

# Health concerns drive safe vegetable production in Vietnam

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Vietnam is a long, narrow and mountainous country located in Southeast Asia. The population of Vietnam is over 80 million people but only about one quarter of the land is arable. Very high population densities in the Red River Delta in the north and the Mekong River Delta in the south necessitate an intensive use of the land. Following the economic reforms of the mid 1980s and early 1990s, which allowed individual farmers to produce directly for the market, increasing amounts of chemical fertilizers and pesticides have been used. This is particularly true for vegetable crops. In the search for increased yields, many Vietnamese farmers have embraced chemical-intensive production practices, often applying excessive amounts of chemical fertilizers and using dangerous pesticides.

But things are starting to change. In the past decade there has been a lot of publicity about the large number of food-poisoning cases and attitudes towards Vietnam's food supply have shifted. The emerging middle classes in Hanoi, Ho Chi Minh City and other urban centres have become concerned about the food they eat and are starting to demand vegetables with fewer pesticide residues. Some are even willing to pay a slightly higher price for these products, up to 10 percent more than vegetables that are not certified as safe. Concerned urban consumers are increasingly demanding "safe" vegetables. Rural people are more likely to be able to grow a small patch of vegetables for their own consumption, an option that is not available for many urban people. In Ho Chi Minh City, it is estimated that the current supply of "safe" vegetables can meet only 30 percent of the demand from urban consumers.



Photo: Luke Simmons

**Instead of relying on pesticides, safe vegetables are the result of simple pest-control techniques such as this sticky card.**

Farmers are responding to this new market opportunity and are beginning to deliver higher quality vegetable products to the market. By adopting integrated pest management principles, applying compost, using crop rotations and creating a favourable growing environment in low-cost shadehouses, farmers are able to reduce their chemical fertilizer and pesticide applications and produce vegetables that are safer for consumers, and better for their own health and that of their farms. When asked why they

choose to grow safe vegetables, the first response from most farmers is about the importance of protecting community health.

*"We produce safe vegetables because we want to protect people's health. If we use too much pesticide on our vegetables it is not good for the health of the people who eat our products."*

Female farmer, Cu Chi District, Ho Chi Minh City

*"If we use as much pesticide and fertilizer as we like when we grow vegetables, then the plant looks very healthy, but if people eat the vegetables they will have a problem, they can get sick. Also, when we use too many fertilizers and pesticides to grow vegetables, our input costs are very high and we do not make a good profit from our work."*

Male farmer, Cu Chi District, Ho Chi Minh City

## Changing agricultural production

The administrative boundaries of Ho Chi Minh City cover more than 200 000 hectares of land, of which just over half is urban, while the rest is used for agricultural purposes. Rice is grown on 50 000 hectares of land, while on the other 50 000 hectares, vegetables and fruit trees are grown. Rice crop yields around Ho Chi Minh City average only three tons per hectare, among the lowest rice yields in Vietnam. Consequently, there is a strong push for farmers to diversify into higher value crops.

Cu Chi District is found on the rural/urban fringe around Ho Chi Minh City. Demand for land and labour is very high here because of the strong economic growth in the city. The Ho Chi Minh City Agricultural Extension Centre and the Department of Agriculture and Rural Development have been supporting farmers in Cu Chi District to make the transition from growing rice to growing higher value crops such as vegetables and fruit. In particular, the Agricultural Extension Centre has been promoting safe vegetable production by providing training and start-up funds to farmers.

When promoting safe vegetable production, the Agricultural Extension Centre will first organise a meeting with farmers. At this meeting, they raise and discuss various critical issues around growing vegetables which meet specific standards. These issues relate to the management of soil and water resources and to the correct procedures for pesticide application. Next, volunteer farmers are sought who will work with the Agricultural Extension Centre to test out some of the new vegetable growing techniques on their farms. This is an experimental stage where the farmers and Agricultural Extension Centre staff adapt the techniques to the agroecological and climatic conditions of the area. At this stage of the process, the Agricultural Extension Centre pays for all the costs of conducting the trials. When successful techniques have been tested and developed, demonstration plots are established and training of larger numbers of farmers takes place. Farmers who are interested in growing safe vegetables can apply for funding of up to US\$ 1000 per hectare for establishing their vegetable plots and shadehouses. Farmers sign a contract with the Agricultural Extension Centre indicating that they will pay back 80 percent of this initial funding when they have successfully grown safe vegetables on their farm and are returning a profit.



