

DEVELOPING GREEN AGRICULTURE AND COMMODITY AGRICULTURE: STRENGTHS OF THAI BINH PROVINCE, VIETNAM

Duong Quynh Phuong¹, Nguyen Thi Hong Duyen²

¹*Duong Quynh Phuong, Thai Nguyen University of Education, Thai Nguyen, Vietnam.*

²*Nguyen Thi Hong Duyen, Thai Binh High School for the Gifted, Thai Binh, Vietnam.*

ABSTRACT

Thai Binh is a province in the Red River Delta region of Vietnam with enormous potentials and strengths for agricultural development. This article focuses on analyzing the development strengths, status and orientation of green agriculture and commodity agriculture development in Thai Binh province. Research methods used include methods of synthesizing and analyzing documents; professional solution; Field methods, Forecasting methods. Research results show that, during the development process, Thai Binh province has promoted the strengths of a delta province in the field of agriculture but has not yet fully exploited its potential and comparative advantages in development. For Thai Binh to become a province with green, sustainable, and comprehensive agricultural development, contributing to the country's agriculture, it is necessary to synchronously apply well-rounded solutions and at the same time have a harmonious combination. harmony between people's long-standing experience and scientific knowledge in the context of digital transformation and increasingly advanced and modern science and technology.

Keywords: *Agriculture; Green agriculture; Commodity agriculture; Strengths; Thai Binh Province*

1. INTRODUCTION

Developing green agriculture and commodity agriculture aim at restoring the natural ecosystem. The goal is not only to provide enough food for people but also to leave it for the next generation to be able to continue farming on that fertile land, while also bringing high economic efficiency.

In recent years, Thai Binh province's agriculture has continuously grown, developed comprehensively, and attained great achievements. Food production has increased rapidly in both quantity and quality, ensuring abundant supply, meeting consumer demand in the province and export. However, agriculture in Thai Binh province still faces challenges, such as shrinking production land area and insufficient attention to sustainable development.

With the benefits of the green model and commodity agriculture providing farmers with outstanding productivity and efficiency while helping to better protect the environment and people's health, Thai Binh province have been implementing these agricultural development models. Overall, agriculture is an economic sector with an important contribution to the local economy.

2. VIEWPOINTS AND RESEARCH METHODS

Agricultural economic activities in a territory or locality are developed based on integrated exploitation of natural conditions, natural resources, and socio-economic conditions. Each locality has its own comparative advantages to focus on developing strong and specific products. Therefore, to study and analyze the status of green agriculture and commodity agriculture development in Thai Binh province, the authors applied a territorially integrated perspective, a system perspective and a sustainable development perspective. to see the differentiation in terms of production territory as well as the unique strengths of each administrative unit in the province. From there, we provide systematic and sustainable development orientations and solutions to best exploit the province's potential.

Main research methods include Methods of synthesizing and analyzing documents; Field methods; Expert methods and forecasting methods. Using the above research methods will help the authors make comments on the development of green agriculture, commodity-oriented production as well as forecasts for the next period of Thai Binh province.

3. RESEARCH RESULTS

3.1. Overview of research projects

Agriculture is an economic sector that appeared early and is studied by many scientific disciplines with many different projects.

- In the world:

Research on the role of agriculture: Todara (1990) points out the "Three-stage model of agricultural development" with various levels. Phase 1 formed the conditions of self-sufficiency, in which land and labor were the two key factors. Phase 2 agriculture develops in the direction of diversification, using biotechnology to increase crop and livestock productivity and market-oriented products. Stage 3, with the highest level of production, capital and technology become the decisive factors, products are market-oriented, and producers care about profits. The position of agriculture changes through each stage of development.

Research on the organization of agricultural territories: Soviet Geographers such as Kriustkov V.G (1972) with the work "Organization of agricultural territories" and Ivanov K.I (1974) with "Territorial organization of agricultural production", he affirmed that the territorial organization of agricultural production is a system of spatial linkages of agricultural sectors, enterprises and territories to exploit the most effective natural conditions and labor resources.

