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# ECONOMIC EFFICIENCY OF TEA HOUSEHOLDS IN PROFESSIONAL TEA VILLAGES OF THAINGUYEN PROVINCE, VIETNAM

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**Abstract**

*A professional tea village is a specific village characterized by specialized tea production and trading, through many stages including tea planting and tending, tea harvesting, tea processing and tea trading. In the business environment of the professional tea village, tea households have more favorable conditions to improve their economic efficiency in tea production, processing and trading. With data surveyed from 385 households in the tea professional village, using Cobb-Douglas production to analyze the factors affecting the economic efficiency of the village households, the results reveal what are the major factors affecting economic efficiency of the tea households in the professional villages. They are the cost of raw materials, labor material costs, outsourced labor costs, the education level of the household head, the number of years of tea farming experience, the market consumption of the tea products, participation of the households in production and business cooperation, regional factors, professional- tea-village supporting policy and factors of safe tea production by VIETGAP standards. Thereby, a number of measures respectively are proposed to improve business efficiency of tea households in the villages of Thainguyen province for the coming time.*

*Keywords: Economic efficiency, factors, tea households, professional tea villages, Thainguyen province*

## INTRODUCTION

Thainguyen is a large northern mountainous midland province, most famous with specialty tea in Vietnam. It has 21,127 hectares of tea. The output of tea leaves of the province in 2016 reached 210 thousand tons, the average productivity reached 112 quintals per hectare, creating jobs for more than 60,000 tea farmers (Thainguyen Statistical Office, 2017). At present, Thainguyen province has 174 professional tea villages and tea villages, of which 140 tea villages have been recognized by the provincial People's Committee as professional tea villages and traditionally profesional tea villages. The tea professional villages create job opportunity for 10,290 households in the villages with 21,000 laborers. These tea villages have formed into famous tea village regions such as Tancuong (Thainguyen city), Phuc Thuan (Pho Yen), Trai Cai, Minh Lap, Song Cau (Dong Hy) Khe Coc, Tuc Tranh (Phu Luong), La Bang (Dai Tu), etc. (Thainguyen Professional Villages Association, 2016).

The development of professional tea villages contributes an important part in creating jobs, improving household economic efficiency, improving incomes. The professional tea production also help people stick together, creating the traditions and beauty in cultural, spirit life for the local rural. In the village, the cooperatives are established and developed, taking part in the supply of materials, as a focal point linking with the outside, applying science and technology, purchasing, processing and consuming an important proportion of tea products for professional tea households.

Analyzing the effect of factors on the economic efficiency of the tea village households was conducted on 385 surveyed households in the professional tea villages of Thainguyen province, which provided the households with appropriate solutions to improve the efficiency of its tea production and trading, help the State have more scientific basis to develop appropriate policies for the professional tea villages in order to sustainably develop tea industry in general and professional tea village in particular.

## LITERATURE REVIEW

There have been many researches at home and abroad on the economic efficiency of village households in professional villages.

Overseas studies include researches by Ardhala D. Arsvira, Eko Budi Santoso, Haryo Sulistyarso (2016), Hashemi Niloofar, Gholamrez Ghaffary (2017), Szydlowski, Naoto (2009), Taylor J. Edward and Irma Adelman (2006). They show that the economic efficiency of village households is affected by a range of institutional, social and economic factors such as marital status, gender, age, education level, household production experience, raw materials,

production and trading assets, capital, difficult access to credit institutions, industrial extension services, product mix, product quality, transportation system, etc. are not strong enough.

There are some domestic researches including MacAulay. G, Sally Marsh and Pham Van Hung (2006), Bach Thi Lan Anh (2010) identified eight main factors affecting the development of the villages: Capital, raw materials, markets, traditional factors and mechanisms for professional villages, how to compete and linkages between production facilities in the same village or support And links of related industries, and so on. According to Nguyen Dinh Hoa (2010), to analyze the development of a professional village, it is possible to analyze the production added value of professional villages, sales growth rate of professional villages, export turnover increase, income of labor of the village, the number of processing establishments increases and increases the number of laborers involved. Mai Van Nam and Dinh Cong Thanh (2011); Le Xuan Tam (2014); Le Thi The Buu, *et al.* (2015) have pointed out many factors affecting the income of the village households: development of professional villages in combination with tourism, the characteristics of households (specialized households and comprehensive households), number of laborers in households, working capital, fixed capital and professional village characteristics (recognized and not yet recognized), professional village development policy, number of years of schooling of the household head, the infrastructure, inputs (human resources, technology, capital for production, raw materials, production sites), consumption market, environmental and environmental protection, social institutions and cultural traditions, linkages associated in the development of professional villages, etc.

