

## Urban Agriculture: The Role of Knowledge among Farmer in Malaysia

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### Abstract

Following the phenomenal increase in the cost of living in the city, the government is committed to guarantee the quality and food security of the population in the country. Accordingly, as a strategy for increasing food productivity there are a variety of methods, technologies and innovations that have been introduced. Urban agriculture is a practical approach among the urban population to produce their own food defined as all activities done related to agriculture and agricultural activities in the urban area. It can reduce daily expenses due to the rise in cost of living in the city. However, the acceptance of urban agriculture among farmers in the city was influence by their level of cognitive, affective and behavioral. Thus, this study aims to know the important knowledge regarding urban agriculture activities among farmers in Malaysia for future development strategy.

**Keywords:** Urban Agriculture, Knowledge, Farmers

### Introduction

By 2050, world population is expected to reach up to 10 billion people, and 80% of the world's population is projected to live in cities (MITI, 2015). This causes the rate of global urbanization process which will continue to increase. In Malaysia, the growth of the urban population will reach to 75% by 2020 (McClintock, 2013). As a result, the demand for food supply is also expected to increase by 70% in order to meet global food needs. Thus, the agricultural sector needs to be more effective and efficient in order to meet the food needs of the world's population, especially in Malaysia.

Things got more challenging when the urban household faced with the high of living cost the impact of rising food prices (Rafiqah & Aziz, 2015; Rezai et al, 2016). Therefore, urban agriculture is the best answer and through timely steps it can address the problem of food security or food security of the country (Zaidi et al., 2013). Urban agriculture can be responsible for human wellbeing, food security and urban resilience; and the need for integrated planning across sectors to ensure that the ecosystem services that urban agriculture provides can proliferate. Rogers (2003) explains that not all individuals in a society can adopt idea, method or practices especially in urban agriculture context.

Rezai et al (2014) stated that in order to expand the practicing urban agriculture must be enhancing the knowledge of farmers was required. Other than that, since knowledge along with the values of urban agriculture influence farmer's involvement in urban agriculture. This implies bringing change in an urban farmer's present knowledge by providing information about latest developmental works, for instance, providing knowledge about urban agriculture activities. If urban farmers are not aware of the development of urban agriculture then information about it is imparted through extension programs (Chauhan, 2007).

## **Literature Review**

### *The Role of Urban Farmer's Knowledge*

Knowledge is the information that farmers have in the process of achieving the results of any agricultural practices that they want to implement. It can be obtained from the education process or experienced by farmers (Azman et al, 2013). Knowledge is the basis of the conduct or behavior of an individual without which one cannot act on any information or issues obtained (Mahmud & Siarap, 2013). Knowledge as the factor of production playing a critical role as the traditional factors of production such as land, labor and capital. Farmers that lack access to such information, and that agricultural extension officers are unable to disseminate relevant information to farmers due to their inadequate number. Besides, knowledge is needed by urban farmers to improve agricultural production and contribute to urban food security (Helen et al, 2008). Bakri & Mohamed (2008) stated that the excellence in the use of agricultural technology depends on the technology culture of the society in terms of its practice and their mastery of knowledge in technology-related matters. A recent study by Muhammad and Rabu (2015) shows that urban agriculture practitioner that have a good knowledge of the cultivation technique will be implement cultivation systems successfully. Factors leading to good knowledge among urban agricultural practitioner are based on information or experience gained through exhibitions and electronic media. For example, the Ministry of Agriculture and Agro-based Industry sponsored the Agro Journal program showing urban agricultural technology on television. It is a good foundation to provide knowledge and awareness to the community on the development of urban agriculture in Malaysia. Among the efforts undertaken by the Urban Agriculture Department to provide information on urban agriculture is through courses, lectures, farm demonstrations, visits to urban farm community and so on. Recent studies also show that a farmer's knowledge can influence them towards agriculture development (Assis & Mohd Ismail, 2011; Mutsotso et al, 2011; Mondal et al, 2014; Krichanont, 2014; Mulungu et al, 2015; Seline et al, 2015; Aziz Maso & Man, 2016; Thassananakajit, et al, 2016).

