Inspirational idea

Certification: Pesticide residue free fruit & veg

Improved technology, organisation and marketing for the production of fruit and vegetables without pesticide residues

Many farms growing fruit and vegetables under conventional farming systems are applying production techniques which reduce, either partially or totally, the application of synthetic pesticides. AgroTrend is a Polish Operational Group which is developing a zero-residue certification system providing more detailed information to the consumer about the quality of the product they are buying while encouraging further uptake of farming techniques to protect the environment.

Extensive use of chemical pesticides and mineral fertilisers over the last century has had serious ecological impact. Many conventional farms are now implementing methods to reduce the negative effects of agriculture, improving the soil and the beneficial organisms it contains, and producing safe, healthy, high-quality products, but this effort is not always conveyed to the consumer. Artur Tymiński from BestBerry, lead partner of the Operational Group "The aim of our project was to find a way of improving the traceability and visibility of pesticide residue-free products on the market. So we are creating a label, a set of standards, which can also be an incentive for other conventional farmers to apply methods of reducing the level of active substances in fruit and vegetables." He adds "Our company also produces organic fruit and vegetables but we noticed a demand for conventional, zero-residue products by supermarkets across Europe, even world-wide. We felt, particularly for larger conventional farms, this label could be a significant step towards reducing pesticide use in agriculture."

The project aimed to develop a certification system which would support conventional agriculture on 3 levels: technology, organisation and marketing:

Technology: The project conducted research into the possibility of reducing the number of pesticide treatments and replacing them with natural preparations. The partners also studied the rate of decomposition of synthetic substances in plants

Organisation: The partners also looked at organisational issues, such as how to optimise the flow of information in the supply chain and guarantee full traceability at every stage, giving the consumer control of the product from field to table. To this end, an electronic platform has been developed, providing information related to the manufacture of the product, including certification.

Marketing: The development of a new labelling system to guarantee agricultural products without pesticide residues. This step also includes appropriate pricing of products and establishment of distribution channels. An online platform is being created for promotion, where intermediaries and customers will be able to find information about the production and verification processes of the fruit and vegetables they buy.

Artur explains "This certification system aims to contribute to the improvement of the quality of agricultural products, consumer health and the natural environment. From a marketing point of view,

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this also has advantages: the improvements are demonstrated through the label, customers are reassured about the products they are buying and therefore farmers are supported economically."

In 2020 partners began by setting out the general assumptions of the pesticide-free production standard, and the product quality requirements were analysed. Field trials were then set up in 10 locations across Poland, covering a wide range of crops including apple, raspberry, strawberry, blackcurrant, broccoli, spring cauliflower, red beetroot, carrot, green beans, pumpkin, potato, leek, onion etc.

Scientific and advisory partners have been working with the farmers conducting the field trials, evaluating the on-going results and making recommendations for the reduction of pesticide treatments. For example, methods for soil improvement, biostimulators, optimisation of fertilisation, limiting pesticide applications to only in the event of disease and pests. The laboratory tests confirmed that by adjusting the production methods, most of the final products included in the project were free of pesticide residues.

Data from the field trials was collected on the correlation between production methods, climatic conditions and other variables. This data was used to develop a test version of an IT tool through which farmers will be able to enter the details from their farm and the algorithm will calculate the (estimated) level of pesticides residue remaining in the product after harvest. The system certifies products which contain '0 pesticides residue' meaning when tested they are below the detection level of 0.01 mg/kg.

"In our experiments, we have shown that by carrying out treatments with natural preparations involving microorganisms and biostimulants, it is possible to adequately protect a plant that is able to win against a pathogen, e.g. in the cultivation of green beans, the use of a natural preparation in the right doses and frequency made it possible to eliminate fungicide treatments in the last phase of growth. Most retail customers require a product with limited residues to a maximum of 2-3 active substances. Offering a product for sale with a pesticide residue-free label provides greater sales opportunities and more arguments in price negotiations." Arthur explains.

The project is working with the Ministry of Agriculture in Poland in order to officialise the certification. The label is due to be launched in 2023, to begin with it will appear on 3 marketed products (frozen fruit and vegetables). The success and impact of these products will be analysed. "As the initial pilot project, the label will be used on our products, but we hope to extend its use to other companies and countries in the future" Says Artur.

He concludes, "Due to the growing awareness of society about nutrition and its impact on human health, consumers want to know how their food is produced and that what they are eating is free from pesticide residues. Furthermore, there is a growing understanding of the link between agricultural techniques and the state of the environment. This is why we feel our project, and other similar initiatives, are so important. We must provide concrete and clear information to consumers, using a standard which is applicable and helpful for farmers."

Project information

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More information:

- Information on EIP-AGRI website
- www.agrotrend.pl

Photos from the project

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