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Organic food for the benefit of the consumers and the environment

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The aim of the study was to develop technology for growing of organic vegetables with high biological value, and thus greater storage stability and processing suitability. Increasing the food stability was achieved by increasing the dry weight of the raw materials and their microbiological safety. The increase of these parameters was possible through the use natural products in the protection and fertilization of plants, including microbiological preparations. The measurable economic effect of the technology was extending the shelf life of vegetables, which allowed reduce the losses incurred by producers, retailers, eateries and consumers. Cost of growing vegetables by natural methods was similar to the cost in conventional system of growing. Providing of high fertility of the soil also requires large expenditures as for NPK fertilization, which systematically degrades the soil. As a result, long-term cultivation of the soil with the use of organic fertilizers in vegetable farm where the experiment was carried out the humus content in the soil has reached a level of 3.5% in relation to the content of more than 1% in period before conversion to organic methods. High level of humus in the soil counteracts the effects of floods and droughts, which was particularly evident in 2015, when after three months of the precipitation lack the plants did not feel this lack, because soil moisture was high. This situation arises from the fact that 1% increase of humus causes absorption more than 100 thousand liters of water by the soil per 1 ha a depth of 30 cm. In addition, the high content of organic matter in the soil causes a greater degree of carbon sequestration in the soil, which counteracts climate change. Humus as a major source of plant nutrients in the natural systems provides better crop plant nutrition in relation to their state of nutrition in conventional growing systems. Therefore, in the effect of a full supply of plant in nutrients is better their health status. Organic methods of vegetable plants cultivation with the use of beneficial microorganisms have contributed to increase of yield of tested vegetables and its quality. Treatment of the plant by microbial preparations with fermented plant extracts also contributed to the increase of bioactive compounds and antioxidant activity in plants. The reflection of better health parameters and higher dry matter content of vegetables was greater their stability. Storage studies on tested vegetables have shown longer than one month their stability compared to the conventional. Also in the study shelf life of delicatessen products with the use of these vegetables was prolonged by 1 to 2 weeks in relation to products with conventional vegetables. Use in human nutrition vegetables with parameters which were obtained as a result of the development of this technology will improve the quality of social life and to meet their needs concerning the environment, food and resources.

Biography

Solarska Ewa is a Professor of University of Life Sciences in Lublin, Head of Laboratory of Organic Food and has experience in research R&D projects. Her research interests include evaluation of the quality of organic products, with particular emphasis on the content of mycotoxins in cereals and their products, development of technologies in organic production of selected agricultural and horticultural crops with using plant extracts fermented with microorganisms as protection agent. She has achievements in the field of processing of organic food with extended shelf life.

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