### **Decision-Making Process of Urban Farmers**

Each urban farmer has to go through the decision-making process during their agriculture activities such as manage of pest and disease, waste management and using of technology. Rogers (2003) stated there have five processes to be traversed by urban farmers before they decide for agriculture activities that implemented (Rogers, 2003). Figure 1 indicates the process of decision-making was starting with knowledge that obtained of urban farmers.

- i) Obtain Knowledge - The process of getting knowledge begins when urban farmers obtain the information regarding to agriculture activities.
- ii) Create Persuasion - Urban farmers will be confident of the benefits of their agriculture activities.

- iii) Making Decisions - Urban farmers will make the final decision whether to continue to accept or reject the agriculture activities.
- iv) Implement Decision - Implementation occurs when urban farmers decide to implement agriculture activities and vice versa.
- v) Creating Confirmation - In this stage of every urban farmer to take a stand to practice agriculture activities are fully introduced.

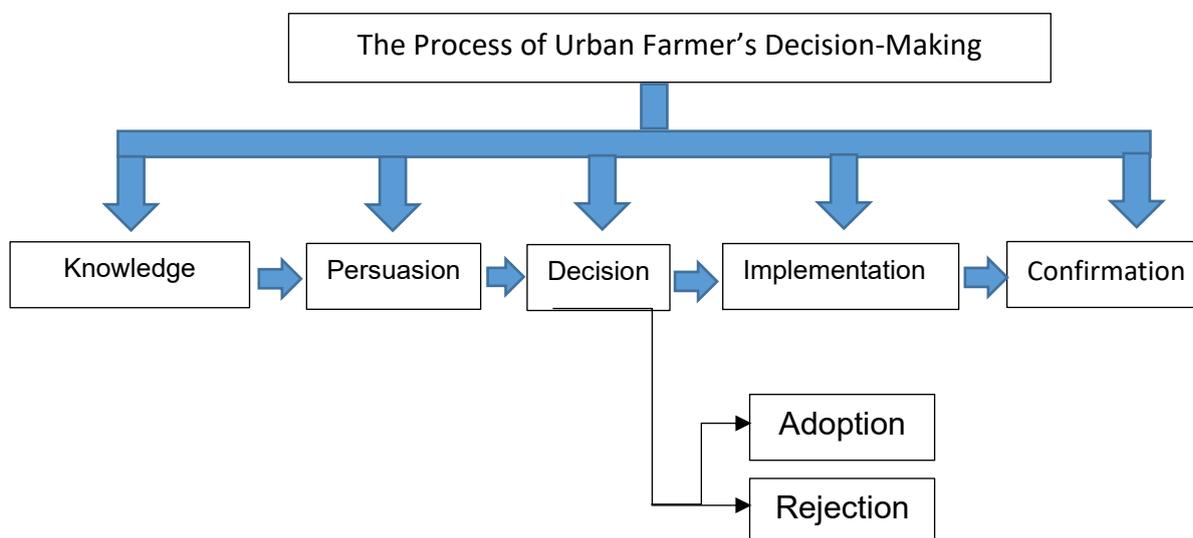


Figure 1: The process of Urban Farmer's Decision-Making

### Dimension of Urban Farmer's Knowledge regarding to Urban Agriculture

The knowledge of urban farmers towards urban agriculture can be divided into multiple dimensions, namely in definition of urban agriculture, purposes of urban agriculture, advantages of urban agriculture and practicing urban vegetables production (Thassananakajit et al., 2016). In this context of study, researcher will focus on knowledge in definition of urban agriculture and knowledge in advantages of urban agriculture.

