

## **Production of Winter Vegetables in Urban Area of Hanoi, Vietnam: Case Study in Quoc Oai District**

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**Abstract:** The production of winter vegetables has created jobs for rural residents, mobilizing idle capital and contributed a significant portion of income for Vietnamese farmers in recent years. However, there are still some problems with the production of winter vegetables: small scale, fragment, without a specific planning, and the farmers will be vulnerable. This paper aims to research about the real situation of production of winter vegetables, found out a number of impacted factors and propose some measures to promote the production of winter vegetables in order to improve value added and benefits for farmers. The paper is based on the standard questionnaires and direct interviews method to collect data from 90 farmers who planted the winter vegetables in Quoc Oai district, Hanoi of Vietnam. The findings showed that the production scale of winter vegetables of the surveyed households increased, productivity improved, and the yield continuously went up. However, the value added and mix income of farmers were still low. Some internal factors affecting the production of winter vegetables were the incomplete irrigation system and the limited skills in producing winter crops of farmers. Besides, there were some external influencing elements: unpredictable weather and diseases. In order to promote the value added and benefit for farmers, a reasonable system of winter crops should be layout and planned, technical skills for farmers should be improved, financial aid for farmers should be considered, irrigation systems had to be expanded and developed.

**Keywords:** winter vegetable, yield, productivity, performance

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### **INTRODUCTION**

By the end of 2014, Vietnam's population numbered 90.729 million, of which 60.693 million live in rural areas, accounting for 66.9% of the total [1]. Creating jobs, generating income, and improving the living standard for people in rural areas are of considerable concern in Vietnam. Agricultural growth is central to poverty reduction in rural areas [2]. Therefore, it plays a significant role in the sustainable development of the country.

In recent years, agricultural production in Vietnam has changed. It is no longer a rice-producing monoculture. Types of businesses and production have been diversified [6]. In which, winter vegetables has gradually played an important role in the economic structure of rural area. It has become a regular crop in agricultural production [3]. The production of winter vegetables has provided high-value vegetables to serve domestic demand and exports, contributed a significant portion of income for farmers. It has also created jobs for rural residents, and mobilizing idle capital in our society [4].

The Ministry of Agriculture and Rural Development of Vietnam also paid attention to this by issuing the Decision approving the development plan on vegetables, fruits and ornamental plants Vision to 2020 [7]. However, until now, there are still many problems with the production of winter vegetables in Vietnam such as it was based on the self-sufficient demand with small scale, fragment, without a specific planning, which will easily be in risks and the farmers will be vulnerable [5]. There are some researches has concerned about this problem but not much. Thus, this study fills a critical need.

### **Objectives and Methodology**

This paper aims to research about the real situation of production of winter vegetables, found out a number of impacted factors and propose some measures to promote the production of winter vegetables in order to improve value added and benefits for farmers.

Primary data was collected through standard questionnaires and direct interviews of 90 farmers who planted the winter vegetables in Quoc Oai district, Hanoi of Vietnam in the first year of 2015.



**Fig-1. Location of the study**  
Source: VKI, 2014 [8]

## RESEARCH RESULTS AND DISCUSSION

### The area of production

Numbers of farmer who grew winter vegetables in the study sites increased yearly. The area for planting of winter crops was also expanded; the

species of vegetables was more diversified. Besides, the sales of their products was easier, thus, farmers had more options when selling their products and their living standard was improved.

**Table-1: Production of winter vegetables in 2014 compared to the past**

	Area			Species			Situation of consumption		
	More than in the past	Less than in the past	The same in the past	More than in the past	Less than in the past	The same in the past	Easier	More difficult	The same
Numbers of responding	48	12	6	57	3	6	57	0	0

Source: Survey results

Zucchini, corn, beans, potatoes were the main kinds of vegetables in this area. The production of winter vegetables was somewhat more difficult than in other crops in the year. Farmers used the potatoes seed originated from the Netherlands, Germany, and Australia, such as Diamante, Signora, Solara, Atlantic

...; The zucchini seed came from Vietnam such as Zucchini No1, Thien Thanh 05, The pumpkin seed was: Canh buom do, Hai mui ten do, Tara 888, Japanese pumpkin. In addition, farmers also planted some other vegetables like Japanese cabbage, radishes, hybrid beans TL1, cowpea, sweet cabbage, etc.

