



STRAW MANAGEMENT ADOPTION CAPACITY IN DONG THAP PROVINCE

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**STRAW MANAGEMENT ADOPTION CAPACITY
IN DONG THAP PROVINCE**

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I. Introduction

Agriculture contributes significantly to greenhouse gas emissions globally, especially in industrially developing economies that are currently heavily dependent on income from agriculture, such as Vietnam. The country has identified agriculture-related emission reduction commitments for its Nationally Determined Contributions in the Paris Agreement (Nelson et al., 2021). Vietnam is the 4th rice producer and ranks as the 2nd largest global exporter, selling approximately 8 million tons (Mt) of milled rice (2014), which is one-fifth of the global trade volume (US\$4 billion in rice export) (Tivet and Boulakia, 2017). The Mekong Delta, located in the South of Vietnam, is the biggest rice granary in the country. Annually, it produces up to 50% of the total rice output and comprises more than 95% of Vietnam's total milled rice export (ESCAP-CSAM, 2018). Dong Thap province is the third-largest rice production in the Mekong Delta, with 3,349.8 thousand tons in 2019. The rice planted area of Dong Thap province in 2019 is 521.6 thousand ha.

Rice production has been identified as a significant source of atmospheric methane emissions because it is labor, water, and energy-intensive crop (McFadden et al., 2013). Rice is a dominant and vital crop for Vietnam. However, traditional paddy rice production also emits significant greenhouse gases, accounts for 50% of the country's agriculture emissions, and 15% of its total greenhouse gas emissions (IRRI, 2020). Efforts to reduce greenhouse gas emissions from rice production are a national priority for achieving Vietnam's Nationally Determined Contributions. One of the factors influencing the amount of greenhouse gas emitted from rice production is residue/post-harvesting management (Nelson et al., 2021). Rice straw is a rice by-product produced when harvesting paddy. Each kg of milled rice results in roughly 0.7-1.4 kg of rice straw depending on variety, cutting height of the stubbles, and moisture content during harvest. Rice straw is separated from the grains after the plants are threshed either manually, using stationary threshers, or, more recently, using a combine harvester (IRRI Rice Knowledge Bank). Approximately one-fourth of the straw is burned on the field, which is a common practice in intensive rice cultivation systems in the Mekong Delta. This is because there is limited time to prepare the field for the next crop. The spread of intensive rice production in the Mekong Delta may increase the total biomass of burning crop residues, significantly contributing to greenhouse gas emissions in Vietnam (Hong Van et al., 2014; Arai et al., 2015).

Open-field burning is an uncontrolled combustion process during which gases such as CO₂, nitrous oxide (N₂O), CH₄, CO, non-methane hydrocarbons (NMHC), NO_x, SO₂, particulate matter (PM), and few others are being emitted. The greenhouse gases (GHGs) of importance are N₂O and CH₄, which contribute to global warming and

climate change (Gadde et al., 2009). Rice straw burning in the field causes greenhouse gas (GHG) emissions, including 0.7-4.1 g of CH₄ and 0.019-0.057 g of N₂O per kg of dry rice straw, and emission of other gaseous pollutants such as SO₂, NO_x, HCL and, to some extent, dioxins and furans (Oanh et al., 2011; Jenkins et al., 2003). Burning causes almost complete N loss, P losses of about 25 percent, K losses of 5 to 60 percent. The amount of nutrient lost depends on the method used to burn the straw (Dobermann and Fairhurst, 2002).

To reduce air pollution from the impact of burning rice straw in Vietnam, it is suggested that modern technology practices such as incorporation, mushroom cultivation, compost, and biochar be adopted instead of the traditional use of straw (Duong and Yoshiro, 2015). Incorporation, mushroom production, cattle feed, and biogas production should be promoted to return organic matters to the soil (Hien, 2017). Partial and complete removal of rice straw reduces greenhouse gas emissions by 30% and 40% compared to complete straw retention, respectively (Nguyen-Van-Hung et al., 2019). However, the adoption of environmentally-friendly straw management is mainly driven by the market, rainfall distribution, and quality of transportation network (Bui et al., 2020). To date, limited knowledge exists about the factors that influence the straw adoption capacity.

Thus, this study aims to evaluate the straw management adoption capacity in Dong Thap province. Key informant interview (KII) with district-level DARD officials in Dong Thap province to determine the straw management adoption capacity in Winter-Spring, Summer-Autumn, and Autumn-Winter season.

II. Methodology

Key informant interview (KII) with twelve district-level DARD officials in Dong Thap province were conducted to determine each season's straw management adoption capacity (Winter-Spring, Summer-Autumn, and Autumn-Winter). District-level DARD officials evaluated every commune in their district on the influencing factors related to straw removal.