Research on green agriculture and commodity agriculture: the implications of green growth, green economy, and commodity agriculture have been conducted by many international organizations such as: United Nations Committee on Regional Economic and Social Affairs, Asia-Pacific (UN-ESCAP), United Nations Environment Program (UNEP), Organization for Economic Cooperation and Development (OECD), European Community (EU) and many countries around the world mentioned and understood in various aspects. But there is a common view that green growth is the process of restructuring economic activities and infrastructure to obtain better results from investments in resources, human resources, and finance, and at the same time, reduce greenhouse gas emissions, exploit, and use fewer natural resources, create less waste and reduce social inequality. The work "Advanced Analytics for Green and Sustainable Economic Development: Supply Chain Models and Financial Technologies" by author Zongwei Luo (2012). This research is in-depth research on green and sustainable development in the economy, through analyzing supply chain models and financial techniques in solving difficult problems in the economy. current trend of sustainable economic development.

- In Vietnam: because of the theoretical system of economic development in general and agricultural development in particular of world economists, Vietnamese scientists and economists have inherited and developed Develop theories about agricultural development including theoretical basis, practical basis as well as the role and development conditions of agriculture in our country.

Researching issues of the theoretical basis of agriculture, the group of authors Nguyen The Nha and Vu Dinh Thang have selectively systematized the theoretical foundations of agriculture such as the role, position, and characteristics of agriculture. agricultural industry. On the other hand, the authors analyzed the history of Vietnamese agricultural development, trends, and measures to create conditions for agricultural development in the integration trend.

Recognizing the role of agriculture, Vu Dinh Thang, Hoang Van Dinh and many other authors affirm that agriculture is an important economic sector in the national economy. The role of agriculture not only ensures food for the people, promotes animal husbandry, contributes to job creation and division of labor, but is also a raw material to promote the development of other economic sectors such as industry. Industry, transportation, services.... On the other hand, agricultural development creates conditions for rural industrialization, a large part of our country's population. In the global context and international economic integration, agriculture develops, creating conditions to enhance the competitive advantage of Vietnamese agricultural products in regional and international markets.

Researching on agricultural restructuring, Le Du Phong and Nguyen Thanh Do evaluate the process of agricultural restructuring in Vietnam's economy, although it has made tremendous progress but also reveals difficulties and challenges. in the integration process. Although the model of combining agriculture and industry, linking agriculture with processing industry, has appeared, in general, agricultural production has not formed a unified whole. The situation of fragmented development, not linked to processing and consumption markets, is common.

Author Le Thong has summarized the contributions of Soviet geographers *on the organization of agricultural territory*, and at the same time evaluated the factors affecting the organization of agricultural territory, some popular form of agricultural territorial organization today in the world. Before writing about *the Organization of*

Agricultural Production Territories in the World. The author has analyzed the characteristics of current agricultural production, from which the author has analyzed the forms of agricultural production organization of socialist and capitalist countries, compared to see similarities and differences. differences between these forms of territorial organization of agricultural production. Based on the analysis of forms of agricultural production organization, he made predictions about agricultural development trends in the world. Inheriting the theoretical and practical basis of agricultural development in the world, author Le Thong also highlighted the roles, characteristics, and factors affecting Vietnam's agricultural development as well as the results that Vietnam's agriculture has achieved in terms of sectoral and territorial aspects. From these results, the author has sketched a picture of Vietnamese agriculture in the future.

Writing about Agricultural Geography, authors Nguyen Viet Thinh and Do Thi Minh Duc, in addition to analyzing the role and characteristics of the agricultural sector, also affirm natural factors and socio-economic factors. Associations are resources for agricultural development. From these resources, the authors analyzed the development and distribution of agriculture from the perspective of agricultural sector structure and agricultural territorial structure, both the positive aspects as well as the shortcomings that need to be overcome, from there. orientation for the future development and distribution of agriculture.

The book "Economic restructuring according to the green growth model: International experience and suggestions for Vietnam" by the Vietnam Academy of Social Sciences (2012). The research project collects articles on economic restructuring in the current context, experiences of countries in building a green economy and has made recommendations on building a green economy in Vietnam.

