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An economic analysis of traditional agriculture products and its contribution to income diversification for smallholder farmers, the case of Thanh Tra pomelo and chicken in Thua Thien Hue province, Vietnam

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PRESENTATION OF THE AUTHOR

Dr. Hoang Thanh Long is a Lecturer at University of Economics (HCE), Hue University, Vietnam. Currently, he has been working at Faculty of Economics Information System where he carries out research and teaching activities.

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Dr. Hoang Thanh Long has long time engaged in many national and international activities, projects, where he persuade his interests in traditional agriculture products, agriculture economics, agri-food value chain, gender equality, water securities, …

ABSTRACT/TOM TẮT

Regardless of the globalization of the food market, traditional agriculture products have been still believed to be a vital part of cultures, history, and lifestyles, dedicating to the development and sustainability of rural regions. Traditional agriculture products (TAPs) and a better understandings of their costs, benefits and promotion scheme has been significantly attracted by academics and practitioners and becoming especially essential for smallholder farmers in developing countries. Vietnamese Government policies for agriculture and rural development have been likely to be believed to increase the scale of production activities, which require investments of land, capital, and technical, thus are not permanently appropriate for every region in the country, especially for central and mountainous areas. Thua Thien Hue (TTH) province, is in the central areas of Vietnam, has been widely considered to have lots of limitations of small, fragment land, farmer's lack of capital, skills, small market, and poor access to financial resources. As a result, the development approaches focusing on the increasing of scale of production may not be an applicable approach for this region. However, Thua Thien Hue province has also long been well-recognized for home to many traditional agriculture products. This research thus makes effort to study the household strategies in terms of diversification of agriculture activities, from TAPs in detail. Specifically, this research aims to implement an analysis on household income diversification from producing TAPs, the case of Thanh Tra pomelo and chicken, representing crop production and animal production to examine if this is a solution to diversify income for smallholder farmers in TTH province, regarding the context of economic efficiency and promotion strategy. To do so, economic efficiency analysis, value chain analysis and promotion strategy has been further investigate in details. In terms of cost benefit analysis, Thanh Tra pomelo and chicken production has significantly contributed to the improvement of income of the smallholders farmers in Thua Thien Hue province compared to other production activities in this region or bank interest rates at the time of the study. Many indicators of cost benefit analysis including GO, MI and NB are quite high for producers, providing stable income for people in the studied sites. However, Thanh Tra pomelo and chicken's economic efficiency also depend on many factors: natural conditions, intensive farming methods, seeds, breed, fertilizers,

care techniques, irrigation regimes... In addition, the level of income diversification has also affected by socio-economic characteristics of household, namely age, education, experiences, or perception, access to credit and social capital. Another significant finding of this study is that in the case of Thanh Tra pomelo, large scales production is less efficient then medium scales. This is a significant one in the case of TTH province, where local farmers do not have many land area or capital to expanding the production area. Regarding value chain analysis, in spite of of the dynamic support of local governments, Thanh Tra, chicken production still experiences with many issues namely trademark, quality, productivity, prices and consumption market, low ability of capturing market information of the farmers, weak capacity of actors, short cooperation, little and unevenly distributed of value added in the value chain.. The inputs and output market still encounter many difficulties, normally fragmented. These factors have more or less added to increasing production costs and reducing economic efficiency of traditional agriculture production and income of households in Thua Thien Hue province. To better develop TAPs and improve income for smallholder farmers in TTH province several government interventions are needed: (1) infrastructure improvement by building support facilities relating to producing feed and breed and processing factories; (2) technical support by organizing more technical training activities, sharing producing experiences between farmers; (3) market access improvement by better linkage products with market through OCOP promotion campaign.

Các sản phẩm nông nghiệp truyền thống (SPNNTT) vẫn được đánh giá là một thành tố quan trọng của văn hóa, lịch sử và lối sống, đóng góp cho sự phát triển bền vững của các vùng nông thôn. Tỉnh Thừa Thiên Huế, thuộc miền trung của Việt Nam, từ lâu cũng được biết đến là nơi có nhiều sản phẩm nông nghiệp truyền thống nổi tiếng. Do đó, nghiên cứu này nhằm đánh giá chi tiết chiến lược của hộ gia đình về đa dạng hóa thu nhập từ các sản phẩm nông nghiệp truyền thống. Cụ thể, nghiên cứu này thực hiên phân tich hoạt động đa dạng hóa thu nhập từ hoạt động nuôi gà truyền thống và sản xuất bưởi Thanh Trà.

Về mặt phân tích lợi ích chi phí, sản xuất bưởi Thanh Trà và nuôi gà truyền thống đã đóng góp đáng kể vào việc cải thiện thu nhập của các hộ nông dân sản xuất nhỏ ở tỉnh Thừa Thiên Huế. Về mặt phân tích chuối giá trị, việc

kinh doanh Thanh Trà và gà còn gặp nhiều khó khăn như nhãn hiệu, chất lượng, năng suất, giá cả và thị trường tiêu thụ. Thị trường đầu vào và đầu ra còn nhiều khó khăn và manh mún. Liên kết giữa các tác nhân trong chuỗi chưa thật sự chặt chẽ.

Để phát triển tốt hơn các SPNNTT và nâng cao thu nhập cho các hộ nông dân sản xuất nhỏ ở Thừa Thiên Huế cần: (1) cải thiện cơ sở hạ tầng bằng cách xây dựng các cơ sở hỗ trợ liên quan đến sản xuất thức ăn chăn nuôi và các nhà máy chế biến; (2) hỗ trợ kỷ thuật bằng cách tổ chức nhiều hoạt động tập huấn kỷ thuật, chia sẽ kinh nghiệm sản xuất giữa các nông dân; (3) cải thiện khả năng tiếp cận thị trường bằng cách liên kết các sản phẩm tốt hơn với thị trường thông qua chiến lược mỗi xã phường một sản phẩm OCOP.

1. INTRODUCTION

1.1. Problem statement

Traditional agriculture products (TAPs) play a significant element of cultures, history, and lifestyles devoting to the development and sustainability of rural regions (Antonia Trichopoulou, Soukara, & Vasilopoulou, 2007). Regardless of the globalization of the food market, a diversity of dietary patterns among nations can be observed (Naska et al., 2006; Slimani et al., 2002). The demand for TAPs has still been increasing in line with the overall customer positive attributes (Almli, Verbeke, Vanhonacker, Næs, & Hersleth, 2011). TAFs are often characterized by buyers with features associated with local unique and distinct sensory quality. A significant characteristics of TAFs is generally considered healthy (A. Trichopoulou, Vasilopoulou, Georga, Soukara, & Dilis, 2006), overall, clients present a positive perspectives concerning such foods (Frewer, Risvik, & Schifferstein, 2013). Thus, researches on TAPs provide an essential awareness of dietary patterns and how these have been changed over times (Antonia Trichopoulou et al., 2007).