### Definition of Urban Agriculture

The term of urban agriculture abbreviated U.A, was first used for comfortable writing of food production activities which has been done in the cities (Ellis et al., 1998). This activity can encourage city residents to grow their own vegetables / food crops around their homes so that the burden of rising living costs can be reduced. Urban agriculture (UA) may provide a source of food or income for households and help mitigate the impacts of these growing threats to food security (M.N. Poulsen et al, 2015). Urban agriculture can be defined by a variety of perspectives (Lorenz, 2015). Food and Agriculture (2000) defines urban agriculture as any agricultural activity which grow, raises, and processes and distributes agricultural products regardless of land size and number of human resources within the cities and towns. Mindy (2011) also states that urban agriculture is growing and rearing animals in urban environments for the purpose of supplying food to the local population. Rafiqah and Aziz (2015) provide a definition of urban agriculture as a description of the production of food and goods through farming, cultivation, animal husbandry and forestry. Moreover, Tim and Ilina (2016) define urban agriculture as the practice of growing plants, fungi, fish and livestock in and around towns and cities. Hence, of the most common urban agriculture definition is the

methods of producing crops and livestock in urban areas or in the suburbs aimed to meet the needs of urban farmers and communities nearby.

### **Knowledge of Economically Advantage of Urban Agriculture**

Although literature exists on economic impacts, it is very limited. The majority of economic research was centered on farmers markets, although there were a fair number of studies focused on economic benefits to consumers and gardeners involved with urban agriculture (Golden, 2016). Earnings grow their own food or breeding e helps save on household expenses to buy food. Based on studies by Resource Center on Urban Agriculture and Food Security (RUAFA), poor people in poor countries generally spend most of their income (50% - 70%) on food. Although urban agriculture does not contribute significantly to job creation, but in terms of food security it is also a major concern to address the problem of urban poverty (Nugent, 2002). Sales of agricultural products (fresh or processed) among urban farmers to be one source of income for the urban population which in turn can offset the expense of the urban population (Liu, 2008; Kremer & DeLiberty, 2011; Zaidi et al, 2013; Ackerman et al, 2014). More than 800 million urban residents worldwide are involved in urban agriculture in which they want to gain access to food and commercial gain (Rabiul dan Chamhuri, 2012).

### **Knowledge of Socially Advantage of Urban Agriculture**

Urban agriculture as a medium for creating social relationships, especially when it is conducted in the community in a residential area. Social interaction and communication and friendly relations enrichment would take place through urban farming activities carried out jointly. It can also foster a community that is united and work together in mobilizing resources available to implement urban agriculture activities (Zaidi et al, 2013). Another social impact of urban agriculture includes providing a medium for learning experiences, educational programs, and youth development opportunities. Many of the case studies and agency reports describe projects that include education services or youth leadership opportunities (Krasny & Doyle, 2002, Ober Allen et al., 2008 Kerton & Sinclair, 2009; Travaline & Hunold, 2010; Bradley & Galt, 2013).

### **Knowledge of Health Advantage of Urban Agriculture**

Consumers around the world are increasingly concerned about the quality of food that is safe and healthy to eat because it will affect their health. These concerns exist because of the daily food, either vegetables or fruits susceptible to pesticide residues, contamination of food by chemicals in dairy products and seafood, and uncontrolled use of additives in processed foods. Through urban agriculture activities residents can produce their own nutritious food daily and securely (Park et al, 2011; Corrigan, 2011; Ratnawati & Abdullah, 2012; Zaidi et al, 2013). Community gardens are places for residents to recreate and engage in physical activity (Patel, 1991; Armstrong, 2000; Twiss et al., 2003; Saldivar-Tanaka & Krasny, 2004 ;). They create opportunities for individuals to be active for sustained amounts of time, which has been found to prevent disease and other ailments (Magnus, Matroos, & Strackee, 1979). Many gardeners found that the presence of plants helps reduce stress and improved over-all well-being (Patel, 1991; Armstrong, 2000; Teig et al., 2009).

### **Knowledge of Environmentally Advantage of Urban Agriculture**

Tsuchiya et al (2015) states that urban agriculture plays an important role in many aspects environmental such as i) providing an alternative to the waste disposal problem by making it

to productive resources through composting. Compost can be used for planting and serve as a natural fertilizer ii) water pollution is minimized when recycled water for food production purposes iii) rainwater can be stored or distributed to plant trees through rainwater harvesting for use in watering, cleaning plants or livestock as well as promote the use of rain economically and iv) enhance sustainability in terms of environmentally friendly in urban areas by using recycled materials and recycling such as plastic bottles, empty cans, wooden pallets used plastic barrels, tires and so on. Zaidi et al (2013) reveals that urban agriculture can also improve the habitat and biodiversity in urban areas in order to ensure the continuity of certain organisms to survive by creating green areas consisting of a variety of plants. In addition, the greening of urban agriculture suggest that it reduces the harmful effects of erosion, add shading and control the temperature of the surrounding area City to be more comfortable and help beautify the scenery around City.