Recent research projects on green agriculture and commodity agriculture in Vietnam include: Bich Hong (2022), "Green agriculture - new market flow". Nguyen Dinh Dap, Pham Thi Tram (2022), "Organic agriculture development trends in the world and prospects of Vietnam". Thuan Nguyen (2022), "Promoting green agriculture in Vietnam". Agricultural economics textbook of National Economics University (2020) ...

3.2. Theory of agriculture, green agriculture, and commodity agriculture

According to the Vietnam Encyclopedia: "Agriculture is the basic material production sector of society, using land for growing crops and raising livestock, exploiting crops and livestock as raw materials and main labor materials. essential to create food, foodstuffs, and some raw materials for industry. Agriculture is a large industry, including many specialties: cultivation, animal husbandry, preliminary processing of agricultural products; In a broad sense, it also includes forestry and fisheries" [1].

The concept of agriculture is being understood more in line with development trends. Modern agriculture today not only takes on the role of traditional agriculture in creating food for people or as food for livestock, but the products also include other types of fiber crops (cotton, flax, flax, etc.). jute, rush...), forestry and fisheries...are developed in the direction of commodity production, paying attention to profits, diversifying agricultural products and product quality to meet market demand [9].

Recently, we have heard a lot about green agricultural development. On a certain unit of area, people are not only interested in high productivity but more interested in productivity per unit of investment; At the same time, people are more interested in providing enough agricultural products for society while still contributing to preserving and protecting the human living environment [13].

Green agriculture focuses on using smart farming methods, using organic fertilizers, reducing the use of chemicals and pesticides, applying water-saving irrigation systems, especially using digital technology. for better management. The main goal of green agriculture is to create high and sustainable yields.

Green agriculture is agriculture that relies on promoting and using natural resources, suitable to human circumstances and resources to achieve high productivity while minimizing negative impacts. negative impact on the environment [11] [12].

In the history of development, there have existed two self-sufficient economies and commodity economies. Labor products of a self-sufficient economy are only used to satisfy the needs of producers within economic units (households, cooperatives, regions...). Products of the commodity economy in general and commodity agriculture in particular become regularly and commonly exchanged products on the market and become the first purpose of producers. Commodity agriculture is a progressive step in historical development, a higher step in human civilization that any nation must go through. A country's commodity economy includes commodity production and trading activities of the agricultural, industrial, and service sectors. Commodity agriculture is a basic material production industry, providing food sources for humans, raw materials for processing industries, and goods exchanged on the market [5] [9].

From a political economy perspective: "Commodity agriculture is a part of the commodity economy, a type of socio-economic organization that produces agricultural products not for personal consumption but for exchange. , bought and sold on the market, in order to both satisfy social consumption needs and bring profits to those who make it to expand production and modernize agriculture" [1].

From an economic perspective: "Commodity agriculture is agriculture in which products are produced not to satisfy the personal needs of producers but to be exchanged on the market to meet agricultural needs. society's products and food" [1].

With the above analysis, the concept of commodity agriculture includes the following basic elements:

- Commodity agriculture is a part of the commodity economy, a type of socio-economic organization.
- Products are produced for exchange, purchase, and sale on the market. Agricultural products must meet the basic requirements of the commodity economy.
- Exchanged products both satisfy social needs and are profitable for producers to expand production and modernize agriculture.

3.3. Strengths in developing green agriculture and commodity agriculture in Thai Binh province, Vietnam.

3.3.1. Conditions for developing green agriculture and commodity agriculture.

Thai Binh province has very favorable natural conditions for developing green agriculture and commodity agriculture.