Agriculture and TAPs in particular, especially in developing countries, as Vietnam, have importantly contributed on creating jobs, generating incomes and improving life quality, (Burgos, Hinrichs, Otte, & Roland-Holst, 2008; Desvaux, Ton, Phan Dang, & Hoa, 2008; Epprecht, Vinh, Otte, & Roland-Holst, 2007; Miers, 2008; Tu, 2001). In Thua Thien Hue (TTH) province, agricultural sector plays a very important role in social - economic development, which occupy many key resources, 77.9% of the total area, 32.8% of the total labor force, 11.3% of the total GDP (T. V. Nguyen, 2015). Nevertheless, many development policies issued by the Vietnamese Government tend to develop the agriculture and rural development in the direction of increasing the scale of the cash crop, livestock. In return, those development approaches require investments of land, capital, and technical improvement (Giesecke, Tran, Corong, & Jaffee, 2013; Marsh, MacAulay, & Hung, 2006; Tachibana, Nguyen, & Otsuka, 2001) which are not permanently appropriate for many regions in the country, especially for central and mountainous areas where still facing lots of limitations. Thua Thien Hue province, which is in the central areas of Vietnam, has been widely considered to has small land size, land fragmentation, farmers lack

of capital, skills, small market, poor access to financial resources (P. Nguyen, van Westen, & Zoomers, 2017; W. Smith et al., 2007). As a results, the development approaches focusing on the increasing of scale of production, intensification rather than diversification may not be an appropriate strategy for this region.

Additionally, Thua Thien Hue province has long been well-known for home to many traditional agriculture products, namely Thanh Tra pomelo, traditional raising chicken, fish sauce, shrimp paste…in which Thanh Tra pomelo and traditional raising chicken are of the best well-recognized products (Ban et al., 2005; Tran, Marincioni, Shaw, & Sarti, 2008; Wetterwald, Zingerli, & Sorg, 2004). Nevertheless, agricultural in general, TAPs production in particular, due to numerous limitations, have not commensurately developed with the potential and comparative advantages which lead to low income for farmers (Hiep, 2016).

Furthermore, to my knowledge, there has been surprisingly little research on economic analysis of TAPs. The majority of previous studies have only focused on commercial agriculture foods, namely commercial or "industrial" chickens, short-day raising, high quantity of eggs, chicken but low quality of meat, taste (Berg, 2002; Brooks, Roberton, & Bell, 2010; Hiep, 2016; Ifft, Roland-Holst, Sy, & Zilberman, 2008; Marsh & MacAulay, 2002; Phan et al., 2009). Most of the researches rather than pay attention more on technical or institutional issues (MURAMOTO et al., 2006; T. D. Nguyen & Spradbrow, 1991; Thi Ut & Kajisa, 2006). Moreover, promotion strategy for TAPs are also important for producers, manufacturers, policy-and decision-makers, (Gao & Schroeder, 2009). This is due to fact that consumer are willing to pay a premium for TAPs (Balogh, Békési, Gorton, Popp, & Lengyel, 2016; Cameron & James, 1987; Van Loo, Caputo, Nayga, Meullenet, & Ricke, 2011). However, the concept of promotion strategy toward TAPs has still been a gap in the literature.

Therefore, this study focuses on economic performance analysis of traditional agriculture products and its contribution to income diversification for smallholder farmers in Thua Thien Hue province. Two categories of traditional agriculture products: Thanh Tra Pomelo and traditional raising chicken in Thua Thien Hue province have been studied, representing for animal and crop products, respectively.

1.2. Research objectives

This study is designed at clarifying awareness about traditional agriculture products with regards to the economic analysis of Thanh Tra Pomelo and chicken in Hue city, Huong Thuy town and Nam Dong district in Thua Thien Hue Province, Vietnam. Additionally, the contribution of Thanh Tra pomelo and traditional chicken to income diversification of household and promotion strategies to develop these products would be also taken into consideration. Therefore, the following research objectives are formulated:

1. Evaluate the current circumstances of TAPs in TTH province
2. Investigate the economic analysis of traditional agriculture products in Thua Thien Hue province
3. Assess the contribution and characteristics of producing TAPs to income diversification of smallholder farmers in TTH province
4. Evaluate the promotion strategy for TAPs in Vietnam in general and in TTH province in particular

1.3. Research questions

Based on research objectives, research questions have been developed as followed :

1. What are the main costs and benefits associated with traditional agricultures production?
2. Which determinants are critical success factors or bottlenecks of the economic efficiency?
3. What are contributions and characteristics of traditional agriculture products to income diversification?
4. What should be the promotion strategy for traditional agriculture products in Thua Thien Hue province?

1.4. Scale and scope of the research

The scale of the research: The research objectives of this thesis are theoretical and practical issues related to economic analysis of traditional raising chicken and Thanh Tra pomelo farming. Those are two typical

traditional agriculture products in Thua Thien Hue province. However, as economic analysis is related to many subjects, so this thesis is focused on economic analysis of smallholder farmers in Thua Thien Hue province.

The scope of the research:

Content: The dissertation concentrates on studying economic results of specific products as traditional raising chicken and Thanh Tra pomelo production at household level; current status of investment, results and economic efficiency of chicken and Thanh Tra pomelo production according to the type, scale of farming,…analyzing the factors affecting the results and economic efficiency; value chain analysis of chicken and Thanh Tra pomelo production.

Study sites: The study was conducted in Thua Thien Hue province, Vietnam, in which three districts, namely Thuy Bieu commune in Hue city for the case of Thanh Tra pomelo and Huong Thuy and Nam Dong for the case of traditional raising chicken.

Study times: The research was conducted in 2017 and 2018.

2. LITERATURE REVIEW

2.1. Traditional agriculture products concept

2.1.1. Definition of TAPs

There have been many definitions in the literature concerning the Traditional Agriculture Products (TAPs) topic in line with the increasing interest in TAPs (see table 2.1). A TAPs is believed to be connected to a distinct area, mentioning the collaboration of the people functioning in that place (Jordana, 2000). It has to also be portion of cultural customs that will certainly guarantee its continuity over time. The European Commission, in 2006, defined ‘‘traditional’’ foods: “Traditional means proven usage in the community market for a time period showing transmission between generations; this time period should be the one generally ascribed as one human generation, at least 25 years’’ (No, 2006)

Lately, the EuroFIR FP6 Network of Excellence has proposed an explanation of traditional food. This is an elaborative description that comprises announcements about traditional ingredients, traditional composition, and traditional type of production and/or processing (Antonia Trichopoulou et al., 2007). In Europe, Italian Ministry of Agriculture is the only one that officially defines TAPs as “Agrifood products whose methods of processing, storage and ripening are consolidated with time according uniform and constant local use’’ (A. Trichopoulou et al., 2006).