The scale from 1-10 was used to evaluate the factors that influence the straw adoption capacity for each commune. The scale was labeled with low and high responses. The influencing factors and the level of these factors were presented in Table 1.

Table 1. The influencing factors and the level of these factors

No.	Influencing factor	Level
1	Baling equipment availability	Low: never available/no balers Medium: sometimes available but difficult to schedule High: plenty of balers available to schedule when needed
2	Labor availability	Low: never available/no labor Medium: sometimes available but challenging to hire High: plenty of labor available to hire when needed
3	Straw buyers	Low: never available/no straw buyers Medium: sometimes available but difficult to sell High: plenty of straw buyers available to sell
4	Net gain to farmer	Low: 200,000 VND/ha Medium: 500,000 VND/ha High: 1,000,000 VND/ha
5	Transportation	Low: low quality of transportation network Medium: medium quality of transportation network High: high quality of transportation network
6	Storage availability	Low: never available/no storage Medium: a few storages available to stock straw High: plenty of storages available to stock straw
7	Storage affordability	Low: storage facilities too expensive to be able to earn profit from straw Medium: storage facilities expensive but straw sales still profitable High: cost for storage facilities is a small expenditure overall
8	Time between seasons	Low: the duration between two successive rice seasons is not enough for adopting straw removal practices. Medium: the duration between two successive rice seasons is relatively short. High: the duration between two successive rice seasons is enough for adopting straw removal practices.
9	Farmers' interest	Low: no interest in adopting straw removal practices Medium: relative interest in adopting straw removal practices

		High: great interest in adopting straw removal practices
10	Farmers' organization	Low: no supportive Medium: sometimes supportive High: always supportive for farmers to adopt straw removal practices
11	Local government	Low: no supportive Medium: sometimes supportive High: always supportive for farmers to adopt straw removal practices

The survey with stakeholders, including four scientists, four technical staff, and four farmers, was conducted to rank the importance of these factors from 1 to 11, with 1 being the most important factor and 11 being the least important, in their influence on straw removal management. Based on this survey, the weight of these factors were presented in Table 2.

Table 2. The level of importance of influencing factors on straw removal management

No.	Influencing factor	Overall ranking	Weight value
1	Baling equipment availability	1	0.17
2	Labor availability	4	0.12
3	Straw buyers	3	0.14
4	Net gain to farmer	9	0.05
5	Transportation	8	0.06
6	Storage availability	10	0.03
7	Storage affordability	11	0.02
8	Time between seasons	7	0.08
9	Farmers' interest	2	0.15
10	Farmers' organization	6	0.09
11	Local government	5	0.11
	Total		1.00

III. Results

3.1. Straw management adoption capacity in Cao Lanh city

Cao Lanh city has fifteen communes and wards, but only three communes had rice cultivation. It includes My Ngai commune, My Tra commune, and My Tan commune. This is because Cao Lanh city transformed from rice cultivation to fruit cultivation. Another reason is that it is affected by the process of urbanization. All communes cultivated in the Winter-Spring season had a low adoption capacity for straw removal management. They had a low score for baling equipment availability, farmers' interest, straw buyer, and labor availability factors. However, they had a medium score for local government and farmers' organization factors. They mainly propagated farmers to plant rice according to the crop calendar and advised farmers not to burn rice straw on the field. In addition, they also had a low score for the time between season, transportation, net gain to the farmer, storage availability, and storage affordability. The score of straw management adoption capacity of Cao Lanh city in the Winter-Spring season was presented in Table 3.

In the Summer-Autumn season, only three communes, My Ngai commune, My Tra commune, and My Tan commune, had rice cultivation. All communes in Cao Lanh city had a low adoption capacity for straw removal management in the Summer-Autumn season. All communes cultivated this season also had a low score for baling equipment availability, farmers' interest, straw buyer, and labor availability factors. However, they also had a medium score for local government and farmers' organization factors this season. Besides, they also had a low score for the time between season, transportation, the net gain to the farmer, storage availability, and storage affordability. The score of straw management adoption capacity of Cao Lanh city in the Summer-Autumn season was presented in Table 4.

