

Solutions for developing the linkage between the production and consumption of key and potential agricultural products in Dak Nong province

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Giải pháp phát triển liên kết trong sản xuất và tiêu thụ một số sản phẩm nông sản chủ lực và tiềm năng trên địa bàn tỉnh Đắk Nông

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<https://doi.org/10.55250/jo.vnuf.10.1.2025.108-116>

ABSTRACT

This article evaluates the current state of developing the linkage between production and consumption of key and potential agricultural products in Dak Nong province. In the area, there are three types of association organizations: the horizontal, vertical, and regional linkage. The province has a total of 65 organizations that are linked to product value chains in 9 agricultural product sectors, and approximately 9,660 households involved. The linkages focused on key and potential products like coffee, pepper, cashew, macadamia nuts, rice, fruits, pork, and poultry. Linkage has been beneficial for all parties, but there are also various challenges. Specially, aiding farming households in overcoming constraints and risks in capital and technology, attaining steady outputs, and decreasing spontaneous production for farmers. Supporting policies are still hindered by many barriers, including limited access to scientific, technical and market information; passive households participating in linkage; limited scale, capacity, and qualifications; and untight linkage contracts. Parties are likely to violate the contract, and farmers are often at a disadvantage. Production is mainly carried out in small-scale households that are fragmented, dispersed, and spontaneously developed. In order to develop linkages in production and consumptions of agricultural products in Dak Nong, it is necessary to implement solutions in a synchronous manner, including adjustment of some related policies.

Article info:

Received: 28/02/2025

Revised: 31/03/2025

Accepted: 23/04/2025

Keywords:

Agricultural products, consumption, Dak Nong province, linkage, production.

Từ khóa:

Liên kết, nông sản, sản xuất, tiêu thụ, tỉnh Đắk Nông.

TÓM TẮT

Bài viết đánh giá thực trạng phát triển liên kết, kết nối trong sản xuất và tiêu thụ nông sản chủ lực, tiềm năng tại tỉnh Đắk Nông. Trên địa bàn tỉnh có 3 loại hình tổ chức liên kết: liên kết ngang, liên kết dọc và liên kết vùng. Toàn tỉnh có tổng cộng 65 tổ chức liên kết chuỗi giá trị sản phẩm trong 9 ngành hàng nông sản, với khoảng 9.660 hộ gia đình tham gia. Các liên kết tập trung vào các sản phẩm chủ lực, tiềm năng như cà phê, hồ tiêu, điều, mắc ca, gạo, trái cây, thịt lợn, gia cầm. Liên kết mang lại lợi ích cho tất cả các bên, nhưng cũng còn nhiều thách thức. Đặc biệt đối với nông dân, hỗ trợ hộ nông dân vượt qua khó khăn, rủi ro về vốn, công nghệ, đạt sản lượng ổn định, giảm sản xuất tự phát. Các chính sách hỗ trợ vẫn còn nhiều rào cản, trong đó có hạn chế về tiếp cận thông tin khoa học, kỹ thuật, thị trường, hộ nông dân thụ động tham gia liên kết, quy mô, năng lực, trình độ còn hạn chế, hợp đồng liên kết chưa chặt chẽ. Các bên dễ vi phạm hợp đồng, người nông dân thường chịu thiệt thòi. Sản xuất chủ yếu diễn ra ở quy mô hộ gia đình nhỏ lẻ, manh mún, phân tán, phát triển tự phát. Để phát triển liên kết sản xuất, liên kết tiêu thụ nông sản ở Đắk Nông, cần triển khai đồng bộ các giải pháp, trong đó có việc thay đổi một số chính sách liên quan.

1. INTRODUCTION

The linkage along the production value chain associated with the consumption of agricultural products played a role in agriculture. Improving this connection is not only a centered factor for farmers or producers, but it also has other impact factors on production [1, 2]. The development of agricultural commodity production and a market economy in Vietnam caused this link to form spontaneously [3]. The agricultural production in Dak Nong is mainly household scale, small production and has established linkage between production and consumption but its loose and spontaneous.