- *Regarding terrain and land:*

Thai Binh is a delta province in the Red River Delta, the terrain is quite flat, with an average altitude of 1-1.5m above sea level. Due to the uneven alluvial deposition process of the Red River system and the river dyke system built by humans during the long process of exploitation until today, the terrain of the province is also differentiated, especially in the interior fields. Inside the dyke is land that has been accreted for a long time and is stable and favorable for agricultural cultivation. Specifically: communes along the Red River in Vu Thu district (communes of Dong Thanh, Hong Ly, Viet Hung, Bach Thuan, Nguyen Xa, Vu Tien, Hong Phong), Kien Xuong district (Hong Tien commune, Binh Thanh commune, Vu Binh...), Tien Hai district is a strip of land about 0.8-1.1 m lower than sea level, with higher fertility, mainly fresh alluvial soil deposited by large rivers; the area bordering Hung Yen province, Hai Duong province and Hai Phong city such as Hung Ha and Quynh Phu districts has an altitude higher than the district average of about 1.2 - 1.6m above sea level, the average fertility is due to the Dynamics of Luoc and Hoa rivers; The area of Thai Thuy and Tien Hai districts has the lowest elevation of 0.6-0.8m and is affected by both the river and the sea, so fertility is lower; The central area of the province in Dong Hung district, City, Kien Xuong is a fairly fertile area with an altitude of over 1.1m. In addition to the dykes of the Hong River, Luoc River and Hoa River, there are alluvial grounds that are deposited regularly every flood season. The soil is incredibly good but can only be cultivated once in the dry season with annual industrial crops, vegetables, and flowers. ...

Table 1. Soil types of Thai Binh province

No	Soil type	Development strengths
1	Alluvial soil (P)	Cultivation of wet rice (high productivity and output) Growing vegetables, tubers, fruits (kohlrabi, cabbage, carrots, tomatoes...) spices, corn, potatoes, peanuts, beans of all kinds (high productivity and output)
1.1	Alluvial soil is alluvial, without gley layer of the Red River system (Pb)	
1.2	Alluvial soil is not accreted, has no gley layer and is patchy (Pf)	
1.3	Average gley alluvial soil of the Red River system (Pg)	
1.4	Alluvial soil is not accreted, acidic (Pc)	
1.5	Neutral alluvial soil with little acidity (Pe)	
2	Sand	

2.1	Sand dunes and riverside sandbanks (Cc)	Growing rice, vegetables, raising livestock. Brackish water and saltwater aquaculture, combined with coastal mangrove forest development.
2.2	Sandy soil for planting (Cz)	
3	Salty soil	
3.1	Highly saline soil (Mn)	
3.2	Average saline soil (M)	
3.3	Low saline soil (Mi)	

Source: [14]

Land is divided into three main soil groups:

+ Alluvial soil group (P): Accounts for over 90% of the total natural land area. This type of soil is deposited with alluvium of the Red River system with soil characteristics that are usually bright brown, neutral PH, slightly acidic, PH_{cl} is about 5.50 and tends to increase gradually with soil depth. Mechanical composition ranges from light meat, medium meat to heavy meat, organic matter content is classified as quite rich from 2.50 - 30%; Nitrogen, phosphorus, potassium are all at average to good levels, N (0.15 - 0.25), P₂O₅ < (0.08 - 0.12%), K₂O (1.50 - 2.50%). The absorption capacity is quite high, usually from 25 - 29 ldl/100g of dry soil.

The alluvial soil group includes alluvial soil that is deposited annually and alluvial soil that is not deposited annually. In the alluvial soil group, there are 5 types:

Alluvial soil is alluvial, without gley layer of the Red River system (Pb), on high and lowland terrain.

Alluvial soil is not alluvial, without gley and patchy strata (Pf) of the Red River system (Ph), on sandy terrain.

Average clay alluvial soil of the Red River system (Pg) on sea sand, on low, low terrain.

Alluvial soil is not accreted and acidic (Pc) on flat, low, low, and sunken terrain.

Neutral alluvial soil with little acidity (Pe) on sandy and lowland terrain.

+ Sandy soil group (C): Distributed on high terrain. The common characteristics of the sandy soil group are: a large number of coarse particles with light mechanical components, low absorption capacity, poor water and fertilizer retention capacity, and poor total and digestible nutrients.

In the sandy soil group, it is divided into two types: sand dune soil, riverside sandy beach (Cc) and planted sandy soil.

+ Saline soil group (M): Mainly distributed in coastal areas, with high salinity from 0.4 to 0.5%, in some places over 0.5%; Often used for rice cultivation, fish farming, and aquaculture.

