruits and vegetables generated mainly by agri-food industries, inconvenient supply chain, and consumers. Comunità Frizzante business started as a circular economy project realized by a social association to valorise by-products. Now Comunità Frizzante is a large reality, significantly relying on its huge network. Unlike other companies, Comunità Frizzante involves various groups of citizens, schools, and associations, making all possible consumers a part of a community. Comunità Frizzante has no infrastructures, no production facilities, no warehouse, as the production is done by the partners in the network. The use of by-products by Comunità Frizzante will contribute to reducing food waste throughout offering a wide range of healthy and non-industrial sparkly drinks. The main strength of this company is its contribution to reinforcing local communities, reducing food waste and enhance short supply chain management. Specifically, reducing intermediaries is good not only for increasing profits of farmers and other producers, but also revitalize rural economies and give consumers access to fresh, and fairly-priced foods.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi.
ENCO

Stakeholders

Farmers, Agri-practitioners, associations, citizens.

Country/Region

Italy.

Keywords

circular, by-products, recycle, fruit juices.

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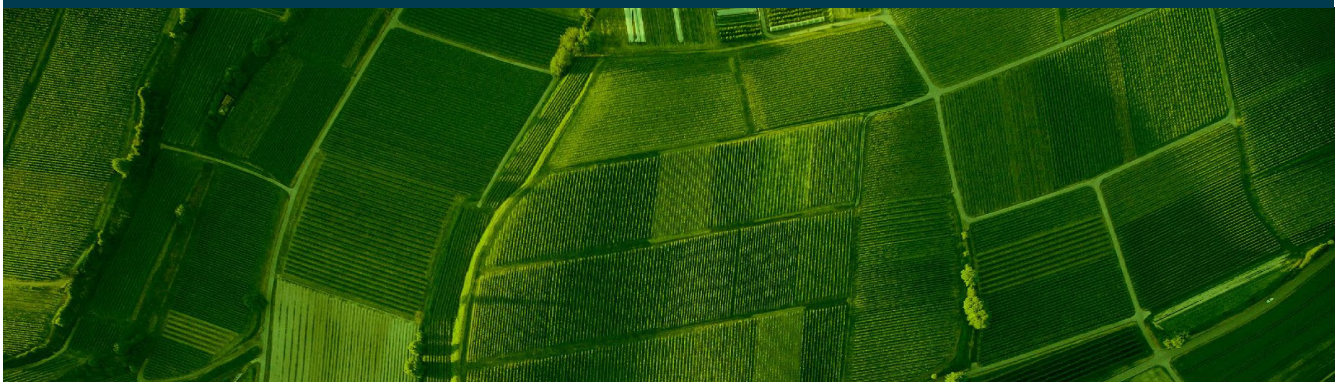
Practice Abstract No 21

Circular economy: valorising by-products by Comunità frizzante



Description

La gestione dei sottoprodotti derivanti dalla lavorazione della frutta è uno dei principali problemi dei settori agroalimentare e agricolo. La crescente domanda di processi alternativi e più sostenibili per la produzione di prodotti di origine vegetale impone l'utilizzo di scarti vegetali e di frutta e verdura indesiderati generati principalmente dalle industrie agroalimentari, dalla filiera e dai consumatori. L'attività di Comunità Frizzante nasce come iniziativa di economia circolare realizzata da un'associazione sociale per la valorizzazione dei sottoprodotti. Oggi Comunità Frizzante è una realtà di grandi dimensioni, che conta in modo significativo sulla sua vasta rete. A differenza di altre aziende, Comunità Frizzante coinvolge diversi gruppi di cittadini, scuole e associazioni, rendendo tutti i possibili acquirenti parte di una comunità. Comunità Frizzante non dispone di infrastrutture, né di impianti di produzione, né di magazzini, in quanto la produzione viene effettuata dai partner della rete. L'utilizzo di sottoprodotti da parte di Comunità Frizzante contribuirà a ridurre gli sprechi alimentari, offrendo un'ampia gamma di bevande frizzanti sane e non industriali. Il principale punto di forza di questa azienda è il suo contributo al rafforzamento delle comunità locali, alla riduzione degli sprechi alimentari e al miglioramento della gestione della filiera corta. In particolare, la riduzione degli intermediari è utile non solo per aumentare i profitti degli agricoltori e degli altri produttori, ma anche per rivitalizzare le economie rurali e dare ai consumatori accesso a cibi freschi e a prezzi equi.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi
ENCO

Stakeholders

Farmers, Agri-practitioners, associations, citizens.

Country/Region

Italia.

Keywords

circular, by-products, recycle, fruit juices.

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Additional Information (context, links, etc.)

https://www.comunitafrizzante.it/

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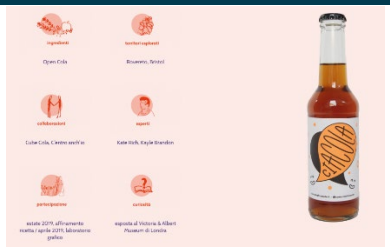

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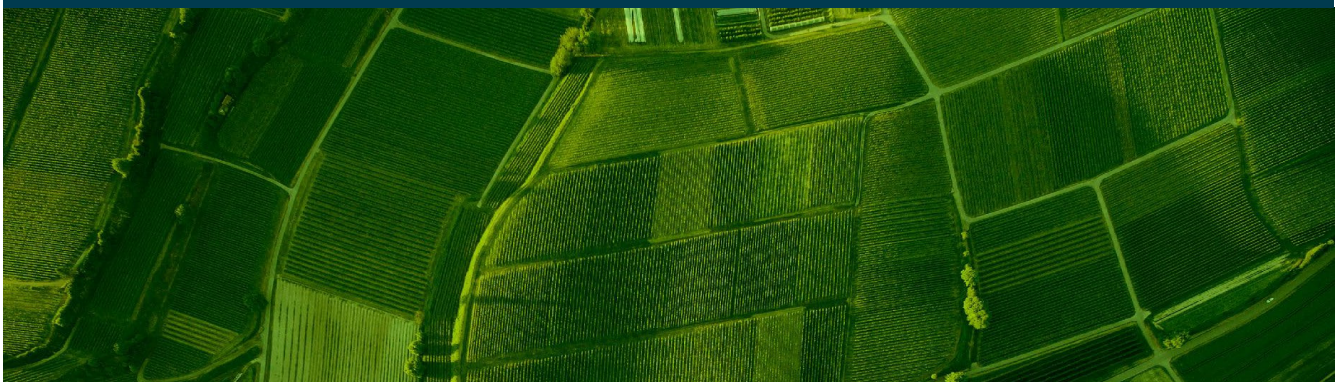
Practice Abstract No 22

Reinforcing local/territorial wine production throughout an integrative and participatory approach



Description

For agriculture to be more sustainable, which is one of the main goals of the 2030 Agenda for Sustainability Development, encouraging the adoption of more sustainable approaches and technologies is fundamental. In the current resource-intensive system in which agriculture is operating, it will be necessary to foster new approaches which enhance all three aspects of sustainability: economic, environmental, and social. This approach, often called the 3Ps, insists on the complementarity of profit, planet, and people. Sustainable methods have been adopted regularly in the wine business in recent years as a result of growing stakeholder pressure and an improved knowledge of environmental challenges. LA CANTINA DEI COLLI RIPANI is a wine cooperative of 330 local producers that aims to create value for the community and its members. Sustainability is a key component in their vision offering to their contributing members value in line with the effort they make in the production, a consistent remuneration that supports the local community, and adopt eco-friendly practices relying on renewable energy (solar panels) and organic farming.

Most importantly, LA CANTINA DEI COLLI RIPANI consider informing, involving, and empowering local communities by focusing on sustainability at the local level which will make the changes seen and felt in a more immediate manner.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi.
ENCO

Stakeholders

Farmers, Agri-practitioners, associations, local communities, cooperatives.

Country/Region

Italy.

Keywords

Local value chain, wine, producers, social equity.

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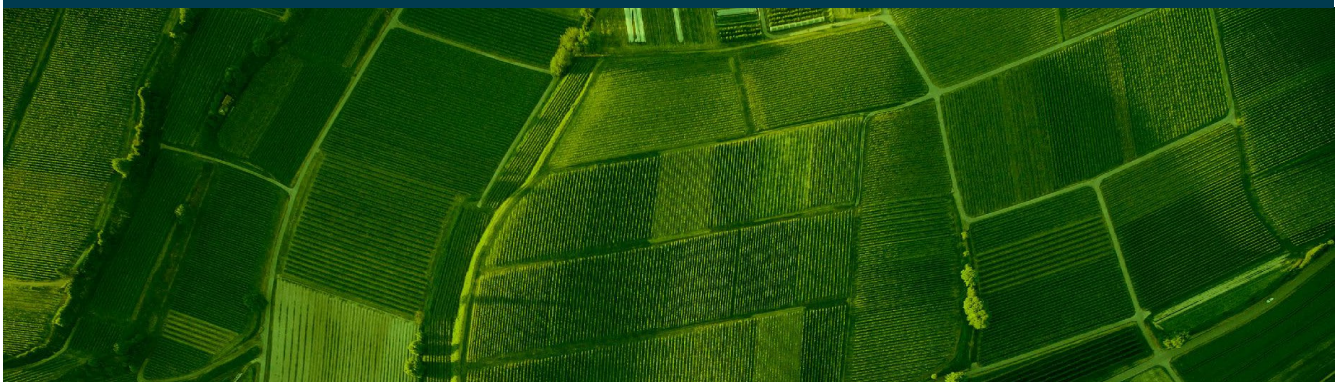
Practice Abstract No 22

Reinforcing local/territorial wine production throughout an integrative and participatory approach



Description

In un'ottica di maggiore sostenibilità dell'agricoltura, che è uno dei principali obiettivi dell'Agenda 2030 per lo sviluppo sostenibile, è fondamentale incoraggiare l'adozione di approcci e tecnologie più sostenibili. Nel sistema attuale ad alta intensità di risorse del settore agricolo, sarà necessario promuovere nuovi approcci che migliorino tutti e tre gli aspetti della sostenibilità: economico, ambientale e sociale. Questo approccio, definito con il termine "3P", insiste sulla complementarità tra profitto, pianeta e persone. Negli ultimi anni i metodi sostenibili sono stati adottati regolarmente nel settore vitivinicolo a seguito della crescente pressione degli stakeholder e della migliore conoscenza delle sfide ambientali. LA CANTINA DEI COLLI RIPANI è una cooperativa vinicola di 330 produttori locali che mira a creare valore per la comunità e i suoi membri. La sostenibilità è una componente chiave della loro visione, che offre ai soci conferitori un valore in linea con lo sforzo che compiono nella produzione, una remunerazione consistente che sostiene la comunità locale, e adotta pratiche ecocompatibili affidandosi alle energie rinnovabili (pannelli solari) e all'agricoltura biologica.

Soprattutto, LA CANTINA DEI COLLI RIPANI intende informare, coinvolgere e responsabilizzare le comunità locali, concentrandosi sulla sostenibilità a livello locale, in modo da rendere i cambiamenti visibili e percepibili in maniera più tangibile.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi.
ENCO

Stakeholders

Farmers, Agri-practitioners, associations, local communities, cooperatives.

Country/Region

Italy.

Keywords

Local value chain, wine, producers, social equity.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Additional Information (context, links, etc.)

https://colliripani.com/

Pictures

About CO-FRESH

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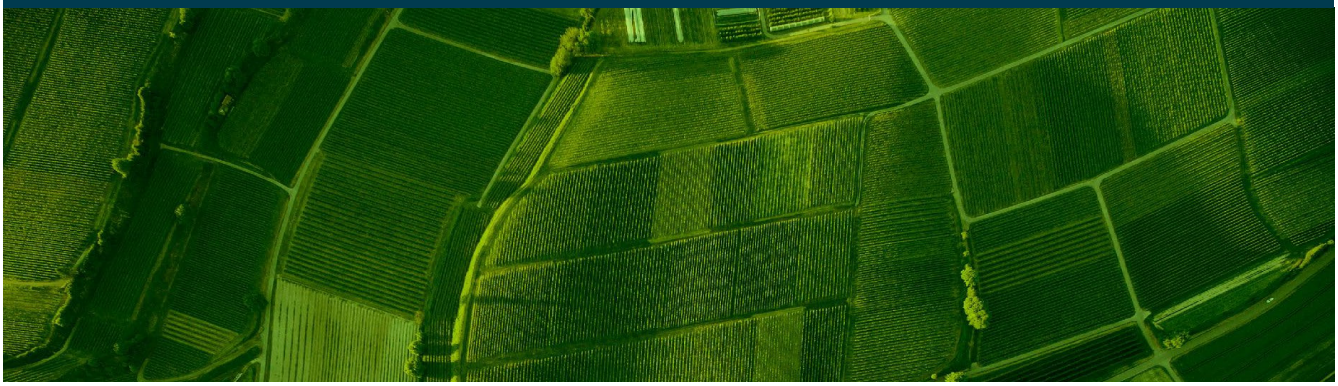
Practice Abstract No 23

Circular economy business models: A new way to reinforce sustainability and reduce food waste



Description

The shift to a Circular Economy offers significant benefits like reducing food waste and CO2 emissions, attracting customers and improving efficiency throughout businesses and supply chains. Regenerative food production focuses on generating positive outcomes for nature, like healthier soils, increased biodiversity, and improved air and water quality.

Challenges like resource availability and changing consumer preferences force fresh produce producers to rethink linear models in their supply chains. CO-FRESH, led by Enco, provides businesses with tool kits for sustainable business models in fruit and vegetable production.

Circular economy concepts provide solutions to reduce food loss and waste, including: good data for identifying loss hot spots; investments in training, technology, and innovation; better food packaging and relaxed aesthetic requirements; valuing food at home; redistributing surplus food through food banks; facilitating farmer access to consumers through farmers markets and rural-urban linkages; and investing in sustainable infrastructure and logistics, including cold chains and cooling technologies.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi.
ENCO

Stakeholders

Farmers, Agri-practitioners, associations, supply chain stakeholders.

Country/Region

EU.

Keywords

circular, by-products, recycle, impact.

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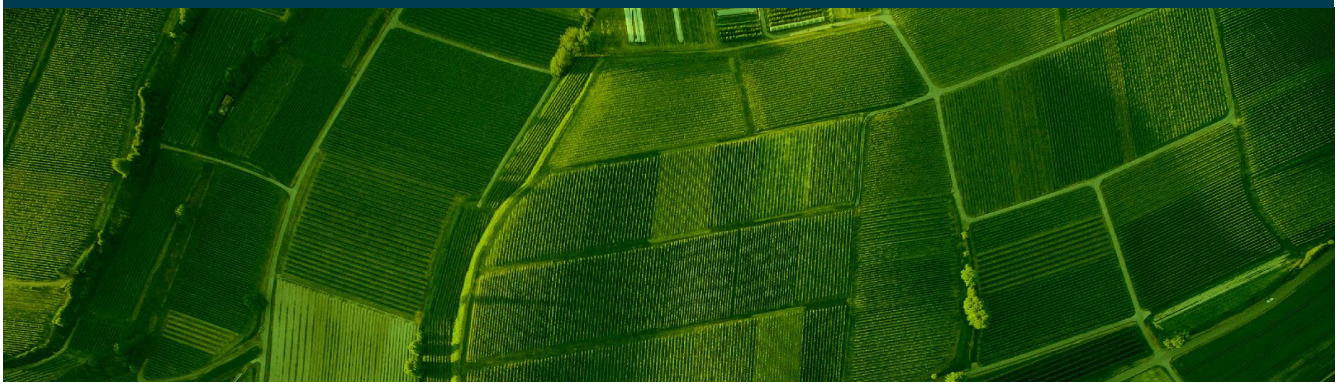
Practice Abstract No 23

Circular economy business models: A new way to reinforce sustainability and reduce food waste



Description

Il passaggio all'economia circolare offre numerosi vantaggi, come la riduzione dei rifiuti alimentari e della CO2, che possono attrarre clienti e garantire efficienza e risparmi. La produzione alimentare rigenerativa implica coltivare cibo con sistemi che generano risultati positivi per la natura, come terreni sani, maggiore biodiversità locale e miglior qualità di aria e acqua.