Adopted from the above descriptions, this research apply a lately definition of TAPs which has been developed by (Gellynck & Kühne, 2008). TAPs are products that the crucial procedure happen in a definite place at local, regional or national level; are genuine in their technique, origin of primary material, and production method; are commercially available for about 25 years, and are part of the local cuisine, culture.

Table 2.1. Definitions of traditional agriculture products

Definition of the TAPs	Sources
A TAPs is considered to be related to a distinct region, and part of culture that involves the cooperative operation of households in that region	(Bertozzi, 1998)
TAPs are agri-food products whose methods of handling, preserving, and ripening are stabilized over times relating to form and persistent local habit.	(Agricoltura, 1999)
To be identified as traditional, a product has to be connected to an area, then be admitted to a category of traditions, in return ensuring its cohesion in the future	(Jordana, 2000)
Traditional refers to recognized consumption in local market over times that is transmitted over generations; a period of minimum 25 years	(EU, 2006a)
A TAPs contain an identical characteristic or characteristics, which differentiate it obviously with alike products of the similar group regarding the usage of traditional ingredients (raw elements or elementary products) or traditional composition or processing technique.	(EuroFIR,2007)

Source: (Verbeke, Guerrero, Almli, Vanhonacker, & Hersleth, 2016)

2.1.2. Characteristics of TAPs

Apart from geographical characteristics, a products is considered to be traditional products must have tradition as a critical component. According to (Antonia Trichopoulou et al., 2007), there are three components that a traditional product is believed to has, which are traditional ingredients, traditional composition and traditional type of production or processing. Specifically, these characteristics are illustrated in Table 2.2 below.

Table 2.2. Traditional characteristics of TAPs

Characteristics of traditional agriculture products		
Traditional ingredients	Traditional composition	Traditional type of production and/or processing
- Raw material or primary product either alone or as an ingredient - Consumed in particular regions and continue at present	- Distinctively recognizable components - Distinguished with the components features of the other products in the same group	- Transferred over generations by oral or further ways - Processing is still conforming with former methods

Source: Adopted from (EU, 2006a; Antonia Trichopoulou et al., 2007)

2.2. Livelihood and income diversification concept

The concept of livelihoods was introduced by Carney(Carney, 1998) and Scoones (Scoones, 1998) and later on it has been widely adopted by researchers, academic practioners and NGOs in relation to development schemes((UNDP), 1999; IUCN, 2007). The sustainable livelihood framework encompasses five assets that typically consist of natural, human, social, physical and financial capital (Morse, 2013; Reed et al., 2013). Additional assets have gradually been more being evaluated in other research, for instance information, cultural, traditional and institutional assets(Cochrane, 2006; Odero, 2008). In addition, livelihood diversification is believed to be a process in that rural families conduct a different collection of farm and/or nonfarm activities over time to secure survival and improving their standards of living (Ellis, 1998). Numerous pieces of this definition is clarified in literature. Firstly, a livelihood is more than just income (Escobal, 2001). Income denotes to the cash earning of the family and payments in kind which could be estimated at market values. The income from cash earnings contain crop or livestock sales, wages, rents, and remittances. The in-kind element of income mentions about consumption of particular farmer production, payments in kind (for instance, in food), and transfers or exchanges of consumption substances that exist among families in rural villages.

Figure 2.1 shows that a livelihood includes income (together cash with in kind), in addition to the social institutions (kin, family, compound, village…), gender relations, and property rights essential to backing and to assist a given accepted of living. Social and affinity linkages are vital for enabling and supporting different income selections (Ellis, 2000). Social institutions are also vital for understanding the restraints and possibilities of persons and households characterized by gender, income, wealth, access and assets (Wood, 2003). Specifically, different approach to land is considered to be the crucial basis of particular livelihood strategies followed by the poor in comparison with the better-off rural households (Eneyew & Bekele, 2012). Similarly, social constraints on allowed ways of action for women could create major variances to the livelihood choices accessible for females correlated to males (N. M. Smith, 2015).

Moreover a livelihood comprises admission to, and welfares resulting from, social and public facilities given by the government, namely education, health care, infrastructures...(De Haan & Zoomers, 2003). Public facility is believed to be bias provided for the better off with more nearby locations, communities, and social groups, thus intensifying the physical deficiency already existed by the poor due to insufficient levels of assets and income (Talen & Anselin, 1998). Livelihood diversification is consequently different

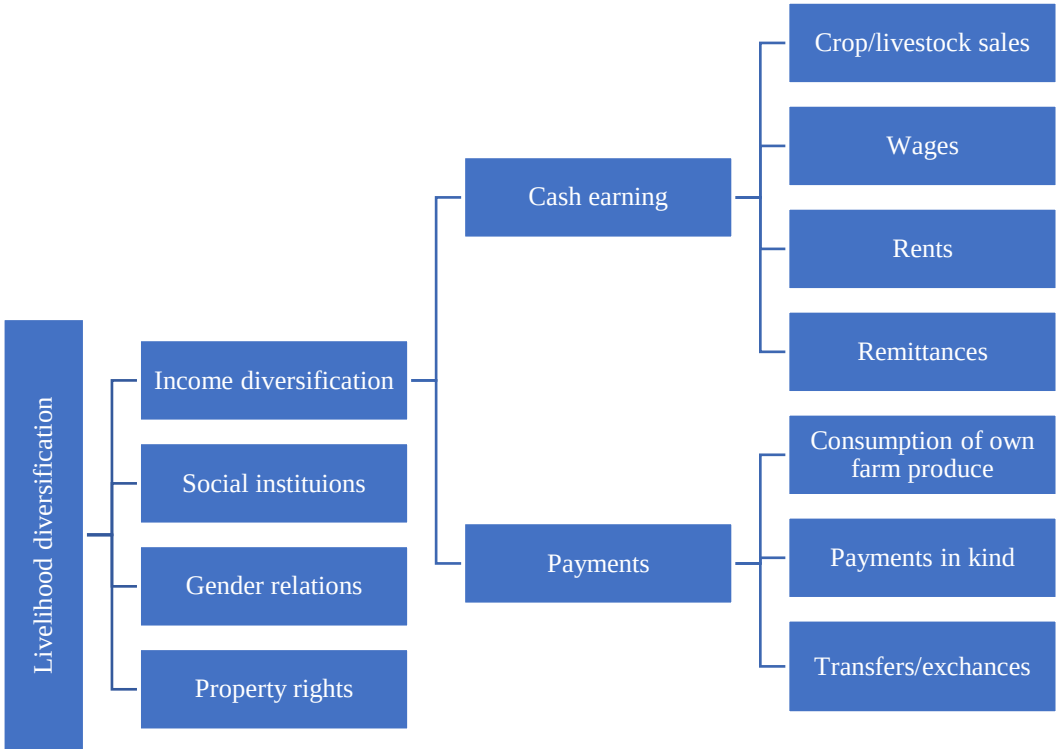

Figure 2.1. Livelihood diversification and income diversification

with income diversification. Nonetheless, many economic studies of diversification emphasis on different income sources and their linkage to income levels, income distribution, assets. The income diversification concept mentions about the structure of household incomes at a specified time; diversification, however, defines it as an active social practice *Source: Adopted from (Ellis, 1998)* in which households are considered to involve in gradually complicated sets of activities over time.