Shadehouses use local and inexpensive materials, contributing to higher yields.

### Organisation and diversity

Having successfully grown safe vegetables for over ten years now, farmers in Cu Chi District have started organising themselves into safe vegetable co-operatives. In 2003, 29 farm families in Tan Phu Trung Commune formed a safe vegetable co-operative in order to more effectively supply the market with their produce. The benefits of growing safe vegetables, including better health for farmers due to reduced pesticide exposure and lower production costs, soon became obvious to other farmers in the commune and today up to 300 other farmers are contracted to supply the co-operative with vegetables. The co-operative now has an office that doubles as a vegetable cleaning and packing centre located close to the main highway to Ho Chi Minh City. Orders are phoned in to the office on a fortnightly or monthly basis, and delivery can even be arranged using the cooperative's truck. Presently, most of the co-operative's production is going to supermarkets, school canteens and restaurants.

Currently, many farmers are opting to grow safe vegetables, whether as part of a co-operative or individually. They can be loosely grouped according to the types of vegetables that they grow. Some farmers, usually those with a limited growing area, are specialising in growing many different types of leaf vegetables on a short-rotation. The most common crops are *kang kong* (*Ipomoea aquatica*), Ceylon spinach (*Basella alba*), amaranth (*Amaranthus hybridus*), jute mallow (*Corchorus olitorius*), Chinese cabbage (*Brassica rapa* var. *parachinensis*) and mustard greens (*Brassica juncea*). These leaf vegetables mature in 25-30 days, allowing farmers to grow 8-10 crops per year when land preparation is factored into the equation.

Another group of farmers is specialising in growing vegetables such as bitter melon (*Momordica charantia*), wax melon (*Benincasa hispida*), cucumber, okra (*Hibiscus esculenta*) and chili. These crops are usually grown and harvested over a period of three months, allowing farmers to grow 3-4 crops per year. Some farmers with low-lying land that is still prone to flooding grow one crop of rice or taro (*Colocasia esculenta*) in the wet season, followed by two vegetable crops in the dry season. Some farmers prefer to have a diversified operation and are growing a mixture of leafy and other vegetables on their land.

When farmers first started growing the more sensitive types of leaf vegetables such as mustard greens and Chinese cabbage, it was thought that they should be grown in metal-framed shadehouses that were covered in a fine-weave mesh. Experience gained over the last five years has shown that cheaper shadehouses can be

constructed using bamboo or wooden poles, supported by wires and covered in a loose-weave mesh. This mesh throws a very light shade but it lasts much longer than the fine-weave mesh. It is also excellent at dispersing the heavy rain drops that fall during the monsoon, thus preventing rain splash from the finely worked soil of the seedbeds. Rice husks are also used as mulch to prevent rain splash, which makes cleaning the vegetables easier, helping to prevent disease problems, and further reducing the need for pesticides. Some farmers are even starting to experiment with smaller "shadehouses" consisting of a net draped over a low wire frame that is large enough to cover one bed. These nets can be put in place if a heavy rainstorm is expected.

### Quality standards

Safe vegetables are sometimes confused as organic vegetables in the local newspapers, but the regulations for safe vegetables are not as stringent as organic regulations. The regulations on safe vegetable production allow for the application of chemical fertilizers and certain classes of pesticides, although the most toxic classes of chemicals are banned. To be sold as safe vegetables, farmer's products must meet certain standards as set out by the Ministry of Agriculture and Rural Development. Basically, the regulations on safe vegetables state that pesticide residues, nitrate content, heavy metal content and bacterial pathogens all must be below the specified tolerance levels. The Plant Protection Department of the Ministry of Agriculture is in charge of regulating safe vegetable production and they collect random samples of vegetables from farmers and from the markets for testing to ensure that the pesticide residues are below the allowable limits.

This system of testing is helping to boost consumer confidence in the quality of safe vegetables, although greater effort is required on this front, as many consumers remain sceptical. More rigorous testing of vegetables, labelling of vegetables with recognisable brands and consumer education campaigns are all needed to further improve consumer confidence in the safe vegetable system. As people around the world are becoming more concerned with the quality and safety of their food, opportunities like safe vegetable production are emerging. These opportunities can allow farmers to move towards a more sustainable form of agriculture that is better for the health of their farms, their families and the communities that depend on them for food.

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