

Q&A

A Decline in the Nutritional Value of Crops

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Q. Is today's food less nutritious than it was in the past because agricultural soil is being depleted of minerals?

A. Several studies of fruits, vegetables and grains have suggested a decline in nutritional value over time, but the reasons may not be as simple as soil depletion. There is considerable evidence that such problems may be related to changes in cultivated varieties, with some high-yielding plants being less nutritious than historical varieties. Several other issues are involved, like changes in farming methods, including the extensive use of chemical fertilizers, as well as food processing and preparation. A 2004 study evaluated Department of Agriculture data for 43 garden crops from 1950 to 1999. The researchers found statistically reliable declines for six nutrients — protein, calcium, potassium, iron and vitamins B2 and C — but no change for seven others.

The researchers suggested that “any real declines are generally most easily explained by changes in cultivated varieties,” like possible trade-offs between yield and nutrient content.

They also pointed out that modern fruits and vegetables were still nutritionally valuable and suggested the remedy was to eat more vegetables, fruits, whole grains, nuts and beans and less refined sugars, separated fats and oils and white flour and rice, which they said “have all suffered losses much greater and broader than the potential losses suggested here for garden crops.”

Donald R. Davis, the lead author of the 2004 study, wrote a review of evidence of nutrition loss in fruits and vegetables in 2009. He concluded that the broad evidence of nutritional decline seemed difficult to dismiss, though more study was needed, he said, especially of inverse relationships between yield and nutrient concentration.

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