Income diversification and income structures of household have been differentiated by groups and sub-groups. These differentiations are not rather random but resulting from different labor markets with different characteristics of seasonality, constraints, situations, possible development (Reardon, 1997). Each person and households have singular contact to

different income sources, thus, involvement in those sources would create distinct effects on poverty and income sharing. As a result, this study focuses more on cash earning rather than payments, specifically on crop/livestock sales.

3. RESEARCH SITE AND METHODOLOGY

3.1. Research site

This study was conducted in Thua Thien Hue, a province in the North Central of Vietnam, bordered on the North by Quang Tri province, South by Da Nang city, on the East and the West by the South China Sea and Republic of Lao People's Democratic, respectively. The province has an arstudbriea of 5.053 km2 province, which is organized into nine administrative districts. The estimated population of 1,127,905 people in 2013 (Tran & Shaw, 2007), (Figure 3.1). The study was conducted in 2017 in Huong Thuy, Nam Dong and Hue city of Thua Thien Hue province. The most important economic activity in this municipality is agriculture and forestry (TTH, 2014).

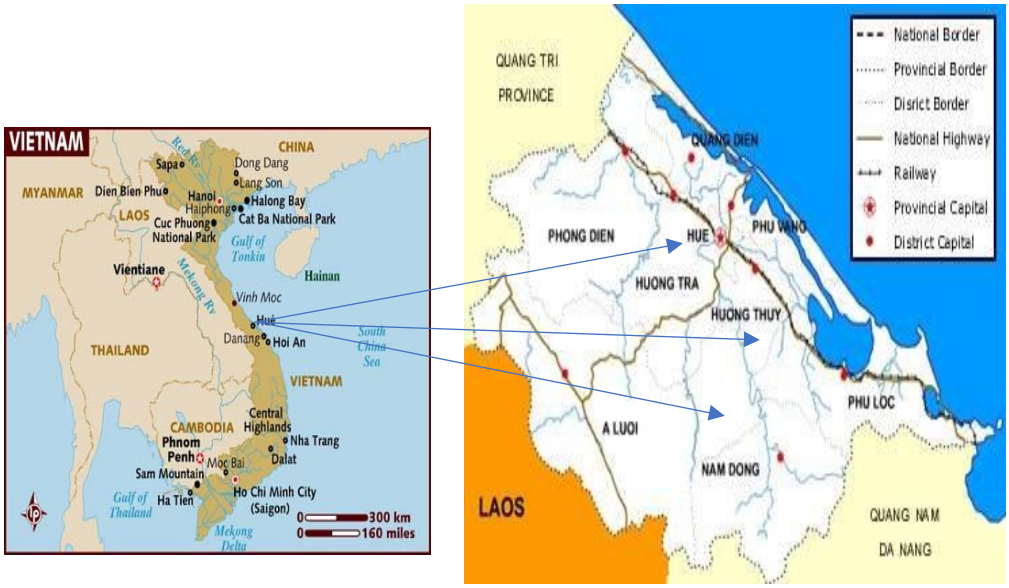

Figure 3.1. Map of Thua Thien Hue province, Vietnam

Situated at the middle of the country, Thua Thien Hue is on important traffic routes such as 1A Highway which is in the regular road system in Southeast Asia, linking China with ASEAN countries, the Ho Chi Minh road, North-South railway, the axis East-West economic corridor linking Vietnam, Laos, Thailand and Myanmar, the international airport Phu Bai Thuan An seaport (Figure 3.1). This is quite a favorable position in attracting investment as well as trade and flow of local goods to the domestic as well as countries in the region and the world.

❖ Climate, weather

Thua Thien Hue province is located in the tropical monsoon climate, with two distinct rainy seasons sunny; rainy season starts in September last year and ends in January next year. At the same time the province has been directly influenced by the two main monsoons which are Northeastern and Southwest wind. The Northeast wind operates since October and ends in March next year, which often causes rain and floods in October, November. The Southwest wind operates since April and ends in August, which often creates hot and dry weather. Besides, Thua Thien Hue is also influenced by continental winds and ocean winds making changes to the mode of heat, moisture in the season.

❖ Land

Thua Thien Hue has a total natural area of 503320 hectares, of which approximately 465205 hectares of land; lakes, ponds, marshes, rivers, mountains area is 38115 hectares. Hilly land accounts for over 3/4 total area of natural land, the remaining is coastal plain accounting for under 1/5 of total natural land area of the province. According to the survey of soil mapping in 2003, Thua Thien Hue has 10 groups and different soil types, which are: the sand dunes and the sea, salinity, acid soil, alluvial soil, and peat moor , gray soil, barren soil, land slope valleys converge, yellow red loam soil erosion on the mountain and gravel and stones. In these 10 groups, barren soil has the largest area of 347431 hectares, accounting for 74.68% of the total land area, land sand dunes and the sea is 43962 ha, accounting for 9.45% and 41.00 hectares of alluvium land, accounting for 8, 81%.

❖ Social economic charateristics

The economic structure of TTH province has shifted in a positive way, in which, the GDP structure of the agriculture, forestry and fishery sector in the total GDP tends to decrease, and the GDP structure of the industry - construction and services sectors tends to increase. Despite that fact that, GDP structure of the agriculture, forestry and aquaculture likely to decline, the value of this sector annually rise from 5008 Bil.VND in 2016 to 5395 Bil.VND in 2018.

3.2. Research methodology

3.2.1. Analytical framework

There have been generally five main farm household strategies which could contribute to improve farm household livelihoods and escape from poverty. These strategic options are not mutually exclusive, even at the individual household level; any particular household will often pursue a mixed set of strategies. (Dixon, Gibbon, & Gulliver, 2001). The strategies can be categorized as 5 sections:

- Intensification of existing production patterns;
- Diversification of agricultural activities;
- Expanded operated farm or herd size;
- Increased off-farm income, both agricultural and non-agricultural; and
- Complete exit from the agricultural sector within a particular farming system.

Nevertheless, due to different household constraints, capacities and barriers in terms of education lelvel, credit, land availability, technology skill have been recognized by scholars and literatures in the implementation of these strategies (Abdulai & CroleRees, 2001; Démurger, Fournier, & Yang, 2010; Kasem & Thapa, 2011) and the reality of Thua Thien Hue province, which has been widely considered to has small land size, land fragmentation, farmers lack of capital, skills, small market, poor access to financial resources (P. Nguyen et al., 2017; W. Smith et al., 2007). Additionally, Thua Thien Hue province has also long been well-recognized for home to many traditional agriculture products (Ban et al., 2005; Tran et al., 2008; Wetterwald et al., 2004). Thus, diversification of agricultural activities has been studied in this research as a household strategy for income diversification.

