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Impact of Safer Pesticide Use on the Health of Farmers – A Study from Vietnam

Exposure to pesticides causes a wide range of serious health issues for Vietnamese farmers.

To do something about this problem, the government of Vietnam has been helping farmers to adopt safer techniques for using pesticides, notably through the VietGAP program. However, various barriers still exist to the uptake of such safer farming practices. Now, in order to provide information that will help farmers justify the move to safer food production methods, a new EEPSEA study has looked at the impact of the VietGAP program on farmers' health.

The study is the work of Tran Huynh Bao Chau and Le Thi Quynh Anh from Hue University. It found that the VietGAP program has reduced health problems caused by pesticide exposure by up to 23.6%, and that it has produced health improvements worth VND 521,870 per farmer per year. As a result, the study recommends expanding the VietGAP program and highlighting the benefits gained from the program. Likewise, the study recommends for the government to initiate activities that would enhance consumer confidence in (and access to) food products grown under the scheme.



A summary of EEPSEA Research Report No. 2015-RR19: 'Impact of VietGAP Vegetable Production on the Health of Farmers in Thua Thien Hue Province, Vietnam,' by Ms. Tran Huynh Bao Chau and Le Thi Quynh Anh, Faculty of Economics and Development Studies, College of Economics, Hue University, 99 Ho Duc Di Street, Hue City, Vietnam.
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VietGAP vegetable production in Quang Dien district, Thua Thien Hue province, April 2015
Photo by Tran Huynh Bao Chau

The pesticide problem in Vietnam

Exposure to pesticides is an occupational hazard for farmers in Vietnam, as it is for agricultural workers in many developing countries. In general, short-term exposure to high doses of pesticides can cause skin, eyes, nose, and throat irritations; and can cause problems such as breathing difficulties, impaired lung function, and fever. Both short- and long-term exposures can potentially affect the nervous system.

In Vietnam, the unregulated and excessive use of pesticides compounds the hazards associated with these chemicals. In addition, farmers typically have inadequate information on the health impacts of pesticide use—a factor that stands in the way of the uptake of safer pesticide-use techniques.

In response, the Vietnamese government has made every effort to introduce national policies and regional programs to encourage communities to produce vegetables in a safe way and to grow healthy and environment-friendly food. As said, the VietGAP (Vietnamese Good Agricultural

Practices) is a key government program that aims to meet these goals.

Compared to conventional farming practices, the VietGAP approach advocates using more environment-friendly types of fertilizers and pesticides. Farmers who sign up to the scheme must follow strict technical criteria that cover all steps of the food production process. Because of this, vegetable crops grown under the VietGAP scheme often entail higher labor costs than conventional crops, and are therefore more expensive.

Assessing the impact of the VietGAP program

To look at the impact of this program, the study focused on Quang Dien, Huong Tra, and Huong Thuy districts in Thua Thien Hue province. These districts were chosen as they are important centers of agricultural production. Many of the farmers in these districts grow food in conventional 'non-safe' ways. However, the VietGAP program has been running in Quang Dien district (in the commune of Quang Thanh) for the last five years.

The VietGAP program in Quang Dien is supported by various government departments and gets technical supervision from local agricultural cooperatives. It has been widely publicized among local farmers through a series of training courses. So far, around 150 farming households in the region have followed the VietGAP production guidelines.

The study used both primary and secondary data. Primary data were collected using a survey of 200 farmers engaged in either conventional or VietGAP-style food production. These farmers came from all three study districts. Secondary data were drawn from provincial documents, annual reports, and project reports. It provided information on both conventional and safer vegetable production.

Calculating the value of improvements in health

Given various time constraints, the researchers only obtained information on common health problems that farmers suffered as a result of exposure to pesticides. It did not assess potential long-term health problems such as cancers.

The study assessed the 'direct' and 'indirect' costs of the health problems that farmers reported. Direct costs included the economic value of the medicines they needed and the hospitalization they required and the cost of traveling to get treatment. Direct costs also included the value of any income lost when farmers had to visit a community health center. Indirect costs included the value of any lost income when farmers had to take time off work to recover from illness.

Through this research, the study was able to assess the economic value of the improvements in farmers' health produced by the VietGAP program. This was termed as the 'health impact value,' and was defined as the difference in economic value between the health problems suffered by farmers who farmed under the VietGAP approach and the health problems suffered by farmers who used conventional methods of production.

Pesticide use and its impact on farmers

Although many of the farmers in the study area were found to be aware of the toxicity of pesticides, these chemicals were still widely used to boost yields and profits. About 89.5% of the farmers reported that they still use pesticides.

Noticeably, 32.5% of farmers said that they had contact with pesticides more than 24 times annually.

The study found that over 64% of the farmer respondents use protective equipment when spraying pesticides. The reasons put forward for not using protective equipment included the fact that farmers thought that it was 'unnecessary,' 'inappropriate,' or 'uncomfortable.' The quality of some of the protection equipment was also found to be poor.

