

Nutritional Quality of Grains, Vegetables, Pulses, Oilseeds, Spices and Fruit as Affected by Synthetic Fertilizers and Pesticides use in the Indo-Gangetic Plains of India

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In the lower Gangetic plains of West Bengal, India, agricultural food production reached its zenith taking the advantages of fertile alluvial soil and ample underground water reserve along with sufficient rainfall of above 1500 mm. Socio-economically, this region is economically not sound as population reached to above 1000 head km⁻² and more than 50% of population depends on agriculture. Cropping intensity in this region crossed 250% with irrigation facility of about 90%, the intensive fertilizer use of 265 NPK kg ha⁻¹ and pesticide use by 720 g ha⁻¹ or sometimes above. In this perspective, nutritional quality of foods produced from field and horticultural crops were very much affected by excessive use of fertilizers and pesticides. Nutritional quality of grains, vegetables, pulses, oilseeds, spices and fruits was seriously deteriorated by excess application of major nutrients like NPK. On the contrary, micronutrients like Zn and Mn were deficient in food items like rice, wheat due to exhaustive cropping pattern in sandy loam soils. Vegetables grown with high levels of NPK fertilizers showed lower amount antioxidants. Effects of pesticides like organochlorine, organophosphate, synthetic pyrethroids and herbicides on vegetables like brinjal, bitter gourds, chilli and okra, cabbage, cauliflower and coriander leaves, were analysed and in 2.6% of samples pesticide residue were found exceeding the maximum residual limits (MRL). Nutritional quality of fruits like mango, banana and litchi were also affected by chemical fertilizers and pesticide use. Problems of unregulated synthetic fertilizers and pesticide use and their health hazards have been dealt with. Efforts have been made to highlight the “Green Food” production strategies with little pollution of environment and greater safety of consumers’ health.

Biography:

Subhendu Bikash Goswami is a Senior Professor in the Department of Agronomy, Faculty of Agriculture at Bidhan Chandra Krishi Viswavidyalaya (State Agricultural University). He obtained his M.Sc and Ph.D degrees from the same university in 1988 and 1992. His main teaching and research activities focus on the water and nutrient effects on crops considering productivity, sustainability and product quality. He has guided 3 Ph.D and 15 M.Sc students. He has published 84 research papers. Dr. Goswami was invited in the International Rice Congress at Hanoi, Vietnam and Water Quality at Dhaka, Bangladesh. He serves as a referee for scientific journals and research funds.

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