Although the above works studied some aspects of production and business performance of households in general and of professional village households in particular, they have not yet analyzed to what extent affecting factors affect the economic efficiency of professional tea households in their tea production, processing and trading.

## RESEARCH METHODOLOGY

For the purpose of the study, secondary information was collected from Thainguyen Professional Villages Association and other provincial agencies such as Department of Industry and Trade; Department of Agriculture and Rural Development, and so on.

Primary information was collected from the survey of 385 households in Thainguyen tea villages in three representative terrain areas including Dinh Hoa district (representative of high mountainous terrain), Dong Hy district (representative of high hilly and low mountainous terrain) and Thainguyen city (representative of low hilly and lowland terrain).

This paper uses statistics tables to synthesize information, descriptive statistics in combination with Cobb-Douglas production function to analyze the effects of factors on Gross Profit of households producing, processing and trading tea in Thainguyen professional villages.

In the production function, the dependent variable (Y) is the annual Gross Profit of the household from tea production, processing and trading (Gross Profits = Revenue - Expenses excluding expenses for family labor). Independent variables include: i) MATERIALS: cost of raw materials of the household; ii) FIXEDASSETS: labor material costs of the household; iii) HIREDLABOR: outsourced labor costs of the household; iv) SCHOOLING: educational attainment of household head; v) EXPERIENCE: number of years of household experience in tea making; vi) MARKET: This dummy variable reflects the possibility of households selling tea to cooperatives, enterprises (MARKET = 0 when the household sells tea to traders and sells tea at traditional markets, = 1 when household sells tea for cooperatives, enterprises); vii) LINKAGES: this dummy variable reflects if the household involves in association with cooperatives, enterprises in tea production,processing and trading (LINKAGES = 0 when unlinked, = 1 when linked); viii) DINHHOA: this dummy variable presents the possibility of the household in Dinh Hoa district (DINHHOA = 0 if the household is not in Dinh Hoa district, = 1 if household is in Dinh Hoa district); ix) DONGHY: is a dummy variable which reflects the possibility of the household in Dong Hy district (DONGHY = 0 if the household is not in Dong Hy district, = 1 if the household is in Dong Hy district); x) POLICIES: this is also a dummy variable presents supporting policy of the State, implying if the household is entitled to the supporting policies? (POLICIES = 0, if the household is not yet entitled to the support, POLICIES = 1 if the household is supported by the policies such as credit, extension services, machinery and equipment support policies, etc.); xi) VIETGAP: this dummy variable which reflects whether or not the household applies safe tea production based on VIETGAP, GlobalGAP standards (VIETGAP = 0 if the household has not applied the safe tea standards, = 1 when household has applied the safe tea standards).

## RESEARCH RESULTS

### The formation of tea village in Thainguyen province

By 1918, Dr. Su (actual name: Nguyen Dinh Tuan, Thainguyen Governor) suggested Tancuong villagers to bring tea trees from Phutho province to cultivate. In 1925, the captain Năm (actual name: Vu Van Hiet, Tancuong Village Head), opened a tea processing factory, opened tea trading agencies in the South, the Central and the North of Indochina, and then won the first prize in Indochina Expo 1935. A trader in India has imported tens of tons of Tancuong tea (Thainguyen Professional Villages Association, 2017).

With the favorable climate and suitable soil, the tea plant has well developed with the highest quality in the country, many traditional professional villages specializing in producing and trading tea were gradually formed to serve the tea demand of the whole country and become a major agricultural products of Vietnam to export.

**Business results & economic efficiency of professional tea villages in Thainguyen province**

***Basic information about professional tea villages***

In recent years, tea has been identified as a key crop contributing to poverty alleviation and possibly enrichment of farmers in Thainguyen. According to a report of the Thainguyen Professional Association (2016), in the last three years, the number of tea villages has increased rapidly (from 85 in 2013 to 140 in 2015), with annual average increase by 28.34%. Accordingly, the number of households increased from 6,107 (11,890 tea producing employees) to 10,290 (with 20,576 tea producing employees). Income from tea production and processing of households increased 2,776 -3,250 thousand VND, increasing on average in the last 3 years (2013-2015) is 12.80% (Table 1).