Le sfide come la disponibilità di risorse e l'evoluzione delle preferenze dei consumatori spingono i produttori di frutta e verdura a ripensare i modelli lineari nelle loro filiere. Attraverso CO-FRESH, Enco fornirà kit di strumenti per modelli di business sostenibili nella produzione di frutta e verdura.

Le soluzioni per ridurre la perdita e lo spreco di cibo includono: dati per identificare i punti critici; investimenti in formazione, tecnologia e innovazione; migliori imballaggi e regolamenti meno rigidi sugli standard estetici; comportamenti che valorizzino il cibo a casa; ridistribuzione delle eccedenze alimentari attraverso banche alimentari; facilitazione dell'accesso degli agricoltori ai consumatori attraverso mercati agricoli e collegamenti rurali-urbani; investimenti per rafforzare infrastrutture e logistica, come catene del freddo e tecnologie di raffreddamento sostenibili.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi
ENCO

Stakeholders

Farmers, Agri-practitioners, associations, citizens, private and public environmental organizations.

Country/Region

EU.

Keywords

circular, by-products, recycle, fruit juices.

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Additional Information (context, links, etc.)

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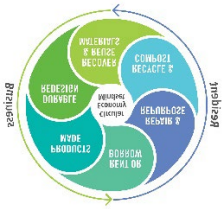

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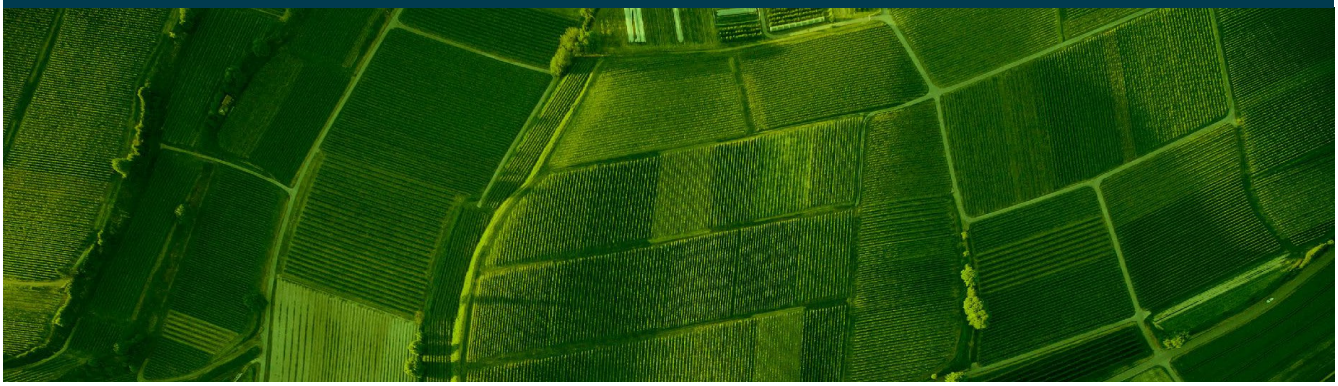
Practice Abstract No 24

Healthy food for a healthy community: TALK ABOUT PLASTIC FREE PACKAGING!!!



Description

In recent years, there has been an increase in public awareness and scrutiny of the harmful effects of plastic pollution on the environment. Manufacturers and retailers are looking towards alternatives to single-use plastics, especially regarding fresh produce, and this includes expanding the availability of loose items in supermarkets. Plastic food packaging accounts for a sizeable share of the EU plastic waste. Still, there is a significant trade-off to take into account when removing the plastic packaging from fruits and vegetables, such as the potential rise in food waste due to the resulting drop in shelf life. Within CO-FRESH, methods and new packaging solutions are being conceptualized to reduce plastic use within the fresh market of fruits and vegetables. Enco, throughout CO-FRESH consortium, is trying to develop methods to increase the longevity of fresh produce on shelf life. The combination of cardboard trays, and cellulose trays will provide to food companies, and fresh produce producers a sustainable alternative to the classic packaging solutions. Eliminating/reducing plastic usage will help promoting local and short supply chains, such as farmers' markets, community supported agriculture schemes, and basket delivery systems that have great potential to connect consumers to the production of food in ways that can help to reduce food and packaging waste and raise awareness regarding the use of non-biodegradable packaging on human health.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi.
ENCO

Stakeholders

Agri-practitioners, associations, citizens, private and public environmental organizations.

Country/Region

EU.

Keywords

sustainability, plastic free, recycle, alternatives.

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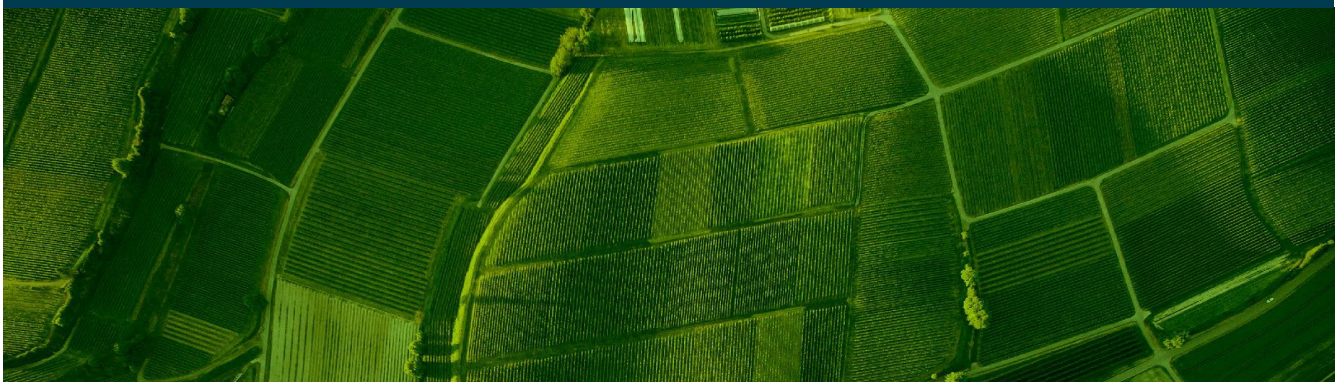

Description

Negli ultimi anni è cresciuta la consapevolezza e l'attenzione dell'opinione pubblica sugli effetti nocivi prodotti dall'inquinamento derivante dall'utilizzo della plastica sull'ambiente. Produttori e rivenditori stanno cercando alternative alla plastica monouso, soprattutto per quanto riguarda i prodotti freschi, e questo include l'aumento della disponibilità di articoli sfusi nei supermercati. Gli imballaggi alimentari in plastica rappresentano una quota consistente dei rifiuti in plastica dell'UE. Tuttavia, la rimozione degli imballi in plastica da frutta e verdura implica un notevole compromesso, ad esempio il potenziale aumento dei rifiuti alimentari dovuti alla conseguente riduzione della durata di conservazione. Nel quadro di CO-FRESH, vengono concepiti metodi e nuove soluzioni di packaging per ridurre l'uso della plastica nel mercato dei prodotti ortofrutticoli freschi. Enco, nell'ambito del consorzio CO-FRESH, sta cercando di sviluppare metodi per aumentare la durata di conservazione dei prodotti freschi. La combinazione di vassoi di cartone e vassoi di cellulosa fornirà alle aziende alimentari e ai produttori di prodotti freschi un'alternativa sostenibile alle classiche soluzioni di imballaggio. L'eliminazione/riduzione dell'uso della plastica contribuirà a promuovere le filiere corte e locali, come i mercati degli agricoltori, i programmi di agricoltura sostenuti dalla comunità e i sistemi di consegna alternativi, che hanno un grande potenziale per collegare i consumatori alla produzione di cibo in modi che possono contribuire a ridurre i rifiuti alimentari e di imballaggio e a sensibilizzare l'opinione pubblica sull'uso di imballaggi non biodegradabili sulla salute umana.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi
ENCO

Stakeholders

Agri-practitioners, associations, citizens, private and public environmental organizations.

Country/Region

EU.

Keywords

sustainability, plastic free, recycle, alternatives.

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Additional Information (context, links, etc.)

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Pictures

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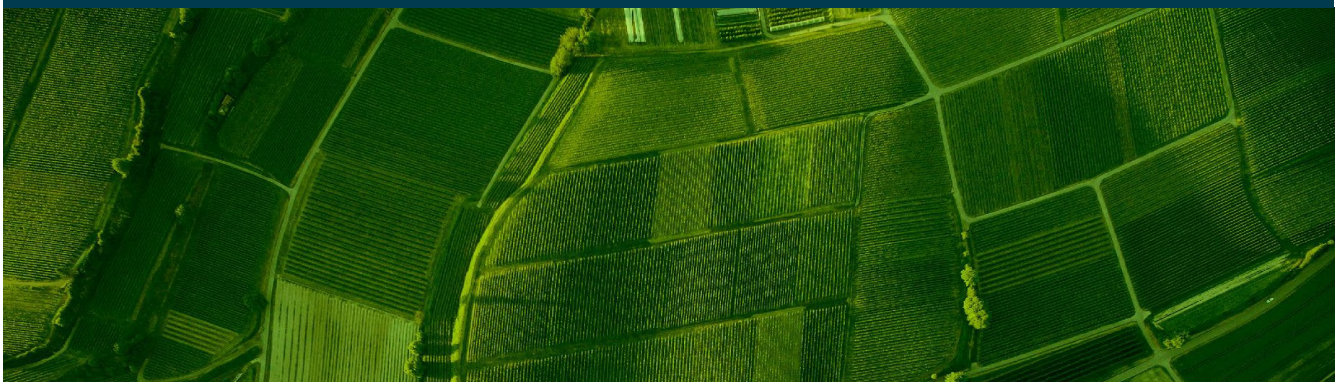
Practice Abstract No 25

Support local/small producers: That is our GOAL!!!



Description

When considering food origin, do you picture distant countries or towns, or perhaps the nearby farm? In the EU, the average distance food travels from the point of production to the customer is 2400 Kilometres; this results in a bigger carbon footprint, a decrease in the amount of fresh food available, and minimal financial support for regional farmers and food producers. Thus, pushing consumers to purchase as much as they can from local vendors would help into the "green" and environmentally friendly movement across the EU. It goes without saying that when people purchase locally sourced food, they are helping farmers who grew and produced the food. It supports the local economy by keeping businesses alive, is generally less expensive, and generates local jobs at farms. That's a lot of advantages in one! Buying local encourages customers to get to know farmers and other people who regularly stop by to purchase fresh local produce. Farmers markets are great places to meet new people and really get to know neighbours, and thus buying local reinforces local communities. Farmers markets and locally grown food promotes also agrotourism; people like the chance to visit local farmers and local food producers. Through agrotourism, farmers will protect and use nature while promoting tourism to create greater profits. In addition, there are hundreds of different fruits and vegetables to be enjoyed and buying locally gives customers a great chance to discover new unknown foods and find alternative to a healthier and more sustainable diet while supporting local communities. Within co-fresh, various partners will implement new strategies to support SMES and promote social practices aiming to reinforce local/small producers' position within food markets.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi.
ENCO

Stakeholders

Agri-practitioners, producers, consumer, local communities.

Country/Region

EU.

Keywords

Local, farmer, support, community, short supply chain.

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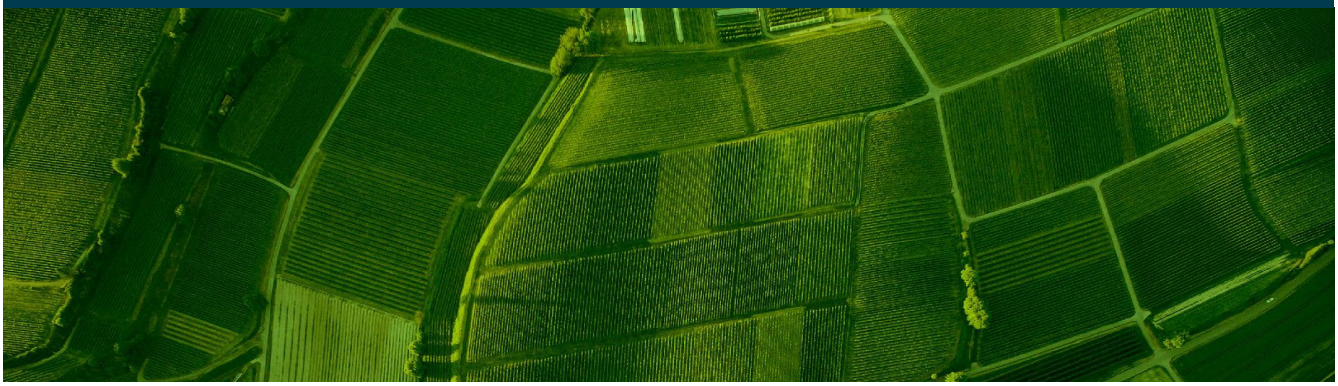

Description

Valutando l'origine dei prodotti alimentari, l'UE ha una distanza media di 2400 km tra produzione e cliente. Ciò comporta un'alta impronta di carbonio e meno cibo fresco disponibile. Sostenere i venditori locali contribuisce al movimento ecologico nell'UE.

Acquistare alimenti locali aiuta gli agricoltori e l'economia locale, mantenendo vive le imprese e creando posti di lavoro. Favorisce anche la conoscenza tra clienti e produttori, rafforzando le comunità locali. I mercati contadini promuovono l'agroturismo, permettendo agli agricoltori di proteggere la natura e generare maggiori profitti dal turismo.

Acquistare localmente offre la possibilità di scoprire nuovi cibi e promuovere una dieta più sana e sostenibile, supportando le comunità locali. CO-FRESH implementerà strategie per sostenere le PMI e promuovere pratiche sociali per rafforzare la posizione dei piccoli produttori locali nei mercati alimentari.

Author(s)

Marco De La Feld, Antonietta Pizza, Ahmed Saidi
ENCO

Stakeholders

Agri-practitioners, producers, consumer, local communities.

Country/Region

EU.

Keywords

Local, farmer, support, community, short supply chain.

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Additional Information (context, links, etc.)

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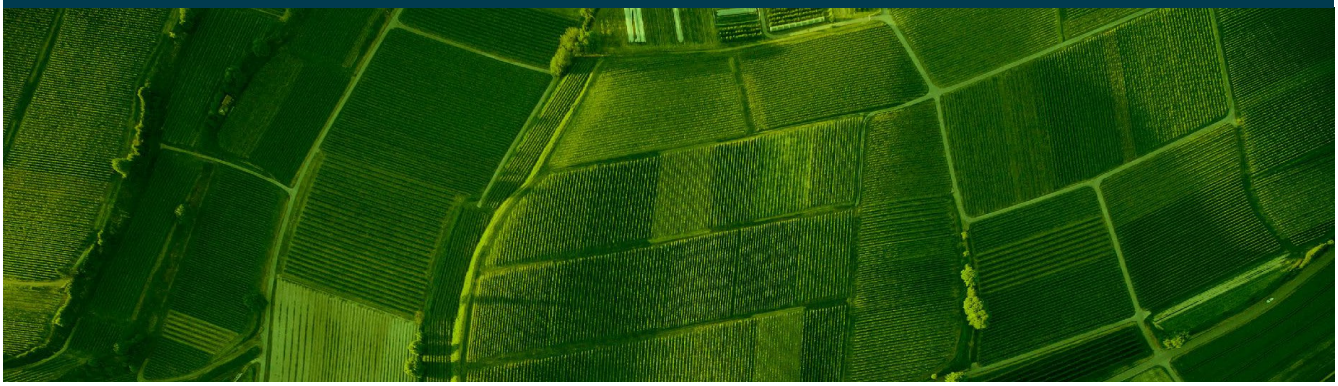
Practice Abstract No 26

Unica Group innovates for healthier food and zero waste



Description

Unica Group, a second tier cooperative in Almería, southern Spain, has created alternative supply chains through online E-commerce to avoid waste of fresh fruits and vegetable. They created high quality, fresh fruit and vegetable Healthy Boxes which can be delivered directly to the final consumer's home. The contents of the Healthy Boxes vary each week depending on the excess of production not able to be sold in the main supply chain. Contents also depend on seasonality, sometimes including new, less-known varieties.

Orders are collected the week previous to delivery and the local cooperatives ship their extra production to a central cooperative which acts as the logistics hub. The boxes are packed in the hub cooperative and sent out for distribution locally and nationally through a logistics operator.

