

HO CHI MINH NATIONAL ACADEMY OF POLITICS

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**STATE MANAGEMENT OF HIGH-TECH
AGRICULTURAL DEVELOPMENT IN GIA LAI
PROVINCE**

**SUMMARY OF THE DOCTORAL DISSERTATION
FIELD OF STUDY: ECONOMIC MANAGEMENT
ID: 9340410**

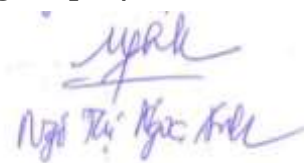
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INTRODUCTION

1. The necessity of the topic

In recent years, along with the strong development of science and technology and the impact of the Fourth Industrial Revolution, the trend of agricultural development towards high-tech application (NNCNC) has become a strategic choice of many countries. This is an inevitable direction to improve productivity, quality, added value and competitiveness of agricultural products in the context of increasingly deep international integration.

Gia Lai before and after the merger is a province with the second largest natural land area in the country, has many advantages in land, climate and resources to develop large-scale commodity agriculture and is one of the leading localities in the country in terms of area of long-term industrial crops such as coffee, rubber, pepper, cashew, sugarcane and large-scale livestock farming.

In recent times, the Gia Lai provincial government has managed, issued and implemented many policies to promote the development of high-tech agriculture such as planning, plans and projects for the development of high-tech agriculture in the period of 2021-2025, with a vision to 2030. High-tech agricultural zones such as Pleiku City, Dak Doa District, Mang Yang... are being planned and invested in. Many cropping models apply drip irrigation, greenhouses, biotechnology in breeding, mechanization, digital transformation in growing area management and product traceability.

However, the practice of developing high-tech agriculture in Gia Lai still has many limitations. Firstly, the scale of high-tech agriculture production is still small and fragmented, lacking connections in the value chain. Secondly, the infrastructure serving high-tech agricultural production is not synchronous, investment costs are high while the ability to access capital of farmers and enterprises is limited. Thirdly, high-quality human resources, especially technical staff and management staff in the field of high-tech agriculture, are still lacking and weak. Fourthly, the province's mechanisms and policies, although issued, are still scattered, not creating a strong driving force to attract investment from enterprises and farmers. Finally, state management of high-tech agriculture development still lacks synchronization, there is no close coordination between sectors, levels and related entities; monitoring and evaluating the effectiveness of policy implementation still has many shortcomings.

In the context of climate change, global epidemics and the trend of consuming safe agricultural products with clear origin and increasingly high requirements for quality and international standards, Gia Lai is facing both opportunities and challenges in developing high-tech agriculture. Without appropriate, synchronous and effective state management solutions, the province will find it difficult to promote its existing potential and advantages to create a breakthrough in agricultural economic development, increase farmers' income and position of Gia Lai agricultural products in the domestic and

international markets. Therefore, the study of "State management of high-tech agricultural development in Gia Lai province" until 2030 is an extremely urgent practical requirement, aiming to promote the province's agricultural production to develop in a modern, effective and sustainable direction

2. Research objectives and tasks

2.1 Objectives of the topic

2.1.1. General objectives

Building a theoretical framework on state management of the provincial government for high-tech agricultural development, from which to apply it to assess the current situation and propose solutions to improve the management of the Gia Lai provincial government for high-tech agricultural development in an effective and sustainable direction in the coming period.

2.1.2 Specific objectives

- Building a theoretical framework and determining the practical basis for state management of high-tech agricultural development of the provincial government.
- Identifying research gaps related to the thesis topic in both theory and practice in the world and in Vietnam.
- Analyzing and evaluating the current state of management of the provincial government for high-tech agricultural development in Gia Lai province in the past time.
- Proposing viewpoints and solutions to improve the management of the provincial government for high-tech agricultural development in Gia Lai in the coming time.

2.2. Research tasks

To achieve the proposed research objectives, the thesis focuses on the following specific tasks:

- First, conduct an overview of research works related to the thesis topic to identify research gaps and research directions of the thesis.
- Second, clarify the theoretical basis of state management for high-tech agricultural development, including concepts, roles, contents and factors affecting state management in this field.
- Third, study practical experience in state management for high-tech agricultural development in some localities in the country and internationally with similar conditions, thereby drawing lessons that can be applied to Gia Lai province.
- Fourth, survey and collect data on the state management work of Gia Lai provincial government for high-tech agricultural development in Gia Lai province.
- Fifth, analyze the current state management of high-tech agricultural development in Gia Lai province in the past period (2016 - 2024).
- Sixth, point out the results, limitations and causes in the state management of high-tech agricultural development in Gia Lai at present.
- Seventh, propose solutions to improve state management of high-tech agricultural development in Gia Lai province.

3. Research object and scope

3.1. Research object

The research object of the thesis is the state management activities of the provincial-level local government on the development of high-tech agriculture in Gia Lai province.

3.2. Research scope

*** Scope of content**

This thesis focuses on clarifying some aspects of the state management activities of the provincial government on the development of high-tech agriculture (NNCNC). Because the scope of state management is very broad, including many different functions of the provincial government in Gia Lai province, it is impossible to exploit all related contents within the framework of a thesis. On that basis, the topic chooses to limit the scope of research to three key contents: (i) The work of building and promulgating plans, schemes, and programs for the development of high-tech agriculture by the provincial government; (ii) Issuing policies and mechanisms to support the development of high-tech agriculture

*** Spatial and temporal scope**

- In terms of space: Research on state management activities for the development of high-tech agriculture in the old Gia Lai province (before the merger date of July 1, 2025, now the Gia Lai Tay area), where there is a great ecosystem and potential for high-tech agricultural development in the Central Highlands.

- In terms of time: The thesis analyzes and evaluates the current state management situation in the period from 2016 to 2024 - the period when Gia Lai began to promote the development of high-tech agriculture, and at the same time proposes solutions for the next period until 2030.

4. Research method

4.1. Method of data and information collection

- Secondary information

Secondary data in the study was exploited from many reliable sources, including: reports, policy documents of the Government and Gia Lai provincial government, topics, projects, conference proceedings, books, newspapers and information on the internet related to state management of high-tech agricultural development; reports of the Provincial People's Committee and the Department of Agriculture and Environment in the process of implementing management work.

- Primary information

Primary data were collected through in-depth interviews and surveys in districts, towns and cities of Gia Lai province, including: Pleiku, Kbang, Mang Yang, Dak Doa, An Khe, Dak Po, Chu Pah, Chu Se, Ia Pa, Krong Pa.