Table 1: Basic information on professional tea villages in Thainguyen province, 2013-2015

| | Basic information | 2013 | 2014 | 2015 | Increase rate (%) | | |
|---|---|---|---|---|---|---|---|
| | | | | | 2014/2013 | 2015/2014 | Annual average |
| 1 | No. of professional tea villages (village) | 85 | 114 | 140 | 134.12 | 122.81 | 128.47 |
| 2 | No. of professional tea villages members (household) | 6,107 | 8,932 | 10,290 | 146.26 | 115.20 | 129.73 |
| 3 | No. of tea producing employees (labor) | 11,890 | 16,654 | 20,576 | 140.07 | 123.55 | 131.81 |
| 4 | Monthly average income/labor (thous. VND) | 2,776 | 3,110 | 3,250 | 115.63 | 109.97 | 112.80 |

*Source: Thainguyen Professional Villages Association, 2016*

***Results of production and business of tea households***

The survey results show that many households in the tea villages have high income from tea production and trading, averaging from 147,530 to 154,817 VND per household. However, the level of income gap between households in the village is very large. Households with the highest revenue in 2013 are 332,000 VND, while the lowest income households with only

25,741 thousand VND, the standard deviation is 71,667 thousand VND. In 2014, the highest turnover reached 345,240 thousand VND. In 2015, the household had the highest revenue of 335,267 thousand VND, the lowest income was 34,749 thousand VND, the standard deviation was 70,553 thousand VND (Table 2).

Table 2: Average income of households in professional tea villages

| Year | No. of observation (household) | Average annual income (VND 1,000) | | | |
|---|---|---|---|---|---|
| | | Min | Max | Average | Std. Deviation |
| 2013 | 385 | 25,741 | 332,000 | 147,530 | 71,667 |
| 2014 | 385 | 35,621 | 345,240 | 153,957 | 71,299 |
| 2015 | 385 | 34,749 | 335,267 | 154,817 | 70,553 |

***Processing technology in professional tea villages***

The development of science and technology coupled with the pressure of competition and the need to increase labor productivity, along with industrialization and household economic development policies require equipping modern machinery and equipment for tea production and processing: tea drying machine, tea creasing machine, tea vacuum sealing and packing machine, tea incensing machine, tea screening machine, and so on in order to increase labor productivity and tea product quality.

The survey of 385 households of professional tea villages in Thainguyen Province provide data on machinery and equipment for tea production and processing as follows:

Table 3: Machinery, equipment for tea production and processing of tea households in Thainguyen

| | Machinery and equipments | Self-sponsored by the household (unit) | Proportion (%) | Sponsored (unit) | Proportion (%) | Total (unit) |
|---|---|---|---|---|---|---|
| 1. | Tea drying machine | **474** | **80.48** | **115** | **19.52** | **589** |
| | -Tea revolving iron machine | 181 | 69.35 | 80 | 30.65 | 261 |
| | -Tea revolving inox machine | 293 | 89.33 | 35 | 10.67 | 328 |
| 2. | Tea creasing machine | 279 | 80.87 | 66 | 19.13 | **345** |
| 3. | Tea vacuum sealing and packing machine | 73 | 80.22 | 18 | 19.78 | **91** |
| 4. | Incensing machine | 3 | 60.00 | 2 | 40.00 | **5** |
| 5. | Gas frying machine | 2 | 50.00 | 2 | 50.00 | **4** |
| 6. | Tea screening machine | 12 | 66.67 | 6 | 33.33 | **18** |

Recognizing the role of technology in production and processing, many households in the village have boldly invested in machinery and equipment for tea production and processing. Many households bought 2 to 3 tea drying machines. At first, many households used the tea drying iron machines, but the machines were not able to produce high quality tea, sometimes inappropriately fuel usages could burn the tea. Hence, so many households bought tea drying inox machines to improve the quality of tea products. At the same time, local and central governments implemented a policy of supporting machinery and equipment for tea production and processing. However, in the tea villages, many households still did not invest much in incensing machines and gas frying machine. The number of households using incensing machine and gas frying machine was very low, accounted for less than 1% of households surveyed only. There are two causes. First, the price of these is too expensive, from less than NVD 100 million up to nearly VND 300 million per machine depending on the machine capacity. Second, there exists a fear of household members in using modern technology.