Sustainability is paramount, cardboard boxes and only compostable packing is used, the logistics provider provides 100% carbon offsets, etc. Yet Unica´s new innovation goes further with the introduction of a ZERO Waste F&V Box. Any product left over from the supplies sent for Healthy Boxes are packaged in ZERO Waste F&V Boxes and sold a deep discount, providing home service fresh fruit and vegetables at inclusive and affordable prices.

Author(s)

Irene Navarro
Coexphal

Stakeholders

Farmers, Consumers, Logistics, Cooperatives

Country/Region

Spain/Almería

Keywords

Zero Waste, Sustainable Innovation, Agri-food Supply Chain

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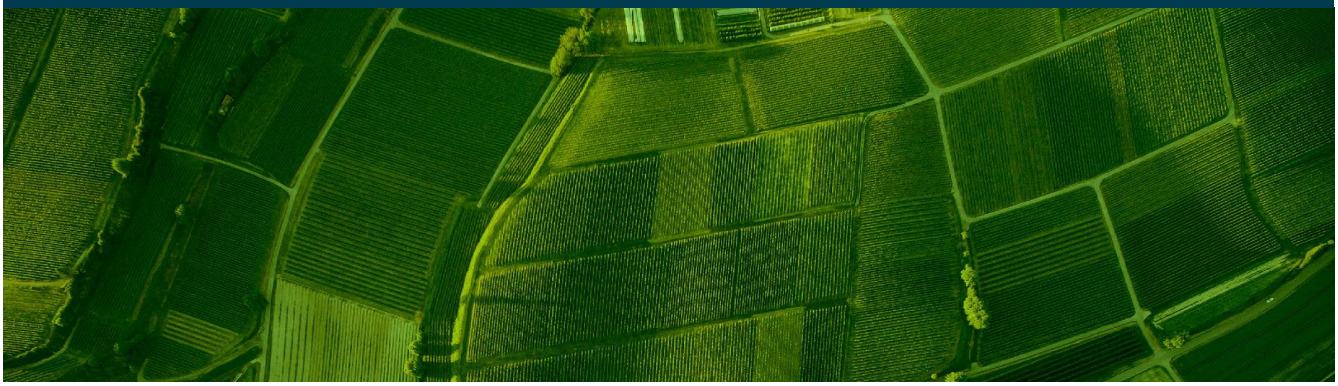
Practice Abstract No 26

Unica Group innovates for healthier food and zero waste



Description

Unica Group, una cooperativa de segundo grado de Almería en el sur de España, ha desarrollado cadenas de suministro alternativas a través del comercio electrónico en línea para evitar el desperdicio de frutas y verduras frescas. Han creado Cajas Saludables de fruta y verdura fresca de alta calidad, que puede entregarse directamente en el domicilio del consumidor final. El contenido de las Cajas Saludables varía cada semana en función del exceso de producción que no pueda venderse en la cadena de suministro principal. El contenido también depende de la estacionalidad, y en ocasiones incluye nuevas variedades menos conocidas.

Los pedidos se recogen la semana anterior a la entrega y las cooperativas locales envían su producción extra a una cooperativa central que actúa como centro logístico. Las cajas se empaquetan en la cooperativa central y se envían para su distribución local y nacional a través de un operador logístico.

La sostenibilidad es primordial, se utilizan cajas de cartón y sólo embalajes compostables, el proveedor logístico proporciona el 100% de las compensaciones de carbono, etc. Sin embargo, la nueva innovación de Unica va más allá con la introducción de una caja de F&V de residuo CERO. Cualquier producto sobrante de los suministros enviados para las Cajas Saludables se envasa en cajas F&V Residuo CERO y se vende con un gran descuento, proporcionando al servicio a domicilio fruta y verdura fresca a precios inclusivos y asequibles.

Author(s)

Irene Navarro
Coexphal

Stakeholders

Agricultores, Consumidores Logística, Cooperativas

Country/Region

Agricultores, Consumidores, Logística, Cooperativas

Keywords

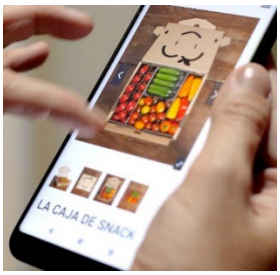
Residuo Cero, Innovación Sostenible, Cadena de Suministro Agroalimentaria

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Additional Information (context, links, etc.)

www.lacajasaludable.es
https://unicagroup.es/

Pictures



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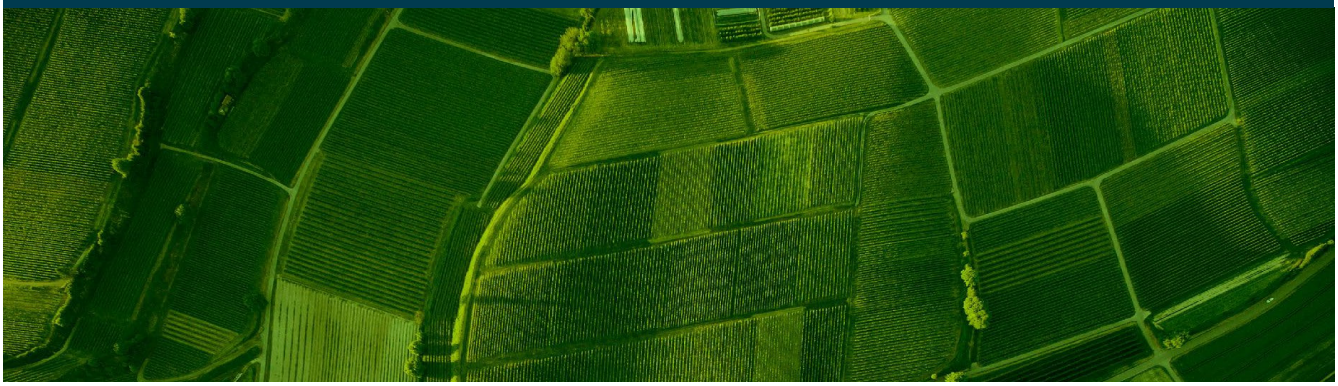
Practice Abstract No 27

A complexe approach to incite a sustainable shift in a PGI pork production: « Le Porc de la Sarthe » (LPS) Co-Fresh pilot case.



Description

The West of France is a major player in pork production, with Brittany alone contributing 56% of the nation's output. In the Pays de la Loire region, farmers have advocated for a non-industrial approach since the 1960s, leading to the development of quality schemes such as Loué's French Red-Label and PGI. This approach inspired the creation of LPS, which emphasizes quality, animal wellbeing, and selling 80% of production locally to craftsmen butchers and delicatessen producers.

However, LPS faces challenges like the aging farmer population and years of defending pork prices. To address these issues and promote sustainability, the CRAPDL initiated Co-Fresh, which aims to develop the use of local vegetable proteins in LPS production. This project requires collaboration among all value chain actors, creating more value, and gaining consumer support.

Co-Fresh unites all stakeholders and focuses on three innovations: 1) developing a new product that uses local vegetable proteins, while simultaneously creating a marketing strategy to promote it; 2) improving carcass selection by involving farmers, slaughterhouses, and craftsmen to offer a premium to professional customers; and 3) developing software to share crucial information throughout the value chain.

By pursuing these innovations, Co-Fresh aims to provide a much-needed boost to the LPS sector, ensuring its long-term viability while fostering sustainable and ethical practices within the pork production industry.

Author(s)

Frédéric Flore, Chambre Régionale d'Agriculture des Pays de la Loire (CRAPDL

Stakeholders

Farmers, Butchers, Slaughterhouse

Country/Region

France

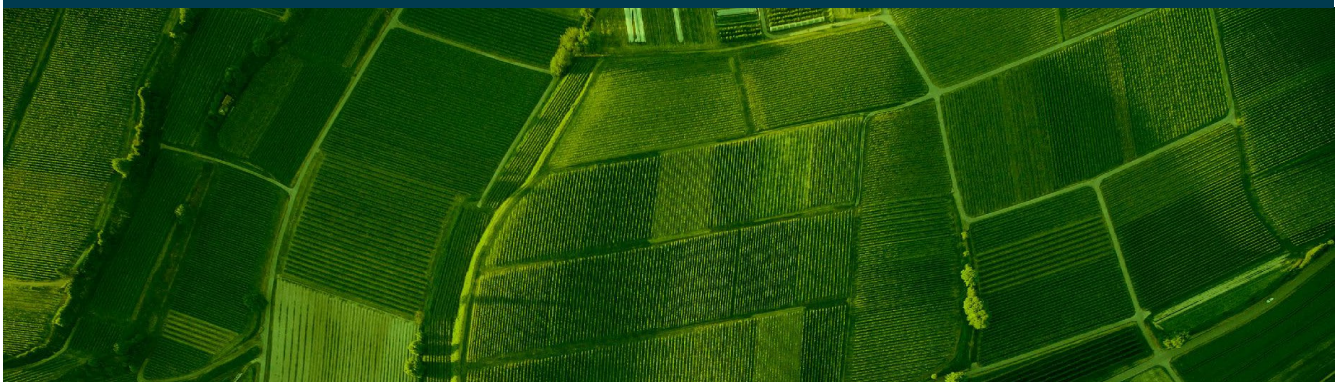
Keywords

Local vegetable proteins, Sustainable pork production, Stakeholder collaboration

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 27

Une approche complexe pour initier un changement vers plus de durabilité dans une filière porcine IGP : le cas pilote Co-Fresh « Le Porc de la Sarthe »



Description

L'Ouest de la France joue un rôle important dans la production porcine, avec 56 % de la production nationale en Bretagne. Les agriculteurs des Pays de la Loire défendent une approche non-industrielle depuis les années 60, menant à des labels de qualité comme celui de Loué (Label Rouge, IGP). LPS en est inspiré, visant la qualité, le bien-être animal et vendant 80 % de la production localement.

Cependant, LPS fait face à des défis tels que le vieillissement des éleveurs et la défense des prix du porc. Pour répondre à ces enjeux, le CRAPDL a lancé Co-Fresh visant à développer l'utilisation de protéines végétales locales dans la production de LPS, nécessitant la collaboration de tous les acteurs, la création de valeur et l'adhésion du consommateur.

Co-Fresh réunit tous les acteurs et se concentre sur trois innovations : 1) développer un nouveau produit utilisant des protéines végétales locales et une stratégie marketing appropriée ; 2) améliorer la sélection des carcasses en impliquant éleveurs, abattoirs et artisans, pour offrir une prime aux clients professionnels ; 3) développer un logiciel pour partager des informations cruciales tout au long de la chaîne de valeur.

Author(s)

Frédéric Flore, Chambre Régionale d'Agriculture des Pays de la Loire (CRAPDL

Stakeholders

Farmers, Butchers, Slaughterhouse

Country/Region

France

Keywords

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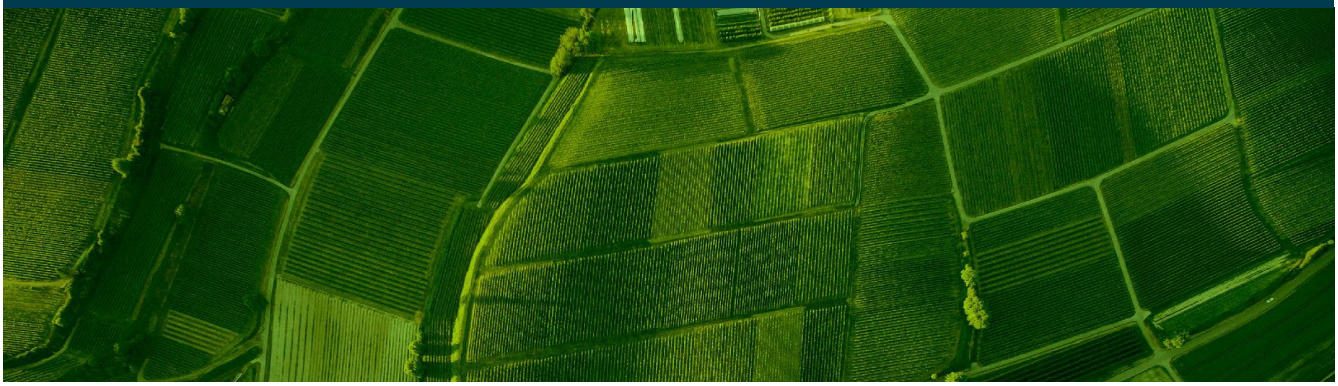
Practice Abstract No 28

Consumer's preferences for clean and cut packaged salads: The case of Florette.



Description

Florette Iberica is part of the international Florette group that produces more than 60 varieties of salads, as well as more than 750.000 salad products per day. They work to improve people's quality of life by improving their diets (healthy diet). Thus, they embarked on a project to make fresh vegetables (salads) more accessible, presenting them in practical formats. The company has its own farms to process the salad products, in addition to its greenhouses, it's able to produce lettuces that are sorted, washed, desinfected and packed all over the year. Since, consumers in the purchasing decision process choose and buy the products based on considerations among others criteria (i.e. environmental impact, proximity, fairness, taste, freshness, price, culinary needs...etc.). The salad's baby leaf product is sold as a competitive product, with an emphasis on the benefits of local production in order to meet consumers' expectations in terms of supply, quality product, access and affordability of sustainable products.

The overall objective of the consumer study conducted within co-fresh project is to assess Spanish consumer's perceptions and preferences for clean and cut packaged salads (baby leaf) using a methodology (Best worst scaling) which allows to distinguish between the most and the least relevant salad's characteristic that influence the purchasing decision of baby leaf consumers.

The main outcomes revealed that Spanish consumers give more importance to "the freshness and the aspect" of baby leaf salad followed by the attribute "healthy product without additives", "local product" and then," the expiration date" over the rest of the characteristics.

Author(s)

Kenza Goumeida, Djamel Rahmani, Melina Burkert, Verena Hüttl-Maack and José Maria Gil.

The Center for Agro-food Economy and Development (CREDA-UPC-IRTA).

University of Hohenheim.

Stakeholders

Consumers, retail

Country/Region

Spain

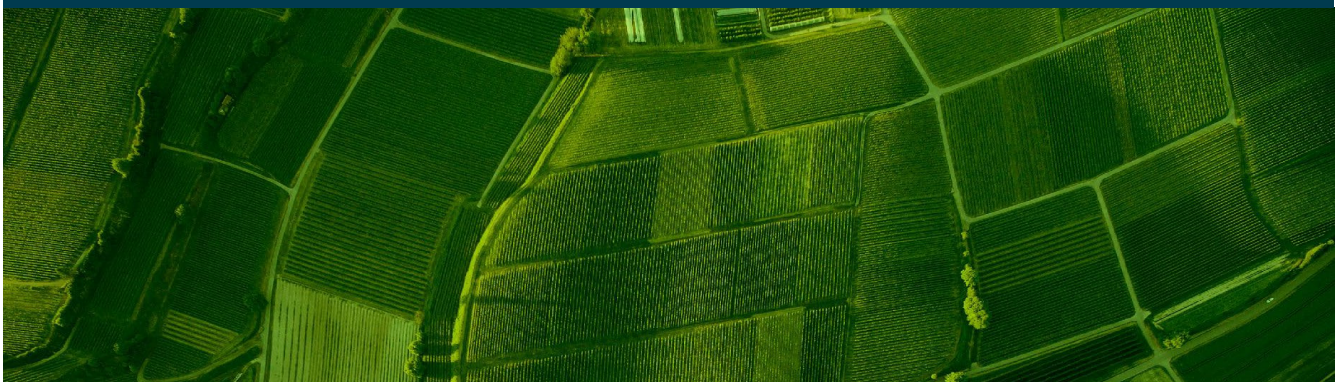
Keywords

Consumers' perceptions and preferences, Baby-leaf salads, Best-Worst-Scaling, sustainability attributes

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 28

Preferencias del consumidor por la ensalada envasada limpia y cortada: El caso de Florette.



Description

Florette Ibérica forma parte del grupo internacional Florette, que produce más de 60 variedades de ensaladas y más de 750.000 productos de ensalada al día. Su objetivo es mejorar la calidad de vida de las personas a través de una alimentación saludable, haciendo accesibles las verduras frescas en formatos prácticos. La empresa cuenta con granjas e invernaderos propios para producir y procesar ensaladas durante todo el año.