Table 3. Straw management adoption capacity of Cao Lanh city in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Ward 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Ward 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Ward 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Ward 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Ward 6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Ward 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Hoa Thuan Ward	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. My Phu Ward	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Hoa An Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Tinh Thoi Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Tan Thuan Dong Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Tan Thuan Tay Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. My Ngai Commune	1	0.17	1	0.12	1	0.14	1	0.05	1	0.06	1	0.03	1	0.02	1	0.08	1	0.15	7	0.63	7	0.77	2.22	Low
14. My Tra Commune	1	0.17	1	0.12	1	0.14	1	0.05	1	0.06	1	0.03	1	0.02	1	0.08	1	0.15	7	0.63	7	0.77	2.22	Low
15. My Tan Commune	1	0.17	1	0.12	1	0.14	1	0.05	1	0.06	1	0.03	1	0.02	1	0.08	1	0.15	7	0.63	7	0.77	2.22	Low

-: Not planted;

S: Score; WS: Weighted score; TWS: Total weighted score

Table 4. Straw management adoption capacity of Cao Lanh city in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Ward 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Ward 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Ward 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Ward 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Ward 6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Ward 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Hoa Thuan Ward	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. My Phu Ward	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Hoa An Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Tinh Thoi Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Tan Thuan Dong Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Tan Thuan Tay Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. My Ngai Commune	1	0.17	1	0.12	1	0.14	1	0.05	1	0.06	1	0.03	1	0.02	1	0.08	1	0.15	7	0.63	7	0.77	2.22	Low
14. My Tra Commune	1	0.17	1	0.12	1	0.14	1	0.05	1	0.06	1	0.03	1	0.02	1	0.08	1	0.15	7	0.63	7	0.77	2.22	Low
15. My Tan Commune	1	0.17	1	0.12	1	0.14	1	0.05	1	0.06	1	0.03	1	0.02	1	0.08	1	0.15	7	0.63	7	0.77	2.22	Low

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.2. Straw management adoption capacity in Sa Dec city

Sa Dec city has nine communes and wards, but only five communes and wards had rice cultivation. It includes An Hoa ward, Tan Quy Dong ward, Tan Khanh Dong commune, Tan Quy Tay commune, Tan Phu Dong commune. All communes cultivated in the Winter-Spring season had a medium adoption capacity for straw removal management. This season, Tan Quy Tay commune had the highest total weighted score, with 5.75, whereas Tan Quy Dong ward had the lowest total weighted score, with 5.43. All communes cultivated this season had a low score for baling equipment availability and labor availability. However, they had a high score for farmers' interest and straw buyers. All communes in Sa Dec city had a low score for local government, while they had a high score for farmers' organization and time between seasons. Besides, Tan Khanh Dong commune, Tan Quy Tay commune, Tan Phu Dong commune had a medium score for the net gain to the farmer, whereas An Hoa ward, Tan Quy Dong ward had a low score for this factor. An Hoa ward, Tan Quy Dong ward had a small area of rice cultivation, approximately 50 ha of the planted area; thus, the price of selling rice straw was lower than that of other wards and communes. Other wards and communes had a large rice cultivation area; thus, the price of selling rice straw was high. The score of straw management adoption capacity of Sa Dec city in the Winter-Spring season was presented in Table 5.

In the Summer-Autumn season and Autumn-Winter season, all communes also had a medium adoption capacity for straw removal management. Tan Quy Tay commune also had the highest total weighted score, whereas Tan Quy Dong ward had the lowest. All communes cultivated in these seasons also had a low score for baling equipment availability and labor availability. Nevertheless, they had a high score for farmers' interest and straw buyers. In addition, all communes also had a low score for local government, while they had a high score for farmers' organization and time between seasons. Tan Khanh Dong commune and Tan Quy Tay commune had a high score for transportation. In contrast, An Hoa ward, Tan Quy Dong ward, Tan Phu Dong commune had a medium score for this factor. The rice cultivation area of An Hoa ward and Tan Quy Dong ward was in a remote area, so it was more challenging to transport rice straw. Besides. Tan Khanh Dong commune, Tan Quy Tay commune, Tan Phu Dong commune had a medium score for the net gain to the farmer, whereas others had a low score for this factor. The score of straw management adoption capacity of Sa Dec city in the Summer-Autumn season and Autumn-Winter season was presented in Tables 6 and 7.