Specifically, this research aims to implement an analysis on household strategies by investigating economic analysis of producing TAPs, and its contribution to income diversification specifically Thanh Tra pomelo and traditional raising chicken, representing crop production and animal for smallholder farmers in TTH province, Vietnam.

Regarding economic efficiency, indicators for economic efficiency analysis have been further studied. The contribution of TAPs to income

diversification by investigating characteristics of producing these products have also been analyzed. In the case of promotion strategy, the value chain analysis has been applied.

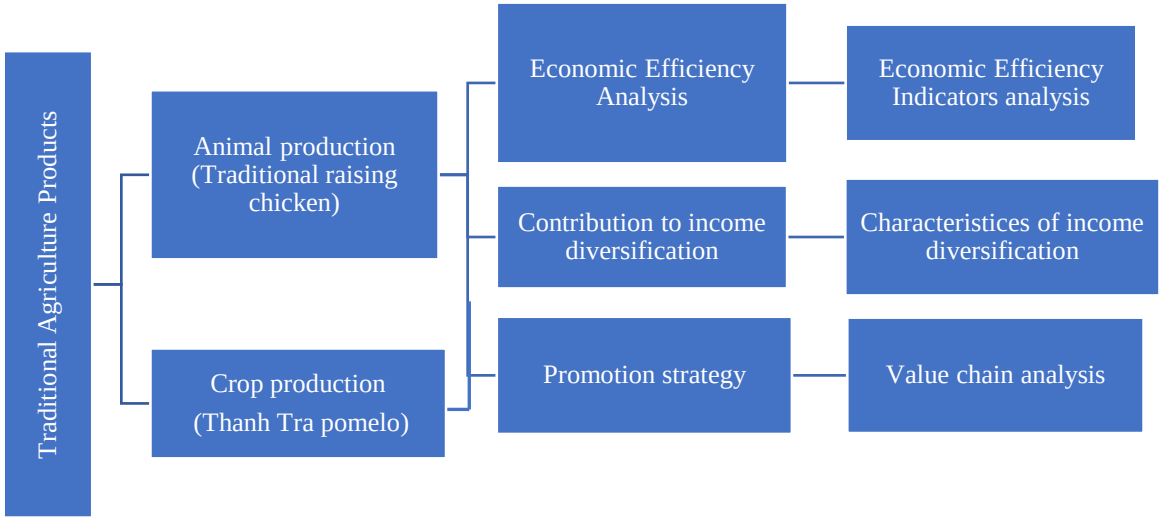

Figure 3.2. Analytical framework

Source: Author's compilation

3.2.2. Sampling strategy

❖ Study sites selection

Reviewing the current literature on TAPs in TTH province showing that among lots of traditional agriculture products in Thua Thien Hue province, namely chicken, honey, rice alcohol, pomelo, shrimp paste, fish sauce… Thanh Tra pomelo and traditional raising chicken have been considered to be one of the most significantly famous products. As results, this study chooses these two products taking into account their fame and reputation, production characteristics and contribution to the income diversification for local communities in TTH province. Furthermore, these two products also cover for the two mainly categories of TAPs namely crop products and animal products, that the production activities do not need large investment of land or capital, of which have been considered to be not the advantages of the local farmers in TTH province but small land size, land fragmentation, lack of capital, skills, small market, poor access to financial resources (P. Nguyen et al., 2017; W. Smith et al., 2007).

Additionally, a special characteristic of TAPs is that these products have a geographically settled up, reputation associated with specific place names,

origin. For this characteristics, Thanh Tra pomelo traditional and raising chicken has a long history of development in Thuy Bieu ward, Hue city and Huong Thuy town and Nam Dong district, respectively, which has their favorable and perfect conditions for the development of traditional agriculture production activities. Specifically, in the case of Thanh Tra pomelo, three selected villages in Thuy Bieu ward, namely Trung Thuong, Luong Quan and Dong Phuoc 1 were chosen and in the case traditional raising chicken, Thuy Duong commune in Huong Thuy town and Huong Phu commune in Nam Dong district were selected for insight details survey regarding the production situation, economic analysis and their contribution to income diversification of local communities in TTH province.

❖ **Sample size**

There are four of the most commonly used sampling procedures: simple random sampling, stratified sampling, systematic sampling, and probability proportion to size selection (Iarossi, 2006). Chicken and Thanh Tra pomelo production in Thua Thien Hue province is relatively diversified in terms of scale, model. Furthermore, the secondary information on the number of facilities, the number of chickens, Thanh Tra is available in yearly statistic books, so stratified random sampling was applied. Questionnaires were used to collect data, with a total of 64 farmers involving in Chicken were interviewed. Only one cycle of production in a year, specifically, the period of Winter-Spring season in 2017 was taken into the consideration. In the case of Thanh Tra pomelo, 90 farmers were questioned for information regarding their production activities in the season of 2017.

The sample size of the study was calculated based on the following Slovin's equation:

$$n = \frac{N}{1 + Ne^2}$$

where n is the sample size; e is the desired margin of error (10%)

and N is the total household involving in Thanh Tra pomelo and Chicken production in the selected sites in Thua Thien Hue province.

Table 3.1. Household sampling for traditional raising chicken households in Thua Thien Hue province

Locations	Communes	Nº of Chicken household	Desired margin of error	Sample size in calculation	Research sample size
Huong Thuy	Thuy Duong	400	10%	39	39
Nam Dong	Huong Phu	250	10%	25	25
			Total:	**64**	**64**

Source: Household survey in 2017, 2018

4. RESEARCH RESULTS

4.1. Economic analysis of chicken production and its contribution to income diversification of househod in Thua Thien Hue province

4.1.1. Socio-economic characteristics of household producing traditional raising chicken

Table 5.20 states that the average age of farmers is 42 and educational level is 7 years. The number of experiencing years of raising chicken is quite high, averaging nearly 7 years, which is a very important condition for chicken production that requires knowledge and experiences. Average labor force is 2 labors, although the labor force is relatively large, but chicken production does not require much time and can take advantage of spare time and over-age labor. Although the number of labor involved in chicken activity is not high, farmers have been technically trained, at least once and at most 5 times, regularly 3 times/year provided by agricultural extension center of the district and of feed or veterinary companies.

To implement this type of chicken raising, farmers need to have a relatively land area for the coop, grazing land so that chicken can partly feed themselves from natures. This requirement has been satisfied by farmers in the surveyed sites by an average of 959 m^2.

