

Improving Production and Business efficiency for Pear Products of Lai Chau Province

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Abstract— Conducting a survey of 200 questionnaires with contents related to evaluating the efficiency of pear production and trading in Tam Duong district, Lai Chau province, the authors found that pear tree is a suitable crop. In accordance with the soil and climate conditions in Tam Duong district, the productivity is the highest compared to other districts of Lai Chau province. The average profit is more than 21,000 VND/kg, so people are expanding the new planting area. However, the added value of pear trees in Tam Duong district is very low, mainly selling fresh fruit, processing activities are almost nonexistent. Using the SWOT analysis method, the authors have synchronously built strategic groups according to each content with the aim of improving the value of crops, increasing income for farmers and sustainably developing pear trees on the land of Tam Duong district, Lai Chau province

Keywords— pear tree, product, value, business, Tam Duong.

I. INTRODUCTION

Tam Duong district, Lai Chau province has a mild climate and weather, suitable for growing temperate fruit trees, so since 2012, the People's Committee of Lai Chau province has focused resources on planting and developing peach, pears and plums products in Tam Duong district. After 10 years, the economic effects of temperate fruit trees are quite clear, in which, pear trees are most prominent. Due to its sweet and cool characteristics, it can be preserved for a long time, so pears are loved by many consumers. In 2021, the area for growing pears in Tam Duong district is 148 hectares, the business area is 42,47 hectares, the output is 743 tons/year; income value 18,580 million dong; average revenue of 437,5 million VND/ha. With suitable climate and soil, compared to the business area, the output of harvested pears/ha/year of households in Tam Duong district is relatively high, averaging 17,5 tons/ha, so that the people of the district more incentive to grow this crop. In order to determine the effectiveness of pear tree development for the household economy in Tam Duong district, the authors conducted a study focusing on evaluating the production and business efficiency of pear trees in Tam Duong district. Lai Chau province over the past time, thereby pointing out the limitations and suggesting

appropriate solutions to improve the value of crops and increase income for people.

II. RESEARCH METHODS

2.1. The method of data collection

- Secondary data: collect data reported on socio-economic development and agricultural development report of Tam Duong district, Department of Agriculture and Rural Development of Lai Chau province

- Primary data:

+ Households: the author's team surveyed 150 households with available questionnaires in 05 communes in Tam Duong district, including: Nung Nang commune (35 votes), Ta Leng commune (15 votes), Giang Ma commune (60 votes), Ho Thau commune (30 votes), Son Binh commune (10 votes).

+ Cooperatives directly involved in the collection, processing and consumption of agricultural products in Tam Duong district: 20 votes.

+ Local managers: 30 votes

2.2. Methods of data analysis

Using the value-added analysis method in analyzing and evaluating the current situation of pear production development in Tam Duong district.

Some economic indicators used for the study include:

- Gross production value (GO-Gross output): is the total of material wealth and services created in a certain period of time (usually 1 year).

$$GO = \sum_{i=1}^n P_i Q_i \quad (1)$$

- Intermediate Cost (IC-Intermediate Cost): is the cost of materials and services used in the production process such as costs: seeds, fertilizers, pesticides...

$$IC = \sum_{i=1}^n C_i \quad (2)$$

- Value added: VA (Value Added) is the difference between GO and IC, reflecting the new value added as a result of the farm's production activities in a period (usually 1 year). The added value is calculated according to the formula: VA = GO - IC

Indicators of economic efficiency

- Value of production (GO)/IC
- Value added (VA)/IC
- Gross profit value (GPr)/IC
- Net profit value (NPr)/IC

SWOT method: Strengths, weaknesses, opportunities and threats have been analyzed in detail. Applying this method will clarify strengths, weaknesses, opportunities and challenges in the production and consumption of pears, serving as an important basis for promoting organic production and ensuring product quality, raise brand awareness, promote trade promotion and product consumption.

III. RESULTS AND DISCUSSIONS

In recent years, Pears in Tam Duong district has been quite popular with people in the district and province, so the price is relatively high, ranging from 25,000 to 35,000 VND/kg depending on the type. Usually, the bigger the pear, the higher the price. Because pears have a longer ripening time, easy to store and transport. During the Covid-19 epidemic period, although they were affected in terms of selling prices and consumption levels, the reduction was not too much, only about 20% compared to the previous the year 2019 and earlier. This has prompted people to expand the area under pear cultivation, accounting for more than 60% of the district's temperate fruit tree area.

As a result of the survey of 150 households growing pears, the authors obtained the following information:

- The cost of growing pears includes: seed money, fertilizer, labor hire, plant protection drugs...According to the policy of the district and province, people who grow pears, especially for ethnic minorities will receive them some support such as: 50% reduction in the price of seedlings, support for fertilizers and technology transfer...This has encouraged people to continue to register and expand the area of pear growing area.