In the group of saline soils, it is divided into slightly saline soils, medium saline soils, and highly saline soils.

Currently, the province's agricultural land area is over 105,700 hectares, mainly covered with alluvium by two large river systems, the Red River and Thai Binh River, which is convenient for cultivating rice and other crops - especially towards intensive farming and development of high-tech agriculture.

- About climate

The climate is tropical humid monsoon, average annual temperature is 22-23°C, temperature has clear seasonal divisions, winter from November to April, the average temperature for the whole season is below 18°C, the lowest temperature is in Around January, some years it drops below 14°C; In summer, the average high temperature for the whole season can be above 29°C, the highest average temperature is in July. The annual temperature amplitude is about 12°C, the temperature amplitude between the hottest day and the coldest day fluctuates between 15-20°C, the day-night temperature amplitude is small about 10°C. The average annual rainfall is 1500 - 2000mm, with clear seasonal divisions, the rainy season from May to October has the heaviest rain in August when affected by the hot and humid Southeast monsoon, storms, tropical convergence zone... Regime Abundant heat and moisture create conditions for the development of intensive agriculture, a diverse crop structure, and the ability to turn winter crops with annual cash crops, flowers, and industrial crops into the main crop in production. agricultural export of goods.

- About water sources

Thai Binh is the only province in the country that has 3 sides bordering the river and 1 side facing the sea. Water sources for agricultural production in the province are abundant, including both surface water and underground water. The province has large rivers including the Red River, Luoc River and Hoa River, located in the area of

influence of the Red River and Thai Binh River systems, favorable for cultivating rice and other crops - especially in the direction of intensive farming and development. develop high-tech agriculture. Abundant underground water sources with decent quality also create conditions for providing a portion of irrigation water for agricultural production in winter, especially in areas where flowers and vegetables are grown. Thai Binh's coastline is 54km long, the large, flat tidal area is golden potential for developing tourism and aquaculture.

In the direction of exploiting natural resources and biological potential mentioned above, Thai Binh focuses on developing high-quality rice in Thai Thuy, Quynh Phu, Kien Xuong, Dong Hung districts; Food crops and legumes in Hung Ha, Vu Thu, Quynh Phu, Kien Xuong, Dong Hung districts; fruit trees in Quynh Phu, Hung Ha, Vu Thu; medicinal plants in Hung Ha, Vu Thu; saltwater and brackish water aquaculture in Tien Hai and Kien Xuong; raising pigs and poultry on a large-scale farm model in Vu Thu, Kien Xuong, Hung Ha, Quynh Phu,...

3.3.2. Strengths and status of green agriculture and commodity agriculture development

Thai Binh is a province with a tradition of agriculture, the agricultural sector accounts for a considerable proportion of the economic structure and plays a very important role in the socio-economic development of the province, making an important contribution to solving the problem of poverty. work, stabilize income, and reduce poverty sustainably in rural areas; Protect the ecological environment, especially coastal ecology.

Thai Binh is considered one of the largest food producing provinces in the Northern region of Vietnam. Localities in the province have well exploited their advantages in agricultural and aquaculture development, with large pig herds and poultry herds, high rice, and aquaculture yields.

Table 2. Some indicators on food production of Thai Binh province in 2010 and 2022

Some indicators	2010		2022	
	Thai Binh Province	Country	Thai Binh Province	Country
Rice output (thousand tons)	1.104,4	40.005,6	992,7	42.660,7
Rice yield (quintal/ha)	66,4	53,4	65,5	60,0
Aquatic production (thousand tons)	121.1	5.204,4	280.3	9.108
Pigs (thousands)	1.131,15	27.347,5	591,86	24.678,36
Poultry (million birds)	8.864,0	301,9	13.953,0	545,34

Source: [15]

In recent years, Thai Binh province has focused on developing large-scale, high-quality specialized commodity production areas such as rice, vegetables, flowers, fruits, and ornamental plants. Develop high-tech industrial livestock farming with key products such as pigs, cows, and poultry. Promote aquaculture and exploitation associated with brand building and development. High-tech agricultural production is a solution to bring in agricultural products that ensure food safety and increase value, aiming for export.

