

# **FOCUS ON ORGANIC FOOD QUALITY - FEEDING TRIALS**

**By SHANE HEATON**

**There are numerous studies and reviews revealing higher levels of vitamins, minerals and phytonutrients in organic crops (Heaton 2001) but the obvious question to ask is "Are the differences sufficient to convey any greater health benefit to those consuming organic produce?" Nutritionist, Shane Heaton investigates...**

Without even considering the health benefits of avoiding pesticide residues in foods, there are good reasons to expect positive health benefits from consuming organic foods containing more nutrients. It's well known that higher fruit and vegetable consumption reduces the risk of heart disease, stroke, cancer and many other diseases, and most researchers now believe it's the phytonutrients in fruit and vegetables, which are 10-50% higher in organic produce (Brandt & Molgaard 2002), that convey these benefits. The US Department of Agriculture estimates that if people consumed more nutritious diets that cancer incidence would reduce by 20%, arthritis by 50%, heart disease by 25% and diabetes by 50% (Welt 1992).

So we know organic food usually contains more nutrients. We know eating more nutrients can result in better health. The assumption then is that consuming organic food can result in better health. But to strengthen this claim, made by many in the organic industry for a long time, we need to conduct research confirming the link, and the obvious method is to conduct feeding trials in which various health indicators are measured after the consumption of either organic or non-organic foods.

## **TALK TO THE ANIMALS**

Researchers have been working in this area for decades, though due to the difficulty of controlling the many confounding factors in humans - lifestyle, genetics, dietary choices, etc. - most feeding trials have been conducted with animals. The results have been clearly in favour of organic food, showing that animals fed organically have better fertility, growth rates and recovery from illness. Take for example Staiger's 1988 study with rabbits. Identical feed pellets were produced using either organic or conventional ingredients and the rabbits were observed over three generations. Those eating the organic feed had higher pregnancy rates, more embryos, larger litters and better health, while the fertility of the rabbits on the conventional feed pellets declined over the three generations. Or Plochberger's 1989 study showing less illness, higher body weight and larger eggs in chickens fed organically compared to cohorts on conventional feed. These are just two examples of the many controlled animal feeding trials conducted over the last 30 years, while down on the farm there are many anecdotal reports of increased disease resistance, productivity and fertility of farm animals fed organically grown fodder.

## **HUMAN HEALTH**

Similar tests with humans are difficult to say the least, though some observational evidence does exist. A report published in 1940 tells of the improved health of students at a New Zealand boarding school that began serving almost exclusively organically grown produce. After three years a report was submitted that made the following observations of the pupils: a period of detoxification upon arriving at the school, lower incidences of catarrhal conditions, a "very marked decline" in colds and influenza, more rapid convalescence, excellent health generally, fewer sports injuries, a greater resilience to fractures and sprains, clear and healthy skin, and improved dental health.(Daldy 1940) More recent clinical observations have revealed better recovery from illness, improvements in fertility and better sperm quality in people consuming organic food (Heaton 2001).

A team of Danish researchers recently published one of the first controlled human feeding trials comparing the nutritional value of organic and conventional food (Grinder-Pedersen et al. 2003). Sixteen healthy people ate an identical 100% organic diet or 100% conventional diet for three weeks and had their urine tested before and afterwards. The food itself was analysed for five flavonoids and the organic diet was found to contain significantly higher levels of the antioxidant quercetin, which was also found in significantly higher concentrations in the urine of those eating the organic diet. So yes, there are more antioxidants in an organic diet, and yes, they get absorbed into the body (before being excreted). But what do they do while they're in your body? To answer this, blood samples were also taken to measure antioxidant capacity of the blood. Few significant or consistent differences were found between those on an organic diet and those on a conventional diet. Unfortunately the blood samples were taken 12 hours after their last meal, despite Serafini et al. (2002) showing that the effect of antioxidant-rich foods on the antioxidant capacity of the blood is transient and likely to have passed before the sampling was done, 12 hours after the last meal.

## **NEW RESEARCH**

So where to now? This Danish study has shown the way forward but made a simple mistake that could be easily remedied in a follow-up study. What might such a study look like? It could be simplified, as well as being made very consumer-relevant. The five most consumed vegetables in Australia and other Western countries are potatoes, tomatoes, onions, carrots and lettuces (ABS 2003). A simple meal consisting of these five vegetables could be prepared in the same proportions that they're consumed by the whole population - basically a baked potato and salad. Two identical groups of people could consume either an organic or conventional version of the meal (without knowing which) and have their blood antioxidant status monitored every two hours over the next twelve hours. This relatively simple and inexpensive study would be the first of its kind in the world and the Australian organics industry is currently looking for funding to get the project off the ground.

It would make an original and important contribution to the public health question of the nutritional benefit of consuming organic foods, and answer calls for more research from industry, regulators, consumers, food manufacturers and farmers alike to confirm or disprove the industry assertion and consumer belief that organic food is better for you than non-organic food. Watch this space!

For information or to support this research contact Shane via [www.bfa.com.au](http://www.bfa.com.au)

### **ASK THE BFA NUTRITIONIST A QUESTION**

If you have a query about organic food and health, ask our nutritionist.

Write to us [media@bfa.com.au](mailto:media@bfa.com.au)

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