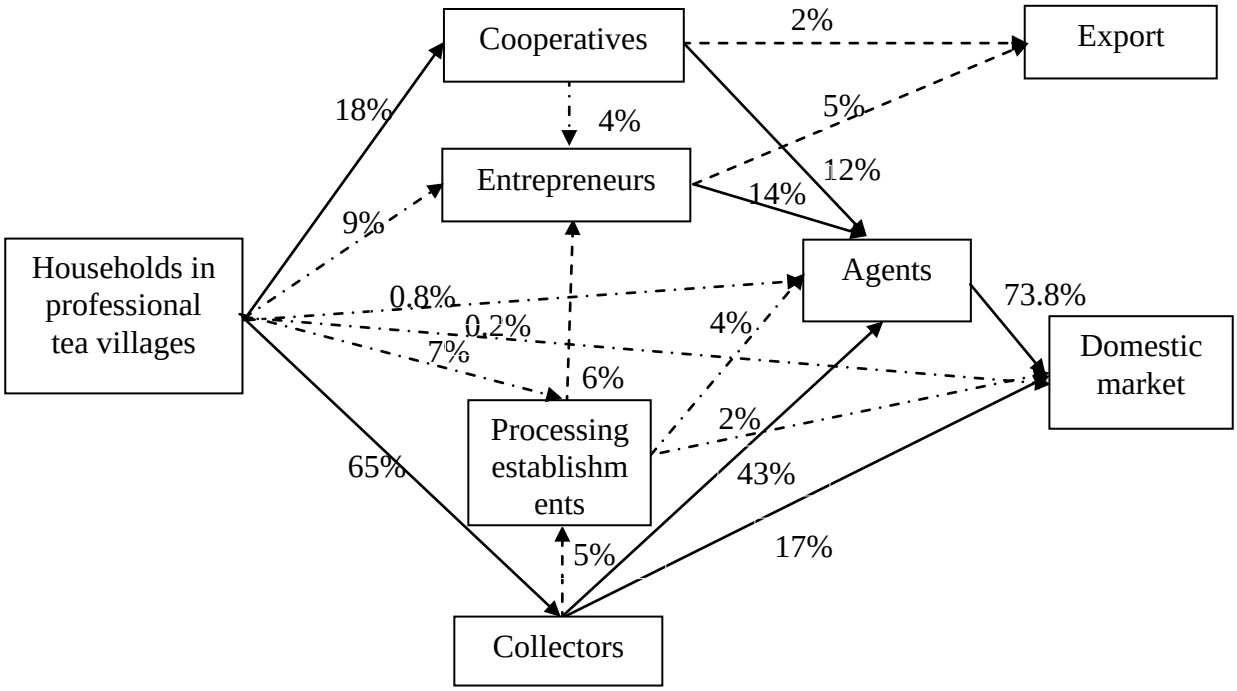
*Channels of product consumption*

In 2015, output of tea products in Thainguyen province was 40,465 tons, domestic consumption accounted for 67.74% of total production (27,412 tons of green tea), output of tea exports accounted for 32,26% (13,053 tons). The main export markets were Middle East and some Asian countries such as Pakistan, Taiwan, China, Japan, South Korea , etc. The tea products included green tea, specialty green tea (74.74%), and black tea (25.26%). Black tea products were made by factories and the average export price was $ 1.7/kg, much lower than the average price of tea in the world. In the tea village, 100% tea products of households are green tea and specialty green tea. The output of tea for export in handiprofessional villages was about 7% sold by the village households to businesses and cooperatives for export, tea export turnover is not high and not economically efficient (Thainguyen Professional Villages Association, 2016)

The main distribution channel for tea is selling tea to private traders and selling tea at local traditional markets. Some households directly pack the tea into small packages and distribute them to agents and to the consumers, but the quantity is low. As reported by Thainguyen Professional Villages Association (2016), the main consumption channel for tea products in professional villages: 18% of households sold tea for cooperative group and cooperatives, 9% sold to tea businesses, 7% sold to processing establishments, 0.8% sold to agents, 0.2% sold directly to consumers, the remaining 65% sold to private traders and sold at traditional markets to collectors, prices sold set by the private traders (Figure 1). The collectors packed the tea into small packages for distribution in the market. It is a simple packaging, no clear labeling; quality and food safety of the products were not controlled, the State could not

collect VAT and income taxes to supplement the budget or create resources to back up reproduction.

