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Analysis of Factors Affecting Hawthorn Industry: Study in the Northwest of Vietnam

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Abstract:

Hawthorn fruit (also known as Crataegus fruit) is famous as the specialty of the Northwestern mountainous region in Vietnam. In recent years, the Northwestern provinces have been interested in the development of hawthorn production to develop the local economy and contributed to the protection of the ecological environment. On the basis of analyzing a number of factors affecting the production and consumption of hawthorn, the article proposes some solutions to promote the development of the hawthorn industry in the Northwestern region in Vietnam in the coming time.

Keywords: Hawthorn, industry, Northwest, Vietnam

1. Introduction

Mountain hawthorn tree has a scientific name as *Crataegus pinnatifida*; hawthorn tree belongs to the *Crataegus* group, the family of Rosaceae plants (rose family) with about 280 varieties. Hawthorn is a fruit tree native to temperate northern hemisphere, in Europe, Asia and North America, distributed in many countries such as Russia, Poland, Hungary, Germany, England, Switzerland, France, China, Korea, Japan, Vietnam ...

In China, hawthorn fruit (or shānzhā in Chinese) is used to make snacks, good for health such as hawthorn cake, Ho Lo sugar, jam, alcoholic beverages and many other beverages. In Korea, some delicious wines are made from hawthorn fruit. In Mexico the fruit is prepared in the form of fresh, cooked, jam form during the winter months, and is also used at Christmas parties. In the southern United States, hawthorn fruit is made into jelly candies and is considered a delicious food. Hawthorn leaves are also edible, and if harvested during the early leafing period (April-May in temperate regions), they are soft enough to mix in salads.

In Vietnam, hawthorn tree is also known as apple tree (mainly growing in areas inhabited by the Mong ethnic); also known as acrid tree, liver tree or San-sa tree (called by Tay ethnic), Co-sam-sa (Thai ethnic). In the higher places, the hawthorn fruit is bright yellow, more fragrant and has a unique sweet and sour taste. Previously, the hawthorn fruit was only known as a mountain product with low economic value. In recent years, hawthorn fruit and products derived from those are popular in the market as well as bring economic value. Realizing that potential, many localities in the Northwestern region of Vietnam have built and issued many investment policies to develop the hawthorn tree production. At the same time, selection of hawthorn trees is the key crop in the local economic development.

The hawthorn industry is a system built by factors and activities involved in the production, collection, distribution, processing and consumption of hawthorn products and relationships of internal, external factors. The development of the hawthorn industry is an increasing change in size, productivity and the integration of the relationships among factors in the industry, including from producer to retailer and consumer and the integration on the linkage between the stages, the sections and harmonizing the interests of factors in the hawthorn industry. Developing the hawthorn industry can be envisioned as a closed process, with the beginning and the end points, including many influencing factors, linked in chain. Development associated with an increase of these factors can positively affect others.

The development of hawthorn production depends on some basic resources such as: labor, factory infrastructure, capital capacity, equipment, technology, production organization capacity. The region's hawthorn products that can compete with other countries in the region will depend on the ability, quality and level of using resources (labor, land, capital, production organization).

- Labor (including quantity, skills and ability to access information of laborers) has a decisive role in the ability to access and apply technical advances to hawthorn production. Knowledge of science, technology and markets are considered high-end and specialized inputs, providing a long-term and decisive foundation for the sustainable development of this industry.
- Factory infrastructure: is an important resource, an indispensable production material of hawthorn production facilities. The production scale of facilities affects the machine equipment, the application of science and technology, the association in production, the consumption and access to information and knowledge.

- Capital for production: The size and structure of investment capital for hawthorn production and investment methods are basic and necessary inputs to develop the hawthorn industry to promote maximum the potentials and advantages of the region.

1.1. Production Organization And Process

Production organization is the methods and techniques that effectively combine elements of the production process. The organization of hawthorn production includes stages such as breeding, planting, tending, harvesting and preliminary collection of hawthorn products. The strict application of manufacturing processes in all stages is an important foundation to ensure sustainable efficiency and product quality. No matter what model of hawthorn production is produced (farmer households, farms, cooperatives, businesses), but if the production organization and production process are not good, the effectiveness and quality of the hawthorn will not guarantee and affect sustainable development.

