



Organic agriculture and food in Malaysia

I consume [organic food](#), and so does my wife, especially during her pregnancy with our son, Zachary. However, my mom does not eat organic food - ever. She claims organic food actually makes us sicker not healthier. And she got this idea from her medical doctor.



Are organic agriculture and food healthier and better? What does science say? (photo from bioeworld.blogspot.com)

What surprises me is the issue of organic food has inadvertently become like a religion to some people. Some believe in organic food fervently because they believe organic food are healthier, more environmentally friendly, and more socially responsible than conventional food. In contrast, non-believers not only mistrust organic food but also vehemently call them a fraud and people who believe in organic food as fools and being conned into parting their money.

So, are organic food good for you or not?

What does science say about the benefits of organic agriculture and food?

Organic food is produced from a system of food production that does not use any: synthetic agrochemicals (such as fertilizers, herbicides, and pesticides), hormones (such as growth hormones), antibiotics, food additives, [GM \(genetically-modified\)](#) crops and animals, and feed derived from GM sources. Organic farming encompass four key principles:

1. Health - health of soil, plant, animal, humans, and environment must be sustained or enhanced
2. Ecology - farming practices based on living ecological systems and cycles and to work with them, emulate them and help to sustain them
3. Fairness - practices that are fair to life opportunities
4. Care - practices that are based on precautionary and responsible manner to protect the current and future generations and the environment

In other words, organic farming stresses heavily on emulating or working with natural systems, care of human health and the environment and life in it, as well as being a socially responsible system.

Consequently, it is no surprise that some people might find organic agriculture's "back-to-nature" and human health principles appealing. Nonetheless, the issue of organics is increasingly becoming polarized. At one corner you have proponents and the other corner opponents, each putting forth scientific arguments arguing for and against organic agriculture and food.

As Prof. [James McWilliams](#) at [Texas State University](#) remarked, "We draw these bright lines between organic and conventional food, but science doesn't draw those lines. They crisscross, and you have people on both sides of the argument cherry-picking their data."



“The real cost of organic food” by Jeffrey Kluger (Time, Sept. 6, 2010) (photo from time.com)

I read with interest the [Time](#) article (Sept. 6, 2010) [“The real cost of organic food”](#) by [Jeffrey Kluger](#). The article argues that although organic food are more expensive (no surprise there), organic food carry lower risk of health problems because no pesticides, antibiotics, and hormones are used. Moreover, in some cases, organic food carry slightly more micronutrients than conventional food. Cattle raised on grass (cattle’s natural food), as opposed to cattle raised on cereals (cereals are not cattle’s natural diet), have a higher ratio of omega-3 acids which could reduce risk of cancer or heart disease. Grass-fed cattle also have lower risk of *E. coli* (a dangerous bacterium) transmission because of reduced crowding as compared to grain-fed cattle that are often kept close together to one another in cattle pens or barns 24/7/365.

And then there is a matter of taste between tomatoes grown organically and conventionally. The taste of conventional tomatoes that are genetically engineered to ripen slower can never match the taste of natural tomatoes. Taste the two types yourself. And as any good chef would tell you: they would never use any tomatoes bought from supermarkets in their kitchens.

However, recent scientific evidence point to the importance of not being overly passionate on organic agriculture. Here are some recent findings:

1. It is difficult to meet world food demand by using only organic

agriculture. It is well known that crop yields from organic farms are lower than those in conventional farms, in particular during the early years of farming. Nonetheless, long-term projections still show that crop yields from organic farms could be as much as 40 to 50% lower than those in conventional farms. A 40% yield reduction in developed countries would require 67% more agriculture land to produce the same amount of crops. Consequently, this puts more, not less, pressure on land use if the world would fully adopt organic agriculture.

2. There are strict regulations in place, in particular by developed countries, on pesticide residue levels in food. Regular food safety check ensures pesticide levels in food remain below threshold levels. Ironically, food grown organically could contain more plant toxins than food grown conventionally. When no pesticides are used in organic farms, crops face higher stress level from attacks by pests and diseases. And as a defense mechanism akin to antibodies inside a human body, the plants would protect themselves against damage by producing natural defense chemical compounds, called plant secondary metabolites. These secondary metabolites are however toxins and could harm human health.
3. Long-term field experiments have shown organic farms applying organic manures show higher nitrogen pollution than from conventional farms. Pollution from fertilizers can be reduced provided fertilizers are applied at the quantity and at the time when the plant requires them. In other words, if we could apply fertilizers to match the timing and quantity of plant requirement, fertilizer loses and pollution would be minimized. This kind of matching can be more easily done using conventional fertilizers. Natural fertilizers like animal manures cause higher fertilizer pollution because the delivery of nutrients is not synchronized with crop nutrient demand.
4. Organic farming are also not able to sequester (that is, help to store) more carbon in the soil because, as stated earlier, organic farms typically have lower crop yields; thus, lower amount of carbon are stored in the soil. It was calculated that if all cereal crops in Sweden were to be grown organically, it would result in a loss of soil carbon, equivalent to an average annual CO₂ emission by 675,000 Swedish cars. As a side note: CO₂ is a greenhouse gas, its excessive amounts in the atmosphere are currently causing detrimental global warming and climate change.