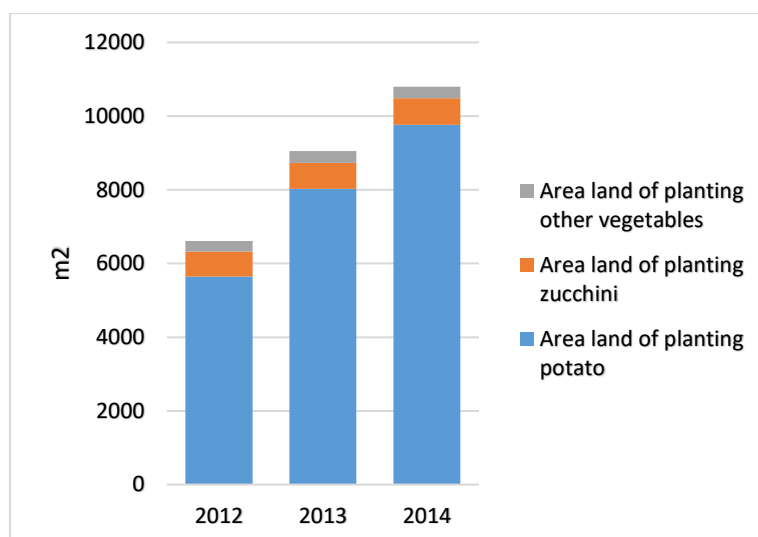
**Table-2: Planting area of winter vegetables in the surveyed households**

	Arable land (m <sup>2</sup> )	Vegetable arable land (m <sup>2</sup> )	The most planted area of winter vegetables(m <sup>2</sup> )	The least planted area of winter vegetables (m <sup>2</sup> )
Average	2394	252	540	285
Maximum	6120	360	2160	1080
Minimum	420	144	360	0

Source: Survey results

Winter vegetables were not only grown in the vegetable arable land but also grown in other kinds of land such as paddy land, mudflats. The average vegetable arable land was just only 252 m<sup>2</sup>per household while the average real area of winter

vegetables was more than double at 540 m<sup>2</sup>. However, the area for growing vegetables is still much less than the area of arable land. This shows the opportunity to expand the area of winter vegetables on different types of land in the study sites.



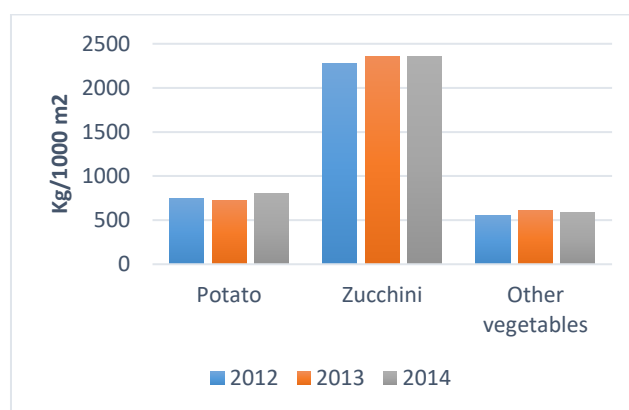
**Fig-2: Planting area of major winter vegetables**

Source: Survey results

The production scale of winter vegetables in the study sites increased in recent years. There were two main kinds of winter vegetables in the study sites including potatoes and zucchini. In which, the potato planting area accounted for the largest share: 85.4% in 2012, 88.6% in 2013 and 90.4% in 2014. Although the area of planting zucchini and other vegetables also enhanced other years, its ratio and speed was much less than that of potato, thus the proportions were decreased.

### Productivity of winter vegetables

Productivity of winter vegetables generally increased over recent years. This encouraged farmers to participate actively in the production of winter vegetables. The productivity of potato was a little fluctuation due to weather conditions (flood) but with the increasing tendency. Zucchini's productivity was the highest and also continued to increase. This numbers imply that the skills, technique and experience of farmers in planting winter vegetables were improved.



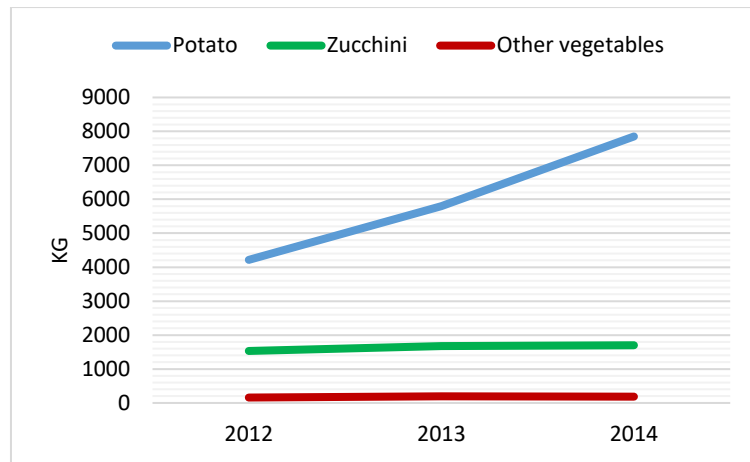
**Fig-3: Productivity of major winter vegetables**

Source: Survey results

### Yield of major plant winter vegetables

Yield of winter vegetables in the study sites continuously increased over the years due to an increase in both the area of planting and productivity. Especially, the yield of potato increased 1.86 times in 2014 compared to that in 2012. Yield of zucchini and other

vegetables were also in the increasing tendency. Thank to this trend, farmers were actively participated in producing more winter vegetables. Many vacant lands were exploited to plant winter vegetables. Farmers were very excited to produce more products.



