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Organic agriculture: does it enhance or reduce the nutritional value of plant foods?

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Abstract

The possible differences between organic and conventional plant products are examined from the view of possible effects on human health. It is concluded that nutritionally important differences relating to contents of minerals, vitamins, proteins and carbohydrates are not likely, primarily since none of these are deficient in typical First World diets, nor are present levels of pesticide residues in conventional products a cause for concern. However, there is reason to believe that contents of many defence-related secondary metabolites in the diet are lower than optimal for human health, even for those where too high levels are known to be harmful. High biological activity resulting in adverse effects on growth of animals and children may be directly linked with promotion of longevity. There is ample, but circumstantial, evidence that, on average, organic vegetables and fruits most likely contain more of these compounds than conventional ones, allowing for the possibility that organic plant foods may in fact benefit human health more than corresponding conventional ones. The authors define testable scientific hypotheses which should be further investigated to provide more definitive answers to the question.

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