The government and Dak Nong's People's Committee have formulated some policies to encourage and support the link between production and consumption, including: Decision No. 80/2002/QĐ-TTg dated June 24, 2002; Decision No. 62/2013/QĐ-TTg; The most recent are Decree 98/2018/ND-CP of the Government; Resolution 06/2019/NQ-HDND of the Provincial People's Council and Decision 677/QĐ-UBND of the Dak Nong Provincial People's Committee.

The support for these policies has led to the existence of 65 linkages between production and consumption in Dak Nong. In addition, previous research has focused on the linkage between the general [4] and the central Highland [5, 6] but has not emphasized the key and potential agricultural products in the Dak Nong province [2, 6]. Therefore, this research contributes to adding and bringing solutions to the linkages between production and consumption of key and potential agricultural products in Dak Nong province by 2030.

2. RESEARCH METHODS

2.1. Data collection

Policies, research, studies, and reports of the results of agricultural production and consumption models can be used to collect data on the link between production and consumption in agriculture. Another way to gather data is to conduct interviews with producers, collectors, and agricultural product companies in the provinces' area.

2.2. Selection of research areas

To impact development linkage in Dak Nong province, an assessment survey has been conducted in all 8 districts and cities of the province. The evaluation focused on four primary and three potential products, which included coffee, pepper, rubber, cashew, beef, medicinal plants, and macadamia (In accordance with Decision No. 2096/QĐ-UBND date December 18, 2018 Dak Nong's People's Committee).

2.3. Secondary data analysis

This method of analysis and evaluation utilizes secondary data related to production and consumption to provide comments and analysis on that basis, which will provide solutions to promote the development of linkages in the area.

3. RESULT AND DISCUSSION

3.1. The current development of production and consumption linkages in Dak Nong province

3.1.1. Vertical and Horizontal linkages

Horizontal linkages in cooperative and cooperative groups have undergone a significant change since Law on Cooperatives 2012. The number of cooperatives is growing and the average annual revenue is quite high. The activities of cooperatives and cooperative groups are diverse, and the quality of cooperatives is getting better. The rate of cooperative operations is still low and the capital of cooperatives is low. Several cooperatives are solely based on their names and are almost inactive. In the period 2013 to 2023, Figure 1 was shown that the growth rate of agricultural cooperatives has been 12.74% per year, with an average of nearly 10 cooperatives in operation over the years; the percentage of agricultural cooperatives that are performing well is still low (only 18.38%). The average operating capital of an agricultural cooperative in the region is 223.75 million VND/cooperative, which is about 172 million VND/cooperative more than in 2013, but much lower than the national average of 1.6 billion VND/cooperative.

The average annual revenue growth rate is high (with a growth rate of 14.13%), and the

average profit of an agricultural cooperative increases by 10.61% every year. The survey at the end of 2023 (Figure 1) shows that 37.5% of agricultural cooperatives in the area are involved in various types of linkages. The total number of cooperatives with horizontal linkage is 37, with 15 cooperatives having vertical linkage, and 11 cooperatives having value chain linkage.

The province has three agricultural cooperative unions, but they lack specific production and business plans, and their management system is not up to the task. Due to the distance between the Union's member

cooperatives, direct connection and exchange are still difficult, leading to their limited operation. In 2023, there will be 168 cooperative groups in Dak Nong province, which ones have 5-7 members. The cooperative groups have mainly evolved spontaneously, with poor management, small scale, and low optional economics, resulting in ineffective production and low production.

Vertical links have been utilized in various forms, including informal links and contracts signed between participants such as households, farm owners, cooperatives, and enterprises in the province.

Table 1. A list of cooperative agriculture operations in Dak Nong province

No.	Item	Unit of measure	2013	2018	2023	Compare 2018/2013		Compare 2023/2018	
						Number	Percentage (%)	Number	Percentage (%)
1	Total cooperative agriculture (Register operation)	Cooperatives	63	171	229	108	171,43	58	3,92
2	Agricultural cooperatives that are in operation	Cooperatives	30	69	164	39	130	95	137,68
3	The number of cooperative agriculture members	members	549	1.356	9.898	807	146,99	8542	629,94
4	The number of laborers ragular in cooperative agriculture	People	401	1.260	4.679	859	214,21	3419	271,35

Source: From reports in districts and cities [7]