Figure 1: Channel of tea products consumption in the professional tea villages of Thainguyen province




*Source: Thainguyen Professional Villages Association, 2016*

The market consumption of small tea households in the professional tea villages was unstable due to the following reasons:

- Access to markets of tea households was still limited. As seen in the survey results, 78.41% of households found it difficult to find market information, 11.05% had difficulty in quality of goods. And 10.54% had difficulties in finding where to sell products. The information on the market of professional villages was obtained thanks to individual efforts of households or through mass media, so most households produced tea products passively, depending on the private traders. This was mainly due to the weakness of the market information system and restrictions on trade promotion. Currently, the information technology application of professional tea villages is poor, almost underdeveloped. The promotion, introduction of products on the mass media, via the internet, through product introduction at the Fair, through the development of tourism village has been implemented, but it is only at the first stage, not synchronized, not widespread. The competitiveness of the product is low due to the unbranded products, the uneven product

quality, the monotonous design, poor preservation technology that lead to a decrease in product quality and its competitiveness in the market.

**Analyzing the effects of factors on the economic efficiency of the tea households in professional tea villages in Thainguyen province**

The Cobb-Douglas production function (CD) was used to assess the effects of factors on the business performance of Thainguyen tea households through the gross profit margin of the household. There are 11 independent variables (through the succession of previous studies and the surveyed experience of the professional tea villages' managers in the province). Selected independent variables include both quantitative and qualitative variables. The regression model is of the form:

$$Ln\ Y = LnA + b_1LnX_1 + b_2LnX_2 + b_3LnX_3 + b_4LnX_4 + b_5LnX_5 + \beta_1 D_1 + \beta_2D_2 + \beta_3D_3 + \beta_4D_4 + \beta_5D_5 + \beta_6D_6 + u$$

Where: Y: Dependent variable (in thousand VND); $X_i$: quantitative independent variables ($i = 1 \div 5$); $D_j$ ($j = 1 \div 6$): qualitative dummy variables, u: residual. Running the regression model gives results as follows:

Table 4: Results of running the regression model

| | Unstandardized regression coefficients | | Standardized regression coefficients | t- statistics | Statistical Significance | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|
| | Beta | Standard error | Beta | | | Tolerance | VIF |
| Intercept | 6.183 | 0.563 | | 10.980 | 0.000 | | |
| Ln MATERIALS | 0.267 | 0.035 | 0.268 | 7.540 | 0.000 | 0.785 | 1.274 |
| Ln FIXEDASSETS | 0.078 | 0.024 | 0.105 | 3.199 | 0.001 | 0.910 | 1.099 |
| Ln HIREDLABOR | 0.111 | 0.038 | 0.093 | 2.884 | 0.004 | 0.952 | 1.051 |
| Ln SCHOOLING | 0.229 | 0.058 | 0.129 | 3.977 | 0.000 | 0.946 | 1.057 |
| Ln EXPERIENCE | 0.100 | 0.052 | 0.066 | 1.914 | 0.046 | 0.843 | 1.187 |
| LINKAGES | 0.286 | 0.052 | 0.196 | 5.482 | 0.000 | 0.772 | 1.295 |
| MARKET | 0.433 | 0.052 | 0.293 | 8.265 | 0.000 | 0.786 | 1.273 |
| DINHHOA | -0.381 | 0.063 | -0.247 | -6.091 | 0.000 | 0.603 | 1.660 |
| DONGHY | -0.162 | 0.056 | -0.106 | -2.891 | 0.004 | 0.732 | 1.365 |
| POLICIES | 0.191 | 0.055 | 0.121 | 3.460 | 0.001 | 0.811 | 1.233 |
| VIETGAP | 0.102 | 0.052 | 0.069 | 1.965 | 0.050 | 0.799 | 1.251 |

Dependent Variable: Ln GROSSPROFIT; Adjusted R Square: .620; Sig. F Change: .000

F test to test the suitability of the functional form, White test to test for no heteroskedasticity, VIF test to test for no muticollinearity, Durbin-Watson test for no autocorrelation are satisfied. Thereby, the estimators from the regression model are unbiased and efficient.