Los consumidores eligen productos considerando criterios como impacto medioambiental, proximidad, equidad, sabor, frescura, precio y necesidades culinarias. Florette promociona sus primeros brotes de ensalada como un producto competitivo, destacando las ventajas de la producción local en términos de suministro, calidad, acceso y asequibilidad de productos sostenibles.

El proyecto Co-Fresh realizó un estudio de consumidores para evaluar las percepciones y preferencias de los españoles respecto a las ensaladas envasadas, limpias y cortadas, utilizando la metodología Best Worst Scaling para identificar las características más relevantes en la decisión de compra. Los resultados mostraron que la frescura y aspecto son prioritarios, seguidos por "producto sano sin aditivos", "producto local" y "fecha de caducidad" como factores clave.

Author(s)

Kenza Goumeida, Djamel Rahmani, Melina Burkert, Verena Hüttl-Maack and José Maria Gil.
The Center for Agro-food Economy and Development (CREDA-UPC-IRTA).
University of Hohenheim.

Stakeholders

Consumers, retail

Country/Region

Spain

Keywords

Consumers' perceptions and preferences, Baby-leaf salads, Best-Worst-Scaling, sustainability attributes

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Additional Information (context, links, etc.)

https://www.florette.es/

Pictures

About CO-FRESH

The CO-FRESH project aims to provide techniques, tools and insights on how to make agri-food value chains more environmentally sustainable, socio-economically balanced and economically competitive. The project pilots several agri-food value chain innovations to see how they, in combination, can improve environmental and socio-economic sustainability.

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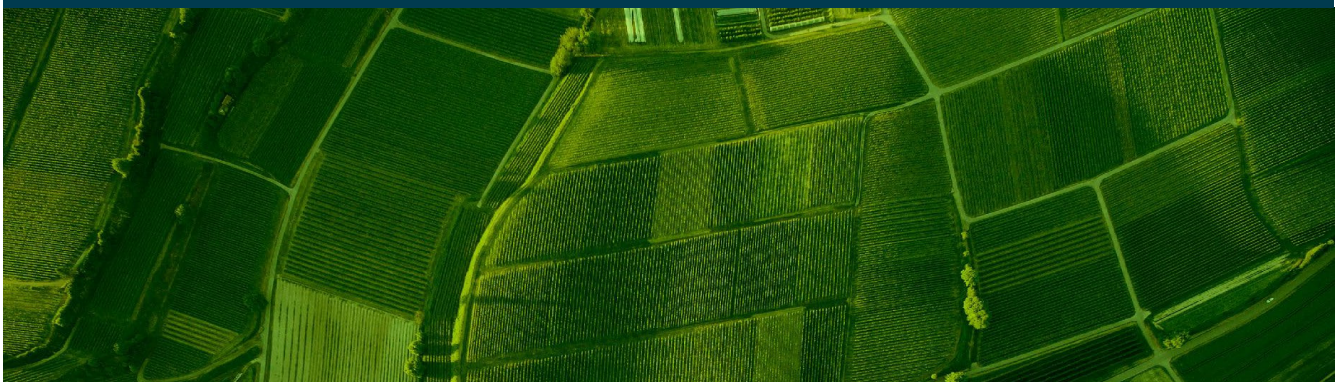
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 29

Evaluation of Sustainable Innovations in Fruits and vegetables' Value Chains



Description

Agri-food companies need innovations to compete in new markets as consumers demand sustainable products, considering environmental, social, and economic aspects. The CO-FRESH project aims to provide techniques, tools, and insights for making agri-food value chains more environmentally sustainable, socio-economically balanced, and economically competitive. Both technological and non-technological innovations are being tested in pilot cases involving companies such as La Terre di Zoe, Florette, Foodvalley, Porc fermier de la Sarthe, Ekoowoc, Plize, and Coexphal.

The study employs "Socio-economic Life Cycle Assessment" (S-LCA) methodology to assess socio-economic aspects of products and their potential impacts along the value chain, including production, processing, distribution, and consumption. Impact categories and quantitative indicators cover social and economic sustainability dimensions, involving stakeholders like managers, farmers, workers, consumers, local communities, and society.

Baseline results reveal reasonably good performance, but highlight areas for improvement, such as economic security, bargaining power, waste valorization, traceability systems, and feedback mechanisms with consumers. By addressing these areas, the project aims to make agri-food value chains more sustainable, equitable, and competitive, meeting the demands of today's conscious consumers.

Author(s)

Bouali Guesmi, Yan Jin & José Maria Gil
CREDA-UPC-IRTA

Stakeholders

All stakeholders in the Food Supply Chain

Country/Region

Seven Case Studies

Keywords

Technological and Non-Technological Innovations, Social LCA, Stakeholders Analysis, Sustainability

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

About CO-FRESH

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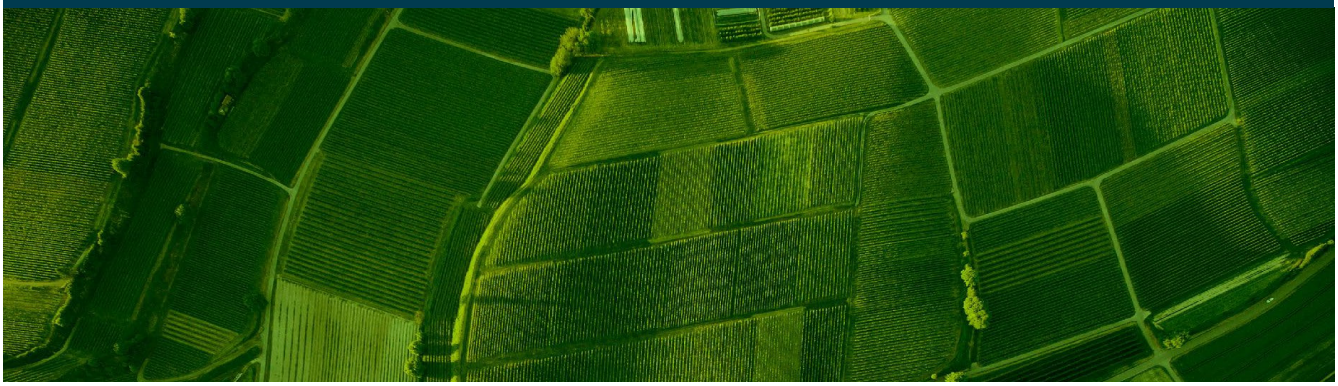
Practice Abstract No 30

Designing Co-creation activities for innovation in food value chains



Description

Co-creation and co-innovation are crucial in EU projects, promoting stakeholder engagement and empowerment through active participation, bilateral relationships, and continuous feedback. Co-FRESH implements a co-creation process to identify potential interventions for pilot cases, adaptable to other projects to stimulate stakeholder engagement.

The two-step process involves a workshop using the World Café (WC) technique to define a shortlist of potential innovations and a Delphi method to reach consensus among stakeholders. The WC aims to provide supply chain information through a SWOT analysis, select potential innovations based on key success factors, and create a shortlist of innovative approaches for pilot cases, considering feasibility, replicability, and fair distribution of costs, benefits, and risks along the value chain.

The Delphi Method helps reach consensus on preferred innovations for each case study. Success in co-creation strategies depends on a carefully designed process adapted to each case, common guidelines, and training participants on implementing this tool, which contributes to the success of co-creation activities.

Author(s)

José M. Gil
CREDA-UPC-IRTA

Stakeholders

All stakeholders in the Food Supply Chain

Country/Region

Seven Case Studies

Keywords

Co-creation, innovation activities, participatory, scalable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Additional Information (context, links, etc.)

https://co-fresh.eu/download/co-fresh-d2-1-guidelines-to-conduct-co-creation-focus-groups/

Pictures

About CO-FRESH

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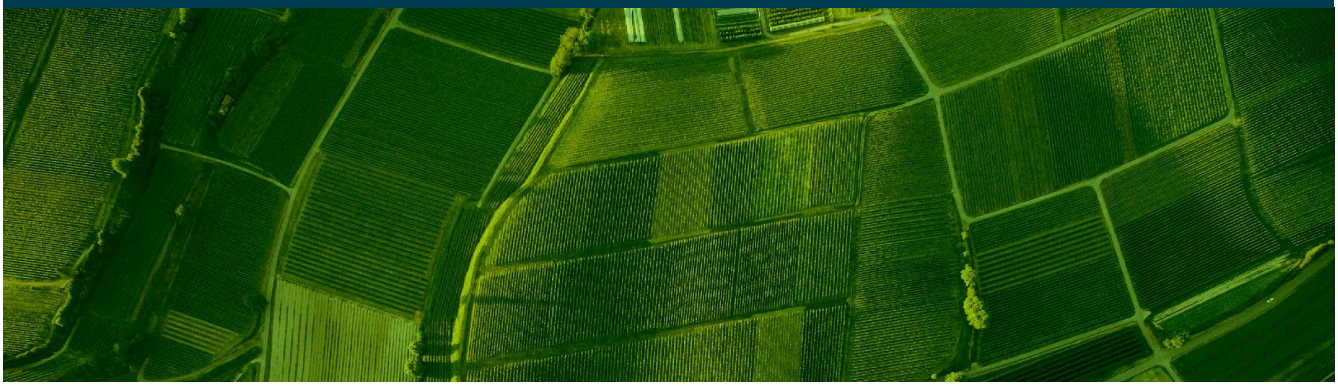
Practice Abstract No 31

Digital tools for consumers: transparency on sustainability



Description

UNICA Group, a second tier cooperative in southern Spain, is committed to supporting both healthy diets and improved sustainability, through a closer relationship with their consumers. In their on-line product box of fresh fruit and vegetables, which is designed to avoid food waste from their mainstream supply chains, they use easy to use digital tools such as a QR code printed on the box to provide information on products and producers. These producers are mainly family farmers, who sell their produce through cooperatives. This innovation generates a consumer transparency report (traceability, certifications, etc). and improves the UNICA website by expanding the information available to consumers.

The information is very focused on sustainability of the whole value chain, carbon footprint, certifications, origin, production techniques, and other information and indicators to be developed. As well, customer involvement is an important part of the innovation, with online surveys and customer feedback and satisfaction reporting. Questionnaires and other tools will also be used to calculate further social, economic and environmental impact indicators.

Almost all phases of the value chain from inputs, production, processing, transport, up to the final mile are involved, requiring the collaboration between many information providers along the supply chain, so as to provide improved and more holistic transparency to the customer.

Author(s)

Irene Navarro
Coexphal

Stakeholders

Farmers, Processers, Transport, Input suppliers, Consumers

Country/Region

Spain/Almería

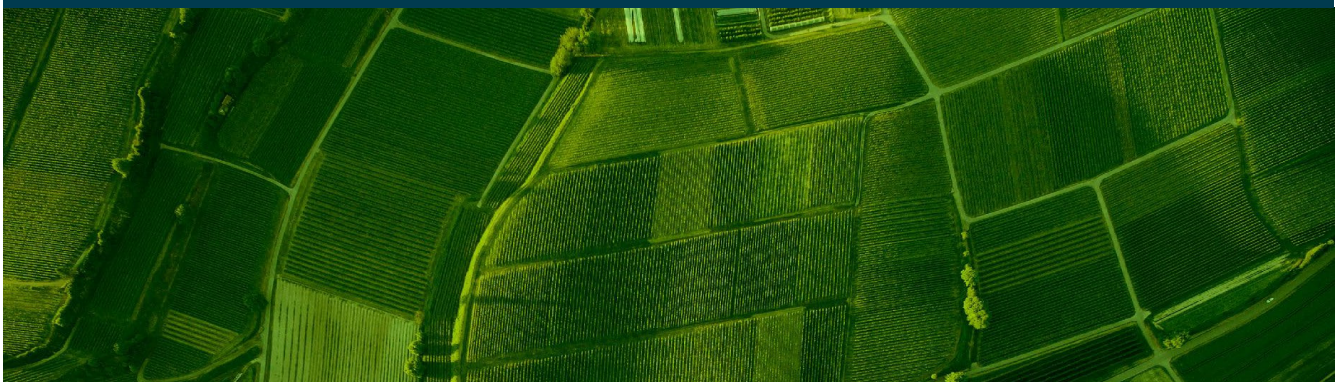
Keywords

Digital Tools, Transparency, Consumers, Agri-Food, Sustainable Innovation, Carbon Footprint.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 31

Herramientas digitales para los consumidores: transparencia sobre sostenibilidad



Description

El Grupo UNICA, una cooperativa de segundo grado del sur de España, se ha comprometido a apoyar tanto las dietas saludables como la mejora de la sostenibilidad, a través de una relación más estrecha con sus consumidores. En su caja de productos en línea de frutas y hortalizas frescas, diseñada para evitar el desperdicio de alimentos de sus cadenas de suministro principales, utilizan herramientas digitales fáciles de usar, como un código QR impreso en la caja, para proporcionar información sobre los productos y los productores. Estos productores son principalmente agricultores familiares que venden sus productos a través de cooperativas. Esta innovación genera un informe de transparencia para el consumidor (trazabilidad, certificaciones, etc.) y mejora el sitio web de UNICA ampliando la información disponible para los consumidores.

La información está muy centrada en la sostenibilidad de toda la cadena de valor, huella de carbono, certificaciones, origen, técnicas de producción, y otras informaciones e indicadores por desarrollar. Asimismo, la participación de los clientes es una parte importante de la innovación, con encuestas en línea e informes de opinión y satisfacción de los clientes. También se utilizarán cuestionarios y otras herramientas para calcular otros indicadores de impacto social, económico y medioambiental.

Están implicadas casi todas las fases de la cadena de valor, desde los insumos, la producción, la transformación, el transporte, hasta la última milla, lo que requiere la colaboración entre muchos proveedores de información a lo largo de la cadena de suministro para ofrecer al cliente una transparencia mejorada y más holística.

Author(s)

Irene Navarro
Coexphal

Stakeholders

Farmers, Processers, Transport, Input suppliers, Consumers

Country/Region

Spain/Almería

Keywords

Digital Tools, Transparency, Consumers, Agri-Food, Sustainable Innovation, Carbon Footprint.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Additional Information (context, links, etc.)

www.lacajasaludable.es
https://unicagroup.es/

Pictures

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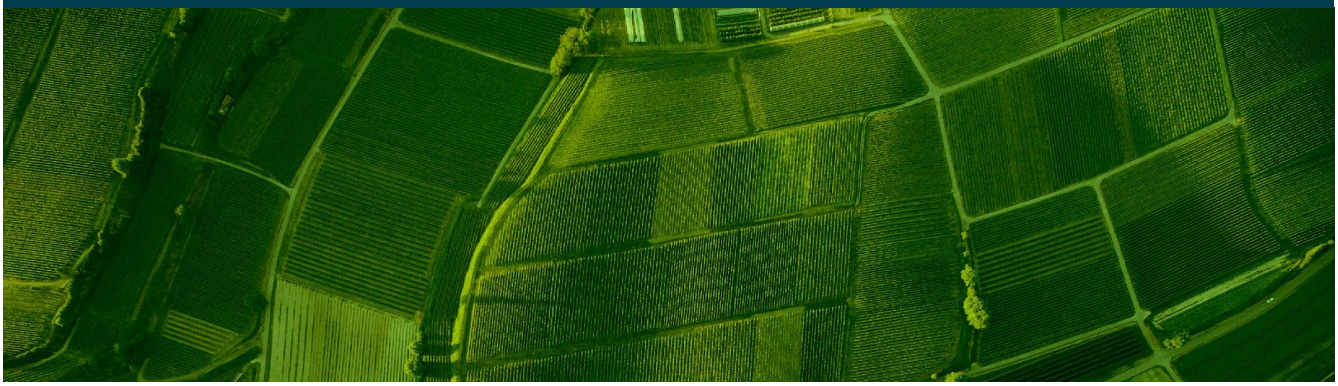
Practice Abstract No 32

Tempeh of Dutch Faba Beans for the vegan/vegetarian market



Description

Tempeh is a fermented traditional Asiatic food proceding from Indonesia. It is made from soaked and cooked soybeans inoculated with a mold, usually of the genus Rhizopus. After fermentation has occurred, the soybeans are bound together into a compact cake by dense cottony mycelium. Fermentation process makes the starches easier to digest, resulting in a compact, whitish block product. During the growth of mold, the functional properties of foods are formed as follows: protein is hydrolyzed to amino acids and peptides by proteolytic enzymes, oligosaccharides is hydrolyzed to monosaccharides, phytic acid degraded to inorganic phosphates.