- Breeding selection: Hawthorn variety is considered to be an important factor in determining productivity, quality and efficiency of hawthorn production.
- The cultivating technological process includes: seed treatment technique, care formula, collection and preservation of hawthorns. The collection of products if not complying with the process, especially the problem of collection combined with preservation reduces yield and product quality.
- Technical preliminary processing of hawthorn: Preliminary processing of hawthorn serving for preservation as raw materials for processing factories. Hawthorn is preliminary processed by drying method.

2. The Situation of Hawthorn Tree Development in the Northwestern Region of Vietnam

The Northwest or Northwestern region is the western mountainous region of Northern Vietnam, sharing the border with Laos and China. This region is one of the three natural geographic subregions of North Vietnam (the other two are the Northeastern Region and the Red River Delta). Administratively, the Northwest region currently consists of 6 provinces (Lai Chau, Dien Bien, Lao Cai, Yen Bai, Son La and Hoa Binh) with an area of over 5.645 million hectares (occupies 10.5% of the total area of the whole country).

The Northwest region has many favorable conditions for hawthorn trees to develop. Realizing that potential, many localities in the Northwest region of Vietnam have built and issued many investment policies to develop hawthorn tree production. At the same time, hawthorn trees are selected as the key crop in the local economic development. In which, Son La province currently has the largest area of hawthorn tree production with 9,932 ha, harvested area in 2019 was 3,400 ha, harvesting output reached 12,627 tons. Next is the provinces of Yen Bai, Lai Chau, Dien Bien. In Lao Cai, there are 33 ha planted in Simacai district but not yet harvested. Yen Bai has the second largest area of hawthorn tree production in the region, but its productivity is lower than that of the smaller provinces of Lai Chau and Dien Bien. Facing this situation, the People's Committee of Yen Bai province has approved the project 'hawthorn tree production development in two highland districts of Mu Cang Chai and Tram Tau' with a total budget of over 14 billion VND. Under this project, by 2020, Yen Bai province will plant new and develop 6,200 hectares, bringing the province's area to over 10,000 hectares, with an output of over 7,500 tons. In 2019, the output of harvested hawthorn tree production of Bac Yen district is estimated at 1,800 tons. According to the current selling price with the output of hawthorn mentioned above, each year will bring income to people in these two districts estimated at more than 200 billion VND.

Locality	Current superfic (Ha)	Harvesting superfic (Ha)	Productivity (Tons)	Productivity per superfic (tons/ ha)
Son La	9.932	3.400	12.627	3,714
Yen Bai	8.913	4.903	5.527	1,127
Lai Chau	2.144	594	1.250	2,104
Dien Bien	340,92	171	400	2,339
Lao Cai	33	-	-	-
Hoa Binh	-	-	-	-

Table 1: Current Status of Hawthorn Tree Development in the Northwest Provinces in 2019

Source: Department of Agriculture and Rural Development of the Northwest Provinces

Hawthorn tree is an indispensable source of income and has become one of the crops to help poverty alleviation of ethnic minorities in the Northwestern provinces. With an average selling price of 15,000 - 30,000 VND / kg depending on fruit quality. The main form of consumption for fresh hawthorn fruit is about 80% of the total output to the market, and is brought by traders from different places; 20% of output processed into products such as hawthorn wines, juice from hawthorn fruit ... Appropriate local policies have encouraged people to expand the area to contribute greening bare land, bare hills and mountains, the ecological environment has been improved day by day. Supplementary planting of hawthorn trees under the forest canopy, to use land planned for forestry effectively, contributes to job creation for local people and improving the environment, preventing soil erosion, and improving forest coverage. Awareness of people in forest protection has been raised, contributing positively to protecting the area of forests in the area.