Table 4.1. Socioeconomic characteristics of the chicken household

	Unit	Mean	S.D
Age	Years	42.08	8.56
Educational levels	Years	7.03	2.38
Production experience	Years	6.91	1.63
Total labor	Labor	2.23	0.96
Training	Times/Year	2.96	0.84
Total land	m^2	16678	9157
Land for chicken	m^2	958	96
Land for other activities	m^2	15719	9252
Total capital	Mil.VND*	3176	3877
Capital for chicken	Mil.VND*	50.01	30.73
Own capital	Mil.VND*	18.11	5.15
Loans for chicken	Mil.VND*	31.90	26.02

Source: Household survey in 2017; *in 2017, the exchange rate was 1 Euro = 26,000 VND

The total investment for the chicken activity is 19 million VND and the largest one is 107 million VND. This difference is due to the different scale of production. For smallholder farmers, they do not require much investment, in contrast big farms require investments quite a lot. In spite of the fact that most farmers have access to loans, the amount of loan is not much, the average is 32 million VND per household and usually they are entitled to preferential loans through union organizations in the district.

4.1.2. Technical characteristics of chicken farming in Thua Thien Hue province

Table 4.2. Technical characteristics of chicken production

Items	Unit	Mean	S.D
Numbers of cycle	Cycle/Year	2.19	0.53
Days of raising	Days/Cycle	92.5	9.87
Scale/cycle	Nº of chicken/ Cycle	195.47	61.77
Mortality rate/cycle	%/ Cycle	10.7	4.83
Sold Weight	kg/ Cycle	1.48	0.11

Source: Household survey in 2017

Table 4.2 indicates that, the average cycles of production in a year of chicken farms are 2 cycles/year and the total days of raising is 93 days, equivalent to 3 months. In comparison with times of industrial chickens (60 – 75 days), these chickens need longer times of raising. Between cycles of production, farmers usually spend one or two weeks for cleaning and repairing the grazing area and coop. The average of chicken/cycle is about 196 chicks/cycle, which is about 2 chicks/m^2 in the condition of land for chicken in the surveyed areas. This stocking density is very good for the raising activity as compared to the technical requirement of around 5-6 chicks/m2 (Nam, 2002). There is a significant difference in the mortality loss among chicken farms, which is reflected by the smallest loss rate of 3%, the largest of up to 19% and the overall average of 10%. Difference in mortality rate arise from the care, veterinary, quality of the breed and the safety of the breeding coop. This loss rate is quite higher in comparison with other chicken, namely industrial chicken (5%), semi-industrial chicken (8%) (Khoa & Mãnh, 2012). The reason for this situation is due to the method of raising, chickens are free in the grazing area, looking for feeds from the nature, so chicken is more susceptible to diseases than the other form of raising keeping the chicken only in the house. Moreover, in the winter season,

temperature in the study areas usually drops very low, about 10-12 degrees, so this is also of the reasons of high mortality rate. If this worrying matter would not be solved soon, it will be difficult for farmers to achieve a high results.

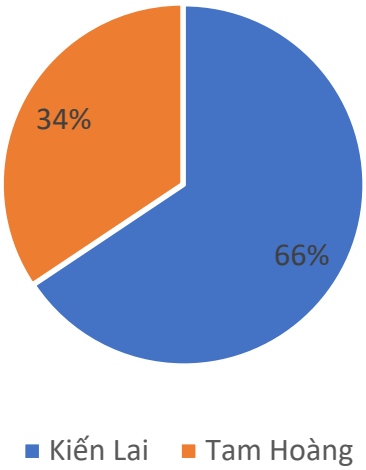

Figure 4.1. Technical characteristics of chicken farming

Source: (Household survey in 2017)

respectively. There are also other breeds, namely Luong Phuong, but it exists only in the industrial model. Most breeds are provided by out-of-province production facilities (over 70%). Kien Lai breed is purchased from Tam Ky - Quang Nam. Large farms usually buy breeds directly from breeding facilities, while small and medium scale farms often purchase through dealers. Breeding chickens from outside the province are fully vaccinated, transported by air, so the quality of the breed is high, however the price is high due to the extra cost of transportation. Access to breeding sources outside the province is generally relatively easy, but occasionally there is a shortage of Kien Lai breeds, especially in the cold rainy season, which in partly affects the production schedule.

4.1.3. Economic efficiency analysis of traditional chicken production in Thua Thien Hue province

4.1.3.1. Chicken production cost

Table 4.3 shows a significant difference in cost of chicken production between regions. Specifically, the average Cost /100kg in Huong Thuy was VND 7,208,500 lower than that of Nam Dong district, VND 8,081,900. The key explanation for this difference is the availability and prices of inputs. While Huong Thuy are geographically quite convenient for trading and many advantages for livestock development. Thus, in Huong Thuy district, there are many agents and stores providing the inputs namely breeds and feeds. In contrast, Nam Dong is a mountainous district where transportation is difficult and there are few suppliers provide inputs. Therefore, the prices for inputs are typically higher as compared to that of other districts as shipping costs are included in the selling prices. This is evidenced in the data on breed and feed costs as shown in table 7. The farmers in Huong Thuy only pay for the cost of breeds and feeds about 1,491,180 and 4,370,720, while in Nam Dong, farmers have to pay for 1,993,920 and 4,900,000, respectively. In addition, in Huong Thuy chicken production have developed earlier than Nam Dong, so farmers in this area have better experiences and techniques, so this factor also affects the cost of production. Remaining costs also differ between two regions, but this difference is negligible.

Table 4.3. Components of costs by region

(Unit: 1,000VND/100Kg)

	Huong Thuy ***(n=39)***		**Nam Dong** ***(n=25)***		**Total** ***(N=64)***		**t-test**
	Value	%	Value	%	Value	%	Sig
1. Direct Costs (DCs)	6416.95	89.02	7323.88	90.62	6771.22	89.69	0.01*
- Breeds	1491.18	20.69	1993.92	24.67	1687.56	22.35	0.01*
- Feeds	4370.72	60.63	4900.20	60.63	4577.55	60.63	0.00*
- Veterinary	359.85	4.99	265.84	3.29	323.13	4.28	0.00*
- Electricity and water	62.46	0.87	60.00	0.74	61.50	0.81	0.00*
- Hired labor	67.00	0.93	49.00	0.61	59.97	0.79	0.00*
- Fees and taxes	30.10	0.42	24.00	0.30	27.72	0.37	0.00*
- Other costs	35.64	0.49	30.92	0.38	33.80	0.45	0.00*
2. Subsistence costs (SCs)	722.04	10.02	682.38	8.44	706.55	9.36	0.00*
- Family labor	347.32	4.82	321.34	3.98	337.18	4.47	0.00*
- Family feed	374.72	5.20	361.04	4.47	369.38	4.89	0.00*
3. Depreciation	39.41	0.55	38.96	0.48	39.23	0.52	0.65
4. interest	30.10	0.42	36.68	0.45	32.67	0.43	0.00*
C = 1+2+3+4	7208.50	100.00	8081.90	100.00	7549.68	100.00	0.02*

*Notes: * indicates a 95% significance level*

Source: (Household survey in 2017)

4.1.3.2. Chicken production result

Being in a convenient geographical position, easily access the inputs market, costs of chicken production in Huong Thuy are lower than those of Nam Dong as analyzed in the section 5.2.3.1. The market survey in study areas also shows that there is no significant difference in the selling price between regions (the average price per kg is about 85,000 VND/Kg). This is derived from the small scale of production in Thua Thien Hue province, undeveloped the market, lack of processing plants; as a result, chicken products are mainly locally consumed.