Regarding the questionnaire survey: The survey subjects of relevant parties are leaders and managers of NNCNC at all levels: officers of the Department of Agriculture and Rural Development (now the Department of Agriculture and

Environment), Department of Science and Technology, officers in charge of agriculture, NNCNC in districts, agricultural extension officers, enterprises, cooperatives, farms, households; Details of 250 survey samples..

Regarding in-depth interviews: During the research process, the author conducted in-depth interviews to collect opinions from experts including scientists; management staff of relevant departments, branches and sectors of Gia Lai province (People's Committee, Department of Agriculture and Environment, Department of Science and Technology, Department of Planning and Investment, now Department of Finance, Department of Industry and Trade...); as well as representatives of enterprises, cooperatives and households directly involved in implementing planning, programs and policies for high-tech agricultural development in the city. Each interview was conducted directly, lasting from 30-50 minutes, at a location chosen by the interviewee.

4.2. Analysis method

- Descriptive statistical method

In the study, the descriptive statistical method is used to evaluate the socio-economic situation and the implementation of support policies and the results of support policies for the development of high-tech agriculture in Gia Lai province in the past time. The indicators used from the descriptive statistical method include absolute numbers, relative figures, growth rates of the agricultural sector and high-tech agriculture.

-Comparative method. Through this approach, the study points out the strengths and limitations in the state management of Gia Lai, thereby contributing to proposing more suitable and feasible solutions.

Methods of processing and analyzing primary data:

- All content collected from interviews was fully recorded and carefully processed to ensure objectivity and reliability of the data.

- Data collected from questionnaire surveys were collected and entered into Excel software. Then, the researcher used statistical, descriptive, and comparative methods to analyze the data and evaluate the current management status of Gia Lai provincial government in the development of high-tech agriculture in the locality.

5. New contributions of the thesis

5.1. Theoretical contributions

- The research results of the thesis have contributed to perfecting the theoretical framework on state management of provincial authorities for high-tech agricultural development, contributing significantly to filling the theoretical gap of studies related to the thesis topic. The thesis has supplemented, perfected and systematized the theoretical basis on state management in the field of high-tech agriculture.

- The thesis also clarifies the state management content of provincial authorities on high-tech agricultural development, including: (i) developing plans, programs, and programs for high-tech agricultural development; (ii) organizing the implementation of policies to support high-tech agricultural

development (land, capital, infrastructure, science and technology, market, human resources); (iii) inspection, examination, and supervision.

5.2. Practical contributions

- The thesis systematically analyzed and evaluated the practical state management of Gia Lai provincial government in the development of high-tech agriculture in the period of 2016-2024. The research results pointed out: Outstanding achievements as well as limitations and shortcomings in human resources, resource allocation, coordination and supervision mechanisms;

- The research results of the topic are a useful scientific basis for policy makers and state management agencies for high-tech agricultural development; and are also reference materials for research and teaching institutions in the agricultural field.

6. Structure of the thesis

In addition to the Introduction, Conclusion, References and Appendix, the main content of the thesis is structured into 4 chapters:

Chapter 1: Overview of the research situation

Chapter 2: Theoretical and practical basis of state management for high-tech agricultural development.

Chapter 3: Current state management of high-tech agricultural development in Gia Lai province.

Chapter 4: Directions and solutions to improve state management of high-tech agricultural development in Gia Lai province.

Chapter 1

OVERVIEW OF RESEARCH SITUATION RELATED TO THE THESIS TOPIC

1.1. PUBLISHED RESEARCH WORKS RELATED TO THE THESIS

1.1.1. Research group on the concept of high-tech agriculture

In the work *New Roots for Agriculture*, Wes Jackson and Gordon McClymont laid the foundation for the idea of considering NNCNC as a form of “alternative agriculture” or “sustainable agriculture”. Reardon and Barrett (2000) argued that NNCNC is the synchronous application of advanced technologies to reduce dependence on natural conditions, while improving productivity and quality. Technologies such as genetic modification, tissue culture, drip irrigation systems, greenhouse farming or integrated pest management are considered typical manifestations of NNCNC. Following this approach, Nikola Trendov, Samuel Varas and Meng Zeng (2019) emphasized the priority of investment in capital and modern equipment, and considered human resource training and technical infrastructure development as conditions for high-tech agriculture to be effective. The difference of this study is to put NNCNC in relation to market demand, both domestically and internationally. At the same time, John V. Stafford (2017) approached the concept of Precision Agriculture as a core component of NNCNC. GPS, GIS, sensors, UAVs and big data analytics technologies not only change production methods but also bring

economic, environmental and social benefits.

In Vietnam, the concept of NNCNC has also been researched, developed and popularized strongly. Department of Science and Technology (Ministry of Agriculture and Rural Development). Vietnamese scholars have added many perspectives. Cao Ky Son believes that the core of NNCNC is to create favorable conditions for crops to grow to their potential productivity, while organizing production reasonably to improve efficiency. Meanwhile, Huynh Ngoc Dien approaches NNCNC as the integration of the most advanced technologies from many fundamental sciences - biology, electronics, materials and informatics - along with emerging high technologies such as lasers, optical fibers or new materials. Nguyen Van Bo (2007) and Nguyen Tan Binh, believe that in addition to applying scientific and technological achievements, NNCNC must also be associated with production management and improving the quality of human resources. Thus, the human factor and management are considered indispensable components.

On that basis, many researchers continue to generalize and expand the concept. The work of Nguyen Thi Bach Nguyet and Hoang Thi Thu Ha, the work of Tran Duc Vien and colleagues (2015) emphasizes the synthesis, considering NNCNC as a production model that combines biotechnology, information technology, mechanization and value chain organization, thereby increasing product value and improving the sustainability of the production system [103]. From a newer perspective, Do Kim Chung (2021) believes that it is necessary to approach NNCNC as an integrated production - management system, associated with digitalization and management technology. The author also clearly distinguishes between NNCNC and smart agriculture, arguing that "smart" is more comprehensive, including data, IoT and automation.

1.1.2. Research works on the role of high-tech agricultural development

**Research on the role and application of advanced and modern science and technology in the development of NNCNC*

In the study by Hoang Thi Thu Ha “The role of high-tech agricultural development and investment in high-tech agricultural development in our country”, high-tech agricultural development (NNCNC) has strategic significance for growth and enhancing the competitiveness of Vietnamese agriculture. According to Sachin Tyagi (2018), high-tech agricultural development (NNCNC) is considered an effective solution to the challenges that many countries are facing. Research by Huang et al. (2024), published in the journal Sustainability, focuses on the relationship between technological innovation and high-quality agricultural development. Chadha (2001), Research on high-tech application in crop cultivation (flowers, vegetables) in India. Balafoutis et al. (2020) pointed out that Smart Farming Technologies (SFTs) not only help reduce input costs, improve productivity and economic efficiency, but also contribute significantly to the economical use of resources, reduce emissions and protect the environment.

