



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

INTERNATIONAL JOURNAL  
OF CURRENT RESEARCH

International Journal of Current Research

Vol. 10, Issue, 12, pp.76174-76176, December, 2018

DOI: <https://doi.org/10.24941/ijcr.33445.12.2018>

## RESEARCH ARTICLE

### CITRUS TREE PRODUCTION DEVELOPMENT IN LUC NGAN DISTRICT OF BAC GIANG PROVINCE, VIET NAM

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#### ARTICLE INFO

##### Article History:

Received 05<sup>th</sup> September, 2018

Received in revised form

24<sup>th</sup> October, 2018

Accepted 29<sup>th</sup> November, 2018

Published online 29<sup>th</sup> December, 2018

##### Key Words:

Development, Production development,  
Citrus trees.

#### ABSTRACT

On the basis of using data of Bac Giang Department of Agriculture and Rural Development. The article uses descriptive statistics method in order to evaluate reality of citrus trees (orange and pomelo) production development in Luc Ngan district of Bac Giang province and shows that area and harvest of orange and pomelo increased but productivity on for products had a drop and these productivity fluctuated in the period 2011- 2015. The orange and pomelo average productivity tended to increase slightly. This does not match its inherent potential. Caused by climate change, the application of scientific and technological progress in production is limited, small and fragmentary production scale... So the government of Viet Nam and producers should have solutions in order to improve the efficiency of citrus production in the district.

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**Citation:** **Nguyen Thi Dung**. 2018. "Citrus tree production development in luc ngan district of bac giang province, Viet Nam", *International Journal of Current Research*, 10, (12), 76174-76176.

## INTRODUCTION

Luc Ngan is a rural district of Bac Giang province in the northeast region of Viet Nam. This district has sub-climatic zones, land, soils suitable for fruit trees in general and citrus in particular (Luc Ngan district's committee, 2018). Nowadays, Luc Ngan has a tendency to develop citrus fruit production. Specially, the district focuses on producing two types of fruit trees: orange and grapefruit (Huong Xuan, 2016). According to statistics data in 2016, orange area was 1.650 ha. This area raised 1.445ha to compare with 2011, pomelo area in 2016 was 720ha. It was more than 2011 was 664ha (Bac Giang Department of Agriculture and Rural Development, 2011, 2016). Through the results of comparison between producers, income of Duong Canh orange was higher than seventeen instalments rice, 6.8 instalments lychee, 30 instalments persimmon; Income of Vinh orange was higher than 9.6 instalments rice, 3.9 instalments lychee, 18 instalments persimmon; great high efficiency. It can say that citrus fruit is evaluated to be promising; Its area is more and more wide- opened. Reality shows that although citrus fruit area increases but production is small scale, spontaneous, fragmentary. It doesn't concentrate and has implicit unsustainable factors in production development (Committee of Luc Ngan district, 2013). Hence, On the basis of Practice of citrus trees (orange, pomelo) production development, the research finds limited reasons of production development and brings out some solutions with citrus trees producers also state management office in order to develop production of these citrus trees.

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## REVIEW OF THE LITERATURE

**Development:** Modernization theory shows that the development in terms of a progressive movement towards technologically and institutionally more complex and integrated forms of 'modern' society. This process is set in motion and maintained through increasing involvement in commodity markets and through a series of interventions involving the transfer of technology, knowledge, resources and organizational forms. In this way, 'traditional' society is propelled into the modern world, and gradually. Its economy and social patterns acquire the accoutrements of 'modernity' (Norman Long, 1997). Owen Barder (2012) shown that Development also carries a connotation of lasting change. Development is the capacity of those systems to provide self-organising complexity. Self-organising complexity in an adaptive system is never designed or deliberately built: it comes about from a process of adaptation and evolution. It follows that if we want to accelerate and shape development, we should focus especially on how the environment can be made most conducive for self-organizing complexity to evolve.