As seen from the Table 4, the level of interpretation of the model, with Adjusted R Square, is 0.62. Thus, 62% of the change in profitability of households in the tea village is explained by the MATERIALS, FIXEDASSETS, HIREDLABOR, SCHOOLING, EXPERIENCE, LINKAGES, MARKET, DONGHY, DINHHOA, POLICIES, VIETGAP. The remaining 38% of the change in profitability of the household is explained by other factors excluded from the regression model. Using the unstandardized regression coefficients, the regression model will be:

LnGROSSPROFIT = 6,183 + 0.267 LnMATERIALS + 0.078 LnFIXEDASSETS + 0.111 LnHIREDLABOR + 0.229 LnSCHOOLING + 0.100 LnKNGHIEM + 0.286LINKAGES + 0.433MARKET - 0.381DINHHOA - 0.162DONGHY + 0.191 POLICIES + 0.102VIETGAP

Cost of raw materials (MATERIALS): The estimated regression coefficient is +0.267, the positive sign (+) of the coefficient shows the positive relationship between the cost of raw materials and gross profit from tea production and processing. With other factors remaining constant, if raw material cost increases by 1%, gross profit would increase by 0.267%.

Machinery and equipment costs (FIXEDASSETS): The estimated regression coefficient is +0,078, positive sign (+) of the coefficient represents the positive relationship between machinery and equipment costs and gross profit. Provided other factors remain unchanged, if household increases the machinery and equipment costs by 1%, the gross profit would increase by 0.078%.

Hired Labor costs (HIREDLABOR): The estimated regression coefficient is +0,111, a positive sign of the coefficient representing the positive relationship between hired labor cost and gross profit. Given that other factors are unchanged, when hired labor costs rise by 1%, the gross profits would increase by 0.111%.

Education Attainment (SCHOOLING): The estimated coefficient +0,229, a positive sign of the coefficient shows the positive relationship between the householder's education level and profitability. When other factors remain the same, is the level of education of the household head increases by 1%, the gross profit would increase by 0.229%.

Tea farmer's experience (EXPERIENCE): The estimate of regression coefficient is +0,100, the tea household head experience in tea producing and processing has also positive relationship with the gross profit. Provided that other factors are constant, if the number of years of experience increases by 1%, the gross profit would increase by 0.100%.

LINKAGES of tea households implies the household's participation in cooperative groups, cooperatives, affiliated enterprises for tea production, processing and trading. The research results show that affiliate households have higher gross profit than non-affiliate households about 21.65%, *ceteris paribus*. This is true for all models of agricultural production, because the linkages between households will help them gain more experience in farming, improve productivity, quality and profitability of tea products.

The dummy variable of market for tea products (MARKET): shows that when households selling tea to enterprises and cooperatives it would be more profitable than selling to tea private traders and traditional markets as much as 34.04%. However, not all households could sell tea products to enterprises and cooperatives, because the enterprises and cooperatives only bought tea products from the villagers when the products had high quality green tea products, so they used to choose only households who had green tea products with good quality (delicious and safe) for purchase.

The dummy variable for the tea region of Dinh Hoa district (DINHHOA): this variable presents particular characteristics of the terrain, soil quality and climate of DINH HOA region. Households in the professional tea villages of Dinh Hoa district benefited from the tea production and trading which is 28.02% lower than those of Dong Hy district and Thai Nguyen city. Cause is Dinh Hoa area with unsuitable climate and soil comparing to those of Dong Hy district and Thai Nguyen city. Although the Dinh Hoa area has many policies to encourage economic development, however this area is upland district where ethnic minorities are majority, education level of the household is not high. Hence, there is more difficult for science and technology application to tea production and processing that in turn makes tea quality lower, then lower tea prices and less profitability compared to other districts.

The dummy variable for the tea region of Dong Hy district (DONGHY): shows that households in the tea villages of Dong Hy district have a lower profit than that of other districts of 11.18%. Dong Hy is a district that thrives on tea, but compared to Thai Nguyen city- the cradle of the tea industry, the most famous tea area, the profit earned from tea production and trading in Dong Hy is much lower than that of the city that make the profitability of Dong Hy lower than other tea districts as a whole.

