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**The impact of conventional, integrated and organic vegetable
production on soil fertility and vegetable quality in Vietnam -
A comparative investigation**

Master thesis

By

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Abstract

The dominant conventional vegetable production potentially increases soil, ground water and food pollution problems. The increase of integrated and organic vegetable cultivation might be an adequate strategy to meet high food quality and environmental requirements. This will be more feasible when farmer recognize the advantages and disadvantages of each of three vegetable cultivations.

Therefore, this research was conducted to evaluate the effects of the three types of vegetable cultivation on soil physical and chemical properties as well as vegetable quality. For each of three cultivation types, 15 independent soil samples were subdivided into two depths (total of 90 samples) for analysis of bulk density, pH, total P, plant available P, total K, plant available K, total N, NH_4^+ , NO_3^- , Corg, CEC, Pb, Cd and plant available micronutrients and 15 independent vegetable samples were taken (total of 45 plant samples) for analysis of NO_3^- , total N, Pb, Cd and other macro & micronutrients. In addition, an investigation of farmer's fertilizer application was done on farmers' fields.

The results showed that the organic system increased total phosphorus, OC, porosity, plant available Fe and Bo contents in soil compared to conventional and integrated systems. There were not significantly differences in total N, total and available K, NH_4^+ , NO_3^- , CEC, density, Mg, Na, Zn, Cu and Cd contents in soil among three cultivation systems.

For cabbage, the organic cultivation system increased plant available Fe and Pb contents and decreased NO_3^- content in cabbage in comparison with conventional and integrated cultivation system. No significant differences in total N, Zn, Mn, Cu, and Cd contents were found among three cultivation systems.

For tomatoes, there were not significantly differences in total N, Fe, Zn, Mn, Cu, Pb, and Cd contents in tomatoes among three cultivation systems.

In general, NO_3^- , Cd, Pb, Cu and Zn content in both cabbage and tomatoes in three cultivation systems were very low compared to the maximum allowable limits according to Vietnamese standard.