Table 5. Straw management adoption capacity of Sa Dec city in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Ward 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Ward 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Ward 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Ward 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. An Hoa Ward	1	0.17	1	0.12	9	1.26	3	0.15	7	0.42	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.49	Medium
6. Tan Quy Dong Ward	1	0.17	1	0.12	9	1.26	3	0.15	6	0.36	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.43	Medium
7. Tan Khanh Dong Commune	1	0.17	1	0.12	9	1.26	6	0.3	8	0.48	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.70	Medium
8. Tan Quy Tay Commune	1	0.17	1	0.12	9	1.26	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.75	Medium
9. Tan Phu Dong Commune	1	0.17	1	0.12	9	1.26	5	0.25	7	0.42	2	0.06	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.62	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 6. Straw management adoption capacity of Sa Dec city in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Ward 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Ward 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Ward 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Ward 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. An Hoa Ward	1	0.17	1	0.12	9	1.26	3	0.15	7	0.42	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.49	Medium
6. Tan Quy Dong Ward	1	0.17	1	0.12	9	1.26	3	0.15	6	0.36	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.43	Medium
7. Tan Khanh Dong Commune	1	0.17	1	0.12	9	1.26	6	0.3	8	0.48	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.70	Medium
8. Tan Quy Tay Commune	1	0.17	1	0.12	9	1.26	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.75	Medium
9. Tan Phu Dong Commune	1	0.17	1	0.12	9	1.26	5	0.25	7	0.42	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.59	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 7. Straw management adoption capacity of Sa Dec city in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Ward 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Ward 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Ward 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Ward 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. An Hoa Ward	1	0.17	1	0.12	9	1.26	3	0.15	7	0.42	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.49	Medium
6. Tan Quy Dong Ward	1	0.17	1	0.12	9	1.26	3	0.15	6	0.36	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.43	Medium
7. Tan Khanh Dong Commune	1	0.17	1	0.12	9	1.26	6	0.30	8	0.48	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.70	Medium
8. Tan Quy Tay Commune	1	0.17	1	0.12	9	1.26	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.75	Medium
9. Tan Phu Dong Commune	1	0.17	1	0.12	9	1.26	5	0.25	7	0.42	1	0.03	1	0.02	9	0.72	9	1.35	9	0.81	4	0.44	5.59	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.3. Straw management adoption capacity in Hong Ngu city

In the Winter-Spring season, all communes in Hong Ngu city had a medium adoption capacity for straw removal management. All communes in Hong Ngu city had a low score for baling equipment availability. Hong Ngu city had only 10-15 straw balers; thus, it could not meet the need in harvest time. Besides, all communes had a medium score for farmers' interest, straw buyers, and labor availability. Farmers realized that removing rice straw could help them increase their income and return nutrients to the soil. In addition, all communes had a medium score for local government and farmers' organization factors. However, they had a high score for the time between seasons. Although farmers in Hong Ngu city cultivated three cropping seasons, they followed the crop calendar of local governments. The interval between crops was 20 days; thus, they had enough time for handling rice straw. The score of straw management adoption capacity of Hong Ngu city in the Winter-Spring season was presented in Table 8.

In the Summer-Autumn season and Autumn-Winter season, all communes in Hong Ngu city also had a medium adoption capacity for straw removal management. All communes cultivated in these seasons also had a low score for baling equipment availability. However, all communes had a medium score for farmers' interest, straw buyers, and labor availability. Hong Ngu city implemented models of growing indoor-mushroom, transformed rice cultivation to fruit and vegetable cultivation, developed cattle breeding. Thus, straw buyers are pretty abundant. In addition, all communes had a medium score for local government and farmers' organization factors. Local governments and farmer's organizations supported farmers to carry out the demonstration model of handling rice straw. They also conducted training for farmers about climate change and using rice straw in agricultural production, such as mushroom cultivation and mulching materials. All communes cultivated in these seasons also had a high score for the time between seasons, while they had a medium score for transportation. The score of straw management adoption capacity of Hong Ngu city in the Summer-Autumn season and Autumn-Winter season was presented in Tables 9 and 10.

Table 8. Straw management adoption capacity of Hong Ngu city in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. An Binh A Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
2. An Binh B Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
3. An Lac Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
4. An Loc Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
5. An Thanh Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
6. Binh Thanh Commune	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
7. Tan Hoi Commune	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 9. Straw management adoption capacity of Hong Ngu city in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. An Binh A Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
2. An Binh B Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
3. An Lac Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
4. An Loc Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
5. An Thanh Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
6. Binh Thanh Commune	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
7. Tan Hoi Commune	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 10. Straw management adoption capacity of Hong Ngu city in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. An Binh A Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
2. An Binh B Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
3. An Lac Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
4. An Loc Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
5. An Thanh Ward	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
6. Binh Thanh Commune	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium
7. Tan Hoi Commune	4	0.68	5	0.60	7	0.98	2	0.10	6	0.36	2	0.06	2	0.04	8	0.64	5	0.75	7	0.63	7	0.77	5.61	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.4. Straw management adoption capacity in Tan Hong district

In the Winter-Spring season, all communes in Tan Hong district had medium and high adoption capacity for straw removal management. Only two communes, Binh Phu commune and Tan Cong Chi commune, had a high adoption capacity for straw removal management. In contrast, other communes had a medium adoption capacity for straw removal management. This season, Binh Phu commune and Tan Cong Chi commune had the highest total weighted score, with 7.43, whereas Sa Rai townlet had the lowest total weighted score, with 4.99. Binh Phu commune and Tan Cong Chi commune had a high score for baling equipment availability and labor availability, while others had low and medium scores for these factors. Besides, all communes in Tan Hong district had a high score for farmers' interest. Farmers were aware that removing rice straw could help them increase their income, and burning rice straw had a detrimental effect on the environment. Binh Phu commune, Tan Cong Chi commune, and Tan Phuoc commune had a medium score for straw buyers. In contrast, others had low and medium scores for this factor. In addition, all communes in Tan Hong district had a medium score for local government and farmers' organization factors. However, they had a high score for the time between seasons. The score of straw management adoption capacity of Tan Hong district in the Winter-Spring season was presented in Table 11.