However, due to a lower costs, results of chicken production in Huong Thuy, the midland plain, are higher than that of Nam Dong, the mountainous areas. This is presented in table 4.4, indicators of the results by region. Specifically, indicators reflecting the results, namely GO, VA, MI and NB in Huong Thuy are the higher that those of Nam Dong. Indicators reflecting efficiency show that in Huong Thuy, 1 VND investment of IC earned 1.55 VND GO, 0.55 VND VA, 0.52 VND MI, and 0.41 VND NB. In the chicken farms in Nam Dong, 1 VND investment of IC earned 1.29 VND GO, 0.29 VND VA, 0.27 VND MI and 0.17 NB.

Table 4.4. Result indicators by region

(Unit: 1,000 VND/100Kg)

Indicators	Unit	Huong Thuy *(n=39)*		Nam Dong *(n=25)*		t-test
		Mean	S.D	Mean	S.D	sig
GO	1000VND	9608	1937.65	9215	635.05	0.00*
VA	1000VND	3288	1569.81	1964	1092.05	0.00*
MI	1000VND	3121	1571.33	1815	1091.18	0.00*
NB	1000VND	2399	1575.63	1133	1088.35	0.00*
GO/IC	times	1.55	0.26	1.29	0.195	0.00*
VA/IC	times	0.55	0.26	0.29	0.194	0.00*
MI/IC	times	0.52	0.25	0.27	0.192	0.00*
NB/IC	times	0.41	0.24	0.17	0.18	0.00*

Notes: * indicates a 95% significance level

Source: Household survey in 2017

4.2. The contribution of chicken production to income diversification of smallholder farmers in Thua Thien Hue province

Table 4.5. Income distribution of chicken household

(Unit: 1,000 VND)

	Value	%
Total income	94540	100
Chicken	27920	30
Cultivation	21756	23
Poultry	16080	17
Services	9459	10
Handicraft	4730	5
Others	14645	15

Source: Household survey in 2017

The total household income is broken down by source namely income from chicken production, cultivation, poultry, service, handicraft and other activities. From the table 4.5, it is clearly that the majority of income of these farmers are sourced from chicken production which value at 27,920 thousand VND, accounting for 30% of the total household income. The second major income of all come from Cultivation of Tree, specifically 21,756 thousand VND, comprising of 23% of the total income. Poultry is also another significant earning for household in this commune by making up 16080 thousand VND, which equivalent to 17% of the total income. Apart from chicken production, household in this area are also producing other poultry, namely duck… However, these activities have not been spent lots of investments due to farmer's belief of chicken has long history of producing in this area. As a result, most of investments from land, capital of these household are for chicken production as mentioned in the table 26.

In addition, the reluctance to change farmers' production models when interviewed is also a difficulty in diversifying livelihoods. Most of the farmers interviewed answered that they were accustomed to raising chickens because this was a job they had produced for a long time and had experience, if now they had to switch to another production model, Invest again from the system of barns, breeding animals, knowledge and skills

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

Irrespective of the globalization of the food market, traditional agriculture products has been considered to be an important component of cultures, history, and lifestyles dedicating to the development and sustainability of rural areas. Traditional agriculture production activities and a better knowledge of costs and benefits and promotion strategy related to traditional agriculture products has been received major attention from academics and practitioners and becoming significantly important for smallholder farmers in a chaining climate world.

Thua Thien Hue province is located in the North Central of Vietnam, in which the most important economic activity is agriculture and forestry. Thua Thien Hue province has relatively favorable terrain conditions, diverse systems of rivers and lakes, annually filled with alluvium, appropriate weather and favorable conditions for developing traditional agriculture products, namely Thanh Tra pomelo and traditional chicken. Thanh Tra is a fruit tree with a long business cycle, but the economic efficiency is quite high for producers, providing stable income for people in the growing areas. The average cost of households for 1 Sao of Thanh Tra in the basic construction period was 8.2 million VND and 7.0 million VND in the business period; GO is about 25 million dong/Sao, MI is about 13.5 million dong/Sao and NB is 10.8 million dong/Sao. Thanh Tra farmers spend an 1 VND of IC receive 4.16 VND MI and 3.42 VND NB showing that the economic efficiency of Thanh Tra is significantly higher than those of chicken production. However, its economic efficiency depends on many factors: natural conditions, intensive farming methods, seeds, fertilizers, care techniques, irrigation regimes, plant protection... The economic efficiency of chicken production on average farmer earned 2.9 million VND of MI, 2.3 million VND of NB/100kg of chickens; chicken farmers spend an 1 VND of IC receive 0.49 VND mixed income and 0.38 VND NB. Meaning that, economic efficiency from traditional agriculture products are significantly higher than other production activities in Thua Thien Hue province or bank interest rates at the time of the study. These findings are the proves for the first and second hypothesis of the thesis indicating numerous of input and output activities related to traditional agriculture production and

traditional agriculture products significantly contribute to the improvement of income of the smallholders farmers in Thua Thien Hue province. Another significant finding of this study is that in the case of Thanh Tra pomelo, large scales production is less efficient then medium scales. This is a significant one in the case of TTH province, where local farmers do not have many land area or available capital to expanding the production area.

Additionally, formed and existed for hundreds of years, TAPs can be likened to a “museum” storing tangible values – traditional agriculture products and intangible values, namely, knowledge, experiences, customs, beliefs, festival. The development of TAPs are not merely an economic activities, but crystallized in the space of its existence as production culture, spiritual culture, food habits, living habits, customs... Therefore, each TAPs is a cultural space rich in identity or a miniature picture of Vietnamese village culture. Developing TAPs in association with the production of souvenir items will create a tourism product that effectively complements key products (sea resorts) and strong products (spiritual culture). At the same time, developing TAPs associated with the craft village space, also contributes to tourism development in a sustainable way. Because it contributes to raising the responsibility of both people and visitors in preserving traditional crafts, protecting the environment and landscape of craft villages, in order to create a cultural space rich in identity. Thus, this situation can help to protecting the ecological environment, preserving the culture identity, creating jobs for local people, eradicating hunger and reducing poverty, ensuring the social security.