With regard to food products, flavor and textures are of most importance and top priority aside from nutrition, because they decide whether a food has preference and competitiveness at market.

Although traditionally, soya beans are used for tempeh processing, FOODVALLEY proposes the substitution of the soya beans by one local Dutch legume, faba beans. As the same way than soya beans, faba beans have a high protein content (according to bibliography: aminoacid score = 0.66-0.75; Digestibility = 76-82% and PDCAAS = 54-66).

In order to increase the consumption options of Dutch faba beans and in line with the growing trend of high quality protein products for the vegan and vegetarian market, the CO-FRESH project will establish the formulation of the fermentation substrate (based on faba beans and other ingredients), the most suitable Rhizopus strain and the process for getting a new Tempeh with exceptional sensorial and nutritional properties.

Author(s)

Raquel Virto, Andrea Tres (CNTA)

Stakeholders

Food manufacturers, consumers, local farmers

Country/Region

Netherlands

Keywords

Tempeh, Faba beans, fermentation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Pictures

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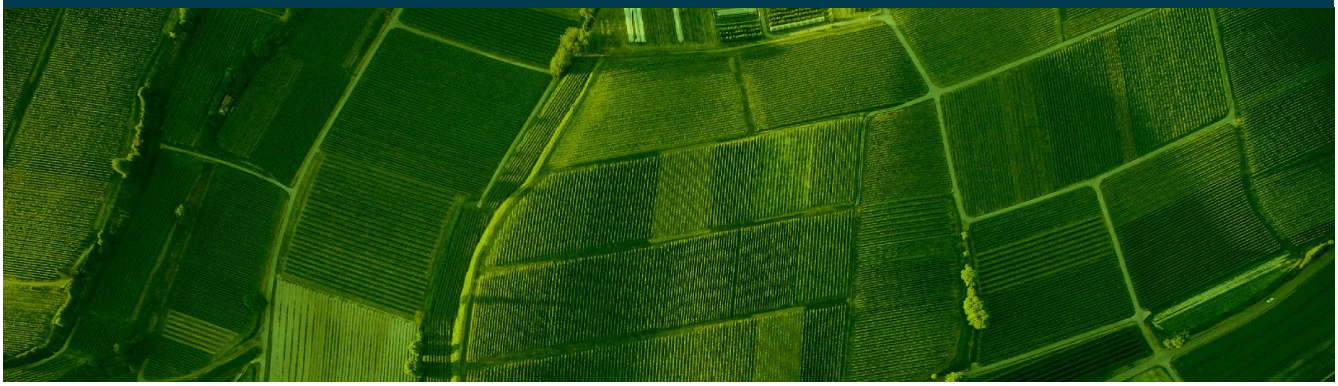
Practice Abstract No 33

Model and practice farm for regenerative agriculture: Hof Lebensberg



Description

The model and practice farm was founded in 2020 and pursues the vision of successfully combining agriculture with climate and nature protection. In particular, the farm is characterized by the use of well-known methods of regenerative agriculture, which are, however, little used in Germany. The goal of a productive, resilient agricultural ecosystem is achieved by combining globally successful regenerative farming systems. Synergies are created through the combination of different cultivation systems in order to achieve a closed farm cycle as far as possible. The agricultural ecosystem is thus strengthened and becomes increasingly resilient and diverse. The core is to build up permanently fertile soil in the process. The regenerative approaches bind CO2 in the soil, for example, and thus build up valuable humus soil. At the same time, stable yields are generated in the long term. The methods used to improve soil fertility are even more diverse: agroforestry, holistic grazing livestock, keyline systems and no-till farming. Consumers can get the products that arise from regenerative agriculture through local value chains and weekly vegetable, egg or bread boxes by subscription.

Author(s)

Melina Burkert (University of Hohenheim)

Stakeholders

Farmers, Consumers, Government agencies

Country/Region

Germany

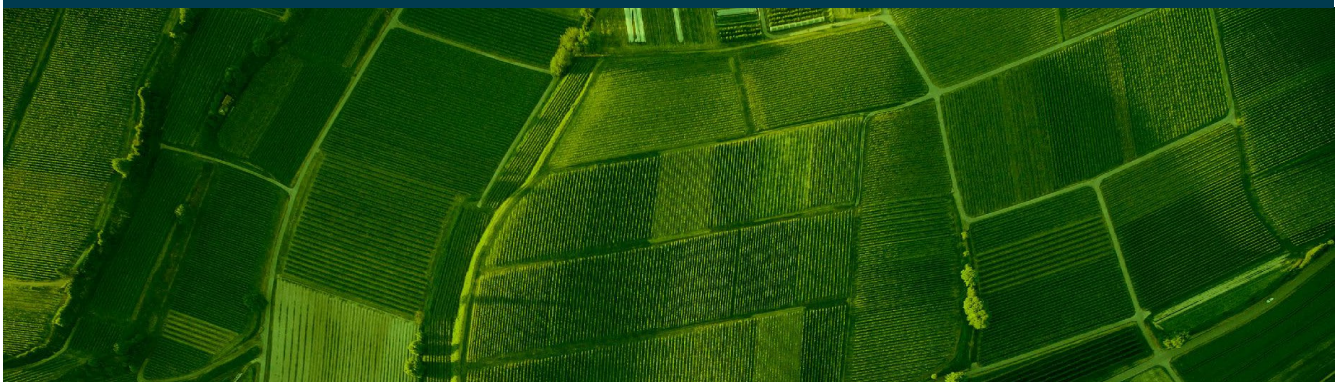
Keywords

Regenerative agriculture, Closed farm cycle, Agroforestry

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 33

Modell- und Praxisbetrieb für regenerative Landwirtschaft: Hof Lebensberg



Description

Der Modell- und Praxisbetrieb wurde 2020 gegründet und verfolgt die Vision, Landwirtschaft erfolgreich mit Klima- und Naturschutz zu verbinden. Im Besonderen zeichnet sich der Hof dadurch aus, dass bekannte Methoden der regenerativen Landwirtshaft angewendet werden, die in Deutschland jedoch wenig verbreitet sind. Das Ziel eines produktiven, resilienten landwirtschaftlichen Ökosystems wird durch die Kombination weltweit erfolgreicher regenerativer Anbausysteme erlangt. Dabei werden durch die Kombination verschiedener Anbausysteme Synergien geschaffen, um einen möglichst geschlossenen Betriebskreislauf zu erreichen. Das landwirtschaftliche Ökosystem wird dadurch gestärkt und zunehmend widerstandfähiger und vielfältiger. Der Kern ist, dabei permanent fruchtbaren Boden aufzubauen. Durch die regenerativen Ansätze wird beispielsweise CO2 im Boden gebunden und dadurch wertvoller Humusboden aufgebaut. Gleichzeitig werden langfristig stabile Erträge generiert. Die angewandten Methoden zur Verbesserung der Bodenfruchtbarkeit sind noch weitaus vielfältiger: Agroforstwirtschaft, holistische Weidetierhaltung, Keyline Systeme und pflugloser Ackerbau. Konsument*innen können die Produkte, die aus der regenerativen Landwirtschaft entstehen über lokale Wertschöpfungsketten und wöchentliche Gemüse, Eier- oder Brotkisten im Abo bekommen.

Author(s)

Melina Burkert (University of Hohenheim)

Stakeholders

Farmers, Consumers, Government agencies

Country/Region

Germany

Keywords

Regenerative agriculture, Closed farm cycle, Agroforestry

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Additional Information (context, links, etc.)

https://www.hoflebensberg.de/

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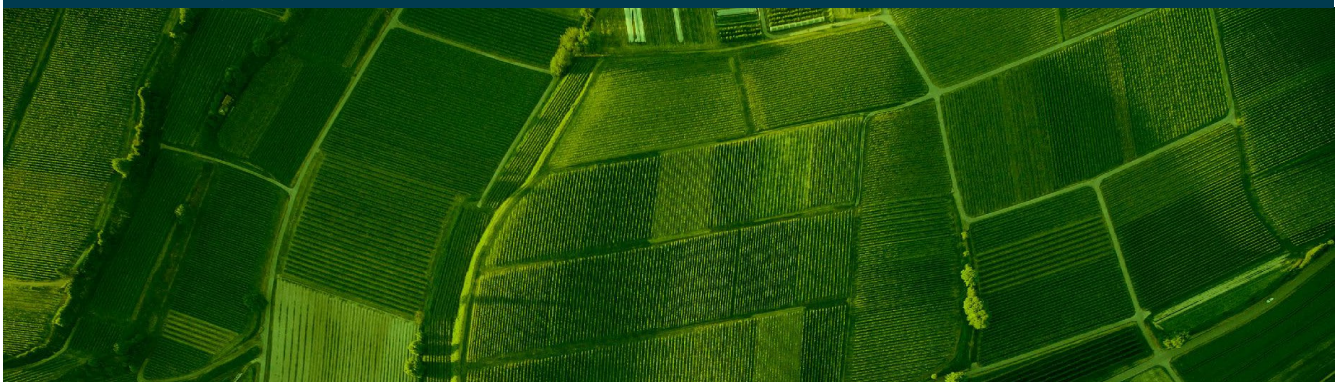
Practice Abstract No 34

Digitization of services for the use of fertilisers according to online measurements (N, P, K) and soil needs (pH)



Description

The Farm to Fork strategy, part of the European Green Deal, aims to address excess nutrients in the environment, which contribute to pollution and climate change. The strategy targets reducing nutrient losses by 50% and fertilizer use by 20% by 2030. The new Common Agriculture Policy (CAP) 2023-27 focuses on sustainable farming systems and improved nutrient management.

Agriculture significantly impacts climate change through GHG emissions from land clearing, tilling, livestock breeding, fertilizer application, and fossil fuel use. However, it can also serve as a carbon sink, offering potential for more sustainable practices.

CO-FRESH seeks to develop tools to minimize the carbon footprint of plant nutrition. The project integrates innovative soil sensors with an existing FIWARE-powered IoT platform provided by Future Intelligence (FINT), a Telecom and Software Engineering company founded in Athens, Greece in 2009. In partnership with Florette Spain and CNTA, FINT will deploy these IoT sensors in greenhouses cultivating leafy vegetables to evaluate their effectiveness in interpreting field needs for farmers, while reducing nutrient and water consumption.

By combining advanced sensor technology and IoT solutions, CO-FRESH aims to optimize nutrient management, promote sustainable agriculture, and contribute to the European Green Deal's objectives, ultimately benefiting the environment and reducing the industry's impact on climate change.

Author(s)

Theocharis Moysiadis
Future Intelligence

Stakeholders

Farmers, Farm cooperatives, Agronomists, Fertirrigation Consultants, Fertilizers suppliers (traders, manufacturers)

Country/Region

Greece (Attica), Spain (Navarra)

Keywords

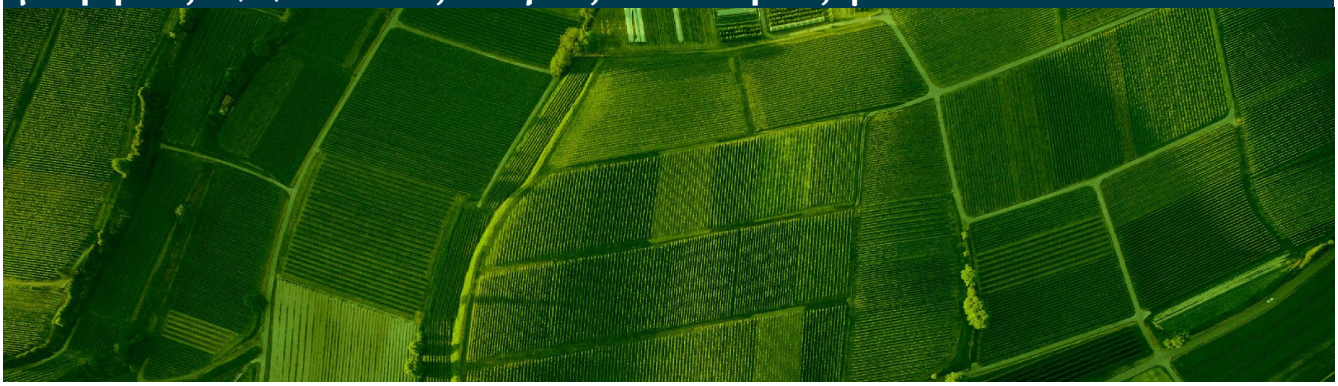
Smart Fertilisation, Sustainable Digital Nutrient Management, Digital Farming, Digital Transformation of Agriculture

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

CO-FRESH

Practice Abstract No 34

Ψηφιοποίηση υπηρεσιών χρήσης λιπασμάτων σύμφωνα με online μετρήσεις (N, P, K) και τις ανάγκες του εδάφους (pH)



Περιγραφή

Η στρατηγική "Από το αγρόκτημα στο πιρούνι", μέρος της ευρωπαϊκής Πράσινης Συμφωνίας, αποσκοπεί στην αντιμετώπιση της περίσσειας θρεπτικών ουσιών στο περιβάλλον, οι οποίες συμβάλλουν στη ρύπανση και την κλιματική αλλαγή. Η στρατηγική στοχεύει στη μείωση των απωλειών θρεπτικών συστατικών κατά 50% και της χρήσης λιπασμάτων κατά 20% έως το 2030. Η νέα Κοινή Γεωργική Πολιτική (ΚΓΠ) 2023-27 εστιάζει στα βιώσιμα γεωργικά συστήματα και στη βελτιωμένη διαχείριση των θρεπτικών στοιχείων.

Η γεωργία επηρεάζει σημαντικά την κλιματική αλλαγή μέσω των εκπομπών αερίων του θερμοκηπίου από τον καθαρισμό της γης, την κατεργασία του εδάφους, την κτηνοτροφία, την εφαρμογή λιπασμάτων και τη χρήση ορυκτών καυσίμων. Ωστόσο, μπορεί επίσης να χρησιμεύσει ως καταβόθρα άνθρακα, προσφέροντας δυνατότητες για πιο βιώσιμες πρακτικές.

Το CO-FRESH επιδιώκει την ανάπτυξη εργαλείων για την ελαχιστοποίηση του αποτυπώματος άνθρακα της θρέψης των φυτών. Το έργο ενσωματώνει καινοτόμους αισθητήρες εδάφους με μια υπάρχουσα πλατφόρμα IoT με βάση το FIWARE που παρέχεται από την Future Intelligence (FINT), μια εταιρεία τηλεπικοινωνιών και μηχανικής λογισμικού που ιδρύθηκε στην Αθήνα το 2009. Σε συνεργασία με την Florette Spain και την CNTA, η FINT θα αναπτύξει αυτούς τους αισθητήρες IoT σε θερμοκήπια που καλλιεργούν φυλλώδη λαχανικά για να αξιολογήσει την αποτελεσματικότητά τους στην ερμηνεία των αναγκών του χωραφιού για τους αγρότες, μειώνοντας παράλληλα την κατανάλωση θρεπτικών ουσιών και νερού.

Συνδυάζοντας προηγμένη τεχνολογία αισθητήρων και λύσεις IoT, το CO-FRESH στοχεύει στη βελτιστοποίηση της διαχείρισης των θρεπτικών στοιχείων, στην προώθηση της βιώσιμης γεωργίας και στη συμβολή στους στόχους της Ευρωπαϊκής Πράσινης Συμφωνίας.