However, in the past years, some limitations have also revealed such as natural exploitation, not paying attention to zoning and tending to improve productivity and product quality; the newly planted area is not much, not concentrated; exploiting improperly technical process, the protection is still limited, indiscriminately felling makes the area increasingly narrowed; yield is not high, fruit is small, quality is decreasing; post-harvest preservation and processing are mainly handmade, the products are not abundant; the product market is not stable. The bare land area where hawthorn trees can grow and develop well is now largely occupied by people, encroached upon for cultivation, grazing fields ... so the propaganda and mobilization of people to do so. Planting hawthorn trees in this area has many difficulties. Besides, the market for consuming products is not stable, often under pressure from private traders; hawthorn processed products are still poor, not of high quality; the linkage between households and purchasing and processing units is loose, unsustainable, and lack of ties; there is no policy to protect the interests of people in product consumption; there are no processing facilities large enough to cover all products for the people ...

For sustainable socio-economic development in the coming time, the Northwest provinces of Vietnam have identified hawthorn trees as one of the traditional and key crops in agricultural and forestry production in localities, from there to study and promulgate policies to encourage and support the development of hawthorn industry to suit practical requirements.

3. Analysis of Some Factors Affecting the Development of Hawthorn Industry in the Northwestern Provinces of Vietnam

3.1. Natural Background

Analyzing the context of the impact of nature on the value chain of hawthorn in the Northwest provinces, it can be seen that the production and development of hawthorn trees still have many limitations in planting, production and business. However, the market with fresh hawthorn and fresh hawthorn products is expanding day by day, the market's consumption is increasing, increasingly being accepted by the market due to the perception of health benefits. natural product origin.

3.1.1. Raw Material Area

Hawthorn is distributed mostly in upland communes of the Northwest, with very difficult travel conditions. Many places have invested in making asphalt roads in the centers of the communes but have not yet invested in crossroads to each village, so the collection and transportation of raw hawthorn is still very difficult. Mainly, people still use horse, basket or motorbike to deliver hawthorn to commune and district centers and sell them to traders. Currently, the area of planted forest has increased due to investment from the protection forest planting project as well as the project on economic development of upland communes implemented after Project 661 of some provinces in the region. However, the area of planted forests in hawthorn for harvest is small due to the natural characteristics of hawthorn that can bear fruit after 5 years. Hawthorn tree has not been considered as the key tree of the province, but it is just a protective forest tree and poverty reduction. The human resources for forest planting and development in general and hawthorn in particular are still very thin. With limited manpower, the management and coverage of the planted forest face many difficulties. The allocation of forest land to local people has also brought into play positive results, but due to the sparse population and low cultivation skills, the amount of forest planted and well cared for is not high.

The local people, mainly the H'mong ethnic group, also initially benefited from the hawthorn tree but mainly through the natural source of hawthorn. The investment in planting and taking care of hawthorn has not been paid attention due to the inadequate investment.

During the investigation of raw material areas, the author found that many local people did not really pay attention to developing hawthorn trees. New planting still faces many difficulties due to slow growth of trees and limited investment capital. The people mainly plant and do not care enough. Compared with local short-term food crops, hawthorn has a greater effect but requires a lot of care. The purchase of hawthorn in the raw material area is very cheap (in the main season and sometimes only 6,000 - 10,000 VND / kg), while the collection is difficult due to the difficult mountainous terrain. Investment in planting and caring is relatively small. For production tree areas, the state only supports seedlings, people plant and take care of by themselves. The amount of support is not much, so it does not encourage development.

Thus, the potential to build raw material areas is huge, but facing many difficulties in infrastructure (roads), human resources, and capital. Many raw material forest areas are relatively close to the center, but due to the hilly topography as well as the outdated farming practices of the local people. It is necessary to promote the development of hawthorn trees further because this is an important crop with great economic significance, so it is necessary to invest, develop properly and exploit its potential.