In the field of cultivation, the whole province has about two hundred hectares of favorable cultivation land with high economic value, creating ecological balance and biodiversity such as: high-quality rice production model combined with worm farming in the area. communes Thuy Viet, Hong Dung, Thuy Ninh (Thai Thuy); Organic rice growing model combined with exploiting and developing natural fish resources to create a 3-layer ecological agriculture model (rice, fish, and areca nuts) in Binh Thanh commune (Kien Xuong). In addition, in the province there are also ecological production models of 3-story orchards, creating high income values and beautiful landscapes in the countryside with many forms of farming (areca nut, polycias fruticosa, chicken rind). , (jackfruit, tea, honey bees), (jackfruit, polycias fruticosa, curry chicken), (arecanut, lychee, honey bees)... or model of rice cultivation - mushroom cultivation - organic fertilizer production - fruit tree cultivation ...

Thai Binh focuses on investing in high-tech agricultural production in the fields of farming, animal husbandry and aquaculture. Models of growing plants in greenhouses, or safely linking production in chains to create products that ensure food hygiene, are being applied by farmers.

Regarding livestock farming, development is quite strong in the form of large-scale farms and ranches, industrial methods, and modern technology. By 2022, the whole province will have about 2,400 livestock farms reaching the

scale prescribed by the Law on Livestock. Organization of livestock production in linked chains continues to be formed and developed; The whole province currently has: 01 association, 05 cooperatives, 09 livestock cooperative groups, 05 enterprises affiliated with nearly 49 livestock farm owners in the province with over 13,000 sows and over 100,000 pigs for meat, piglets... Biosafety, disease safety, and VietGAHP livestock farming processes are propagated, replicated, and widely applied.

Currently, the whole province has over 18,000 biogas plants treating livestock waste. Many large-scale livestock farms have used large biogas plants (from 30m³ to 200 m³) for continuous installation or built biogas ponds made of HDPE plastic tarpaulin with a volume of over 2,000 m³ for thorough treatment for livestock waste. At the same time, creating biogas sources for cooking and running generators brings economic efficiency and reduces gas emissions into the environment. In addition, the model of raising black soldier flies as raw materials for animal feed production, combining livestock farming and growing green vegetables of An Dong Company (Hung Ha) brings high economic efficiency and is environmentally friendly. creating a quality, safe food source... In addition, the models of raising perch - frog - rice, frog - perch in some localities in the province have brought high economic efficiency, saving materials. investment, animal feed, does not pollute the water or air environment...

Not only in the fields of farming and animal husbandry, Thai Binh has also demonstrated groundbreaking advances. In recent years, the province has continued to promote its strengths in exploitation and aquaculture of the coastal province. With regards to farming, saltwater agriculture, brackish water, freshwater fish cultivating in cages on rivers have been developed. The total aquaculture area in 2022 will reach 14,696 hectares, with 633 fish cages/69,318 m³; Farming objects are increasingly diverse, meeting the consumption needs of people inside and outside the province. The product value per hectare of aquaculture water surface reached 265.41 million VND/ha. Aquatic exploitation develops in a modern direction, enhancing offshore exploitation, improving production efficiency; At the same time, promote the fight against illegal, unreported, and unregulated fishing to build sustainable fisheries development.

About seven hundred hectares of concentrated aquaculture conversion area of the two coastal districts of Thai Thuy and Tien Hai out of a total of nearly 8,600 hectares of aquaculture. Along with the mangrove forest area, the ecosystem here is rich, making Thai Binh agriculture more beautiful and richer. With the advantage of flat tidal flats, coastal farmers have made clams the main farming species with a total annual output of nearly 90,000 tons, always stable in an area of nearly 3,000 hectares (accounting for 50% national clam production). This is an opportunity for Thai Binh to aim to dominate the export market.

High-tech agricultural models have also been applied by farmers in aquaculture transition areas with the form of shrimp farming in canvas houses. This model avoids adverse impacts from the environment, minimizes risks in the farming process, and better copes with climate change. With this model, shrimps are raised all year round, even in winter, something that was previously difficult to do with traditional farming methods.