Finally, one notable negative of organic agriculture is its high labour requirement. Organic farms require more manual labour than conventional farms because pest, disease, and weed controls are done manually, without resorting to any chemical spraying, in organic farms. Labour shortage are an acute and serious problem in many developed and some developing countries. Most organic farms in Malaysia are small between 0.8 and 4 ha partly because of Malaysia's persistent and long-term labour shortage problem.

Organic agriculture is an important type of agriculture farming. Scientific evidence currently show that the issues of organic agriculture and organic food are not clear cut as proponents and opponents of organics would like to have us think. The evidence instead point to both the good and bad of organics.

Cuba: A sustainable agriculture revolution to teach the world

Perhaps the story about the organic revolution in [Cuba](#) would be helpful to us contemplating about organic agriculture.

Cuba is a country about 600 km from Miami, USA or over 17,000 km from Malaysia. In the late 1989, Cuba's closest allies and trading partners, the [Soviet Union](#) and the socialist block in Eastern Europe, collapsed. Almost overnight, Cuba lost more than 80 per cent of its imports. Oil and trade embargo on Cuba further destroyed her economy and agriculture. There was little fuel for the tractors, little fertilizers, little pesticides, and few spare parts for farm machinery. Cuba was not only facing economic ruin but also a major food crisis.

The calorie intake per person in Cuba fell from 3,004 calories a day in 1989 to only 2,323 calories a day in 1993. But today, Cuba has an average calorie intake per person of 3,547 calories per day, which is even higher than that in 1989 and higher than what the US government recommends for US citizens.

So what happened in Cuba?

Facing no possibility of importing food, fuels, or agrochemicals, Cuba had to reinvent her agriculture to one that is more self-reliant, based on sustainable agriculture practices of requiring low external inputs.

Many more key reforms were done, such as by introducing [urban agriculture](#).

Cuba's vacant urban lots are transformed into "organoponicas" for growing food crops organically without any pesticides and agrochemicals. Nearly all of vegetables and fruits in Cuba are grown organically, and Cuba is today 80 per cent self-sufficient in vegetables and fruits.



Vacant urban lots in Cuba are transformed into urban gardens for growing crops organically. Notice the apartments in the background. (photo from www.cityfarmer.info)



Cuba's agriculture reinvention shows that sustainable agriculture does work and organic agriculture can feed an entire nation (photo from thecroft.wordpress.com)

So successful is the organic farming in Cuba that [Oxfam International](http://www.oxfam-international.org) called Cuba "the largest experiment in sustainable agriculture".

Cuba has much to teach us all. Cuba is different from other countries, of course. For one, Cuba enjoys plenty of labour to work the organic farms. But Cuba remains a very good example that the principles of low-input sustainable agriculture can work and that organic farming *can* feed a nation, provided there is enough effort and motivation to make it successful.

Organic agriculture development in Malaysia

Over in Malaysia, organic agriculture has a relatively young and less spectacular history. The development of organic farming followed two concurrent paths, one led by the NGOs (non-governmental organizations) and the other by the private sector.

One NGO that played an pioneering and prominent role is [CETDEM \(Centre for Environment, Technology and Development, Malaysia\)](#) who became wary of conventional agriculture practices, in particular over issues on environment degradation, health of plantation workers from pesticide use, food safety, and low external sustainable agriculture. In 1987, CETDEM realigned itself to follow the organic movement.



Tan Siew Luang of CETDEM, one of the pioneers of organic farming in Malaysia (photo from [thestar.com.my](#))

However, it was only in the 1990s that many pioneering organic farms were established such as the organic farms in Penang and Kuantan, Sustainable Living Centre in Gopeng, Perak, Lifestyle farmhouse in Melaka, Ecofarm in Rompin, Negeri Sembilan, and Nakim Farm in Seremban, Negeri Sembilan.