**Fig-4. Output of major winter vegetables**  
Source: Survey results

### Performance of winter vegetables production

The production value of winter vegetables has increased sharply in the study sites thank to the increases in planted area, productivity and yield. In this

paper, only the performance of potato and zucchini were calculated due to these were two major plants in this area.

**Table-3: Performance of two major winter vegetables in 2014**

	Unit	Potato	Zucchini
Intermediate cost/1000 m <sup>2</sup>	1000 VND <sup>1</sup>	1,092	2,778
Labor/1000 m <sup>2</sup>	Day	19.7	33.3
Labor cost per day	1000 VND	150	150
Average price	1000 VND/KG	11.2	8
Planting area	m <sup>2</sup>	9,764	720
Productivity	Kg/1000 m <sup>2</sup>	804	2,361
Yield	Kg	7,850	1,700
Total turnover	1000 VND	87,920	13,600
Turnover per 1000 m <sup>2</sup>	1000 VND	9,005	18,888
Value added per 1000 m <sup>2</sup>	1000 VND	7,913	16,110
Mix income per 1000 m <sup>2</sup>	1000 VND	4,958	11,115

Source: Survey results

The survey results showed that, the value added, mix income of winter vegetables in the study sites were still not high for farmers. After three months of production, they gained only 5 million VND per 1000m<sup>2</sup> (equal to 225 USD) mix income for around 2 to 3 family working labors in case of planting potato; or 11 million VND (equal to 505 USD) mix income for five months of planting zucchini for 3 family working labors. In which, the productivity, value added and mix income of zucchini was higher than those of potato. However, the area and yield of potato were much higher at 13.6 and 4.6 times than those of zucchini. This fact could be explained by the longer time experience and more fluently skills in planting potato of the farmers, the lower intermediate cost and the easier to cultivate of potato compared to those of the zucchini.

### Factors affecting to the production of winter vegetables

#### Internal factors

According to the household survey's, in overall, the seeding was quality enough for the winter crops but the varieties of species was simple and few. Irrigation systems were incomplete, difficult for the production in case of flood or drought. The farmers were in risks and they would easily be lost. Besides, farmers were also lack of investment capital. Technical skills and experience were somewhat limited thus it posed a negative impact on the efficiency of production.

#### External factors

Unpredictable weather and diseases were two major elements that posed a large influence on the yield and the quality of products during the production

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process. Vietnam was located in a tropical region with tropical climate. In addition, Vietnam also the country was easily affected by the phenomenon of climate change, thus, the weather was quite severe and vagaries. When the weather was in favorable, the farmers would have a chance of obtaining high yields with good quality products and easy to sell. In case of bad weather, pests would appear more often, yield and quality would be decline; farmers were vulnerable and got losses.

## CONCLUSION

Winter vegetables have gradually played an important role in the development of agricultural sector of Vietnam. In the study sites, the planting area of winter vegetables was expanded; the species of vegetables was more diversified. There were two main kinds of winter vegetables in the study sites including potatoes and zucchini. In which, the potato planting area accounted for the largest share.

The production scale of the surveyed households increased in recent years. Productivity of winter vegetables generally improved. Therefore, the yield of winter vegetables continuously went up. This, in turn, enhance the farmers' value added, mix income of winter vegetables. Although the productivity, value added and mix income of zucchini were higher than those of potato, the area and yield of potato were much higher at 13.6 and 4.6 times than those of zucchini.

There were some internal factors affecting the production of winter vegetables such as the incomplete irrigation system, the limited skills of producing winter crops. Besides, there were some external influencing elements including unpredictable weather and diseases.

## Recommendation

In order to improve the value added and benefits of farmers, it is necessary to do some changes, such as:

- Plan, layout a reasonable system of winter crops, and put priority on plants with high economic value. Most farmers decided to choose the traditional plants such as potato to cultivate while this plant had lower efficiency in comparison to other plants (for example zucchini). On the other hand, the production was still small and fragment. The farmers were used to run by the movement direction, without a clear and long-term plan. In case of unfavorable condition or fluctuate situation, they would be easily vulnerable. Therefore, it is necessary to research, plan and arrange the suitable vegetable system for the sustainable development of the farmers.
- Strengthen the technical skills for farmers through training so that they could apply the

advances scientific knowledge in their production process.

- Improve or facilitate the financial aid for farmers. The production required investment capital - an important factor that could determine the success of the farmers. But most farmers were still lack of capital for their production. Therefore, local government needs support loans for them to create a chance for them to improve their production performance.
- Develop, expand and complete the irrigation systems. Local authorities should spend more to improve the quality and regularly maintain, repair the irrigation system. This could help farmers to improve the performance of production, especially in case of flood or drought.

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