The dummy variable for policy on professional tea villages promotion in the province (POLICIES): shows that households are entitled to the State policies: loan support policy, machinery support policy, vocational training policy, etc. The gross profit of those enjoyed such policies is higher than those who did not enjoy the policies as much as 12.86%.

VIETGAP variable also a dummy variable. It can be seen that households who adopted safe tea production in accordance with VietGAP, GlobalGAP standards had a gross profit 7.14% higher than those who did not adopt VietGAP, GlobalGAP.

Furthermore, all the variables included in the analysis in the model are statistically significant at .05 implying that all respective factors affect significantly on the profitability of the tea households in the professional tea villages of Thainguyen provinces

Moreover, using the standardized regression coefficients, the rank of importance of different independent variable can be done based on the rule: the higher standardized regression coefficient, the stronger effect of the respective dependent variable on the profitability of the tea household in the professional tea villages.

## RECOMMENDATIONS TO IMPROVE ECONOMIC EFFICIENCY OF THE TEA HOUSEHOLDS IN THE PROFESSIONAL TEA VILLAGES OF THAINGUYEN PROVINCE

In order to improve the efficiency of production and trading of tea households in the professional tea villages of Thainguyen province, main solutions should be implemented in the order of priority as follows:

First of all, expanding the market of consumable products through market access, brand building and development, seeking, exploiting and occupying the domestic market, developing the tea export market through enterprises and cooperatives will bring the greatest effect on the profitability of the households in professional tea villages.

Secondly, expanding the scale of tea processing to obtain finished tea products by expanding the purchase of raw materials to provide the domestic and international markets with completed tea products also bring about significant effect on the gross profit of the households.

Thirdly, giving the core region of specialty tea such as Thainguyen city specialty tea area of Tan Cuong a priority to enlarge its tea area rather than expanding tea area in Dinh Hoa district.

Fourthly, encouraging households to join the associations (cross-linked establishment of cooperatives), through linking the households will learn from one another the experiences in doing business, share among themselves capital, machinery, technological and market information, etc. The cooperatives also can help the households in enjoying the supporting policies of the State.

Fithly, raising awareness, household economy management skills and technological understanding of the household heads so that they can be able to adapt to the increasing demands of the market mechanism and domestic and international competition.

Sixthly, to enhance the role of local authorities in supporting policy implementation to help the tea households, such the credit policy, extension policy, vocational training, etc.

Seventhly, giving the core region of specialty tea such as Thainguyen city specialty tea area of Tan Cuong a priority to enlarge its tea area rather than expanding tea area in Dong Hy district.

Eighthly, applying of new technologies coupled with the addition of fixed assets for the implementation of mechanization, electrification of production, computerization of production and business to improve labor productivity, tea product quality, then tea prices and profitability.

Ninthly, expanding the scale of tea production, processing and trading buy hiring more outsourced laborers.

Tenth, guiding and organizing the production of safe tea production based on VietGAP, GlobalGAP standards, to protect the health of consumers and producers, preserve the brand of quality tea specialty Thai Nguyen, strengthen the confidence of domestic and international consumers in order to sustainably expand the market.

Eleventh, combining traditional experience, indigenous knowledge with modern technology in tea production, processing to promote traditional cultural values and enhance the value of the professional tea villages.

## CONCLUSION

The tea production, processing and trading activities of tea households in the professional tea villages in Thainguyen province have increasingly become economically efficient. There are many factors that affect the economic efficiency of the tea households. In order to improve the efficiency of the production, processing and trading activities of tea households, the main solutions proposed should be based on the influencing level of each factor, in decreasing order: i) development of the tea market; ii) assurance of raw materials for tea processing expansion; iii) giving the core specialty tea area of Thainguyen city a priority in enlargement of the tea area; iv) development of linkages in tea production, processing and trading; v) improve the educational level, understandings, and skills of the household heads; vi) implementation of supporting policies of the State to support professional tea villages; vii) investing more machinery and labor for tea processing; viii) adding hired workers during the pick season; ix) application of safe tea production according to VietGAP, GlobalGAP standards; x) combination of local experiences, indigenous knowledge with modern technology and state-of-art know-hows in professional tea villages. In further studies, author should conduct a broader study in different provinces in Vietnam for a more multidimensional perspective on research issues.

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