Wen xuan Geng et al. (2024) with the study “Digital Technologies Adoption and Economic Benefits in Agriculture: A Mixed-Methods Approach” published in Sustainability surveyed farmers in China to assess the

impact of applying digital technologies (AI, IoT, digital platforms, blockchain...) on production efficiency. The study "Artificial Intelligence for Digital Agriculture at Scale: Techniques, Policies, and Challenges" by Somali Chaterji et al. (2020) is a pioneering work in analyzing the role of artificial intelligence (AI) in large-scale digital agriculture.

**Some projects approaching high-tech agricultural development, in addition to scientific and technological factors, need to pay attention to factors such as investment, market, regional planning, and value chain.*

Ruth Meinzen - Dick et al. (2003). Research on synchronous investment, technology application in agriculture, including synchronous investment for agricultural research in India and China. Abrol (2001), believes that the process of developing high-tech agriculture should not only focus on the technical - technological aspect, but should be approached comprehensively. In the work of Hoang Ngoc Hoa: "Developing high-tech agriculture in restructuring our country's agricultural sector from a world perspective". The author clearly analyzed the central role of high-tech agriculture in the restructuring process of the sector. Meanwhile, Nguyen Thi Bach Nguyet and Hoang Thi Thu Ha (National Economics University), the author pointed out that high-tech agricultural production is a system of commodity agricultural production focused on the product value chain. All stages of chain production have achieved advanced production technology to create many agricultural commodity products with productivity, quality, and efficiency to meet domestic and export market needs, while improving the living standards of workers.

1.1.3 Research works on the role of state management in high-tech agricultural development

Ruth Meinzen-Dick et al. (2003) emphasizes the key role of the State in agricultural development through a synchronous public investment mechanism for agricultural research and development (R&D). Practices in India and China show that increased state investment in research on rice, vegetable and aquaculture technology has brought about significant improvements in productivity. Similar results have been recorded in Bangladesh, where agricultural technological advances have been implemented thanks to the State's support for research and application.

Frank Hartwich & Jansen (2007), "Public policy and agricultural innovation: Lessons from Bolivia". Research in Bolivia shows government support, especially through the provision of high-quality seeds, fertilizers and cold storage infrastructure. In the article by Nguyen Tuan Anh and Dao The Anh (2021), it is argued that the development of production, processing and consumption of agricultural products needs to be closely linked to market demand as well as consistent with the orientation, plans and strategies for agricultural development. Wu et al. (2022). The Impact of Government Subsidies on Technological Innovation in Agribusiness: The Case for China. "The Impact of Government Subsidies on Technological Innovation in Agriculture". According to Brunori et al. Agri-Food Economics and Policy, (2022). "Public Policy in Digitalizing the Agri-Food Industry" The study analyzes the role of public policy in the digitalization of the Agri-Food

Industry. While in the study by Mike Baroni (2011), the author emphasized that it is necessary to develop and improve policies to facilitate businesses to access and apply modern scientific and technological achievements in agricultural production and business activities.

**In addition, some studies have pointed out the risks and limitations of the State's institutions and policies on the development of high-tech agriculture.*

Yu Lionh & Lang Qinggao (2006), Research on the relationship between capital sources and the NNCNC industry. This study presents the difficulties and risks when investing in NNCNC. A fairly comprehensive assessment in the publication: "Vietnam's agricultural policy 2015" by OECD. Accordingly, Vietnam's agricultural sector still faces many obstacles in the development process.

According to Dao The Anh - Vietnam Academy of Agricultural Sciences (VAAS), "Need an ecosystem for high-tech agriculture", said that currently, Vietnam's state investment in agriculture for new technology seems to be decreasing. According to the World Bank report and ASTI (Agricultural Science and Technology Indicators) database, the investment level for research and development (R&D) in agriculture in Vietnam currently accounts for only about 0.2% of agricultural GDP, a quite low rate compared to many other countries. Quoting the WB report, Chu Khoi (2016), "Struggling to invest in Vietnam's agricultural sector". Pointed out that there are low scores in terms of management and agricultural business conditions.

**Some studies on improving the effectiveness of state management to develop NNCNC*

In his doctoral thesis, Nguyen Van Dong (2021) argued that improving the effectiveness and efficiency of state management is a key requirement to promote the sustainable development of high-tech agriculture in Vietnam. Some articles in scientific journals, conference proceedings at the ministerial level: Ngo Thi Phuong Thao et al. (2024), Journal of Economics and Development: "High-tech agriculture in Vietnam. The study recommends that policies should focus on raising awareness, expanding preferential credit, improving land mechanisms, developing human resources and promoting linkages between farmers and enterprises to create motivation for investment in high-tech agriculture. Pham Thi Hong Nhung (2020) - Journal of State Management: "Improving the state management institution of high-tech agriculture in Vietnam" Proposing innovation in management methods towards creation, strengthening decentralization and promoting publicity and transparency in management. Tran Quang Trung (2018) - Journal of Vietnamese Agricultural Sciences: "Issues in state management of high-tech agriculture" Analyzing the shortcomings in terms of institutions, human resources and financial mechanisms in the current management of high-tech agriculture. Dinh Van Thanh (2021) - Journal of Political Science: "Policy for developing high-tech agriculture in the context of international integration". Refers to the coordinating role of the State in building value chains and connecting with international markets.

**Some research projects on high-tech agricultural development in localities*

In the PhD thesis in Economics (2020) “Developing high-tech agriculture in Kon Tum”. Tran Le Phuong - in her PhD thesis in Economics with the topic “Capital for developing high-tech agriculture in Hanoi”, focused on analyzing solutions to mobilize financial resources to serve the development of this field. The PhD thesis of Nguyen Thi Hai Yen (2018) with the topic “Developing Nghe An agriculture in a modern direction in the context of international economic integration” approached the problem from a new perspective on agriculture in Nghe An province. Research by Nguyen Thi Ai Lien, National Economics University “Some recommendations to promote investment in developing high-tech agriculture in Ha Nam province”.

1.2. GENERAL ASSESSMENT OF RESEARCH RELATED TO THE THESIS TOPIC AND RESEARCH GAP

1.2.1. Research results that can be inherited

1.2.1.1. Theoretical results that can be inherited

From the overview of the research situation, it can be seen that the theoretical contents of State management for NNCNC have been studied and exploited by previous authors on many aspects. The following results can be inherited:

Firstly, the research results on the concept, objectives and role of NNCNC development.