Συγραφέας

Θεοχάρης Μωυσιάδης
Future Intelligence

Ομάδες ενδιαφερομένων

Αγρότες, Αγροτικοί συνεταιρισμοί, Γεωπόνοι, Σύμβουλοι Υδρολίπανσης, Προμηθευτές λιπασμάτων (έμποροι, κατασκευαστές)

Χώρα/ Περιφέρεια

Ελλάδα (Αττική), Ισπανία (Ναβάρα)

Λέξεις-κλειδιά

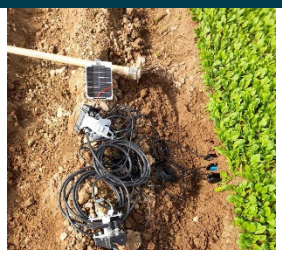
Έξυπνη λίπανση, βιώσιμη ψηφιακή διαχείριση θρεπτικών ουσιών, ψηφιακή γεωργία, ψηφιακός μετασχηματισμός της γεωργίας

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Additional Information (context, links, etc.)

https://www.f-in.gr/
https://www.linkedin.com/company/2651298/
https://www.facebook.com/people/Future-Intelligence/100071449206585/?paipv=0&eav=AfZ4PyekRxgpmNrb2u4EvhJC0EzDKzEIGwX9kWAb2eNNxPqWVbXfW3XuuLCMmHXYRzk&_rdr

Pictures



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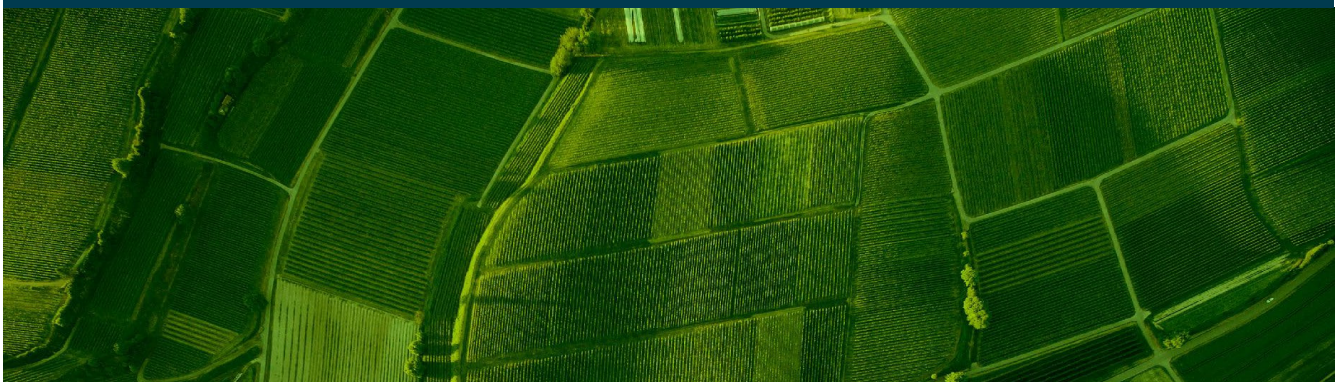
Practice Abstract No 35

Smart Irrigation System



Description

The agricultural sector is responsible for more than 70% - and in some countries like Greece more than 80%- of fresh water use. At the same time, irrational water applications cause soil erosion and land degradation issues. To add, water stress is a critical factor for yield losses. Those said, optimisation of irrigation is not only an economic necessity for small scale farmers but a critical indication of farmers' environmental footprint and social responsibility.

Within CO-FRESH project, an EC-supported initiative that aims to build sustainable and replicable agrifood value chains across EU, Future Intelligence (FINT) provides the tools to make this happen in an organic agrotouristic farm in Calabria, Italy. More specifically, telecommunication devices and sensor controllers, sensors and weather stations, irrigation controllers and the appropriate software are designed and built by FINT, under the Internet of Things (IoT) engineering approach. Thus, apart from the telemetry features, IoT makes it easier to exploit the data and interoperate these with other software & machineries in the field. Yet, IoT systems are scalable and easier to use. Other peripheral devices and 3rd party products will be integrated to this irrigation and farm monitoring system. FINT works with the pilot site owner, Le Terre Di Zoe, having three key objectives:

- To reduce the amount of water applied in the farm (also decreasing the relevant electricity costs)
- To reduce the labor time to apply an irrigation application
- To keep the same quantity and quality of the harvested yield

FINT is an IoT solution provider and a Telecom and Software Engineering company founded in Athens, Greece in 2009 as a Small and Medium Enterprise (SME).

Author(s)

Theocharis Moysiadis
Future Intelligence

Stakeholders

Farmers, Farm cooperatives, Agronomists/ Irrigation Consultants, Green Space irrigation practitioners, Architectural Planners

Country/Region

Greece (Attica), Italy (Calabria)

Keywords

Smart Irrigation, Digital Farming, Irrigation Controller, Digital Transformation of Agriculture

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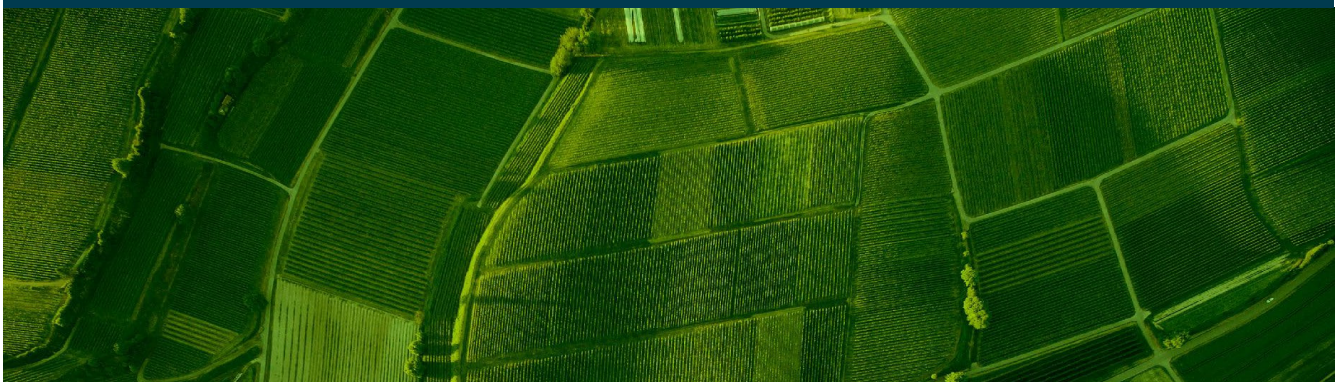
Practice Abstract No 35

Έξυπνο Σύστημα Άρδευσης



Περιγραφή

Ο αγροτικός τομέας ευθύνεται για περισσότερο από το 70% της χρήσης φρέσκου νερού λόγω των αρδεύσεων. Επιπλέον, η καταπόνηση του φυτού λόγω νερού είναι ένας κρίσιμος παράγοντας για τις απώλειες απόδοσης της σοδειάς. Έτσι, η βελτιστοποίηση της άρδευσης δεν είναι μόνο μια οικονομική αναγκαιότητα για τους μικρομεσαίους αγρότες, αλλά μια κρίσιμη ένδειξη του περιβαλλοντικού αποτυπώματος και της κοινωνικής ευθύνης των παραγωγών τροφής.

Στο πλαίσιο του έργου CO-FRESH, μιας πρωτοβουλίας που υποστηρίζεται από την ΕΕ που στοχεύει στη δημιουργία βιώσιμων και αναπαραγόμενων αλυσίδων αξίας αγροδιατροφικών προϊόντων, η Future Intelligence (FINT) παρέχει τα εργαλεία για να συμβεί αυτό σε μια βιολογική αγροτουριστική φάρμα στην Καλαβρία της Ιταλίας. Πιο συγκεκριμένα, τηλεπικοινωνιακές συσκευές και ελεγκτές αισθητήρων, αισθητήρες και μετεωρολογικοί σταθμοί, ελεγκτές άρδευσης και το κατάλληλο λογισμικό σχεδιάζονται και κατασκευάζονται από την FINT στο πλαίσιο της μηχανικής του Διαδικτύου των Πραγμάτων (IoT). Έτσι, εκτός από τις δυνατότητες τηλεμετρίας, το IoT διευκολύνει την εκμετάλλευση των δεδομένων και τη διαλειτουργικότητα τους με άλλα λογισμικά και μηχανήματα στο πεδίο. Ακόμα, τα συστήματα IoT είναι επεκτάσιμα και ευκολότερα στη χρήση. Άλλες περιφερειακές συσκευές και προϊόντα τρίτων κατασκευαστών θα ενσωματωθούν σε αυτό το σύστημα άρδευσης και παρακολούθησης αγροκτημάτων. Η FINT συνεργάζεται με τον ιδιοκτήτη του πιλοτικού, Le Terre Di Zoe, έχοντας τρεις βασικούς στόχους:

- Να μειωθεί η ποσότητα νερού που εφαρμόζεται στο αγρόκτημα (μειώνοντας επίσης το σχετικό κόστος ηλεκτρικής ενέργειας)
- Την μείωση του χρόνου εργασίας που απαιτείται για την εφαρμογή άρδευσης
- Να διατηρείται η ίδια ποσότητα και ποιότητα της συγκομιδής

Συγραφέας

Θεοχάρης Μωυσιάδης
Future Intelligence

Ομάδες ενδιαφερομένων

Αγρότες, Ομάδες Παραγωγών, Συνεταιρισμοί, Γεωπόνοι, Γεωτεχνικοί, Υπεύθυνοι Στρατηγικής Άρδευσης, Άρδευση Πρασίνου σε πόλεις/ βιομηχανίες/ υποδομές, Αρχιτέκτονες Πεδίου

Χώρα/ Περιφέρεια

Ελλάδα

Λέξεις-κλειδιά

Έξυπνη Άρδευση, Ψηφιακή Άρδευση, Ευφυής Γεωργία, Γεωργία Ακριβείας, Ελεγκτής Άρδευσης, Ψηφιακός Μετασχηματισμός Αγροδιατροφής

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Pictures




About CO-FRESH

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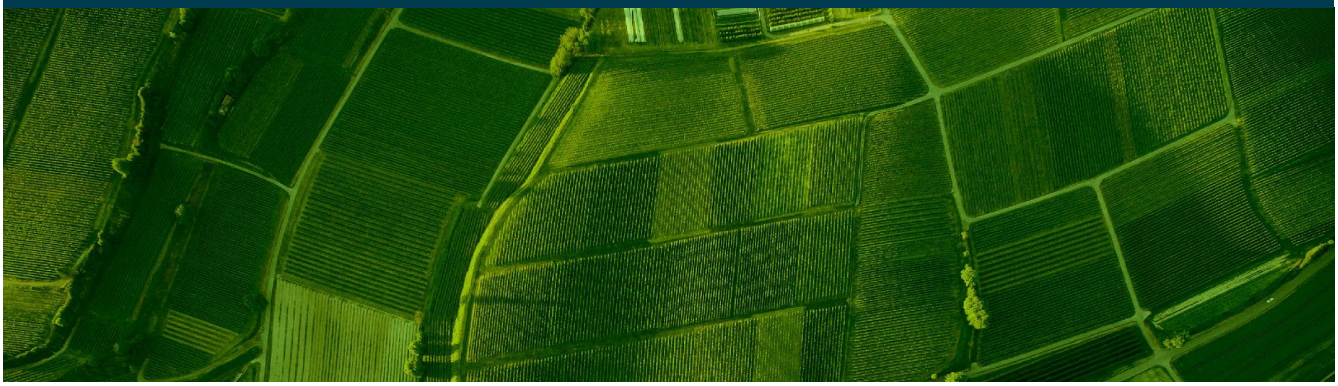
Practice Abstract No 36

Functional ingredients production through by-products valorization



Description

Natural resource depletion and the lack of sustainability of our actual global production system have reached alarming levels and it is thought to be worse in the following years if we do not change our acts. According to the Global Footprint Network, human life quality will start to decline from 2030 if our society continues the same evolution. The WWF emphasizes the need that humanity will face in 2050 of 2'5 planet earth of natural resources to supply the entire production system.

At the same time there is an unmanageable generation of by-products without any apparent application, is in this gap where fermentation has appeared as a very practical solution for European farmers to transform these by-products into ingredients. La terre di Zoe produces ecological products, among these, la terre di Zoe is focused on exploiting their clementine by-products for valorising them through fermentation to produce a functional ingredient that could be added to their clementine juice trying to avoid a negative impact in the sensorial properties of their actual clementine juice.

To overcome this challenge, La terre di Zoe has developed a workplan with UNIBO and CNTA where they will work in the combination of a non-thermal pre-treatment of the by-product with a fermentation process, when this step is completed, the group will formulate an innovative food ingredient with functional properties. After this development, other European farmers could follow the same track to valorise citrus by-products.

Author(s)

Nicolás Armendáriz & Dante Fratebianchi, CNTA

Stakeholders

Farmers, Consumers, regulatory bodies

Country/Region

Italy

Keywords

Sustainability, fermentation, valorization

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

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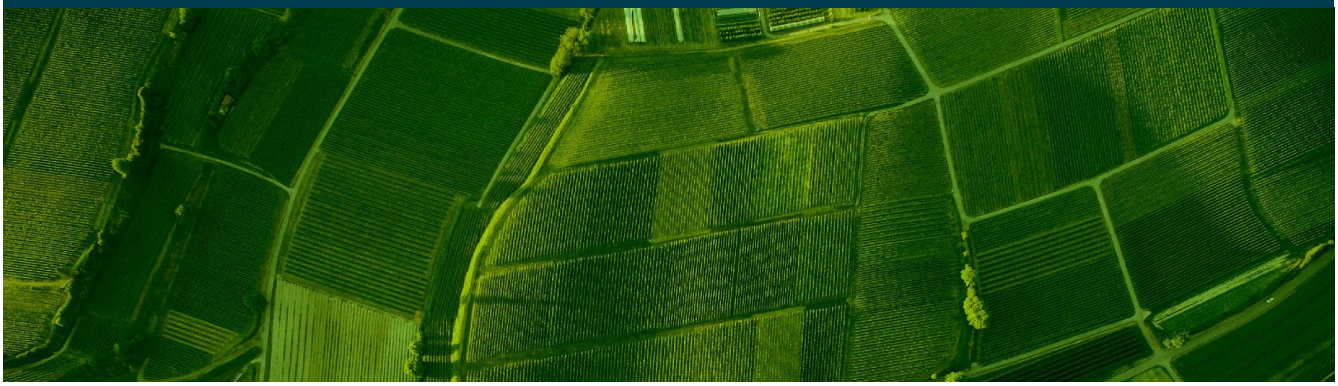
Practice Abstract No 37

Sustainable food packaging: Plastic alternatives



Description

The commitment to sustainability is increasingly evident in the food industry, paying particular attention to food packaging. In recent years, there has been a rapid increase in sustainable-packaging regulations, framed in the European Green Deal and in the Circular Economy action Plan, which is also accompanied by an increase in consumers' awareness to environmental issues.

On this path towards greater sustainability, the trends for the new food packaging materials appear to be:

- Use of 100% recycled and recyclable materials (compostable and biodegradable). Avoid the current single-use food packaging material.
- Reduction of materials: lighweighting, that is, reduction in weigh by optimizing/minimizing the thickness and density of materials, the volume of packaging, etc.
- Use of bio-based plastics that can be obtained from renewable and natural raw materials, mainly of vegetable origin such as corn or sugar cane (PLA, PBS, PHBV, PHA, etc).

However, although promising success in improving the barrier performance of bioplastics have been achieved, there are still some challenges towards practical packaging application and more efforts in improving their gas/water vapor barrier properties are needed.

- Use of paper or cardboard packaging, obtained from renewable origin (cellulose fibres). As well as in bioplastics, the performance of paper needs to be adjusted through surface treatments offering protection to gas and moisture permeability.

Author(s)

Eva Petri (CNTA)

Stakeholders

Food manufacturers, consumers, regulatory bodies

Country/Region

Europe

Keywords

Recyclable, Lightweighting, Bio-based

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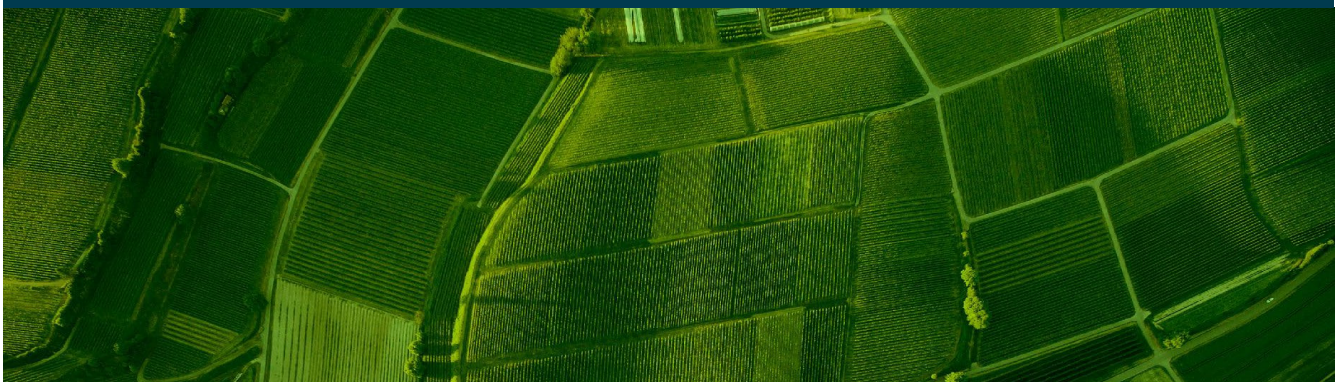
Practice Abstract No 37

Sustainable food packaging: Plastic alternatives



Description

Uno de los focos en los que la industria alimentaria está poniendo más atención es en el tema del envasado, concretamente en desarrollar packagings más sostenibles y circulares. En los últimos años se ha producido un rápido aumento de la normativa sobre envases sostenibles, enmarcada en el Pacto Verde Europeo y en el Plan de Acción de Economía Circular, que también va acompañada de un aumento de la concienciación de los consumidores sobre cuestiones medioambientales.