**Production development:** Production development is about the creation of effective production processes and about the development of production ability. Production development refers to development and operation of production systems. Inside, the focus is mainly on relating to development of new production systems or major changes to existing ones. Of course several of the issues are equally relevant in connection with minor changes as well. During development a holistic

perspective is important, involving technology as well as humans (MollicaBellgran & Kristina Säfsten, 2010).

**Citrus trees:** Citrus is genus of flowering trees and shrubs in the rue family, rutaceae. Plants in the genus produce citrus fruits, including important crops like oranges, lemons, grape fruit, pomelo and limes (Wikipedia, 2018).

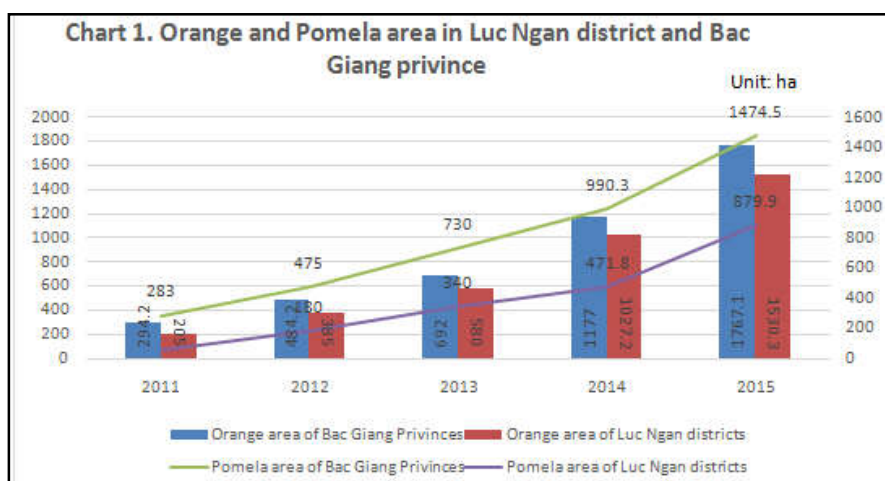
**Important of citrus trees production development:** Citrus occupies a place of considerable importance in the fruit economy of the country. Citrus fruits are economically important with a large scale production of both the fresh fruit and processed products (Jaspreetkaur Sidana and authors, 2013). Citrus trees have important roles. They are raw materials for the industry (Olife, I.C. and authors, 2015). Besides, citrus trees production development help to increase income of producers and improve livelihood for rural people, create high quality output to respond market demand.

## MATERIALS AND METHODS

On the basis of using data of Bac Giang Department of Agriculture and Rural Development. The article uses descriptive statistics method to calculate average indexes, range of time variation to show real situation of orange and pomelo production development in the period 2011- 2015.

## RESULTS AND DISCUSSION

**Reality of citrus fruit production development in Luc Ngandistrict of Bac Giangprovince:** Citrus fruit production development in Luc Ngandistrict of Bac Giang province has important roles. Luc Ngan has been forming the largest fruit tree in the north with area of 26,667ha of fruit trees. Of which, 15,200ha lychee, yields about 90- 100 thousand tons/year, orange area is 3283ha, pomelo area is 1695ha... The output of citrus in 2018 is estimated at 55,000ha (TrungAnh, 2018). Chart 1 shows that orange and pomelo existing area in Luc Ngan district accounts for significant proportion of the total area of oranges and pomelos in the Bac Giang Province. In 2011 orange area appropriated 69.68%, in 2015 this area went up to and accounted 86.6%. Besides, pomelo area had trend to raise. In 2011, this area appropriated 19.79%, in 2015 this area had a rise and accounted 59.67%. In the period 2014- 2020, the area of citrus trees will convert 3131.8 ha (Committee of Luc Ngan district, 2013). Due to the increasing area, the ouput of orange and pomelo tends to increase. In the period 2011- 2015the average harvest output of orange raised 67.13%, average harvest output of pomelo increased 124.23%. Although area and harvest of orange and pomelo increased but the productivity had a drop and these productivity fluctuated in the period 2011- 2015. In 2012, the productivity of orange hit a high of 115 quintal/ha.