Secondly, the research works clearly indicate many contents of state management policies for high-tech agricultural development

Thirdly, the researches are consistent when mentioning policy mechanisms and proposing solutions to improve the effectiveness of state management of high-tech agriculture

1.2.1.2. The results can be inherited in practice

First, the studies mention necessary issues in state management of NNCNC development in localities across the country

Second, the authors have researched and pointed out the limitations and institutional difficulties in the process of state management of high-tech agricultural development

1.2.2. Research orientation in the thesis

****Research content***

**One of the above gaps selected for research in the thesis is “State management of NNCNC development in Gia Lai province”. The research content selected in the thesis is:*

- Building a theoretical basis on NNCNC and State management of provincial authorities for NNCNC development.
- Domestic and international experience on State management of provincial authorities for NNCNC development.
- Factors affecting State management of provincial authorities for NNCNC development.
- Current status of State management of Gia Lai provincial authorities for NNCNC development in the locality.

- Solutions to improve State management of NNCNC development in Gia Lai province.

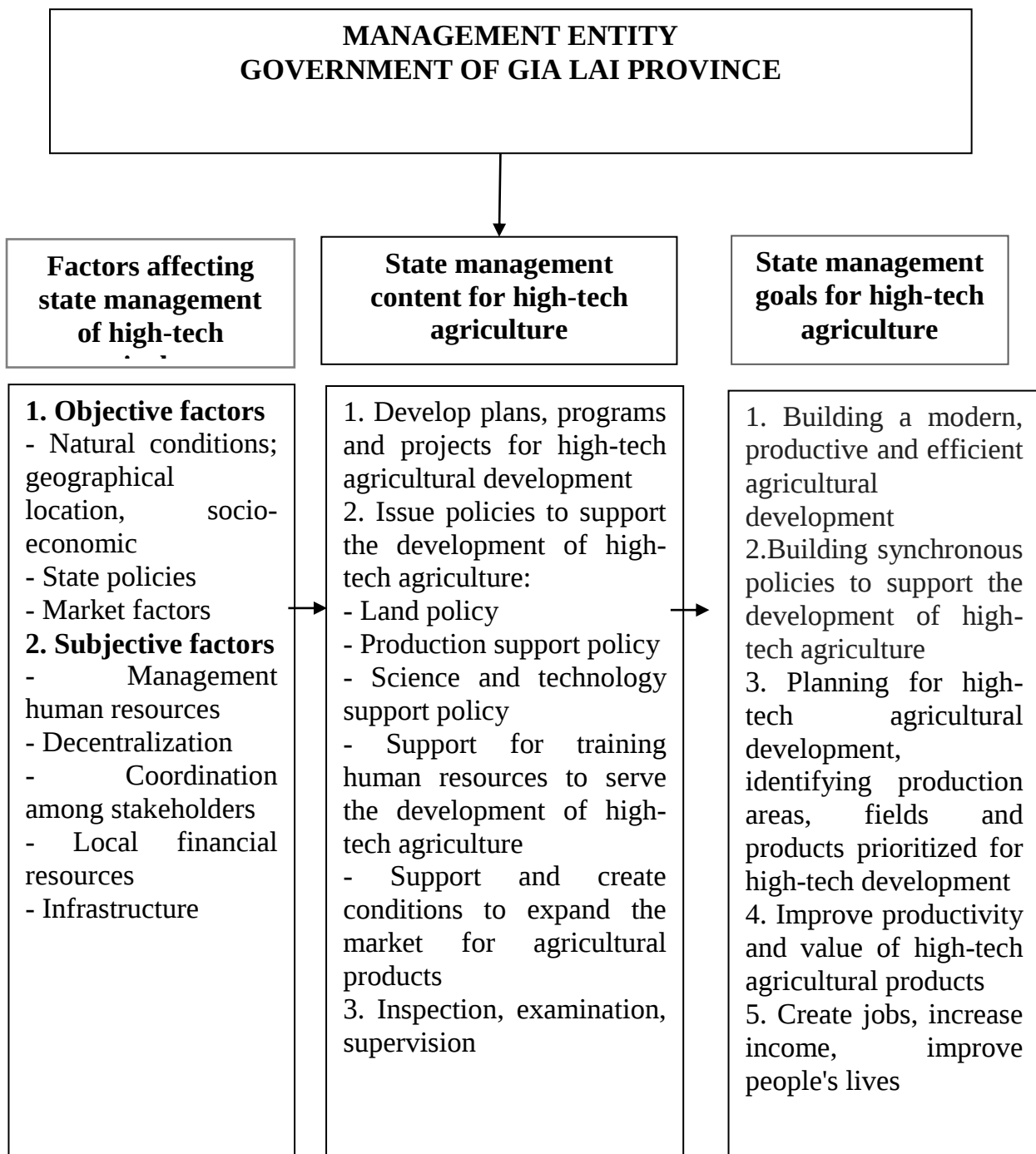
**Research questions*

1) What is the content of state management of the provincial government for the development of NNCNC?

2) What factors affect the management of the Gia Lai provincial government for the development of NNCNC at the local level?

3) What solutions can be applied to improve the management of the Gia Lai provincial government for the development of NNCNC at the local level.

1.2.3. Analytical framework



Chapter 2

THEORETICAL AND PRACTICAL BASIS OF STATE MANAGEMENT OF THE PROVINCIAL GOVERNMENT FOR HIGH- TECH AGRICULTURAL DEVELOPMENT

2.1. THEORETICAL BASIS OF STATE MANAGEMENT FOR HIGH-TECH AGRICULTURAL DEVELOPMENT

2.1.1. Concept of high-tech agriculture and development of high-tech agriculture

2.1.1.1. Concept of high-tech agriculture

There are many approaches to NNCNC, but in general, NNCNC is: *agriculture applies advanced and modern technologies into the production process such as biotechnology, information technology, automation, digital technology, new material technology with high-yield and high-quality plant and animal varieties in the stages of agricultural production organization, creating a breakthrough in productivity and quality of agricultural products, achieving economic efficiency, high competitiveness, meeting market requirements and moving towards the development of a sustainable agriculture.*

Thus, the content of NNCNC includes the following main contents: (i) agriculture applies advanced, modern, and latest technologies to all stages of the production process; (ii) inputs and outputs of the agricultural production process such as varieties, productivity, and quality of agricultural products, crops, and livestock are superior; (iii) production activities are organized and managed closely with modern and automated technology; (iiii) NNCNC products satisfy demand and increase competitiveness in the market; (iiiii) provide high economic efficiency, adapt to climate change, and develop sustainably.

2.1.1.2. Concept of high-tech agricultural development

High-tech agricultural development is understood as the proactive and active process of entities in synchronously applying advanced technological methods and solutions to agricultural production. This process aims to expand production scale, improve productivity, quality and added value of agricultural products, and at the same time perfect the production organization structure and research and application system of technology serving agriculture.