3.1.2. Harvesting Process

Due to the area of material dissipation, transportation is difficult, so the locality has not fully taken advantage of the source of hawthorn. With an average yield of 40 kg / tree, the output of fresh hawthorn is up to 4000 tons of fruit / year, but the yield has not yet been harvested. In the harvest season (September-October), ethnic minorities, mainly women and children, often use horses to harvest hawthorn on the hillsides, the vicinity of the residence. An average person can pick up 3-4 bags / day, each bag weighing 30kg is brought to the commune center to sell to wholesalers at the price of 6000-10000 VND / kg, but pine hill hawthorn can sell for 12000-15000 VND / kg. The harvest is still manual, so the amount of hawthorn per tree and the whole area has not been fully harvested, the amount of hawthorn harvested is

damaged and crushed, causing great waste. Thus, the hawthorn harvest still faces many difficulties due to limited roads and the qualifications of the people. If more investment and attention is made, fully exploiting hawthorn resources will bring great economic benefits.

3.1.3. Transport

Transporting fresh hawthorn by truck is relatively convenient, but now, due to small consumption demand, people mainly return motorcycles or horses to the district center. The transportation price here is relatively cheap: 10 tons trucks are about 2,000,000 VND / day (3-4 flights / day). Delivery of goods by bus routes is quite popular. In general, it is convenient to transport hawthorn and hawthorn products from the town and district centers to potential markets.

3.1.4. Preliminary Processing and Processing

In the Northwest provinces today, more and more hawthorn processing establishments appear. The production of products from hawthorn such as guava salt, oolong, jam, vinegar, and juice is still mainly done by the local people by hand. The preliminary processing and processing is done at home, mainly by family labor. These household establishments have no business registration, no control on food hygiene and safety. There are no instructions or regulations on quality or product standards. Therefore, the product quality is not uniform, for example the drying of hawthorn is packed manually, so there is a mold phenomenon. As a result, the product can reach many high-end customers and supermarkets. There are a number of bottled wine production establishments with business registrations, meeting the requirements of food hygiene and safety.

3.1.5. Business

Although the products produced are of relatively good quality and are beneficial for health, consumption is not high. The main consumer products are still fresh hawthorn, followed by pickled wine and dried hawthorn. Traditional wine soaked by business households is favored due to its reasonable price and convenience. Currently, there are a number of bottled wine production establishments with business registration. However, nowadays, due to the relatively high price and the habit of local people to drink strong wine, soaked wine is consumed very slowly. Sales of this product are still difficult because wine production, although bottled, is still the same process as traditional soaking. Therefore, there are problems with the legal basis because there is no regulation on this product that is not a processed product.

3.2. Analyze Knowledge, Techniques and Technology in the Development of Hawthorn's Product Line

3.2.1. Natural and Planted Hawthorn

In the Northwest provinces, the planting of hawthorn has just been implemented in recent years. In the past and now, people mainly collect from natural forests. The planting of hawthorn has just begun in the recent programs of planting protective forests, the socio-economic development program. Therefore, technically, people are still not really knowledgeable. At present, hawthorn is collected and planted by local people, so the quality is not uniform. In some localities in the region, nurseries have been established to provide local people with seeds and afforestation programs. However, the management of the nursery is also quite lax, the quality of seeds and seedlings cannot be monitored. Currently, through a number of research programs, the example project cooperating with the Forest Science Institute under the project with ICRAF has selected some mother plants for breeding. However, not all of the seedlings produced and grown to date have been collected from this source.

Households' breeding and breeding did not follow any process instructions, the planting was also simple and manual. Farmers often choose hawthorn based on the appearance of a large and beautiful fruit. There is no guidance on seed quality management because the purpose of the agencies is to plant protection forests, they are not interested in the quality of hawthorn pods. As a result, people will pick up all the big and beautiful fruits to sell at good prices, the rest are small and bad for seeding. Without effective seed quality management, good varieties will be lost. Citizens often expect to be provided free of charge, rather than buying, for many reasons. First, they can produce the seed themselves. Second, the benefits of buying seed from agencies are also unknown. At the same time, the people are not aware of the need to improve the quality of hawthorn through the selection of good varieties.

In recent years, in the program of planting protective forests, the district technical staff have started to guide people. However, according to the people, this support is also ineffective, heavy in form. Observed reality shows that hawthorn is not grown according to the technical distance of row density. The care is just weeding 1-2 times / year. Other care activities such as pruning, fertilizing, and pest and disease management are hardly paid attention. Although the people did not see that hawthorne had a disease, the pests were quite common and people hardly knew how to handle it. Fertilization will be very important to improve yield and quality of hawthorn. However, due to economic constraints, few households and rarely apply it.