**Table 1. Area of citrus fruit in Luc Ngan districts of Bac Giangprovince**

Target	Unit	2011	2012	2013	2014	2015	Compared (%)				
							12/11	13/12	14/13	15/14	BQ
Orange											
Existing area	Ha	205	385	580	1027.2	1530.3	187.80	150.65	177.10	148.98	165.29
Inside: area of new plant	Ha	10	185	224	521.6	536.9	1850	121.08	232.86	102.93	270.67
Area for products	Ha	120	200	320	465.9	787.7	166.67	160.00	145.59	169.07	160.06
Pomela											
Existing area	Ha	56	180	340	471.8	879.9	321.43	188.89	138.76	186.50	199.09
Inside: area of new plant	Ha	-	110	170	226.0	413.9	-	154.55	132.94	183.14	155.54
Area for products	Ha	18	70	110	225.9	350.6	388.89	157.14	205.36	155.20	210.08

Resource: Bac Giang Department of Agriculture and Rural Development

**Table 2. Productivity, output of citrus fruit in Luc Ngan districts of Bac Giang province**

Target	Unit	2011	2012	2013	2014	2015	Compared (%)				
							12/11	13/12	14/13	15/14	BQ
Orange											
Productivity onArea for products	Quintal/ha	65	115	78	89.5	77.3	176.92	67.83	114.74	86.37	104.43
Harvest output	Tons	780	2.300	2496	4169	6086.0	294.87	108.52	167.03	145.98	167.13
Pomelo											
Productivity onArea for products	Quintal /ha	60	65	68	86.1	77.9	108.33	104.62	126.62	90.48	106.74
Harvest output	Tons	108	455	748	1944.7	2730.0	421.30	164.40	259.99	140.38	224.23

Resource: Bac Giang Department of Agriculture and Rural Development

In 2014, productivity of pomelo hit a high of 86.1 quintal/ha. It can say that orange and pomelo productivity tended to increase slightly in 2011- 2015. Orange productivity average raised 4.43%, Pomelo average productivity raised 6.74%. It does not match its inherent potential. Caused by climate change, the application of scientific and technological progress in production is limited, small and fragmentary production scale. Citrus fruit has high economic value crop that is suitable for Luc Ngan district's soil. Duong Canh orange achieves 1.1- 1.2 billion VND/ha/ year, but citrus fruit of the district was mainly collected fresh, less preliminary processing, nearly transported, consumed in Viet Nam market. Specially, main market is Ha Noi capital. Because of the limited quantity, it has not met the international market demand. Consumption is the major factor that influences the development of citrus production. The results show that citrus fruit tends to increase in quantity but quality tends to decrease. This is expressed through area, productivity and yield.

### **Solutions to improve the efficiency of citrus production development**

In order to improve the efficiency of citrus production in the district, it is necessary to implement the following solutions:

The government of Viet Nam should help producers develop sustainably citrus production in line, associate with the local socio- economic development, the development of tourism and services to avoid the development of spontaneous and fragmentary production. This will affect productivity and consumption and the development of citrus production. Besides, the government should continue to build infrastructure, promote products... To create favorable conditions for organizations, individuals and households to actively convert and develop citrus. Producers should apply technical advances in production to improve citrus productivity, link production. It is necessary to expand domestic and international consumption markets. Specially, the government should influence to improve market access for some neighboring countries, build value chain products to stabilize production as well as consumption.

### **Conclusion**

The research shows that the area and harvest of orange and pomelo increased but productivity on for products had a drop and these productivity fluctuated in the period 2011- 2015.

The orange and pomelo average productivity tended to increase slightly. It does not match its inherent potential. So the government and producers should have solutions in order to improve the efficiency of citrus production in the district.

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