2.1.2. Content of high-tech agricultural development

Developing high-tech agriculture includes the following main contents:

First, Applying modern technology in agricultural production.

Second, Improving the capacity of entities in developing high-tech agriculture

Third, Converting traditional farming models to smart agriculture

Fourth, Developing concentrated production areas applying high technology

Fifth, Strengthening research, transfer and innovation capacity

Sixth, Developing high-quality human resources

Seventh, Completing policies and mechanisms to support the

development of high-tech agriculture.

Eighth, Ensuring sustainable development and adaptation to climate change

2.1.3. The role of high-tech agricultural development

Developing high-tech agriculture is not only an inevitable trend but also a strategy for developing modern agricultural economy, contributing to reshaping state management methods, improving national competitiveness and moving towards green - smart - sustainable agriculture in the period of global integration.

2.2. STATE MANAGEMENT OF THE PROVINCIAL GOVERNMENT OVER HIGH-TECH AGRICULTURAL DEVELOPMENT

2.2.1. Concept of state management of high-tech agricultural development

Concept of state management: According to the textbook on basic issues of state administrative management: "State management is the activity of exercising state power by state agencies against all individuals and organizations in society, in all aspects of social life by using state power of a unilateral coercive nature with the aim of serving the common interests of the whole community, maintaining stability, security and order and promoting social development according to a unified direction of the State"

2.2.2. State management objectives of provincial authorities for high-tech agricultural development

To build the province's high-tech agriculture in a modern, efficient and sustainable direction, aiming to improve productivity, quality and added value of agricultural products, improve farmers' lives, protect the ecological environment and contribute to promoting sustainable local socio-economic growth

This goal is consistent with the general orientation of transforming the agricultural growth model in depth, applying science, technology and innovation that the Vietnamese Government is promoting in the Agricultural and Rural Development Strategy for the 2021-2030 period, with a vision to 2050.

2.2.3. Contents of State management of high-tech agricultural development

State management of provincial authorities for high-tech agricultural development is understood as the totality of management activities and tasks that local authorities perform to ensure the development of high-tech agriculture in accordance with the goals, requirements and orientations of each stage. The main management contents focus on: (i) developing and implementing plans, programs and programs for high-tech agricultural development; (ii) organizing the implementation of support policies related to high-tech agricultural development; (iii) strengthening inspection, examination and supervision of the implementation process.

2.2.4. Factors affecting the state management of provincial authorities on high-tech agricultural development

2.2.4.1. Objective factors

Including: Natural conditions; State policies; Market factors;

Decentralization in management/management apparatus; Characteristics of agricultural practices; Production linkage.

2.2.4.2. Subjective factors

- Capacity and qualifications of provincial state management staff in development
- Coordination between state management agencies for high-tech agricultural development of the provincial government
- Local financial resources
- Infrastructure and information systems/ digital technology applications in management

2.3. STATE MANAGEMENT EXPERIENCE IN HIGH-TECH AGRICULTURAL DEVELOPMENT OF SOME COUNTRIES AND LOCALITIES DOMESTICALLY AND INTERNATIONALLY

2.3.1. World experience: Israel's experience, China's experience, Thailand's experience and the experience of some localities in countries around the world that have similarities with Gia Lai such as: Yunnan province's experience - China; Chiang Mai province's experience - Thailand and State management experience for NNCNC development of Bukidnon province - Philippines

2.3.2. Experience of some localities in the country: Experience of Lam Dong province; Experience of Nghe An province; Experience of Son La province.

2.3.3. Lessons learned for Gia Lai in state management of high-tech agricultural development

First, develop a plan for the development of NNCNC with a strategic vision and identify key products.

Second, develop infrastructure and form concentrated high-tech agricultural production zones and areas.

Third, develop human resources and a science and technology transfer system.

Fourth, promote market policies, branding and trade promotion.

Fifth, identify that the development of NNCNC is not only the responsibility of the government

Chapter 3

CURRENT STATE OF STATE MANAGEMENT FOR THE DEVELOPMENT OF HIGH-TECH AGRICULTURE IN GIA LAI PROVINCE

3.1. NATURAL AND SOCIO-ECONOMIC CHARACTERISTICS AFFECTING STATE MANAGEMENT ACTIVITIES ON HIGH-TECH AGRICULTURAL DEVELOPMENT IN GIA LAI

3.1.1. Natural characteristics

Gia Lai before the merger was a province located in the North of the Central Highlands region, in the Central region of Vietnam. The province's geographical location extends from 12°58' to 14°36' North latitude and from 107°27' to 108°55' East longitude. In terms of administrative boundaries, Gia

Lai borders Kon Tum to the North, Dak Lak and Phu Yen to the South, Quang Ngai and Binh Dinh to the East, while the West borders the Kingdom of Cambodia, with a border of about 90 km - a favorable factor for economic development cooperation and cross-border trade. The total natural area of the province is about 15,510 km², ranking second in terms of area in the entire Central Highlands region. The terrain is mainly basalt plateau with an altitude of 400-800 meters, interspersed with some hilly and valley areas. The Eastern and Southeastern regions have fairly flat terrain, creating favorable conditions for the formation of concentrated agricultural production areas.

3.1.2. Socio-economic characteristics

Gia Lai is a province located in the Northern Central Highlands, playing a key role in the development triangle of the three countries Vietnam - Laos - Cambodia. As of 2024, the total population of the province will reach more than 1.5 million people, including 44 ethnic groups living together, notably the Jrai and Bahnar communities - accounting for more than 44% of the population. This ethnic diversity is both a cultural strength and a factor that needs special attention in the process of comprehensive and sustainable socio-economic development.

Economically, Gia Lai still plays a role as an agricultural production center of the region, with prominent long-term industrial crops such as coffee, rubber, pepper, tea and fruit trees. In recent years, the province has been actively transforming to a new growth model, promoting high-tech agriculture.

3.1.3. Assessment of natural and socio-economic characteristics affecting state management of high-tech agricultural development in Gia Lai

3.1.3.1. Advantages

Gia Lai possesses many natural advantages typical of the Central Highlands. The large agricultural land area, of which red basalt soil accounts for a high proportion, has good fertility, suitable for many main crops. The tropical monsoon plateau climate, with a relatively stable average temperature all year round, combined with a fairly large amount of rainfall, creates conditions for crop diversification and the application of high-tech production processes. The system of rivers, streams, reservoirs and hydropower is relatively rich, creating a favorable foundation for the management, exploitation and coordination of water resources in modern agricultural development. These factors provide a scientific basis for managers in planning specialized areas, determining crop structures suitable for ecological zones, as well as orienting policies for sustainable use of land and water resources.

In terms of socio-economics, agriculture is still the mainstay of the province's economic structure.