Sympathetic with the third hypothesis of the thesis, the following results have showed that despite of the active support of local authorities, the production of traditional agriculture products in general and Thanh Tra, chicken in particular still faces many limitations in terms of trademark, quality, productivity, prices and consumption market. The gate prices of products are still due to price constraints. The market of inputs still faces many difficulties and shortcomings; the output market is generally fragmented; the ability to capture market information of the farmers is limited, the capacity of the actors in the supply chain is weak, cooperation is low, links are low, and processed products rudimentary thus value added in the value chain is little created and is unevenly distributed. The products trading mainly based on the verbal agreements between farmers and

collectors. These factors have more or less contributed to increasing production costs and reducing economic efficiency of traditional agriculture production and income of households in Thua Thien Hue province.

5.2. Recommendation

5.2.1. Recommendation for farmers producing chicken

- **Be more active in Chicken production activities**

Gradually change the small-scale, free-form husbandry practices with scale of 200-300 chicken/cycle and modern husbandry applying advanced waste treatment solutions to improve productivity, economic efficiency and environmental Protection.

- **Participate regularly in training, workshop, sharing experiences events**

Besides, it is necessary to actively participate in training courses on science and technology, make more reasonable calculations of input costs, and make full use of agricultural by-products and leisure labors to reduce cost.

- **Be more creative looking for information about markets**

Proactively seek cooperation relationships in livestock as well as in product consumption to raise livestock activities and consumption more stable and safe. Actively monitor market developments on issues such as input prices, output, epidemics, habits, consumer preferences in each period to make an accurate and appropriate investment decision.

5.2.2. Recommendation for stakeholders

Stakeholders in TAPs take into account collector, retailers, wholesalers, restaurants or processing facilities, breed/seed units, NGOs, universities, are significant for TAPs production activities.

- **Support in training, sharing experiences for farmers producing TAPs**

Of the most difficulties that farmers have to face with are diseases, technical issues relating to production activities, as a result NGOs, universities should have their specialist do on more studies, researches on

how to figure out the reasons and giving ways to overcome with these situations.

- **Support governments in establishing business unit or farmer cooperatives**

Stakeholders should support governments in establishing business units or farmers cooperatives to increase results and efficiency of TAPs production, to meet with the increasing demand of customers in terms of qualities and quantities for these products.

- **Organizing activities that connect agriculture productions with tourism**

TTH province has also been considered to be a famous tourism destination in Vietnam. As results, tourism companies, restaurants should include in the tourism programs of visiting household producing TAPs so that the tourist could experience that daily production activities but this also can help to increase income for farmers.

5.3. Policy implication

5.3.1. Infrastructure improvement

However, currently, Thua Thien Hue province does not have facilities to produce feed, breeds or processing factories. Therefore, the provincial People's Committee should study and create favorable conditions to encourage and attract domestic and foreign organizations and individuals to invest in building and developing animal feed production and processing factories, helping farmers to reduce this cost.

Increasing investment in scientific research on biological products to support increasing productivity and quality of Thanh Tra, creating medicines to protect Thanh Tra tree from dangerous pests and diseases.

5.3.2. Technical supports

Research results show that the number of technical training has a positive impact on economic efficiency. Therefore, it is necessary to strengthen and expand training programs on breeding and seedling techniques, disease prevention ... for farmers.

Building models of agricultural extension clubs and interest groups in localities to link, support and help each other in production activities.

The ability to review, process and judge market movements of farmers is still very limited. Therefore, local authorities need to support farmers for this uncertainty. For instance, local authorities should set up a market information support team in districts and communes to provide farmers with changes in market prices, consumption laws, consumption trends... inside and outside the province, advise farmers on what breeds, seedling to product, scale, timing ... in each stage.

Organizing seminars and training courses on building and developing Hue specialty brand of Thanh Tra and chicken. Develop a guide to manage, develop and protect Hue brand of Thanh Tra pomelo and chicken.

5.3.3. Market access

Integrating traditional agriculture products of Thanh Tra and chicken in Festivals and annual festivals of the province to promote branding and promote the cultural value of these products.

Department of Industry and Trade and other functional agencies need to study mechanisms and support to encourage the cooperation between farmers such as establishing groups of Thanh Tra and chicken households to increase sales volume, increase negotiation capacity. In addition, it is necessary to research and support to build a cooperative relationship between farmers and suppliers of input products and units that cover the output of products on the basis of a signed contract for sharing the benefits and risks with the fluctuations of market prices or epidemics.

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GRAESE : Groupe de Recherches Asie de l'Est et du Sud Est

Le GRAESE (Groupe de Recherches sur l'Asie de l'Est et du Sud Est) regroupe des chercheurs concernés par les problèmes du développement en Asie Orientale et Sud Orientale. A son origine se trouvent des académiques et des chercheurs ayant participé à des projets de recherche, d'enseignement et de coopération dans cette région du monde depuis le milieu des années 1990. En Belgique, ces activités ont associé, dès le début, des chercheurs de l'UCL, des FUSAGX, et de l'ULG qui poursuivent une coopération régulière depuis une quinzaine d'années. En Asie ces activités ont concerné un grand nombre de chercheurs et d'académiques de diverses universités et institutions vietnamiennes, laotiennes, cambodgiennes, thaïlandaises et chinoises. L'Université Agronomique de Hanoi (UAH) est un partenaire privilégié depuis le début. Ces activités ont concerné particulièrement les projets de développement agricole, les composantes socio-économiques du développement rural, les rapports villes-campagnes et les politiques affectant ces différents domaines. En outre plusieurs thèses de doctorat ont été réalisées dans le cadre de ces activités, et sous diverses formes de partenariat entrer les universités belges et asiatiques concernées. Le **GRAESE** vise à donner une meilleure visibilité à ces diverses activités, à faciliter la circulation de l'information entre les chercheurs et centres de recherches concernés, et à appuyer et soutenir l'intérêt en Belgique et en Europe pour les problèmes du développement asiatique dans un public plus large.

En pratique le **GRAESE** a pour objectif :

1) de stimuler la recherche interdisciplinaire concernant les problèmes et les enjeux du développement en Asie orientale et sud orientale
2) de publier sous forme de Working Papers (format papier ou online) des résultats de recherche liés aux projets en cours et aux questions concernant les diverses thématiques du développement appliquées à l'Asie orientale et sud-orientale, avec une attention particulière aux thèmes évoqués ci-dessus.
3) de réaliser des publications scientifiques de divers types concernant ces problèmes et réalisées par des chercheurs des différents centres partenaires en Europe et en Asie.
4) de fournir un lieu de rencontres entre chercheurs concernés par ces thèmes, particulièrement dans le cadre des doctorats en cours.
5) d'organiser des activités d'enseignement et d'information sur les problèmes du développement de l'Asie de l'Est et du Sud Est, notamment à travers l'organisation de conférences et séminaires donnés par des académiques et chercheurs asiatiques de passage en Belgique.

En Belgique les activités du **GRAESE** sont coordonnées par Ph. Lebailly (UEDR-Gembloux-ULiège) et J.Ph. Peemans (CED-UCL). Le secrétariat du **GRAESE** est assuré par l'UEDR.

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