In the Summer-Autumn season, all communes in Tan Hong district had medium and high adoption capacity for straw removal management. Binh Phu commune and Tan Cong Chi commune had a high adoption capacity for straw removal management, whereas other communes had a medium adoption capacity for straw removal management. This season, Binh Phu commune and Tan Cong Chi commune had the highest total weighted score, whereas Sa Rai townlet had the lowest. In this season, Binh Phu commune and Tan Cong Chi commune also had a high score for baling equipment availability and labor availability. In contrast, others had low and medium scores for these factors. In addition, all communes in this season also had a high score for farmers' interest.

Only three communes, Binh Phu commune, Tan Cong Chi commune, and Tan Phuoc commune, had a medium score for straw buyers in the Summer-Autumn season. In contrast, others had low and medium scores for this factor. Binh Phu commune, Tan Cong Chi commune had the largest rice cultivation area in Tan Hong district; thus, straw buyers in these communes also were much more than in other communes. Besides, all communes in this season also had a medium score for local government and farmers' organization factors. Local governments and farmers' organizations conducted the demonstration model of baling rice straw for farmers. All communes also had a high

score for the time between seasons. The score of straw management adoption capacity of Tan Hong district in the Summer-Autumn season was presented in Table 12.

Only Tan Thanh B commune had rice cultivation in the Autumn-Winter season. Tan Thanh B had a medium adoption capacity for straw removal management, with a score of 6.44. This commune had a medium score for baling equipment availability and labor availability, while they had a high score for farmers' interest and time between seasons. Besides, it had a low score for straw buyers, whereas it had a medium score for local government and farmers' organization factors. The score of straw management adoption capacity of Tan Hong district in the Autumn-Winter season was presented in Table 13.

Table 11. Straw management adoption capacity of Tan Hong district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Sa Rai Townlet	3	0.51	3	0.36	3	0.42	2	0.10	6	0.36	1	0.03	2	0.04	8	0.64	9	1.35	7	0.63	5	0.55	4.99	Medium
2. An Phuoc Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
3. Binh Phu Commune	8	1.36	8	0.96	7	0.98	4	0.20	6	0.36	8	0.24	8	0.16	8	0.64	9	1.35	7	0.63	5	0.55	7.43	High
4. Tan Cong Chi Commune	8	1.36	8	0.96	7	0.98	4	0.20	6	0.36	8	0.24	8	0.16	8	0.64	9	1.35	7	0.63	5	0.55	7.43	High
5. Tan Ho Co Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
6. Tan Phuoc Commune	7	1.19	6	0.72	7	0.98	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.98	Medium
7. Tan Thanh A Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
8. Tan Thanh B Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
9. Thong Binh Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 12. Straw management adoption capacity of Tan Hong district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Sa Rai Townlet	3	0.51	3	0.36	3	0.42	2	0.10	6	0.36	1	0.03	2	0.04	8	0.64	9	1.35	7	0.63	5	0.55	4.99	Medium
2. An Phuoc Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
3. Binh Phu Commune	8	1.36	8	0.96	7	0.98	4	0.20	6	0.36	8	0.24	8	0.16	8	0.64	9	1.35	7	0.63	5	0.55	7.43	High
4. Tan Cong Chi Commune	8	1.36	8	0.96	7	0.98	4	0.20	6	0.36	8	0.24	8	0.16	8	0.64	9	1.35	7	0.63	5	0.55	7.43	High
5. Tan Ho Co Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
6. Tan Phuoc Commune	7	1.19	6	0.72	7	0.98	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.98	Medium
7. Tan Thanh A Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
8. Tan Thanh B Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium
9. Thong Binh Commune	7	1.19	6	0.72	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.56	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 13. Straw management adoption capacity of Tan Hong district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Sa Rai Townlet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. An Phuoc Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Binh Phu Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Tan Cong Chi Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Tan Ho Co Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Tan Phuoc Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Tan Thanh A Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Tan Thanh B Commune	7	1.19	5	0.60	4	0.56	4	0.20	6	0.36	8	0.24	6	0.12	8	0.64	9	1.35	7	0.63	5	0.55	6.44	Medium
9. Thong Binh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.5. Straw management adoption capacity in Hong Ngu district