3.1.3.2. Difficulties

First, regarding natural conditions. Although Gia Lai has a large area of agricultural land, the quality of the land is on the decline.

Second, regarding socio-economic conditions. Although Gia Lai's

economy is based on agriculture, it is currently largely based on the exploitation of raw materials.

Third, the current infrastructure system serving agricultural production does not meet the requirements of high-tech development.

3.2. CURRENT STATE OF STATE MANAGEMENT OF THE PROVINCIAL GOVERNMENT FOR HIGH-TECH AGRICULTURAL DEVELOPMENT IN GIA LAI

3.2.1. Current status of promulgation of planning, programs and goals for high-tech agricultural development by the Provincial Government

In recent times, the orientations and policies for agricultural and rural development of Gia Lai have emphasized the goal of promoting high-tech agriculture and encouraging investment in this field. This is especially important while consumer demand for clean, high-quality food is increasing. Gia Lai city's policies have clearly shown the priority orientation of attracting investment resources for high-tech agricultural development.

3.2.2. Current status of organization and implementation of planning, programs and policies to support the development of high-tech agriculture of the Provincial government

3.2.2.1. Current status of implementation of land-related policies

The province's land use in recent years has brought about great economic and social efficiency, contributing significantly to the construction and innovation of the country in general and Gia Lai in particular.

The province has promptly issued documents directing and correcting violations of the law on resource management and environmental protection. Mineral resources are managed according to planning, ensuring compliance with legal regulations, violations are corrected and handled promptly; land funds have been created to serve investment calling. Land allocation and land leasing are strictly controlled. The issuance of certificates of land use rights, house ownership rights and other assets attached to land basically meets the requirements of society, contributing to ensuring the legitimate rights and interests of citizens.

3.2.2.2. Preferential credit policies for high-tech agricultural development

Based on the direction of the Government, the Provincial Party Committee, the People's Council and the People's Committee of Gia Lai province have issued resolutions and decisions such as Decision No. 26/2016/QĐ - UBND dated May 23, 2016 of the Provincial People's Committee on regulations on a number of investment support policies applicable in Gia Lai. Resolution No. 07-NQ/TU dated January 20, 2022 on promoting the attraction of investment resources for the development of agriculture, processing industry, renewable energy industry and tourism until 2030.

The Provincial People's Committee issued Action Program No. 825/CTr-UBND dated April 28, 2022 on promoting the attraction of investment resources for the development of agriculture, processing industry, renewable energy industry and tourism until 2030. Based on the documents, the Gia Lai provincial government has instructed local commercial banks to deploy loan

packages to support the development of high-tech agriculture. These loan packages are effective tools to help the government mobilize financial resources from the private economic sector for development.

3.2.3.3. Support policies to attract investment in high-tech agriculture

Gia Lai provincial government pays special attention to attracting domestic and foreign enterprises to invest in the agricultural sector, considering this an important direction to promote the potential of land, climate and advantages of local agricultural products. The province proactively calls for and creates favorable conditions in terms of mechanisms, policies and infrastructure for enterprises to implement agricultural projects, especially high-tech agriculture, deep processing and sustainable production - consumption chains.

3.2.2.4. Current status of science and technology policy support

Many research and application projects have been implemented in various fields and pilot models have been built for the application of scientific and technological advances in production: 14 projects under the Program to support the application and transfer of scientific and technological advances to promote socio-economic development in rural, mountainous and ethnic minority areas in the period 2016-2025.

3.2.2.5. Current status of policies to support investment in infrastructure for high-tech agricultural development

In the period 2016 - 2020, Gia Lai province has focused on investing in completing the infrastructure system to serve agricultural and rural development. Specifically, the whole province has solidified 2,079 km of commune roads, hardened 2,266 km of village roads, 1,945 km of alley roads and 2,245 km of main intra-field roads, contributing to creating favorable conditions for transporting materials, agricultural products and trading goods.

Regarding irrigation infrastructure, the total length of canals managed by the commune has been solidified to 401.77 km, at the same time, newly built, renovated and upgraded 167 irrigation works, ensuring stable irrigation water supply for agricultural production.

Regarding rural power infrastructure, the province has upgraded 4,607.2 km of medium voltage lines and 4,647.6 km of low voltage lines, ensuring technical requirements. All 4,447 transformer stations have been upgraded to meet standards with a total capacity of 793,792 kVA; 184/184 communes have access to the national grid, 224,521/226,194 rural households have access to electricity regularly and safely, reaching a rate of 99.26%. Entering the 2021-2025 period, the province continues to prioritize investment in agricultural and rural infrastructure, including building new, upgrading and solidifying more than 1,333 km of rural roads, solidifying more than 42 km of canals, and upgrading and repairing 165 irrigation works, contributing to improving production capacity, promoting high-tech agricultural development and building sustainable new rural areas.

3.2.2.6. Support for training and fostering human resources for the development of NNCNC

In recent years, Gia Lai province has identified human resource development, especially labor in the agricultural and rural sectors, as one of the key tasks to promote restructuring of the agricultural sector towards modernity, sustainability and integration. In the context of shifting the agricultural economic structure associated with the development of high-tech agriculture, improving the qualifications, skills and awareness of rural workers is becoming more urgent.

3.2.2.7. Current status of trade and investment promotion support for high-tech agricultural development.

Investment promotion activities are considered one of the important tools to help localities attract resources, promote economic development in general and high-tech agricultural application in particular. In essence, this is a set of measures and actions of local authorities to promote potential, orient development and call for investors to participate in priority areas. Forms of promotion often include organizing conferences and seminars to introduce investment opportunities, participating in specialized fairs and exhibitions, sending working delegations to work with strategic partners, publishing promotional publications, as well as supporting investors to access information, survey and implement projects.

3.2.2.8. Support for agricultural production organizations applying high technology

High-tech agricultural enterprises

Gia Lai province currently has 03 enterprises certified for high-tech agriculture, including:

- Huong Dat An Phu One Member Limited Liability Company (5 hectares, producing VietGAP vegetables, applying drip irrigation, greenhouses, linking consumption at supermarkets).
- Bau Can Tea Joint Stock Company (900 hectares, producing tea, coffee, avocado according to VietGAP, revenue of 100 billion VND/year).
- Vinh Hiep Limited Liability Company (42 hectares of organic coffee, linking more than 1,400 households, producing over 4,000 hectares of coffee according to international standards).

High-tech agricultural cooperatives

By 2024, the province will have 378 agricultural cooperatives, of which 54 will apply high technology, focusing on the production of vegetables, flowers, fruit trees, medicinal herbs and livestock. The cooperatives will promote the application of drip irrigation, greenhouses, digital technology, traceability, improving productivity, quality and competitiveness.