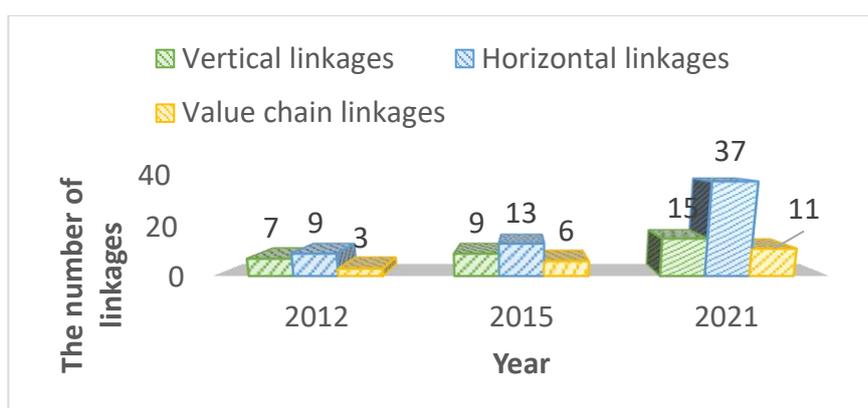


Figure 1. The current development of production and consumption linkages in Dak Nong province

Source: From reports in districts and cities [7]

3.1.2. The value chain linkages of key and potential agricultural products in Dak Nong

The value chain agriculture sector has 65

production links and around 9,660 households that focus on major and potential agricultural products such as coffee, pepper, rubber,

cashew, beef, medicinal plants, and macadamia, but the scale linkage is still small.

Regarding the consumption sources, there are many cooperative enterprises that purchase products for self-processing, processing, packaging, and consumption, exporting, supply to small traders, wholesale markets, trade centers, and supermarkets. Many enterprises and cooperatives purchase

agricultural products and then resell them to third parties for processing and consumption, all at the same time.

Some enterprises can advance materials and guide the production process, test product quality, and purchase all agricultural products at the beginning of the season. As a result, the products' output is guaranteed and farmers save on production costs.

Table 2. The value chain linkages of key and potential agricultural products in Dak Nong

Key and potential agricultural products	Cooperatives (number)	Enterprises (number)	Production group (number)	Area (ha)	The number of	
					households that have joined (number)	Ton
Coffee	12	13		13,248	7,691	40,788
Pepper	5	2	2	1,639	763	3,812
Cashew,	1			4,000	100	6,000
Macadamia	1				140	
Rice	2			620	419	6,100
Vegetables and beans of all kinds	5	1		207	282	4,754
Fruits	14	4	1	923	268	10,060
Corn		1		150	103	632

Source: From reports in districts and cities [7]

3.2. Assessment of the developing linkages in Dak Nong

3.2.1. Effective of value chain linkages

Linking key products in the value chain can help increase benefits for value chain actors, while assisting farming households in overcoming limitations and risks in capital and technology, achieving stable output, and reducing spontaneous production. Moreover, it aids businesses in obtaining a stable supply source, efficiently developing the processing industry, building brands, and meeting stable consumption needs, preventing buyers from intervening to break production plans and contracts.

By participating in chain linkages, household awareness of farming techniques improves, lowering the use of chemical fertilizers and increasing the use of organic fertilizers, and improving harvesting and preservation techniques. The linked chains' higher purchase

price of agricultural products compared to non-linked ones results in households in the links significantly increasing their income. The development of cooperative agriculture has been strong in terms of both quality and quantity, and it also acts as a bridge between producers and consumers.

Participating households in high-quality value chain linkages have been aware of the importance of water-saving irrigation measures to address climate change and manage water resources. The irrigation system has undergone upgrades and investments, and irrigation services have been developed, which has enabled irrigation for over 148,22 thousand hectares, fulfilling 80% of crop irrigation needs in the province.

Farmers are assisted in applying production processes, and effective production and business models; supplying market information, prices and materials for

agricultural products, crop calendars, and preventing and mitigating damage caused by natural disasters and pests. Build a high-tech

agricultural zone measuring 120 hectares and four recognized high-tech agricultural zones, with a total area of 2,423.17 hectares.