En este camino hacia una mayor sostenibilidad, las tendencias de los nuevos materiales de envasado alimentario parecen ser:

- Uso de materiales 100% reciclados y reciclables (compostables y biodegradables). Evitar el actual material de envasado de alimentos de un solo uso.
- Reducción de materiales: aligeramiento, es decir, reducción de peso al optimizar/minimizar el espesor y la densidad de los materiales, el volumen de los envases, etc.
- Uso de plásticos de base biológica que se pueden obtener a partir de materias primas renovables y naturales, principalmente de origen vegetal como el maíz o la caña de azúcar (PLA, PBS, PHBV, PHA, etc). Sin embargo, aunque se ha logrado resultados prometedores en la mejora del comportamiento barrera de los bioplásticos, todavía existen algunos desafíos para la aplicación práctica del envasado y se necesitan más esfuerzos para mejorar sus propiedades de barrera de gas/vapor de agua.
- Utilización de envases de papel o cartón, obtenidos de origen renovable (fibras de celulosa). Al igual que en los bioplásticos, los envases alimentarios de papel y/o carton deben de ser recubiertos o tratados superficialmente con objeto de ofrecer propiedades mejoradas a gases y humedad.

Author(s)

Eva Petri (CNTA)

Stakeholders

Food manufacturers, consumers, regulatory bodies

Country/Region

Europe

Keywords

Recyclable, Lightweighting, Bio-based

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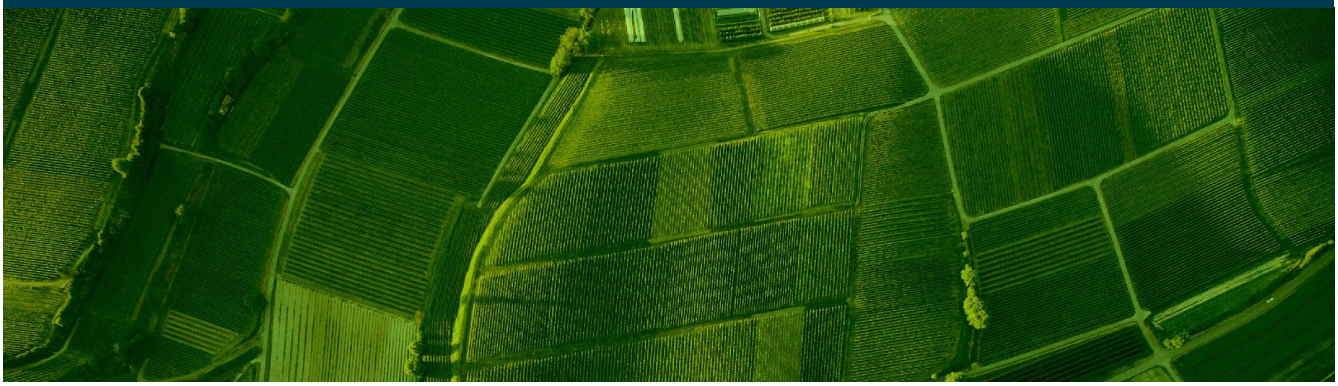
Practice Abstract No 38

Wash water sanitation



Description

In the fresh-cut industry a critical area of concern is the potential pathogen cross-contamination during washing operations. The safety of minimal processed vegetables depends on the use of sanitizers, which are effective and highly recommended to reduce microbial counts in order to maintain quality and extend shelf life. Regarding disinfection strategies in the fresh-cut industry, the most applied disinfectants are chlorinated products due to their low cost, sanitation efficacy and the knowledge generated behind the product after decades of research and use. Anyway, due to its potential production of toxic by-products with a harmful effect for the health and the environment, the search for alternative and sustainable methods of disinfection is a current and on-going challenge in Food Industry. These methods are commonly classified as biological (bacteriocins, bacteriophages, enzymes and phytochemicals), chemical (chlorine dioxide, peroxyacetic acid, electrolyzed oxidizing water, hydrogen peroxide, ozone, organic acids, etc) and physical (irradiation, filtration, ultrasounds, ultraviolet light, etc).

Author(s)

Eva Petri (CNTA)

Stakeholders

Producers, Consumers, Regulatory bodies

Country/Region

Europe

Keywords

Pathogen cross-contamination, Sanitizers, Disinfection strategies, Food safety

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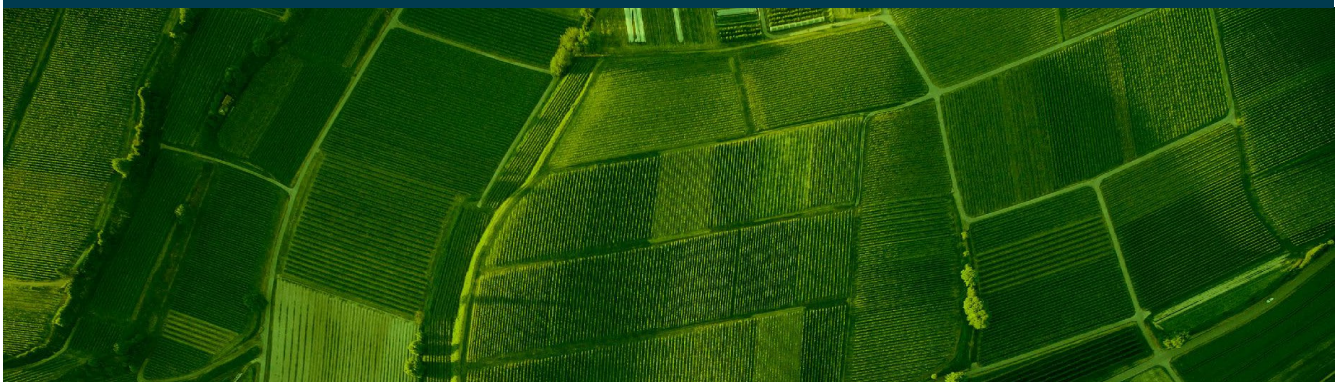
Practice Abstract No 38

Higienización de agua de lavado



Description

La contaminación cruzada durante las operaciones de lavado es, hoy día, uno de los temas de mayor preocupación en la industria alimentaria. Los productos vegetales mínimamente procesados deben ser seguros y, para ello, es necesario emplear agentes desinfectantes en la etapa de lavado, los cuales son efectivos y muy recomendables para reducir los recuentos microbianos a fin de mantener la calidad y prolongar la vida útil. En cuanto a las estrategias de desinfección en la industria de IV gama, los desinfectantes más aplicados son los productos clorados debido a su bajo coste, eficacia sanitaria y el conocimiento generado detrás del producto tras décadas de investigación y uso. De todos modos, debido a su potencial producción de subproductos tóxicos con efecto nocivo para la salud y el medio ambiente, la búsqueda de métodos alternativos y sostenibles de desinfección es un reto actual y permanente en la Industria Alimentaria. Estos métodos se clasifican comúnmente en biológicos (bacteriocinas, bacteriófagos, enzimas y fitoquímicos), químicos (dióxido de cloro, ácido peroxiacético, agua oxidante electrolizada, peróxido de hidrógeno, ozono, ácidos orgánicos, etc.) y físicos (irradiación, filtración, ultrasonidos, luz ultravioleta, etc.).

Author(s)

Eva Petri (CNTA)

Stakeholders

Producers, Consumers, Regulatory bodies

Country/Region

Europe

Keywords

Pathogen cross-contamination, Sanitizers, Disinfection strategies, Food safety

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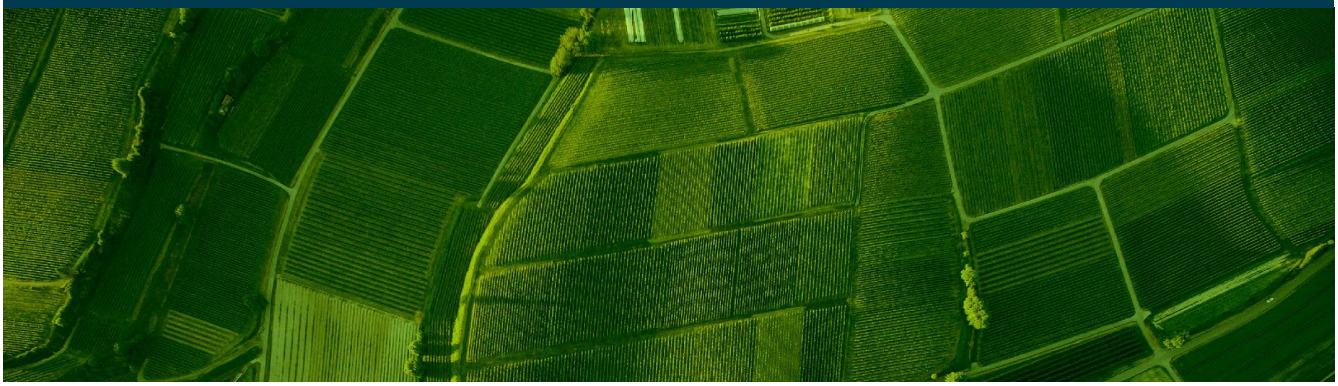
Practice Abstract No 39

Extension of self-life of the fresh oyster mushroom by drying



Description

The oyster mushroom, Pleurotus ostreatus, is considered as an easy-to-grow, high yielding and delicious flavouring mushroom with high nutritional value. In addition, the cultivation of mushroom has a great potential for recycling of cellulose agro-residues and other wastes. However, the quality of the oyster mushroom deteriorates during post-harvest storage. The resulting poor quality limits the economic value of oyster mushroom. Therefore, it is necessary to evaluate different preservation techniques to prolong the self-life until the processing of mushroom.

A long-term storage technique that preserves the quality of the mushroom while also enhancing their flavour is dehydration. CNTA is currently evaluated the effect of different dehydration conditions on the quality of rehydrated mushroom. At that moment, two different temperatures have been evaluated (60 °C and 80 °C). As expected, an increase in the drying speed with the increase of drying temperature was observed. This implied in a reduction of 29.6 % in the process time when the drying temperature changed from 60 to 80 °C (Figure 1). No significant differences were observed in mushroom appearance after drying at the temperatures of 60 and 80 °C (Figure 2A and 2B, respectively). However, the rehydration capacity decreased with increasing drying temperature, which could be associated to the stronger mushroom structure deformation at higher temperatures. These results show the importance of optimizing drying conditions to achieve a high-quality mushroom.

Author(s)

Sandra González (National Centre for Food Technology and Safety, CNTA)

Stakeholders

Mushroom farmers, Fodd processors, consumers

Country/Region

Europe

Keywords

Dehydration, cellulose agro-residues, rehydration capacity

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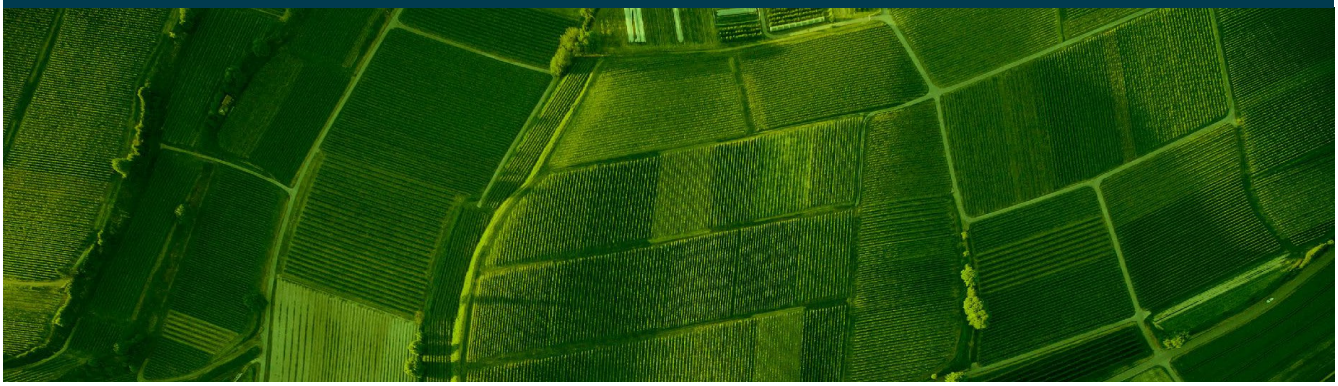
Practice Abstract No 40

Dissemination of expertise on sustainable climate adaptation in the agricultural sector: development of a web tool.



Description

The consequences of climate change for agriculture are already evident, highlighting the urgency of implementing adaptations to climate change in a sustainable manner. An important building block on the way to more sustainable agriculture is well presented specialist knowledge that supports farmers in their sustainable adaptation decisions and raises their awareness. Together with project partners from different European countries, the so-called AWA Webtool was developed for this purpose. The interactive webtool contributes to the education and advice of agricultural professionals in the field of climate adaptation. It provides relevant information on climate change and sustainable adaptation, graphically presenting 29 agriculture-related climate indicators for over 300 sub-regions. It also includes descriptions of more than 90 measures to increase sustainability in arable farming, animal husbandry, and fruit and wine production. Farmers and interested parties can access the webtool free of charge at www.agriadapt.eu. In addition, videos on the web tool are offered and a manual is published to strengthen the farmers in the use of the tool. The tool is also used in the training materials in the GeNiAL project. The aim of this project was the nationwide dissemination of knowledge on sustainable adaptation of agriculture to climate change. 18 modules for agricultural colleges and 11 concepts for extension workers as well as documents and recordings of practical events are available on the project website.

Author(s)

Melina Burkert (University of Hohenheim)

Stakeholders

Producers, Extension workers, agricultural colleges

Country/Region

Germany

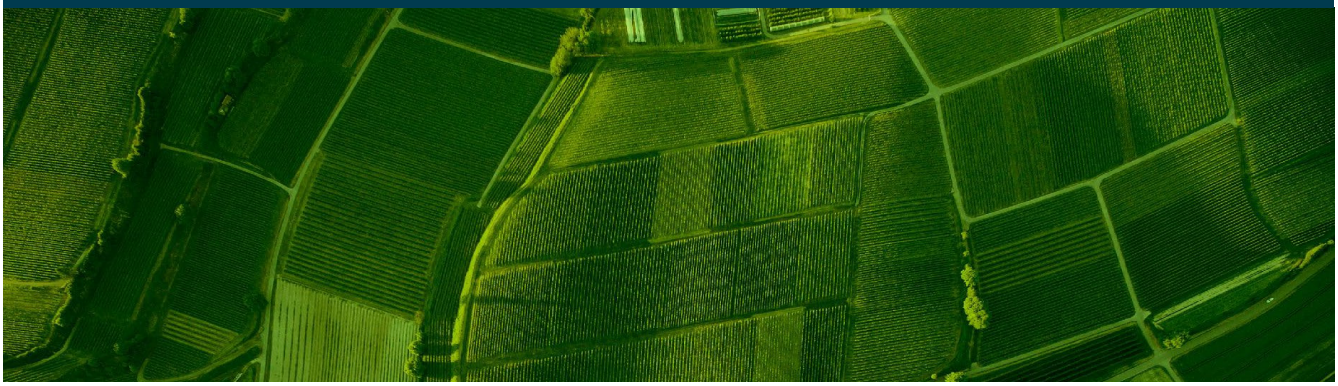
Keywords

Climate change adaptation, Sustainable agriculture, Knowledge dissemination

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000852.