Most of the health problems experienced by the farmers were moderate both in terms of their effects and durations. The most common problems caused by pesticide exposure among farmers who used conventional production processes were skin irritation and mouth sores (experienced by about 32% of the conventional farmer respondents). Furthermore, approximately 24% of the conventional farmer respondents suffer from eye irritation, 25% from headaches, 19% from breathing difficulties during or after spraying pesticides, 8% from light fever, and 12% from muscle weakness.

Meanwhile, VietGAP farmers reported very few health problems arising from exposure to pesticides. For example, only 1%–3% of VietGAP respondents reported experiencing skin irritation, eye

irritation, headaches, and muscle weakness as a result of pesticide use.

The value of the VietGAP program

Overall, the study found that conventional farmers experience more health problems than VietGAP farmers do. They also exhibit a greater variety of disease signs and symptoms. It can therefore be concluded that the VietGAP program has improved the health status of farmers who follow its guidelines.

Economic analysis showed that participating in the VietGAP program lowers the probability of farmers suffering pesticide-related health problems by between 15.6% and 23.6%, respectively (depending on which assessment calculation was used).

Since farmers involved in conventional agriculture have more symptoms and more serious health problems than VietGAP farmers do, it is not surprising that their direct health cost were found to be higher (at VND 258,630 per farmer per year) than those of the VietGAP farmer group (which were only VND 15,220 per farmer per year).

In terms of indirect health costs, conventional farmers took about 3–7 days off annually to recover from the health problems caused

Table 1. Presence of health problems due to pesticide exposure

Health Problems due to Pesticide Exposure	Proportion of Appearance (%)	
	VietGAP Farmer Group	Conventional Farmer Group
Skin irritation	1.30	31.71
Eye irritation	1.30	23.58
Mouth sores	0.00	31.71
Breathing difficulties	0.00	18.70
Headaches	2.60	25.20
Stomach discomfort	0.00	0.81
Fever	0.00	8.13
Muscle weakness	1.30	12.20
Others	1.30	2.44

Table 2. Health impact value of VietGAP program participation (in VND)

Health Cost	VietGAP Farmer Group (VND/farmer/year)	Conventional Farmer Group (VND/farmer/year)
Direct cost	15,220	258,630
Indirect cost	15,580	294,040
Total cost	30,800	552,670
Health impact value	521,870	

by pesticide exposure. This caused an overall drop in income worth VND 294,040 per farmer per year. In comparison, VietGAP farmers took about 1–3 days off annually to recover from health problems due to pesticide exposure. Their indirect costs totaled around VND 15,580 per farmer per year.

Overall, the estimated derived health impact value of the VietGAP program is VND 521,870 per farmer per year.

This finding is underlined by the fact that all of the farmers in the study agreed that the VietGAP program improved health and enhanced the knowledge of farmers regarding environmentally friendly production processes.

The VietGAP program should be expanded

It is clear that the VietGAP program has helped to move farmers toward safer, more environment-friendly production methods.

In light of this finding, the study recommends for the positive health impacts of the VietGAP program to be widely publicized in order to encourage farmers to get involved. In addition, policy makers should provide more incentives to encourage farmers to farm in a safer and more environmentally friendly manner. To do this, the area under the VietGAP program should be expanded. This should be done in tandem with government rural

development programs that aim to enhance the value of traditional activities.

The use of permitted biological products should be promoted and education on pesticide safety should be expanded. Farmers should also be prevented from overusing chemical pesticides that harm their health. In addition, farmers should be encouraged to grow a more diverse range of vegetables, and investment should be made in the production of vegetables that can adapt to local conditions and that have high commodity value. Training courses should also be set up to help farmers get the skills they need to change cultivation methods.

How the market can be harnessed to improve farmers' health

In Thua Thien Hue, VietGAP farmers find it difficult to access local markets. This is because most of the vegetables marketed are produced via conventional farming methods. In addition, vegetables produced via VietGAP are not as popular because they are expensive—they cost 10%–20% more than conventionally produced food products.

Traditional habits of consumption ensure that local people buy food on a daily basis at the most convenient location, at the most convenient time, at the best price, and with scant regard on how

the products are produced. This problem is compounded by the fact that there is little promotion of environmentally friendly vegetables produced under the VietGAP program.

To do something about this problem, the study recommends establishing a professional supply chain for 'safe' vegetables. Agents should be appointed at local market and supermarkets to promote and sell the vegetables. Local officials should also work to improve the way in which safe vegetables are perceived by the people in their communities. They should also encourage the consumption of these vegetables in order to help improve people's health.

Once consumers gain confidence in locally produced safe food products, it is expected that they will engage in better consumer behavior. Therefore, more should be done to advertise safe food via the mass media.

The quality and freshness of safe vegetables should also be promoted and improved through the development of better packing, transportation, trademarking, labeling and pricing. Local officials and academies should improve technical guidance to support this work.

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