The province will support 15-30 million VND/ha/year in the first 5 years for high-tech agricultural cooperatives; at the same time, organize training, support administration, finance and e-commerce. Some typical cooperatives such as Hung Thom Gia Lai Cooperative have achieved high efficiency, many

products meet OCOP 3-4 star standards. However, some Cooperatives are still small-scale, fragmented, and have unstable output

Farm economy

Farm economy is growing rapidly, from 88 farms in 2016 to 663 farms in 2024, mainly raising cows, pigs, and poultry. Many farms have applied advanced farming technology, contributing to the restructuring of agriculture and increasing production value

3.2.3. Current status of inspection, examination and supervision of the implementation of high-tech agricultural development by the Provincial

Government In recent years, the Gia Lai Provincial Government has identified inspection, examination and supervision as a key content in the process of managing and promoting the development of high-tech agriculture. This activity is implemented to ensure proper enforcement of legal regulations, effective use of resources and timely detection and handling of violations in the process of organizing and implementing high-tech agricultural programs and projects.

3.3. GENERAL ASSESSMENT OF STATE MANAGEMENT OF HIGH-TECH AGRICULTURAL DEVELOPMENT IN GIA LAI

3.3.1. Achievements

In recent times, the Provincial Government has shown a proactive role in developing planning, development plans and promulgating mechanisms and policies to encourage and support the application of science and technology in agricultural production. Many support policies on land, credit, human resource training, transfer of technical advances and attracting investment enterprises have been deployed to people, cooperatives and agricultural economic organizations, thereby gradually forming high-tech agricultural production models in a concentrated, effective and sustainable direction.

3.3.2. Limitations and shortcomings

Despite many positive results, the state management of high-tech agricultural development in Gia Lai province still has some limitations and shortcomings that need to be addressed in the coming time.

First, the planning system and plans for high-tech agricultural development are not really synchronous.

Second, the mechanisms and policies to support high-tech agricultural development of the Central and the province are not attractive enough to attract investment enterprises.

Third, the capacity to organize and implement policies at the grassroots level is not uniform.

Fourth, although Gia Lai province has issued mechanisms and policies related to supporting human resource training to serve high-tech agricultural development, the implementation of these training and fostering classes in localities is still general and lacks depth.

Fifth, trade promotion activities and connection to consumption of high-tech agricultural products are still weak; A sustainable value chain between production - processing - consumption has not been formed.

Sixth, Monitoring and inspection activities on the implementation of plans, programs and policies for high-tech agricultural development in the past have not achieved the desired results.

Seventh, Propaganda and dissemination of policies to support and develop high-tech agriculture in the province in the past have not achieved the expected results.

3.3.3. Causes of limitations

Limitations in state management of high-tech agricultural development in Gia Lai province stem from the following reasons:

First, the institutionalization and concretization of the Central Government's policies and guidelines on high-tech agricultural development are still slow and lack consistency.

Second, the capacity to plan and manage high-tech agricultural development is still limited.

Third, investment resources and policy tools to support high-tech agricultural development are not commensurate with the province's potential.

Fourth, the capacity to organize and implement policies at the grassroots level has not met modern management requirements.

Fifth, human resources for high-tech agricultural development are still weak in both quantity and quality.

Sixth, the work of monitoring, inspecting and evaluating policy effectiveness is still lacking in system and professionalism.

Seventh, the information system, policy communication and trade promotion are not yet effectively organized.

Chapter 4

VIEWPOINTS AND SOLUTIONS TO IMPROVE STATE MANAGEMENT FOR HIGH-TECH AGRICULTURAL DEVELOPMENT IN GIA LAI PROVINCE IN THE COMING TIME

4.1. VIEWPOINTS ON STATE MANAGEMENT FOR HIGH-TECH AGRICULTURAL DEVELOPMENT IN GIA LAI PROVINCE

4.1.1. High-tech agricultural development goals of Gia Lai province until 2030 and the following years

In the context of the new development space, the high-tech agricultural development goals of Gia Lai province are determined in a comprehensive, sustainable and highly integrated direction, aiming to maximize the potential and advantages of natural conditions, land, climate, human resources and the specific geo-economic position of the Central Highlands - Central Coast region

4.1.2. State management perspective on high-tech agricultural development in Gia Lai in the new context

First, high-tech agricultural development must be placed in the overall socio-economic development strategy of the new Gia Lai province, considering it as one of the pillars of sustainable growth and regional linkage driving force.

Second, state management of high-tech agricultural development in the new Gia Lai province needs to be organized according to the regional, multi-center and inter-connected management mindset.

Third, the development of NNCNC must be based on the foundation of science and technology, innovation and digital transformation in state management.

Fourth, state management must ensure sustainability, comprehensiveness and environmental friendliness in NNCNC development.

Fifth, the development of NNCNC must be centered on enterprises, cooperatives and farmers, in which the State plays a role in creating, leading and ensuring institutional fairness.

Sixth, state management must be closely linked to international integration and global market orientation.

4.2. SOLUTIONS TO IMPROVE STATE MANAGEMENT ON HIGH-TECH AGRICULTURAL DEVELOPMENT

4.2.1. Review and complete the planning and program for high-tech agricultural development

The provincial level plays a key role in strategic planning, promulgating master plans and coordinating the development of high-tech agricultural zones linking between regions.

The commune level is proactive in identifying key production areas, selecting models and organizing implementation in accordance with local natural, economic and social conditions.

4.2.2. Completing support policies to facilitate investment in high-tech agricultural development

4.2.2.1. Land policy

Land is a decisive input factor for investment and development of high-tech agriculture. However, in Gia Lai, the process of land accumulation and concentration to form large-scale production zones applying high technology still faces many difficulties, due to policy limitations, legal barriers as well as the dispersion of agricultural land ownership among the population. Therefore, perfecting the land support mechanism and policies is a key solution in state management to promote effective and sustainable development of NNCNC. Specifically:

Prioritizing land allocation and land lease with preferential policies according to the provisions of the law on land.

Implementing land consolidation and forming large-scale fields

Publicizing information on agricultural land funds for NNCNC development

Reducing costs and time to access land to expand production scale

4.2.2.2. Solutions to support financial and credit policies:

Increase credit sources for entities participating in the NNCNC industry. To build infrastructure to serve high-tech NNCNC production such as greenhouses, automatic irrigation systems, drip irrigation, etc. requires large capital and a long payback period. Therefore, to suit the actual conditions, commercial banks in Gia Lai province need to increase medium-term and long-term capital sources to meet the investment needs of infrastructure construction of production entities, and need to adjust the loan period to at least 3-5 years for loans to form the initial infrastructure of high-tech agricultural production facilities.

