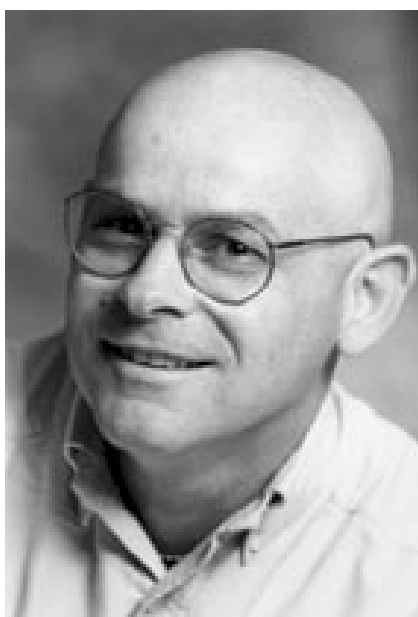


Organic Food is More Nutritious

Our nutritionist gets his teeth into another food myth.



Glenn Cardwell is a dietitian and nutritionist specialising in sport nutrition and is based in Perth. He is a regular Skeptic columnist.

That is, more nutritious than conventionally grown food. This is certainly a common view, with 91% of Australian purchasers choosing organic fruit and vegetables because they are 'more healthy' (Pearson 2003). In fact, all foods are organic based on the original meaning of the word (carbon-based, as are protein, fats and carbohydrate), but 'organic' now refers to food from crops or animals farmed such that regular fertilisers, pesticides, growth regulators and feed additives have been avoided.

Nutritional quality

Unfortunately there are very few studies comparing the nutrient profiles of organic *v* conventionally grown foods and those studies have been interpreted in different ways, often depending on a political point of view. A Food and Agriculture Organisation (FAO 2000) report states that:

Many of the studies that have so far been carried out to compare the nutritional quality of organi-

cally grown foods with those produced by conventional methods have suffered from experimental design.

Most of the studies have been done on cereals and vegetables, while there is very little on milk and meat.

In both Australian and international studies, no significant difference was found in the mineral, trace element or B vitamins of vegetables and cereals grown either organically or conventionally. There were no differences in the vitamin A or beta-carotene levels of the vegetables. The FAO report states further:

In several cases, even when differences between the content of certain nutrients are statistically significant, they are of only minor nutritional importance.

Although there is general scientific agreement that there is little nutritional difference between the two farming methods, there are a couple of interesting nutritional side issues.

Vitamin C

There has been consistent evidence that the vitamin C content of organically grown potatoes, oranges and leafy vegetables is higher than found in conventionally grown. The main reason for this in the case of the oranges and leafy vegetables is probably because they generally have a lower water content, so the vitamin C has been 'concentrated'. This concentrating effect may also explain why some people feel that the flavour of organic food is superior.

According to Professor Christine Williams from the School of Biosciences, University of Reading, the clearest difference between the two types of farming is that conventional produce was higher in nitrate levels and lower in vitamin C, although this was not an unanimous finding.

The FAO mention that the concern with nitrates is that under certain conditions they can be converted to nitrosamines, which are carcinogenic. Unfortunately, the 20th Australian Total Diet Survey (ATDS, 2003) did not include the analysis of foods for nitrates, but I have been assured by Food Standards Australia New Zealand that the 21st ATDS includes the analysis of foods for nitrates as well as a number of other preservatives. The 21st ATDS will not be published until early 2004 as they are still going through the results.

The finding of higher levels of vitamin C is not that exciting as it is an abundant vitamin in fruit and vegetables, but it may mean that other antioxidant compounds may also be higher in organic produce.

Phenolics

A 2003 study of blackberries, strawberries and corn revealed that the organically farmed produce had higher levels of phenolics than the conventionally grown version. It is well known that plants produce phenolics in response to insect at-

tack, hence they are nature's insecticides.

"If an aphid is nibbling on a leaf, the plant produces phenolics to defend itself" says Dr Alyson Mitchell, University of California, who was responsible for the research. "Bitter or harsh phenolics guard the plant against these pests" she added.

These same phenolic compounds may also offer antioxidant protection against heart disease and cancer in humans. Could organic produce be better for our health based on its non-nutrient compounds rather than its essential nutrients? Excuse the cliché, but further research is required. Potentially, on the down side, the little holes made by the insects also allow fungal growth, possibly leading to greater food spoilage in organic produce. Indeed, fresh produce commentators believe many organic growers are trading more on the term 'organic' than on the eating qualities ie too much is of poor quality.

The future

Much of the world is not the least concerned about organic produce (or genetically modified foods) as their goal is purely to get enough food. We must recognise that, for the moment, organic farming is not going to feed the world as it cannot create enough yield per hectare of land. The organic 'debate' can only be held in societies that have abundant food and have the luxury of not being concerned about the origin of their next meal. Maybe, at the end of this century when the world population stabilises and possibly decreases, will organic farming actually become mainstream.

While organic produce often costs 20-100% more than conventional produce, clearly it will be within the budget of only the well-to-do. We can say quite confidently that organic farming is not a passing fad. The foundations began about 70 years ago and organic farming is

here to stay, although only 1.5% of Australian food production is organic.

My tip

If your philosophy in life is to consume foods that potentially have minimal effect on the environment, and you have enough money, then organically grown foods are for you. For those who are happy with affordable conventionally grown fruit and vegetables — get your best buys at the supermarket or greengrocer. Nutritionally, you will be just as well off.

References:

- Williams C. Nutritional quality or organic food: shades of grey or shades of green? *Proceedings of the Nutrition Society 2002*; 61: 19-24
- Lewis JL. Are organically grown vegetables nutritionally better? *Proc Nutr Soc Aust. Dec 1992*
- Food & Agriculture Organisation of the United Nations. *Food Safety & Quality as Affected by Organic Farming. July 2000*
- Pearson D. Marketing organic food: Who buys it and what do they purchase? *Food Aust 2002*; 54: 31-34
- Asami DK *et al.* Comparison of the total phenolic and ascorbic acid content of freeze-dried and air-dried marionberry, strawberry, and corn grown using conventional, organic and sustainable agricultural practices. *J Agric & Food Chem 2003*; 51: 1237-1241