In the Winter-Spring season, most communes in Hong Ngu district had a low adoption capacity for straw removal management. Only Thuong Thoi Hau A commune had a medium adoption capacity for straw removal management. In this season, Thuong Thoi Hau A had the highest total weighted score, with 4.03, whereas Thuong Thoi Tien townlet had the lowest total weighted score, with 2.91. Most communes in Hong Ngu district had a low score for baling equipment availability, except for Thuong Thoi Hau A commune, with a medium score. All communes in Hong Ngu district had a low score for farmers' interest and straw buyers. Farmers wanted to burn rice straw in order to handle stubbles quickly; thus, the level of their interest in straw removal was low. Besides, all communes had a medium score for labor availability, whereas they had a low score for local government and farmers' organization. Half of communes in Hong Ngu district had a medium score for transportation. In contrast, others had a low score for this factor. Long Khanh A commune, Long Khanh B commune, Long Thuan commune, Phu Thuan A commune, and Phu Thuan B commune were in isle; thus, it is challenging to transport rice straw by boat. The score of straw management adoption capacity of Hong Ngu district in the Winter-Spring season was presented in Table 14.

In the Summer-Autumn season, all communes in Hong Ngu district had a low adoption capacity for straw removal management. In this season, Thuong Lac commune, Thuong Phuoc 1 commune, and Thuong Thoi Hau A had the highest total weighted score, with 1.81, whereas Thuong Thoi Tien townlet and Thuong Phuoc 2 commune had the lowest total weighted score, with 1.38. All communes in this season had a low score for baling equipment availability, labor availability, straw buyers, and farmers' interest. It should be noted that the quality of rice straw was wet in this season due to much rain. Thus, there were few straw buyers in this season. Besides, all communes in this season also had a low score for local government and farmers' organization. In addition, the score of Thuong Thoi Tien townlet and Thuong Phuoc 2 commune for the time between seasons were lower than other communes. Thuong Thoi Tien townlet and Thuong Phuoc 2 commune cultivated three cropping seasons; thus, farmers in these communes did not have enough time to remove rice straw. This season, all communes also had a low score for the net gain to farmers. The price of selling rice straw was low in Hong Ngu district, and it was less than VND 500,000 per ha. The score of straw management adoption capacity of Hong Ngu district in the Summer-Autumn season was presented in Table 15.

Only two communes, Thuong Thoi Tien townlet and Thuong Phuoc 2 commune had rice cultivation in the Autumn-Winter season. Both of them had a low score low adoption capacity for straw removal management in this season. They had a low score for baling

equipment availability, labor availability, straw buyers, and farmers' interest. Besides, they also had a low score for local government and farmers' organization. The score of straw management adoption capacity of Hong Ngu district in the Autumn-Winter season was presented in Table 16.

Table 14. Straw management adoption capacity of Hong Ngu district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Thuong Thoi Tien Townlet	3	0.51	5	0.60	3	0.42	1	0.05	5	0.30	1	0.03	1	0.02	1	0.08	2	0.30	3	0.27	3	0.33	2.91	Low
2. Long Khanh A Commune	3	0.51	5	0.60	4	0.56	2	0.10	4	0.24	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	3.63	Low
3. Long Khanh B Commune	3	0.51	5	0.60	4	0.56	2	0.10	4	0.24	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	3.63	Low
4. Long Thuan Commune	3	0.51	5	0.60	4	0.56	2	0.10	4	0.24	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	3.63	Low
5. Phu Thuan A Commune	3	0.51	5	0.60	4	0.56	2	0.10	4	0.24	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	3.63	Low
6. Phu Thuan B Commune	3	0.51	5	0.60	4	0.56	2	0.10	4	0.24	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	3.63	Low
7. Thuong Lac Commune	4	0.68	5	0.60	4	0.56	2	0.10	5	0.30	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	3.86	Low
8. Thuong Phuoc 1 Commune	4	0.68	5	0.60	4	0.56	2	0.10	5	0.30	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	3.86	Low
9. Thuong Phuoc 2 Commune	4	0.68	5	0.60	3	0.42	1	0.05	5	0.30	1	0.03	1	0.02	1	0.08	2	0.30	3	0.27	3	0.33	3.08	Low
10. Thuong Thoi Hau A Commune	5	0.85	5	0.60	4	0.56	2	0.10	5	0.30	1	0.03	1	0.02	4	0.32	3	0.45	4	0.36	4	0.44	4.03	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 15. Straw management adoption capacity of Hong Ngu district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Thuong Thoi Tien Townlet	1	0.17	3	0.36	1	0.14	1	0.05	3	0.18	1	0.03	1	0.02	1	0.08	1	0.15	1	0.09	1	0.11	1.38	Low
2. Long Khanh A Commune	1	0.17	3	0.36	2	0.28	2	0.10	2	0.12	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.75	Low
3. Long Khanh B Commune	1	0.17	3	0.36	2	0.28	2	0.10	2	0.12	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.75	Low
4. Long Thuan Commune	1	0.17	3	0.36	2	0.28	2	0.10	2	0.12	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.75	Low
5. Phu Thuan A Commune	1	0.17	3	0.36	2	0.28	2	0.10	2	0.12	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.75	Low
6. Phu Thuan B Commune	1	0.17	3	0.36	2	0.28	2	0.10	2	0.12	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.75	Low
7. Thuong Lac Commune	1	0.17	3	0.36	2	0.28	2	0.10	3	0.18	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.81	Low
8. Thuong Phuoc 1 Commune	1	0.17	3	0.36	2	0.28	2	0.10	3	0.18	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.81	Low
9. Thuong Phuoc 2 Commune	1	0.17	3	0.36	1	0.14	1	0.05	3	0.18	1	0.03	1	0.02	1	0.08	1	0.15	1	0.09	1	0.11	1.38	Low
10. Thuong Thoi Hau A Commune	1	0.17	3	0.36	2	0.28	2	0.10	3	0.18	1	0.03	1	0.02	4	0.32	1	0.15	1	0.09	1	0.11	1.81	Low