3.2.2. Harvesting

Harvesting is now manual so this is the most difficult and time consuming task. The picker paddles to the tree and picks it by hand. Some trees, branches are tall, so they shake to the ground. The collection of unripe and young pods is very popular in the hawthorn area managed by the community. Everyone has ownership in these areas, so they try to be the first to pick the most, even though the collection here is managed according to village conventions. The selling price of green fruit is much cheaper than ripe fruit. Under the direction of the authorities, the collection of young and green pods is

banned, but it still takes place even though it decreased more than before. Therefore, this should be managed if it is to develop a high value hawthorn value chain.

3.2.3. Transport

Transporting fresh hawthorn by truck is relatively convenient, but now, due to small consumption demand, people mainly turn motorbikes to the district and town centers. In some localities in the region, the transportation of goods by bus routes is quite popular.

3.2.4. Process

Currently, there are more and more production bases in the Northwest region. The production of products from hawthorn such as pickled wine, Apple (hawthorn), salt, oolong, jam, vinegar, and dried sliced hawthorn is still mainly done manually by local people. The preliminary processing and processing is done at home, mainly by family labor. There are no instructions or regulations on quality or product standards. Therefore, the product quality is not uniform, for example the drying of hawthorn is packed manually, so there is a mold phenomenon.

3.2.5. Consume

Currently, the main consumption is fresh hawthorn, dried sliced hawthorn, soaked in wine, and some other products such as salt, olives. Fresh hawthorn products are sold at retail sale in markets and fruit stalls along the roads. Consumers buy fresh hawthorn mainly to soak wine, make vinegar, and soak sugar (syrup). In Son La there is a wine processing facility from hawthorn.

3.3. Institutional Analysis and Policy Impact on the Development of Hawthorn Industry

3.3.1. Relevant Policy Institutions

Hawthorn is an important non-timber forest product so the development of hawthorn relates to the non-timber forest policy framework. Therefore, it can be seen that in terms of institutions and policies, there are many incentives to support the development of production, processing and consumption of products. At the community level, the district and commune authorities strongly support the development of hawthorn as an important livelihood for the locality. Therefore, the planting and development of hawthorn created favorable conditions. However, at present, the expansion of acreage is mainly based on the potential of the market, not based on market analysis. This can lead to risks of oversupply. Therefore, most hawthorn output is now sold to other provinces outside the Northwest. Currently, state support is mainly focused on seed, fertilizer, labor costs. However, support for quality improvement, distribution, processing and consumption is not yet available.

3.3.2. Agricultural Extension Policy

According to its functions, the agricultural extension agency is responsible for providing technical assistance to farmers. However, due to limited resources as well as the fact that hawthorn is a tree plant, the support from the extension agency in the Northwest provinces is very limited. Therefore, in terms of planting techniques and care, farmers are still very limited, they mainly grow according to the habits of other crops. In the future, if you want to develop hawthorn into a key crop in economic development, poverty reduction, there should be a plan to integrate agricultural and forestry extension programs into hawthorn development projects.

3.3.3. Support Policy for Actors

Currently, the number of participants in each link is quite large, for example many collectors, many people buy and sell in the same area. In theory, if there are many buyers, it will be beneficial for farmers and collectors. However, the selling price of hawthorn in the garden is quite low, ranging from VND 8000-12,000, depending on the time. Meanwhile the wholesale price is usually 200,000-25,000 VND, the price reaches consumers about 30000-40,000 VND. The reason is that people's marketing capacity and negotiating prices are still limited. Besides, the ability to coordinate and manage post-harvest quality is limited. People usually collect all types of fruit, rarely sorting. Hawthorn wholesalers and retailers are usually the most profitable in the chain.

Currently, hawthorn is prioritized for development investment by the Northwestern provinces through the program programs on management of protective forests and livelihood improvement. Therefore, the area is expanding quite quickly. However, policies related to production, processing and consumption are still limited. For example, some provinces in the region do not have industrial-scale processing factories yet.

