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IN A CHALLENGING ENVIRONMENT**

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Production and Postharvest Handling of Organic Vegetables

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Introduction

Vegetables farming is the cultivation of herbaceous plants for foods, fibers and other products use to sustain life. In the farming system, basic requirements are soil, water, nutrients (macronutrients and micronutrients), minerals and organic matters. Soil plays a role to support plant roots to anchor to as well to hold water, nutrients and minerals. Organic matters, nutrients and water are very crucial for plant optimum growth and health. The vegetable cultivation started with traditional practices of nutrients recycling. Crop rotation and composting are the main practices in managing the soil fertility and pest management. As the time goes by, there is remarkable shift of the farming practices in response to the development of science and technology. New technology improves the farming techniques such as the production of synthetic fertilizers, inorganic pesticides and the usage of growth regulators, and hormones which replace the old agronomic practices. The blooming of these technology have resulted in mass produce of the agriculture products as to fulfill the market demand due to the increase of the world human population.

However, excessive use of these chemical fertilizers has caused some negative impact on the environment and the farmers. There is a growing concern on the soil quality related to soil deterioration and degeneration. Inorganic fertilizers, when applied for long periods on the same soil, cause soil acidification, soil compaction, mineral volatilization and phosphorus fixation (Brady and Weil, 2008). Prolong use of the fertilizers also reduces the population of soil organisms like earthworms and beneficial microbes (Atiyeh et al., 2000) as well as contaminate groundwater with heavy metals and nitrate that are hazardous to humans and animals. Such an example is the baby blue syndrome which occurs to infant that drink nitrate contaminated water (Brady and Weil, 2008). Widespread use of inorganic pesticides could bring harm to farmers that deal with the pesticides directly, while the inorganic pesticide residues could affect consumers' health. Therefore, now the focus has been shifted to organic vegetables production.

Organic vegetables production

People tend to think that organic farming is farming without chemical fertilizers and pesticides, but it is a production of holistic approach. It is not only exclude the use of chemical compound fertilizers, pesticides and growth regulators, but it also depends heavily on composting, crop rotation and aspects of biological pest control, to maintain soil fertility and control pest. One of its important principles is soil fertility. Soil constitutes the center of natural ecosystem as it is a habitat for plants, animals and microorganisms. Therefore, managing soil fertility is important in organic production. The soil must be fertile and biologically active, whereby, it has the combination of complete plant nutrients for maximum growth, continuous supply of organic matter and acceptable pH. Organic matter provides habitat and food for huge numbers of soil organisms which resulted in excellent soil structure, capable of taking up and storing large quantities of water and nutrients. Compost and green manure are added to supplement nutrients supplied by soil minerals and organic matter.