- After planting, it takes about 4-5 years for the pear tree to start to bear fruit and the grafted pear tree alone can live for about 50 years. The authors conducted an investigation and calculated from the information received by the interviewed households and found that: during the basic construction period, every 1 hectare of pear cultivation, people have to spend from 15 to 20 years million VND (after being supported by the District People's Committee with a part of seeds and fertilizers). This cost will be compensated after 2-3 years when the pear tree comes to harvest. The research team only evaluated the production efficiency of pear trees during the business period and people in the surveyed households only sold fresh pears, so the results in the table 1.

Table 1. Analysis of production efficiency of pear growing households

	Items	Cost (VND/kg)	Proportion (%)
1	Total value of production (GO)	29.246	100
2	Intermediary Cost (IC)	6.728	14,46
	Cost of pesticides	1.707	5,84
	Fertilizer cost	2.138	7,31
	Fuel	1.048	3,58
	Other costs	1.835	6,27
3	Value Added (VA = GO – IC)	22.518	77,00
	Labor	4.535	15,51

	Gross profit (GPr)	17.983	61,49
	+ Depreciation of tools and machines	1.382	4,73
	+ Net profit (NPr)	16.601	56,76
4	Economic efficiency criteria (times)		
	- GO/IC	4,35	
	- VA/IC	3,35	
	- GPr/IC	2,67	
	- NPr/IC	2,47	

Source: Author's calculation from survey data, 2021

Table 1 shows that the average yield per year of pear trees is quite high at 17,5 tons/ha, the annual cost in the business period is not too large, so the profit is more than 21.000 VND/kg. When increasing 1 unit of intermediate costs, the average pear production value of the household will increase 4.35 times. Next, when increasing 1 unit of intermediate cost, the value added of pear growing households will increase 3,35 times. For gross profit and net profit, when increasing by 1 unit of intermediate cost, the profit will increase by 2,67 and 2,47 times respectively. Thus, if the investment continues to increase (care, pesticides, fertilizers...) will increase the yield and quality of pears, thereby increasing the selling price and their income. If pears are not sold fresh, people will process pears into some products such as: pear jam, dried pears...will increase the added value of pears and people will be more active in selling them.

3.2. Processing and consumption situation

Currently, it is completely consumed fresh pears, although people are not facing any difficulties at the moment because the consumption is quite good as in 2021, the output of pears sold is about 743 tons. However, in the next 5 years, when more than 100 hectares of pear trees are under construction, they will bear fruit with a yield of 17.5 tons / 1 ha, which will reach an output of nearly 2500 tons / year. If there is no association with businesses and cooperatives for consumption and processing, they will face many difficulties in consumption.

The research group has summarized a number of main reasons why cooperatives have not participated in the consumption and processing of pears, including: Cooperatives need to have policies to support the process of processing and consuming products from local authorities; There is no capital to invest in technology for product processing, the supply of peaches is not large enough for the cooperative to promote the purchase and sale of untested product quality...In addition, the households have not yet planted the same standards such as VietGAP, GlobalGAP should also restrict businesses from participating in the consumption and processing of pears locally.

During the actual investigation, the research team found that the main form of consumption of pear products is relatively simple, mainly selling to traders or directly to consumers. Because pears have many nutrients, can process many dishes and preserve for a long time, people are relatively active in their consumption. Currently, the output of pears produced is sold out at a stable price, hovering around the price of about 30,000 VND/kg depending on the type, during the Covid-19 epidemic there has been a decrease but not too much, only about 20% / total output. Moreover, pear growers are quite convenient in selling when there are traders directly coming to buy at the garden, or bring to the market to sell, a number of households also use social networks to promote their products.

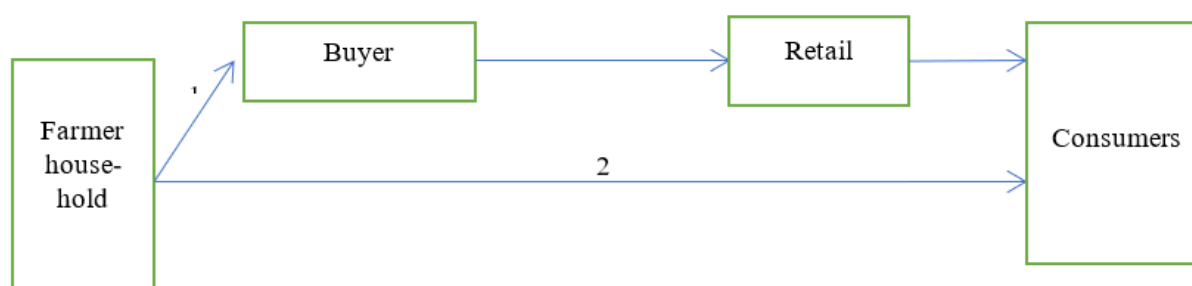


Fig.1: The distribution channels of pears in Tam Duong district

Source: Compiled from census data in 2021

3.3. Strategy to develop pear production and business in Lai Chau province through the SWOT model

Using the collected results and interview information from 30 district and commune managers in Tam Duong district,

the authors build a strategy to develop pear production and business in Lai Chau province through Through the SWOT model (Table 2).