3.3.4. A Number of Factors Hinder Links between Agents

The current production and business of hawthorn is still mainly small, scattered in the residential area, according to experience, habits, some parts do not follow any unified production process. Small production style has not created homogeneous products of quality, ensuring the safety to meet consumer requirements. Production households have not paid attention to the linkage of groups of households but still follow spontaneously and strongly by someone who has created a concentrated production area, the product line is large and stable enough. This contradicts the requirement of bringing the processing industry to increase the value of the product because in order to invest in the processing industry to consume the product, it is necessary to have a sufficient source of raw materials with uniform quality.

Investment in agricultural production is ineffective and risky. Besides, support policies for businesses to invest in production are not specific, so most large enterprises are not interested in doing business. agricultural products business. The linkage between enterprises and producers is not sustainable because there is no mechanism to share profits, risks, the form of linkage is mainly in the form of negotiation on purchase and sale, often disadvantages to farmers. The situation of collection is still through many intermediaries, so the purchase price is low, the distribution of the product is also through many intermediaries, so the actual selling price is much higher than the purchase price at the production facility, leading to the competitiveness of the product.

3.4. Analyzing Advantages and Disadvantages in the Development of the Hawthorn Industry

It can be seen that the current development of hawthorn in the Northwest has many advantages, potentials, difficulties and challenges. The basic advantage is the attention and direction of the leaders of the provinces and districts in directing the development of hawthorn tree acreage and being included in the main tree for economic development in upland areas in some locations. in the region. hawthorn tree is a dual-effect tree that promotes economic development, brings income to improve living standards for people in hawthorn growing areas and has a great effect in environmental protection, hawthorn trees are used as protective forest trees. Due to its ability to develop a sustainable, effective and positive agricultural economy in environmental protection, hawthorn trees are very focused on developing and expanding areas in communes by leaders and people of upland communes. High land.

Hawthorn tree is a crop that brings many economic and social benefits: Natural conditions are suitable for the development of hawthorn trees, high economic value brings many benefits to the people, contributing to poverty reduction. Poor is a multi-purpose tree for protection, greening the bare hills, the economy, the government and people in the district actively support and participate in development. Currently, many hawthorn growing models in the Northwest are very successful.

The hawthorn industry's distribution channel is widespread from rural to urban areas, with a network of agents of all levels and specialized preliminary processing agents for each commodity. The operation of the distribution system creates flexibility in supplying raw materials to different processing industries as needed. Products from hawthorn can be processed into a variety of valuable products.

However, the main difficulties and problems are now that hawthorn trees are being harvested, mainly the area that grows naturally in the forests, and the management, care and impact of technical measures are difficult to implement. Therefore, the quality and yield of fruits for annual harvest are not guaranteed and stable. There is no organization, association or association group of households to organize, manage, protect and sell products, so product collection and selling prices are not consistent. Hawthorn trees are conducted spontaneously, people follow their own experiences, leading to inadequate planting and harvesting. The attention of branches and local authorities to the project is low, so the efficiency is not high. Applying scientific and technological progresses to seeds is slow, the compliance with proper care techniques of the people is not high. The cultivated area of hawthorn is not concentrated, the cultivation habits of the people are backward. Complex planting topography, far from home, and complicated transportation paths for post-harvest fruit transportation, leading to the possibility of fruit being easily crushed after transportation. The person who leads the collection is spontaneous, not from time to time leading to low fruit value, low price of hawthorn fresh fruit sold by local people. Not well organized the stages of information on market prices for actors in the chain. High-quality products are still limited, failing to meet market requirements, leading to difficulties in processing establishments.

Brand promotion to enhance the value of hawthorn is limited. Scientific and technical advances in post-harvest technologies (preservation, packaging, labeling) and processing have not been transferred well. The processed products from hawthorn in the Northwest have many raw products, preliminary products, and there is a lack of refined products of high value and industrial nature. Most products from Hawthorn have not been focused on branding. The material supply chain is interrupted, uncoordinated, closely linked and sustainable. The linkages between agents are loose, easily broken by personal conflicts of interest. The system of actors is still far from modern linkage mechanisms in the value chain, resulting in difficulty in building stable material areas for the processing industry. The linkage between farmers and traders / enterprises / consumers is weak, affecting the ability of traders to supply goods and the mobilization of goods under contracts often malfunctions due to habits and Farmers' awareness in trading is still poor.