Practice Abstract No 40

Verbreitung von Fachwissen zur nachhaltigen Anpassung an den Klimabereich im Landwirtschaftsbereich: Entwicklung eines Webtools



Description

Die Folgen des Klimawandels für die Landwirtschaft offenbaren sich schon jetzt und verdeutlichen die Dringlichkeit, dass Anpassungen der Landwirtschaft an den Klimawandel in nachhaltiger Weise umgesetzt werden. Ein wichtiger Baustein auf dem Weg hin zu nachhaltigerer Landwirtschaft ist dabei gut aufbereitetes und fachgerechtes Wissen, dass Landwirt*innen in ihren nachhaltigen Anpassungsentscheidungen unterstützt und sie sensibilisiert. Gemeinsam mit Projektpartnern aus verschiedenen europäischen Ländern wurde für diesen Zweck das sogenannte AWA Webtool entwickelt. Das interaktive Webtool trägt zur Bildung und Beratung landwirtschaftlicher Fachleute im Bereich Klimaanapassung bei. Es bietet relevante Informationen zum Klimawandel und zur nachhaltigen Anpassung und stellt dabei 29 agrar-bezogene Klima-Indikatoren für über 300 Teilregionen grafisch dar. Außerdem enthält es Beschreibungen von über 90 Maßnahmen zur Steigerung der Nachhaltigkeit im Ackerbau, der Tierhaltung sowie im Obst- und Weinbau. Auf das Webtool können Landwirt*innen und Interessierte kostenlos unter www.agriadapt.eu zugreifen. Außerdem werden Videos zum Webtool angeboten und ein Handbuch veröffentlicht, um die Landwirt*innen im Umgang mit dem Tool zu stärken. Das Tool findet auch Verwendung in den Schulungsunterlagen im GeNiAL-Projekt. Dessen Ziel war die flächendeckende Verbreitung von Wissen zur nachhaltigen Anpassung der Landwirtschaft an den Klimawandel. 18 Module für landwirtschaftliche Fachschulen und 11 Konzepte für Beratungskräfte sowie Unterlagen und Mitschnitte von Praxisveranstaltungen stehen auf der Projektwebsite zur Verfügung.

Author(s)

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Stakeholders

Producers, Extension workers, agricultural colleges

Country/Region

Germany

Keywords

Climate change adaptation, Sustainable agriculture, Knowledge dissemination

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Additional Information (context, links, etc.)

www.genial-klima.de
https://www.bodensee-stiftung.org/6739-2/

About CO-FRESH

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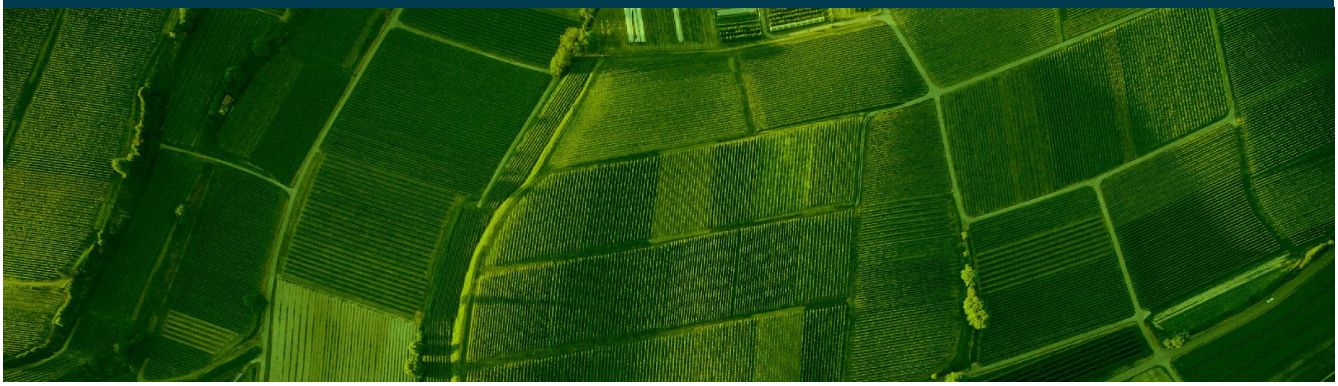
Practice Abstract No 41

Climate-positive value chains: Zmoobi GmbH



Description

The company "Zmoobi" contributes to sustainability based on three building blocks. The company designs its value chains for the production of organic smoothies in a climate-positive way. First, this is done within the scope of a cooperation with Klim. The Klim platform offers farmers the opportunity to document their environmental and climate protection efforts and to be rewarded for them. This contributes to the conversion to regenerative agriculture. Through the support that farmers receive in this context, they can invest in regenerative methods that bind CO2 in the soil. This means that more CO2 is stored during the production of the smoothies than is released. Second, a partnership with the non-profit organization Eden Projects contributes to the positive carbon footprint by absorbing CO2 through newly planted trees. For every smoothie purchased, a tree is planted in Mozambique or Madagascar to counteract deforestation. In this way, fair-paying jobs are also created in these countries, contributing to social sustainability. Lastly, Zmoobi is committed to a plastic-positive footprint for its products as part of a cooperation with the start-up Waste Reduction. The packaging of the smoothies is designed to be plastic-free as much as possible. The remaining plastic is collected in the same amount from nature. In addition to the collection of plastic from nature, the commitment consists of education on the subject in Germany and Austria. In addition, the company invests in research on the topic of climate protection.

Author(s)

Melina Burkert (University of Hohenheim)

Stakeholders

Farmers, Non-profit organizations, Startups

Country/Region

Germany

Keywords

Regenerative agriculture, Carbon absorption, Plastic-free packaging

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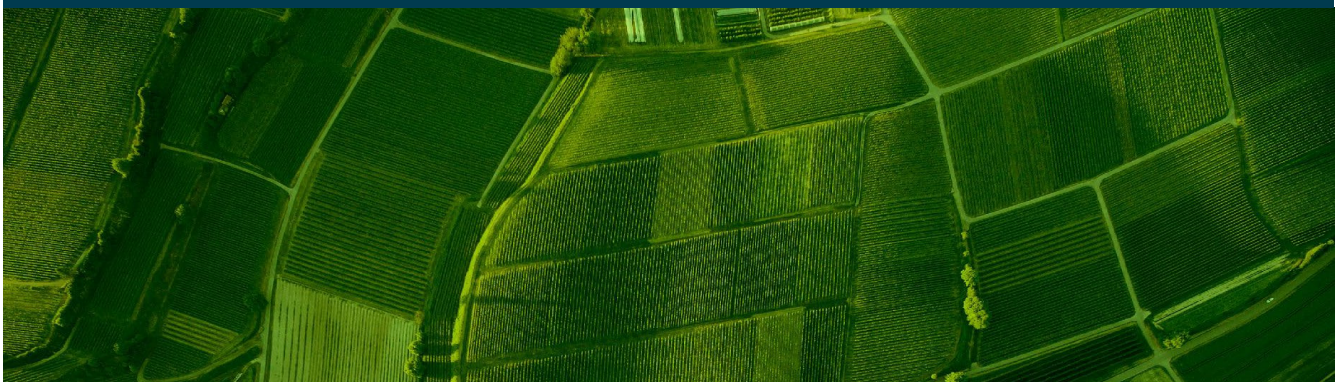
Practice Abstract No 41

Klimapositive Wertschöpfungsketten: Zmoobi GmbH



Description

Das Unternehmen “Zmoobi” leistet basierend auf drei Bausteinen einen Beitrag zur Nachhaltigkeit. Das Unternehmen gestaltet seine Wertschöpfungsketten zur Herstellung von Bio-Smoothies klimapositiv. Dies geschieht erstens im Rahmen einer Zusammenarbeit mit Klim. Die Klim Plattform bitet Landwirt*innen die Möglichkeit ihre Umwelt- und Klimaschutzleistungen zu dokumentieren und dafür entlohnt zu werden. Dies trägt zur Umstellung auf Regenerative Landwirtschaft bei. Durch die Unterstützung, die Landwirt*innen in diesem Rahmen erfahren, können Sie in regenerative Methoden investieren, die CO2 im Boden binden. Dadurch wird bei der Herstellung der Smoothis mehr CO2 gespeichert, als bei der Herstellung freigesetzt wird. Zweitens trägt eine Parnterschaft mit der Non-Profit Organisation Eden Projects zur positiven Klimabilanz bei, indem CO2 über neu gepflanzte Bäume gebunden wird. Für jeden gekauften Smoothie wird ein Baum in Mosambik oder Madagaskar gepflanz, um der Waldrodung dort entgegenzuwirken. In diesem Zug werden dort außerdem fair bezahlte Arbeitsplätze geschaffen und so zur sozialen Nachhaltigkeit beigetragen. Zuletzt setzt sich Zmoobi im Rahmen einer Kooperation mit dem Start Up Waste Reduction für eine plastik-positive Bilanz ihrer Produkte ein. Die Verpackung der Smoothies ist soweit wie möglich plastikfrei design. Den Restanteil Plastik wird in derselben Menge aus der Natur gesammelt. Neben dem Sammeln von Plastik aus der Natur besteht das Engagement aus dem Einsatz für die Bildung zum Thema in Deutschland und Österreich ein. Zusätzlich wird in Forschung zum Thema Klimaschutz investiert.

Author(s)

Melina Burkert (University of Hohenheim)

Stakeholders

Farmers, Non-profit organizations, Startups

Country/Region

Germany

Keywords

Regenerative agriculture, Carbon absorption, Plastic-free packaging

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Additional Information (context, links, etc.)

https://www.zmoobi.de/

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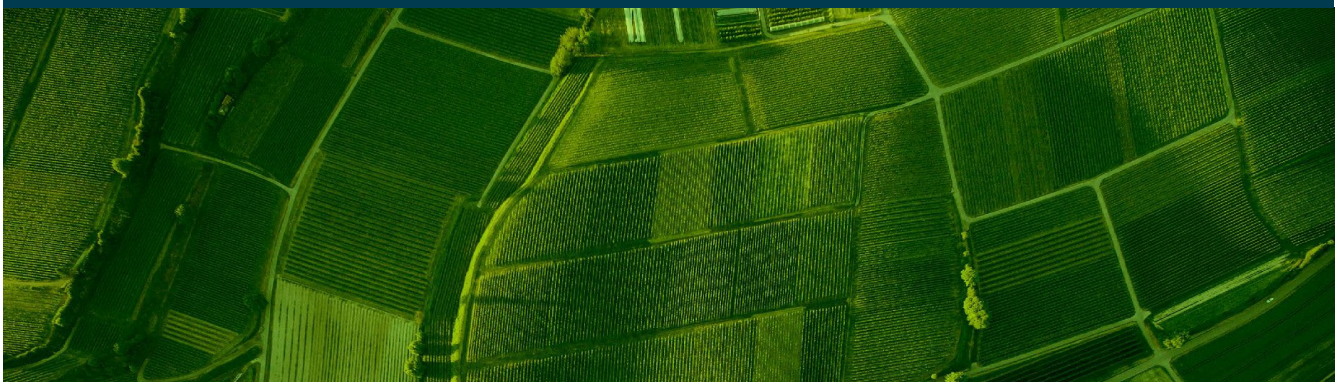
Practice Abstract No 42

Composting waste in apple orchard



Description

Apple residues are often considered a waste rather than a resource. In fact, orchard residues are part of an abundant biomass that can be considered a major alternative source of renewable energy. Composting is one of the best known methods of recovering nutrients from organic waste. Composting generally involves the decomposition of organic material (food waste, animal waste, crop residues and municipal waste) under regulated conditions. In the case of waste from apple orchards, fallen leaves, twigs and fruit are composted. Some soil and animal waste, e.g. excrement from livestock such as cows, horses, rabbits and chickens, should be added. In this way, we enrich the compost with nitrogen. In the course of composting, mineralisation and humification occur simultaneously, resulting in organic matter with a high humus content.

Compost also helps the soil to retain moisture - unlike synthetic fertilisers - so that the soil will cope better during drought. Compost also makes life more difficult for weeds and reduces the acidity of the soil. More fertile and better-watered soil also has a good effect on plants. With access to nutrients from the soil, plants will grow better. Despite its many advantages, composting also has disadvantages:

- Requires a certain amount of work and time
- Food waste in the compost attracts rodents
- The compost has to be turned over regularly every 2 months or so in order for oxygen to reach all layers of the compost and for the decomposition process to proceed properly
- There is a noticeable unpleasant smell in the first phase of compost production.

These disadvantages can be offset by adding effective micro-organisms to the compost and by securing the compost heaps and placing them in locations away from residential houses.

Author(s)

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Stakeholders

Producers, local waste management companies, Environmental organizations

Country/Region

Poland

Keywords

Biomass utilization, Sustainable waste management, Composting techniques

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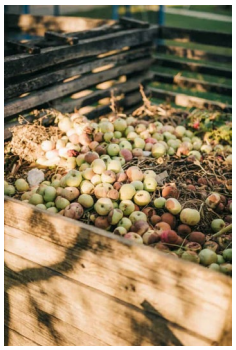
Pictures



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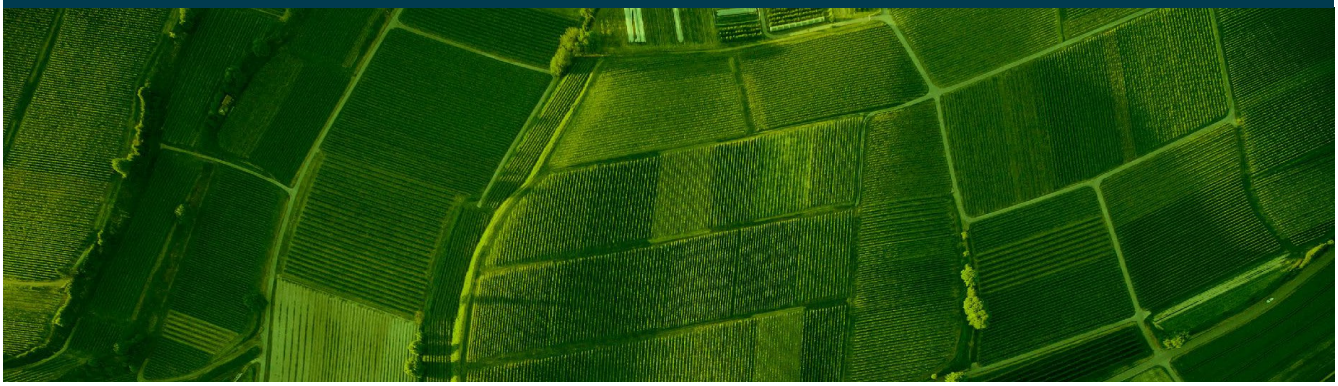
Practice Abstract No 43

Production and use of organic apple cider vinegar



Description

Apple cider vinegar is made from fermented apple juice. It is used in salad dressings, marinades, vinaigrettes and food preservatives. It is produced by crushing apples and then squeezing the juice. Bacteria and yeast are added to the liquid to start the alcoholic fermentation process, which converts the sugars into alcohol. In the second stage of fermentation, the alcohol is converted into vinegar by acetic acid-forming bacteria (Acetobacter species). Acetic acid and malic acid give vinegar its sour taste. As a food product, apple cider vinegar influences the normal pH of the stomach, lowers blood sugar levels, improves heart function, improves the digestive process, so it can aid weight loss and has a positive effect on skin condition. Its antibacterial properties and low pH make apple cider vinegar very good for facial skin, scalp and the rest of the body and hair. It can be used in eco-friendly cleaning products - it is great for descaling household appliances, such as bathroom faucets. It can also be used to clean countertops, windows and other surfaces. Apple cider vinegar can be produced from 'inferior' apples, not visually preferred by consumers - this way orchardists can maximise their profits. For the production of apple cider vinegar, it is advisable to look for apples from organic farms. Many scientific articles have been published indicating that organic apples have a higher (by about 25-30%) content of valuable substances - pectin, vitamin C and polyphenols - than conventionally produced apples. A significant advantage of organic apples is also the significantly lower residue of harmful synthetic pesticides, whereas conventional apples contain residues of these substances in 80% of samples, according to EFSA (European Food Safety Agency).

Author(s)

Maria Rembiałkowska, Justyna Obidzińska (Warsaw University of Life Sciences)

Stakeholders

Producers, Food and beverage industry, consumers

Country/Region

Poland

Keywords

Fermentation process, Health benefits, Organic farming practices

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Pictures

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