Table 3. Comparing the economic efficiency of housing-participating and non-participating linkages

Sector	Housing-participating and non-participating linkages	Average revenue (1000 VND/ ha)	Average cost (1000 VND/ ha)	Average Profit (1000 VND/ ha)	Profit/cost
Coffee	Yes	225,437	70,680	154,757	2,19
	No	188,003	72,085	115,918	1,61
	Difference	37,434	(1,405)	38,839	0,58
Pepper	Yes	216,773	102,440	114,333	1,12
	No	151,307	101,470	49,837	0,49
	Difference	65,466	970	64,496	0,63
Cashew	Yes	30,600	21,810	8,790	0,4
	No	23,184	20,145	3,039	0,15
	Difference	7,416	1,665	5,751	0,25
Macadamia	Yes	184,530	27,330	157,200	5,75
	No	169,004	29,754	139,250	4,68
	Difference	15,526	(2,424)	17,950	1,07

Sources: Results from analysis survey

3.2.2. Difficulties and their existence in linkage

Although policies promote linkages in production, such as supporting land, capital, and administrative procedures, accessing facilities, especially loans, remains difficult due to many barriers and difficulties.

Famer and enterprises' investment in development is limited by their lack of access to high-tech production, market agricultural products, policy support, and loans for infrastructure development.

The association's households are still passive and limited in scale, capacity, and qualifications. There are cooperatives and enterprises in the production and product consumption chain who wait for support from the State without a clear strategy or specific direction.

The production and consumption chains are still developing, and the implementation process is still confusing. The linkage contracts are still not perfect and there are no consequences for breaking them. Farmers are often at a disadvantage due to the fact that the product consumption contract is a guideline, and the parties are likely to violate it.

Despite the province's key and potential products being increased through cooperation and association, they are still low relative to demand and the province's potential is not yet commensurate.

There are units where the link between production, processing, and consumption is not strong. The investment and upgrading of OCOP products following recognition in certain small-scale production facilities is unclear, and there has been no significant investment in changing product processing.

Small-scale, fragmented, dispersed households are the primary source of production and it develops spontaneously due to limited investment resources, low labor quality, and uneven production and business management skills.

The linkage forms lack binding power due to their incoherence. The scope and scale of association are mainly based on models.

3.3. Establish a relationship between actors in the production chain that connects agricultural product consumption in the province through linkage and cooperation mechanisms

3.3.1. Forms of linkage

The investigation has revealed that there are five types of association in the area: 1) Direct Central Form; 2) Intermediate Form; 3) Multi-Subject Form; 4) Nuclear Form; 5) Informal Cooperative Agriculture. Each form plays a role and has advantages and disadvantages.

So in order to link production and consumption, it is important to be flexible and use suitable forms of linkage for local conditions. Linkages can have four stages depending on local conditions, including: Supplying materials and services, organizing production, harvesting, preliminary processing, and product consumption are called linking according to the agricultural product value chain (abbreviated as value chain linking).

3.3.2. Forms of cooperation between actor

The cooperation mechanism is put into practice in accordance with the principles of equality, democracy, and legal compliance.

The participants are capable of gaining benefits from each other, sharing risks, and enhancing product quality and production efficiency. The cooperation mechanism is expressed through association contracts.

The corresponding forms of contract will vary depending on the application of the association form. A specific situation and condition requires a specific type of contract to be used. Contracts have provisions for responsibilities, rights, and association mechanisms between agents. When creating a contract, it's important to keep in mind these issues:

The type, quality standards, specifications, varieties, and applied techniques of products need to be clearly defined. It's important to prioritize high-quality products that meet and are acknowledged by the purchasing party's standards and quality.

In order to comply and fit with the commercial characteristics of the product, it is necessary to clearly state the transportation method, time, and place of delivery.

The selling price of the product needs to be determined based on its type and quality standards, along with the payment method and

payment terms.

3.3.3. Operation mechanism for linking production and consumption of agricultural products

The process of operating production linkage and connecting agricultural product consumption involves 4 steps, including: 1) Step 1. Encourage, propagate, and mobilize farmers to participate in partnerships and organize production in accordance with agreed upon standards; 2) Step 2. Enhance the capacity of farmer organizations (coops, cooperative groups) by mobilizing, propagating, and mobilizing them; 3) Step 3. Support and mobilize businesses in establishing links and processing and trading agricultural products; 4) Step 4. Local authorities are involved in supporting and monitoring to ensure the sustainability of linkages.