### Proposed Conceptual Framework

Based on the above discussion, we developed a conceptual framework as shown in Figure 2.

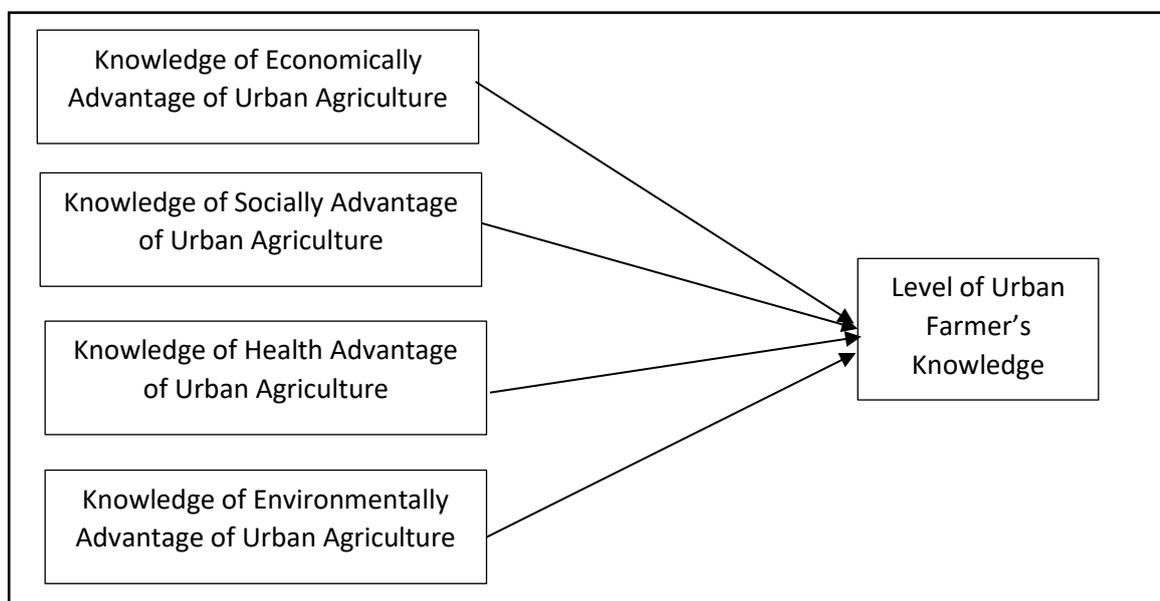


Figure 2: The Proposed Conceptual Framework

### Recommendations

Urban agriculture is now gaining popularity and practiced by individuals or communities in the country. Knowledge of urban farmers play a significant role in ensuring that the urban agriculture objective will be achieved. Every urban farmer needs accurate and adequate information regarding agricultural activities as the first phase in decision-making process to improve their. Therefore, appropriate knowledge should be provided by the extension agent including methods of implementation, the concept or the benefits of urban agriculture to ensuring success in urban agriculture. Transformation of knowledge can be implemented by extension program such as forum, agriculture fair, seminar and others. Other than that, pioneers or innovators who could potentially be identified should help motivate, raise awareness and foster interest in the people of the city to engage in urban agriculture. Further research on the effective way of knowledge transfer among community for urban agriculture empowerment.

### Conclusion

Urban agriculture is vital in providing a better quality and food security in the country with improve their standard of living, employment status and receiving treatment methods. Farmers in the city is one of the major components to determine urban agriculture development. Urban farmers with high knowledge relating to the functions and benefits of urban agriculture as well as the principles and methods of crop planting is important for their decision-making during agricultural activities. An urban agriculture advantages in economically, socially, environmentally and health is among the knowledge needed by urban farmers in Malaysia.

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