

Abstract

Analysis of Innovative Processes within an Organic Apple Production System (CO-FRESH) †

Ewa Rembiałkowska *, Renata Kazimierczak, Hubert Dobrowolski  and Justyna Obidzińska

Department of Functional and Organic Food, Institute of Human Nutrition Sciences, Warsaw University of Life Sciences, 02-787 Warsaw, Poland; renata_kazimierczak@sggw.edu.pl (R.K.); h.dobrowolski@vizja.pl (H.D.); obidzjust98@gmail.com (J.O.)

* Correspondence: maria_rembialkowska@sggw.edu.pl

† Presented at the 14th European Nutrition Conference FENS 2023, Belgrade, Serbia, 14–17 November 2023.

Abstract: For the CO-FRESH (CO-creating sustainable and competitive FRuits and vEgetableS' value cHains in Europe) project, implemented under Horizon 2020, the main objective is to design and pilot innovative system approaches to agri-food value chains in order to scale up this innovation at the European level. The Association of Polish Organic Fruit Producers POLSKI EKOOWOC has been selected as a pilot unit of the CO-FRESH project. The association includes 20 certified organic fruit growers from central Poland. Their acreage comprises more than 600 ha of organic orchards and plantations, producing 30,000 tonnes of organic fruit annually. During the course of the CO-FRESH project, a uniform methodology was developed to analyse and redesign the selected pilot units. A definition and description of the EKOOWOC association as a value chain in fruit production was first made. Then, after appropriate project training, a SWOT analysis was carried out for EKOOWOC in a meeting of a Polish working group of 10 people representing the downstream links in the production chain of this pilot unit. At the same meeting, a selection of proposed innovations for EKOOWOC was carried out. Several innovations important for the development of the pilot unit were pre-selected. After a few days, through a DELPHI survey, the working group selected the most important innovations for the EKOOWOC pilot unit. The creation of an online shop for the sale of organic fruit was chosen; the commercial activity here is combined with an educational activity, as customers ordering fruit learn about the qualities of organic apples of different varieties. Another innovation is the composting of organic residues from the orchard, with the aim of minimising organic waste. Two experimental compost heaps were set up, made up of several layers of waste—straw, waste apples, soil from organic mushrooms, leaves from the orchard and cut branches. The compost used a preparation of microorganisms, fermented organic matter and a natural mineral containing 64 elements. The final innovation was the production of vinegar from organic apples that do not meet commercial requirements. These are healthy fruits with too-small a diameter or an unusual shape. This action also minimises producer losses and allows for the use of waste materials. Organic vinegar has great health-promoting qualities and can be used for both culinary and cosmetic–medicinal purposes. The innovations are currently in the implementation phase and will be implemented from October 2023.

Keywords: organic apple production; education; innovation; composting; apple vinegar



Citation: Rembiałkowska, E.; Kazimierczak, R.; Dobrowolski, H.; Obidzińska, J. Analysis of Innovative Processes within an Organic Apple Production System (CO-FRESH). *Proceedings* **2023**, *91*, 426. <https://doi.org/10.3390/proceedings2023091426>

Academic Editors: Sladjana Sobajic and Philip Calder

Published: 24 April 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Author Contributions: Conceptualization, E.R., R.K., H.D. and J.O.; methodology, E.R. and R.K.; project administration, J.O.; writing original draft preparation, E.R.; writing—review and editing, H.D.; funding acquisition, E.R. All authors have read and agreed to the published version of the manuscript.

Funding: this research was funded by CO-FRESH project (CO-creating sustainable and competitive FRuits and vEgetableS' value cHains in Europe), grant number 101000852 (Horizon 2020).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.