3.4. Finding solutions to develop production linkages and connect consumption of essential agricultural products, while capitalizing on the strengths and potentials of Dak Nong province

3.4.1. The development of production linkages and connections for agricultural product consumption is encouraged with this policy

Support, encourage, and replicate the production linkage model that links agricultural product consumption. Find out the important lessons needed to implement policies that replicate the production and consumption linkage chain model in the region from Decision No. 677/QĐ-UBND dated May 17, 2021 of the Dak Nong Provincial People's Committee on building a pilot model of the production and consumption linkage chain for cooperatives and cooperatives in Dak Nong province for the period 2021 - 2025; Conclusion No. 809-KL/TU dated May 19, 2020 of the Dak Nong Provincial Party Committee on sustainable agricultural development according to the linkage chain in Dak Nong province; Resolution No. 06/2019/NQ-HDND dated July 19, 2019 on approving a number of policies to support linkage in production and consumption of agricultural products in Dak Nong province and Plan No. 433/KH-UBND dated August 13, 2020 of Dak Nong Provincial People's Committee on

implementing the conclusion of the Provincial Party Standing Committee on sustainable agricultural development according to the linkage chain for the period 2020-2026 in Dak Nong province.

- Support policies that help businesses participate in linkages, including funding consulting fees for creating linkages, Resolution 06/2019/NQ-HDND dated July 19, 2019 and Decree No. 98/2018/ND-CP dated July 5, 2018 of the Government, but in reality, businesses rarely receive this support.

- Establish an investment environment that is open, transparent, and equal by establishing all favorable conditions for corporations, businesses, and investors. Evaluate and adjust current credit policies in agricultural production to match the realities of every locality, with the objective of not giving preferential credit to individual small households.

- Developing a collective economy and supporting and enhancing the capacity of farmer organizations (coops, cooperative groups) participating in the association are the policy and solutions that need to be implemented. Developing strategies to develop human resources for cooperatives and cooperative groups.

- Farmers participating in the linkage receive full support and only need to complete simple procedures when taking advantage of the incentive policy, as stated in Resolution 06/2019/NQ-HDND dated July 19, 2019 and Decree No. 98/2018/ND-CP dated July 5, 2018 of the Government.

3.4.2. Improve the role of state management agencies in carrying out agreements between parties when participating in associations

- Increase supervision over the linkage implementation process and ensure product quality standards by monitoring the work done according to the linkage contract signed between the parties.

- Summarize, evaluate, and edit inappropriate regulations and policies in a timely manner. Specialized agencies compile inadequacies that are not appropriate for joint

development and synthesize them. Provide guidance and recommendations to the People's Council and the Provincial People's Committee on how to revise regulations and policies.

- Address any violations in the implementation of links promptly.

3.4.3. Creating brands and trademarks for agricultural products made by Dak Nong

- Establishing a brand for Dak Nong's formidable agricultural products, which are linked to the history, culture, tradition, product excellence, and benefits of Dak Nong.

- Intellectual property rights are used to protect Dak Nong's strong agricultural product brands through certification marks in Vietnam and in both traditional and potential markets for its agricultural products. Establish a strategy for promoting Dak Nong's agricultural product certification marks.

- Provide support to businesses in developing and creating business brands and agricultural products that are registered for intellectual property protection in accordance with regulations.

3.4.4. Implement digital transformation, plan, restructure the industry, utilize high-tech solutions, meet quality standards, and invest in infrastructure

- Execute the digital transformation plan for the agricultural sector in accordance with Decision No. 1312/QĐ-UBND of the Provincial People's Committee on promulgating the Digital Transformation Plan of the agricultural sector and rural development of Dak Nong province by 2025. Thus, we are promoting the usage of high technology and developing smart technology 4.0 to create agricultural products that have high productivity, quality, safety, and competitiveness.

- To make it easier to implement agricultural planning in the Dak Nong provincial planning that was approved by the Prime Minister in Decision No. 1757/QĐ-TTg on "Approval of the Dak Nong Provincial Planning for the period 2021-2030, with a vision to 2050". To develop key and potential industries and establish links and consumption connections in the area, it is necessary to

continue implementing projects.