The early consumers of organic food in Malaysia were the health conscious group, typically those who were suffering from cancer or some degenerative disorders. The other group of organic food consumers were Buddhist vegetarians. However, nearly (98 per cent) all organic food consumers in Malaysia were the Chinese.

Organic food was a niche market in Malaysia then. Normal retailers and supermarkets, for instance, did not carry organic food. Consequently, some people took the initiative to setup informal, home-based distribution centers to help to obtain and sell organic food. These informal, home-based distributors were run by people who themselves followed natural or alternative health systems and diets.

A major milestone in organic food development in Malaysia occurred when Steven Leong established a manufacturing facility to produce organic compost and fertilizer, the first in Malaysia. It was only when organic fertilizers and compost could be supplied in bulk and in steady supply could organic farms be more firmly established and produce higher yields in Malaysia.

In 1995, Premier Organic Produce, the first organic marketing organization, was co-established by Steven Leong. Premier Organic Produce was the first dedicated commercial wholesaler of a wide variety of organic produce (mainly vegetables) and with comparative quality with conventional produce.

Today, organic food still remains a niche market, but one that is growing rapidly. In 2001, for instance, only 131 hectares (ha) in Malaysia were organic farms. In just a span of five years, the land area for organic farms grew by an incredible 18 times to 2,367 ha, of which 962 ha are perhaps certified organic, as surveyed by the [Swiss Research Institute of Organic Agriculture \(FiBL\)](#) and the [Foundation Ecology & Farming \(SOEL\)](#), Germany, in 2007.



Zenxin at Kluang, Johor is the largest organic farm and the leading retailer and distributor of organic food in Malaysia (photo from www.freshplaza.com)



Organic dragon fruits (pitaya) at Zenxin farm (photo from www.freshplaza.com)

Compared to other countries in the region, Malaysians are among the most knowledgeable in organic food and their health benefits. While the Chinese still remain the major consumers of organic food in Malaysia, the younger Chinese generation (mid-thirties and forties) have started to take a keen interest in organic food, unlike in the past where it was mostly the older Chinese generation. Other races such as the Malays and Indians have also started to try organic food, although their numbers still make up a small fraction of Malaysian consumers.

Starting from 1999, family-run organic shops started to emerge in the Klang Valley and in other major towns in Malaysia. However, the growth of family-run organic shops have been short-lived. Since 2006, very few family-run organic shops have opened. Instead, their roles have been taken over by big retailers like [Cold Storage](#), [Jusco Supermarket](#), [Tesco](#), [Giant](#), and [Carrefour](#). All large supermarkets in Malaysia now carry certified organic food in large quantities and varieties. Smaller and more upscale supermarkets like [Mercato](#), [Isetan Supermarket](#), and Village Grocer also stock certified organic food.



Selina Gan, Managing Director of the leading organic food retailer, Country Farm Organics, in Malaysia (photo from everworks.net)

The hub of vegetable farming in Malaysia can be found in Cameron Highlands. [Grace Cup Sdn. Bhd.](#) and [Cameron Organic Produce Sdn. Bhd.](#) (established by Lee Ong Sing in 1997) have established organic vegetable farms in Cameron Highlands. Large local organic retailers such as [Country Farm Organics](#) and [Zenxin](#) have established a foothold in distributing and selling organic food to consumers.

Nonetheless, organic agriculture and food are facing several challenges in Malaysia. Although the demand for organic food in Malaysia is growing, the supply of local organic produce is not keeping up with the increased demand. Local supply can fall by as much as 50 per cent in certain periods of the year. Beside the inconsistent supply, the varieties of local organic food are also limited. Consequently, Malaysia still needs to heavily import organic produce from other countries, especially from Australia, U.S., and New Zealand.

Another problem facing organic food consumers in Malaysia is the price difference between organic and conventional food. Although it is well known that organic food is more expensive than conventional food, their price difference in Malaysia is particularly substantial, by as much as 100 to 300 per cent, compared to only 25 to 30% price gap in the U.S. and E.U.

Despite the higher price and limited variety of organic food in Malaysia, I foresee that organic agriculture and food would continue to rise rapidly in Malaysia as Malaysians become more health and environmentally aware.



My students visit to GK farm, Kajang, Selangor. Famous organic farmer, Gan Koon Chai (grey T-shirt, middle) poses with my students. Note all of them are bare-footed as Gan believes being bare-footed promotes better health.



Gan Koon Chai and his organic farm in Kajang (photo from thestar.com.my)



Another well-known organic farmer, Yahqappu Adaikkalam, posing with my students at his farm, Lord's Garden



Yahqappu Adaikkalam showing his compost for organic fertilizers (photo from yahqappu.blogspot.com)

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