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 16. Straw management adoption capacity of Hong Ngu district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Thuong Thoi Tien Townlet	1	0.17	1	0.12	1	0.14	1	0.05	3	0.18	1	0.03	1	0.02	1	0.08	1	0.15	1	0.09	1	0.11	1.14	Low
2. Long Khanh A Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Long Khanh B Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Long Thuan Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Phu Thuan A Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Phu Thuan B Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Thuong Lac Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Thuong Phuoc 1 Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Thuong Phuoc 2 Commune	1	0.17	1	0.12	1	0.14	1	0.05	3	0.18	1	0.03	1	0.02	1	0.08	1	0.15	1	0.09	1	0.11	1.14	Low
10. Thuong Thoi Hau A Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.6. Straw management adoption capacity in Tam Nong district

In the Winter-Spring season, all communes in Tam Nong district had a medium adoption capacity for straw removal management. This season, Phu Tho commune had the highest total weighted score in Tam Nong district, with 6.17, whereas Tan Cong Sinh commune had the lowest total weighted score, with 4.98. Only four communes, An Hoa commune, An Long commune, Phu Thanh B commune, and Phu Tho commune, had a medium score for baling equipment availability. In contrast, other communes had a low score for this factor. However, all communes in Tam Nong district had a high score for farmers' interest. Farmers were aware that removing rice straw could help them increase their income. Besides, An Long commune, Phu Thanh A commune, and Phu Tho commune had a medium score for straw buyers, whereas others had a low score for this factor. It should be noted that there was lack of straw buyers in some communes in Tam Nong district. In addition, most communes in Tam Nong district had low score for labor availability, except for Phu Duc commune, with a medium score. All communes had a medium score for local government and farmers' organization factors. The score of straw management adoption capacity of Tam Nong district in the Winter-Spring season was presented in Table 17.

In the Summer-Autumn season, all communes in Tam Nong district had a medium adoption capacity for straw removal management. Phu Tho commune also had the highest total weighted score this season, with 5.88, whereas Tan Cong Sinh commune had the lowest total weighted score, with 4.69. Most communes had a low score for baling equipment availability, except for Phu Tho commune, with a medium score. All communes also had a high score for farmers' interest in this season. Besides, only Phu Tho commune had a medium score for straw buyers. In contrast, others had a low score for this factor. In addition, all communes also had a medium score for local government and farmers' organization factors in this season. Local governments and farmers' organizations conducted training for farmers about the harmful effect of burning rice straw on the environment. All communes also had a medium score for the time between seasons, transportation, and the net gain to farmers. The score of straw management adoption capacity of Tam Nong district in the Summer-Autumn season was presented in Table 18.

Only Phu Thanh B commune did not have rice cultivation in the Autumn-Winter season. All communes who cultivated in this season had a medium adoption capacity for straw removal management. Phu Tho commune also had the highest total weighted score, with 5.88, whereas Tram Chim townlet had the lowest total weighted score, with 4.67. Only Phu Tho commune had a medium score for baling equipment availability and straw buyers. In contrast, other communes had a low score for these factors. All

communes also had a high score for farmers' interest in this season. In addition, all communes also had a medium score for local government and farmers' organization factors. Local governments and farmers' organizations propagated farmers not to burn rice straw on the field. Besides, they also a medium score for the time between seasons, transportation, and the net gain to farmers. The score of straw management adoption capacity of Tam Nong district in the Autumn-Winter season was presented in Table 19.