- To respond to climate change, invest in advanced processing and post-harvest technology by implementing mechanization throughout production and water-saving irrigation.

- Enhance agricultural market information and establish a platform for agricultural commerce in the province. Create an information portal to identify the origin of agricultural products.

- To enhance productivity, quality, and economic efficiency, invest in agricultural infrastructure development, which includes small-scale irrigation, advanced irrigation, and intra-field roads.

- Prioritize the development of agricultural infrastructure (such as small-scale irrigation, advanced irrigation, intra-field roads, and so on) to enhance productivity, quality, and economic efficiency.

3.4.5. Developing markets that consume agricultural products are key and have potential

- Encourage businesses to take part in exports, discover new markets, strengthen and expand traditional ones, such as Singapore, Korea, Australia, China, the United States, the Philippines, and Japan; continue to open up and develop markets in Africa, the Middle East. Reducing the excessive concentration on a few markets.

- Create a database with information about major export markets that is based on the province's primary export products; conduct market research to forecast and give recommendations to businesses, cooperatives, and producers.

- Promote and advertise essential and potential products, while also highlighting notable geographical features of the province.

- Upgrading and completing the auxiliary work urgently is necessary. Encourage large investors, particularly foreign investors, to invest in developing supermarket systems and shopping centers.

3.4.6. Proposed amendments to some specific policies

Revising Decree 98/2018/ND-CP to encourage the growth of cooperation and association in the manufacture and consumption of products.

- Clarifying the terms 'project owner' and 'investor' (stipulated in Clause 4, Article 6) for joint projects. Clarifying the requirements for bidding on goods and services for joint construction and operation projects. Guidance is necessary to prevent the project owner/investor from investing counterpart funds without winning the bid when participating in the bidding, which could cause difficulties in implementing the project.

- Article 7 of Decree 98/2018/ND-CP requires financial aid for 'operational consulting and maintenance of the association' to enhance the association's long-term sustainability and development.

- The arrangement of capital sources for joint projects (Clause 2, Article 7; Clause 2, Article 8; Clauses 2 and 3, Article 9 of Decree 98/2018/ND-CP) needs to be more specific by either synchronizing both career capital and development investment capital or providing instructions for using both career capital and other capital sources.

- Complementing or clarifying this point is suggested to enable the implementation of support policies for farming households, groups of farming households, and farms directly linked to businesses.

- Specific instructions and policies are essential for supporting the implementation of projects linking production to agricultural product consumption by balancing, allocating, and mobilizing support resources from localities and other sources (Clause 4 and 5, Article 10).

- Specific instructions or targets are necessary for implementation, particularly when it comes to budget allocation (Clause 3, Article 16 and Clause 4, Article 17).

The policy decision 01/2012/QĐ-TTg focuses on supporting the implementation of good agricultural practices in agriculture, forestry, and fisheries.

- 'One-time assistance for the expense of hiring a certification organization to evaluate

and obtain a Certificate of Safe Products' is stated in Clause c of Article 5. Modifying and adding support for issuing certificates of sustainable production in accordance with recognized certification standards, such as UTZ, RainForest Alliance, 4C, etc.

- The recipient of support is required by Clause 2, Article 4 to have a consumption contract or a plan for product consumption. Revise the definition of consumption plan by adding an 'association contract' or removing this condition.

4. CONCLUSION

With 25 links, coffee is the most popular, followed by pepper with 09 links, fruit with 19 links, and vegetables and beans with 07 links. Forms of linkages include horizontal associations, vertical associations, and regional associations. In relation to vertical linkage, in general, there are both informal and direct, concentrated, and intermediate links. Product value chain linkages benefit all participants, including enterprises, cooperatives, cooperative groups, and farmers. Determining the linkage, cooperation, and cooperation mechanism between actors in the production chain that connects agricultural product consumption in the province is necessary. The development of production and consumption links for a number of key and potential agricultural products in the province requires synchronous implementation of solutions.

Acknowledgments

The authors express their gratitude to the Dak Nong Provincial People's Committee and the Department of Science and Technology, Dak Nong for granting them funds to accomplish the results presented in this paper. (No. 566/QĐ-UBND dated May 8, 2023).

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