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Effect of Ecologic Fertilizers on Productivity and Yield Quality of Common and Spelt Wheat

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Abstract : During the period 2009–2015, in Joniškėlis Experimental Station of the Lithuanian Research Centre for Agriculture and Forestry, the effect of ecologic fertilizers Ekoplant, bio-activators Biokal 01 and Terra Sorb Foliar and their combinations on the formation of the productivity elements, grain yield and quality of winter wheat, spelt (Triticum spelta L.), and common wheat (Triticum aestivum L.) was analysed in ecological agro-system. The soil under FAO classification – Endocalcari-Endo-hypogleyic-Cambisol. In a clay loam soil, ecological fertilizer produced from sunflower hull ash and this fertilizer in combination with plant extracts and bio-humus exerted an influence on the grain yield of spelt and common wheat and their mixture (increased the grain yield by 10.0%, compared with the unfertilized crops). Spelt grain yield was by on average 16.9% lower than that of common wheat and by 11.7% lower than that of the mixture, but the role of spelt in organic production systems is important because with no mineral fertilization it produced grains with a higher (by 4%) gluten content and exhibited a greater ability to suppress weeds (by on average 61.9% lower weed weight) compared with the grain yield and weed suppressive ability of common wheat and mixture. Spelt cultivation in a mixture with common wheat significantly improved quality indicators of the mixture (its grain contained by 2.0% higher protein content and by 4.0% higher gluten content than common wheat grain), reduced disease incidence (by 2-8%), and weed infestation level (by 34-81%).

Keywords : common and spelt-wheat, ecological fertilizers, bio-activators, productivity elements, yield, quality
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