4.2.2.3. Perfecting state management in the policy of calling for and attracting domestic and foreign investment in high-tech agriculture in Gia Lai province

First, perfecting the framework of investment incentive policies specific to the high-tech agriculture sector, in accordance with the local natural - economic - social conditions and international practices.

Second, promoting administrative procedure reform, improving service quality and professionalism of the public and private investment management apparatus.

Third, innovating and improving the effectiveness of investment promotion work, aiming towards professionalism, proactiveness and focus.

4.2.2.4. Policy solutions to support the development of high-tech science in agriculture

It is necessary to build cooperation models between universities, research institutes with local enterprises and agricultural cooperatives to transfer technology, new plant and animal varieties, smart farming systems, water-saving irrigation, and biotechnology.

4.2.2.6. Solutions to complete investment in infrastructure development for high-tech agriculture

Infrastructure development is a prerequisite for the formation and expansion of high-tech agricultural zones, and at the same time is a factor reflecting the operational capacity and effectiveness of state management in agricultural economic development. In the context of increasingly close regional linkages, especially the merger with the old Binh Dinh province, investment and upgrading of infrastructure systems for high-tech agriculture in Gia Lai need to be oriented towards inter-regional, integrated and sustainable development.

4.2.2.7. Trade policy, market development:

Firstly, develop a strategy to promote high-tech agricultural trade in

association with regional characteristics and the value chain of Gia Lai's key products Secondly, innovate the trade promotion model towards modernity, digitalization and Thirdly, strengthen the inter-sectoral coordination mechanism and form a public-private partnership model in promoting high-tech agricultural trad

4.2.3. Solutions on organizing implementation and strengthening propaganda work on planning, programs and policies for high-tech agricultural development

4.2.3.1. Strengthening the capacity to organize the implementation of planning and programs for high-tech agricultural development

First, specify and adjust the planning and plans for high-tech agricultural development in accordance with the actual conditions of each region, each key product and the long-term development orientation of the province.

Second, perfecting the mechanism for organizing the implementation of planning and clearly defining the responsibilities of state management agencies from the provincial to the district level (now the commune level).

Third, building a mechanism for coordination, monitoring and evaluation of the implementation of planning and programs for high-tech agriculture in a connected, transparent and substantive manner.

4.2.3.2. Managing the implementation of NNCNC production organizations

First, perfecting the mechanism and policies for organizing implementation and supporting the diversification of high-tech agricultural production forms

Second, promoting the development of high-tech agricultural cooperatives and reorganizing small-scale production

Third, developing high-tech agricultural enterprises as the leading organization of production

4.2.3.3. Strengthening propaganda work on planning, programs, and policies for high-tech agricultural development

Diversify forms of policy propaganda suitable for production organization. Organize specialized policy dialogue conferences, in the form of "going to each district, to each cooperative", focusing on specific contents such as: preferential credit policies, land lease support, technology support, and chain linkage.

4.2.4. Solutions for training human resources to meet the requirements of developing high-tech agriculture

First, build a strategy for developing high-tech agricultural human resources in association with the province's development planning.

Second, perfect the mechanism and policies to support training and fostering of NNCNC human resources.

Third, promote the system of training, vocational training and agricultural scientific research in association with the needs of the NNCNC labor market in the province.

4.2.5. Solutions for inspection, examination and supervision of high-tech agricultural development

Inspection, examination and supervision play a particularly important role in ensuring the effectiveness and efficiency of state management of high-tech agricultural development in Gia Lai province. To improve the quality and deterrence of this activity, it is necessary to first of all perfect the plan and mechanism for systematic inspection and examination.

In addition to perfecting the mechanism, Gia Lai needs to pay special attention to improving the professional capacity of inspection and examination staff in the field of high-tech agriculture. Training and fostering of staff need to be carried out in an in-depth direction, updating knowledge on biotechnology, digital technology, and agricultural value chain management.

CONCLUSION

Developing high-tech agriculture is becoming an inevitable trend, to develop the agricultural sector to respond to population growth, changes in natural conditions due to climate change and in the context of agricultural modernization and deep international economic integration. High-tech agriculture plays a key role in improving production efficiency, quality and added value of agricultural products, meeting the increasing requirements for food safety, traceability and environmental standards. In this process, the role of state management, especially at the provincial level, is identified as a fundamental factor to ensure orientation, support and effective implementation of high-tech agricultural development goals.

The thesis has focused on a systematic analysis of both the theory and practice of provincial-level state management of high-tech agricultural development, with the research area being Gia Lai province - a place with great potential for agricultural development but also many barriers in applying high technology to production. The research results have clarified a number of important issues:

Firstly, the thesis has consolidated and developed a theoretical framework on the role of state management in high-tech agricultural development, in which it is clear that state management does not stop at the administrative management role, but also includes institutional establishment, policy making, resource regulation, multi-sectoral coordination organization and monitoring the implementation process. The key management contents identified include: planning and planning work; investment support and incentive policies; effective exploitation of science and technology resources, finance and markets.

Second, through a field survey in Gia Lai province, the thesis assessed the current state of state management of high-tech agriculture. Many positive results have been recorded such as: the initial formation of high-tech production areas, the development of a number of cooperative models, pioneering enterprises, attracting many investment projects and having certain investment incentive policies. However, there are still many shortcomings such as: lack of overall planning and long-term vision, unfocused resource allocation, limitations in inter-sectoral coordination, and the capacity of management staff has not yet met the requirements of digital transformation and modern governance. Third, the thesis clearly identifies the role of specialized agencies under the Provincial People's Committee in the process of managing high-tech agricultural development, thereby highlighting institutional difficulties, lack of specific policies for localities with special conditions such as Gia Lai, and limitations in connecting consumer markets - a vital factor of the high-tech agricultural value chain.

Fourth, based on qualitative and quantitative analysis, the thesis proposed a system of synchronous solutions to perfect the provincial-level state management model in developing high-tech agriculture in Gia Lai. The solutions focus on: (1) Reviewing and perfecting the planning and program for high-tech agricultural development; (2) Perfecting support policies to facilitate investment in high-tech agricultural development; (3) Solutions on organizing implementation and strengthening propaganda on planning, programs, and policies for high-tech agricultural development; (4) Solutions on training human resources to meet the requirements of high-tech agricultural development; (5) Solutions on inspection, examination, and supervision of high-tech agricultural development.

In conclusion, the research of the thesis not only contributes to supplementing the scientific basis for the perception and management orientation of high-tech agricultural development in the context of growth model transformation, but also contributes practical policy implications for Gia Lai and localities with similar conditions. Thereby, creating a premise to promote the transformation of high-tech agriculture towards modernity, greenness, efficiency and adaptation to the context of digital economy and climate change.

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