Table 2.

	Opportunity (O)	Threat (T)
SWOT	<ul style="list-style-type: none"> - Receive provincial incentives in agricultural development combined with tourism (Project 30) - Ability to expand production scale. - The market demand for pears is still relatively large. - Can be processed into many other products to increase product value such as jam, wine, dried fruit... 	<ul style="list-style-type: none"> - Competitors of pear products are quite a lot, have affirmed the brand and participated in production according to VietGap standards: Son La, Lao Cai, Hoa Binh... - Diversity of substitute fruit products for pear trees - The market's requirements are increasingly strict in terms of technology and quality of fruit products. - The diversity in combining agricultural development with tourism of some localities has brought many positive effects
Strength (S)	Strategies SO	Strategies ST
<ul style="list-style-type: none"> - The climate and soil are suitable for growing pear trees, so the yield is relatively high. - The product is popular with many consumers. - Receive local support in pear tree development. - The income brought to farmers is relatively high, thereby encouraging people to expand production. 	<ul style="list-style-type: none"> - Capture incentives from provincial and district policies to develop sustainable pear products. - Planning the pear growing area to control the supply. - Establishing cooperative groups to help people improve productivity, quality and market for pear products. - Focusing on technology transfer, improving the qualifications of people and managers in order to approach new farming methods and product processing techniques. - Continue to expand and exploit new consumption markets outside the province. 	<ul style="list-style-type: none"> - Improve the quality of Le products through the application of ISO, VietGap standards. - Develop a variety of business methods, consuming pear trees in the district to increase income for people. - Expanding the scale of growing pear trees to apply technical standards. - Focus on building trademarks, brands, traceability stamps... for valuable pear products.
Weakness (W)	Strategies WO	Strategies WT
<ul style="list-style-type: none"> - Product quality is not uniform among production households. - The level of application of modern science and technology in growing pears is still limited. 	<ul style="list-style-type: none"> - Having policies to support and attract economic organizations and enterprises to participate in consuming and processing Le 	<ul style="list-style-type: none"> - Increase product value by focusing on deep processing activities of pear products - Focusing on investing in machinery and equipment in the production and processing of various types of

<ul style="list-style-type: none"> - There are no products registered for certification, trade mark... - There are no products that apply VietGap, GlobalGap standards... - There is no product processing activity, mainly selling fresh products. - Trade promotion and advertising activities are still taking place on a small scale, without a specific strategy. - The degree of linkage between actors in the value chain is loose. 	<ul style="list-style-type: none"> - Increasing the level of linkage between actors in pear value chain. - Promote propaganda and training to change the thinking of pear products production of actors in the value chain. 	<ul style="list-style-type: none"> products, increasing added value for pear products. - Invest in trade promotion, advertising and marketing to expand the market for local pear products. - Develop sanctions in the linkage to force actors in the chain to comply with product quality regulations.
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Source: Expert consultation, 2021

IV. CONCLUSION

Pear tree is a product with strengths and opportunities to develop specific commodities of Tam Duong district, Lai Chau province. As of 2021, the pear growing area of Tam Duong district is 148 hectares, the business area is 42,47 hectares, the output is 743 tons/year; The average annual yield is quite high at 17.5 tons/ha, the annual cost in the business period is not too large, so the profit is more than 21,000 VND/kg of fresh pears. As a result, people have been encouraged to take care of the development of cassava and change the structure of crops to increase the income of farmers. However, the form of consumption is still limited, the level of increase in the value of pears is almost non-existent, which limits the level of product promotion, product diversity and added value of pears. . Therefore, in the coming time, there should be synchronous solutions from local authorities, businesses and people in the following contents:

- Planning planting areas to exploit natural advantages and easily check the supply.
- Improving the quality of pear products, applying modern farming methods, using VietGap, organic standards... to help pear products be accepted in many different markets.
- Associate with cooperatives and enterprises in purchasing and processing pear products. Diversify products made from pears such as pear wine, pear jam, dried pear...
- Diversify forms of product promotion through fairs inside and outside the province. Promote the forms of product consumption: traditional markets, supermarkets, OCOP stores, online sales systems...

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