Most of the distribution systems are still operating in a strong way that everyone does, without effective connection and coordination. Business relations have not been built on a legal basis, so they do not ensure the supply and quality as expected, people are often forced to price. Lack of feedback from consumers to the business and farming stages, lack of two-way information flows, and information to managers. Government organizations lacked impact on the system of traders, wholesalers, retailers, processors, especially consumers.

4. Some Solutions to Promote the Development of the Hawthorn Industry in the Northwest of Vietnam

In order to promote the hawthorn industry in the Northwest provinces of Vietnam to develop better in the coming time, it is necessary to synchronously implement the following solutions:

4.1. First, Planning for the Development of Reasonable Production Areas

Development planning is to bring into full play the advantages of each locality in the region, to avoid overlapping and homogeneous production of lacquer between regions. This measure is to prevent the phenomenon of 'painting, buying, selling' due to lack of raw materials for processing factories. It is necessary to implement the planning work from researching to the organization of pangasius production and trading to each locality in the region and inter-region very well, creating the overall strength of the lacquer industry to compete in the national market. health.

Do not grow pangasius in a rampant manner, but should only be grown in areas that have high yield, good quality and medium planting, not in too high or too high belt areas. short. In addition, there should be specific mechanisms and policies, creating a favorable environment, attracting businesses to invest in production development in association with processing, and connect product markets to enhance the value chain. hawthorn in the Northwestern provinces.

4.2. Second, Building a Complete, Reasonable and Long-Term System of Laws and Policies to Develop the Value Chain of the Lacquer Industry

It is necessary to strengthen information, propaganda, training and technology transfer to create a consensus in the political system, professional staff, businesses and people in order to change perceptions, thoughts and practices. production from small, traditional to commodity-oriented production development. High concentration of content, solutions to transform crop structure, ineffective crop structure to planting trees with higher economic value; Perform joint ventures in production.

4.3. Third, Selecting the Appropriate form of Organization in the Lacquer Industry

At present, the lacquer-painting production facilities are still dispersed, small, fragmented and utilitarian, not specialized in specialties. This form of production organization increases product costs due to low efficiency of using raw materials and investment resources of households. In addition, limited access to science, technology and technical services leads to efficiency, low quality and instability. In order to establish the prestige and brand of Vietnamese lacquer on the world market, it is necessary to create strength by effectively organizing the industry such as: Building appropriate forms of organization such as cooperatives, maternity groups centralized production to facilitate the transfer and application of scientific and technical advances, advanced technologies, application of standards to production and product sales; At the same time, improving the organizational structure to have the management and coordination of activities in the paint industry.

4.4. Fourth, Promoting Processing Technology and Applying Science and Technology

Apply processes and technical regulations on afforestation, zoning for reforestation, improvement, nurturing and enrichment ... in accordance with the natural conditions of each area in the area. Enriching forests on thin and poor quality forest areas by supplementary planting of linden trees. To encourage joint ventures and association of forest production and business in order to mobilize capital from organizations and individuals with conditions with farmers in order to bring into play the strengths of both parties in service of production.

Focusing on the technology of processing lacquer products with high economic value; at the same time, promoting the application of new technologies in research and breeding to create product lines with high productivity, good quality and stability. All countries focus all resources on the breeding and breeding stage, applying the appropriate technological process to create pangasius products to meet the domestic market and export.

4.5. Fifth, Strengthening the Role of State Management

It is necessary to focus on public investment in developing transport infrastructure, electric system, wholesale and retail market system, promote processing, and scientific and technical services. Enhance the training of human resources on science and technology, market information to production regions in order to promptly grasp information on market demand and prices ... Promote public investment to support organizations. Economy improves marketing capacity, carry out broad promotion campaigns for lacquer products. State management agencies are responsible for guiding production establishments to strictly comply with international regulations on good agricultural practices, technical standards and food hygiene and safety, agricultural extension.

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