Currently, the entire province has successfully organized and implemented a number of circular agriculture models, such as: garden - pond - barn (VAC) model; "rice and shrimp" "rice and fish" model; model "growing rice - growing mushrooms - producing organic fertilizer - growing fruit trees"; Industrial plywood production model from straw, rice husk; The Agine Thai Binh model is an organic circular agriculture model associated with the food processing industry and renewable energy, which has brought about effective quality for the economy, society and environment.

3.4. Solutions to develop green agriculture and commodity agriculture in Thai Binh province, Vietnam.

In recent years, with the advantages of green agriculture and commodity agriculture in achieving the goal of rapid economic growth without affecting the current and future environment, Thai Binh province has had many initiatives. programs and policies to encourage agricultural development. However, to exploit well the advantages, potential and efficiency of the agricultural sector - the province's main economic sector, in the coming time, Thai Binh needs to pay attention to the following specific solutions:

- Promote the application of modern science and technology in agricultural production. Focus on researching and applying biotechnology, nanotechnology, genetic technology, digital technology... to agricultural production; conduct the transfer and application of modern science and technology into production; Support people and businesses to apply it to production.
- Continue to strongly deploy digital transformation technology to serve the implementation of circular economy in agricultural production in accordance with each type of circular economic model of each field; At the same time, build chains of production and consumption of agricultural and aquatic products, associated with the application of scientific advances, information technology, digital technology... Organize promotion, promoting trade for products that apply circular agriculture and low-carbon agriculture as well as expanding international relations to research, receive and transfer circular and low-carbon economic models suitable for the environment. provincial conditions.

- Accelerate mechanization, modernization, strong transition to large-scale commodity production, creating new values and new markets. Focus on building new production models in a closed chain associated with processing and product consumption markets to promote the development of commodity agricultural production and increase the value per hectare of cultivation.
- Focus on diversifying the forms and contents of propaganda and education to raise awareness of organizations, units, and people about environmental protection, promoting advanced models and examples of environmental protection. environmental protection. Develop green agricultural development models associated with experiential tourism development.
- Regarding human resources: The rural population currently accounts for 88% of the province's population, so the province needs to focus on creating breakthroughs in human resource development, training, and improving vocational skills to meet basic requirements. Restructure agriculture, develop rural economy, effectively take advantage of opportunities of the Fourth Industrial Revolution, digital transformation, and international integration. Comprehensively innovate the organizational form and content of vocational training for rural workers, improve qualifications and vocational skills, especially young workers, to meet market needs. Expand the scale and fields of training to serve agricultural production, industry, services, science - technology, and business administration to meet labor needs in rural areas.
- To develop agricultural production, relying on people's experience is very necessary. However, a stable community is not a static group but must be a community capable of adapting to new conditions. The experience of local people combined with modern knowledge will complement each other to create more sustainable development than mechanically applying everything brought into the community from outside. To achieve the goal of agricultural development, towards a green agriculture, circular agriculture requires a harmonious combination of people's experience and scientific knowledge. According to Louise G, member of the Environmental Impact Assessment Committee, the value of local knowledge is equal to scientific knowledge.

4. CONCLUSION

Thai Binh is a province with enormous potential in agricultural development. The province's natural ecological conditions create favorable conditions for comprehensive agricultural development, with a rich and diverse crop and livestock structure, especially in the field of saltwater and brackish aquaculture. From the years of innovation until now, the agricultural sector of Thai Binh province has had a good growth rate and has always held a leading position in feeding most of the agricultural population and stabilizing society.

In order for agriculture to always be the province's spearhead economic sector and agricultural production to be an important economic "pillar" and a "pedestal" for the development of other fields, in the period from now to 2030, the vision By 2050, Thai Binh province needs to synchronously implement agricultural development solutions, focusing on developing green agriculture, circular agriculture, and commodity agriculture with high economic efficiency. Maximize the province's strengths and comparative advantages in the field of agriculture, coupled with environmental protection and sustainable development.

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