Table 17. Straw management adoption capacity of Tam Nong district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Tram Chim Townlet	4	0.68	4	0.48	1	0.14	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.13	Medium
2. An Hoa Commune	5	0.85	3	0.36	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.60	Medium
3. An Long Commune	6	1.02	4	0.48	5	0.70	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	6.03	Medium
4. Hoa Binh Commune	3	0.51	3	0.36	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.26	Medium
5. Phu Cuong Commune	4	0.68	3	0.36	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.43	Medium
6. Phu Duc Commune	4	0.68	5	0.60	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.67	Medium
7. Phu Hiep Commune	4	0.68	4	0.48	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.55	Medium
8. Phu Ninh Commune	3	0.51	2	0.24	3	0.42	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.00	Medium
9. Phu Thanh A Commune	4	0.68	4	0.48	5	0.70	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.69	Medium
10. Phu Thanh B Commune	5	0.85	4	0.48	3	0.42	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.58	Medium
11. Phu Tho Commune	6	1.02	4	0.48	6	0.84	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	6.17	Medium
12. Tan Cong Sinh Commune	3	0.51	3	0.36	2	0.28	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	4.98	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 18. Straw management adoption capacity of Tam Nong district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Tram Chim Townlet	3	0.51	3	0.36	1	0.14	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	4.84	Medium
2. An Hoa Commune	4	0.68	2	0.24	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.31	Medium
3. An Long Commune	3	0.51	4	0.48	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.38	Medium
4. Hoa Binh Commune	2	0.34	3	0.36	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.09	Medium
5. Phu Cuong Commune	4	0.68	3	0.36	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.43	Medium
6. Phu Duc Commune	4	0.68	4	0.48	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.55	Medium
7. Phu Hiep Commune	3	0.51	3	0.36	3	0.42	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.12	Medium
8. Phu Ninh Commune	2	0.34	2	0.24	3	0.42	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	4.83	Medium
9. Phu Thanh A Commune	2	0.34	4	0.48	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.21	Medium
10. Phu Thanh B Commune	3	0.51	4	0.48	3	0.42	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.24	Medium
11. Phu Tho Commune	5	0.85	3	0.36	6	0.84	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.88	Medium
12. Tan Cong Sinh Commune	2	0.34	2	0.24	2	0.28	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	4.69	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 19. Straw management adoption capacity of Tam Nong district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Tram Chim Townlet	2	0.34	3	0.36	1	0.14	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	4.67	Medium
2. An Hoa Commune	3	0.51	2	0.24	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.14	Medium
3. An Long Commune	4	0.68	4	0.48	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.55	Medium
4. Hoa Binh Commune	2	0.34	3	0.36	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.09	Medium
5. Phu Cuong Commune	4	0.68	3	0.36	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.43	Medium
6. Phu Duc Commune	4	0.68	4	0.48	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.55	Medium
7. Phu Hiep Commune	3	0.51	3	0.36	3	0.42	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.12	Medium
8. Phu Ninh Commune	2	0.34	2	0.24	3	0.42	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	4.83	Medium
9. Phu Thanh A Commune	2	0.34	4	0.48	4	0.56	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.21	Medium
10. Phu Thanh B Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Phu Tho Commune	5	0.85	3	0.36	6	0.84	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	5.88	Medium
12. Tan Cong Sinh Commune	2	0.34	2	0.24	2	0.28	5	0.25	7	0.42	3	0.09	1	0.02	7	0.56	8	1.20	7	0.63	6	0.66	4.69	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.7. Straw management adoption capacity in Thanh Binh district

In the Winter-Spring season, most communes in Thanh Binh district had a medium adoption capacity for straw removal management. Only Tan Long commune had a high adoption capacity for straw removal management. This season, Tan Long commune had the highest total weighted score, with 7.13, whereas Thanh Binh townlet had the lowest total weighted score, with 4.02. Only three communes, Thanh Binh townlet, Phu Loi commune, Tan Phu commune, had a low score for baling equipment availability and straw buyers. In contrast, other communes had a medium score for these factors. In addition, most communes in Thanh Binh district had a medium score for labor availability, except for Tan Long commune (with a high score), Thanh Binh townlet, and Tan Phu commune (with a low score). Nearly 40% of communes had a high score for farmers' interest, while others had a medium score for this factor. The majority of communes had a high score for local government, except for Thanh Binh townlet and Binh Tan commune, with a medium score. Besides, all communes in this district had a medium score for farmers' organization. The score of straw management adoption capacity of Thanh Binh district in the Winter-Spring season was presented in Table 20.

In the Summer-Autumn season, all communes in Thanh Binh district had a medium adoption capacity for straw removal management. Tan Long commune had the highest total weighted score, with 6.71, whereas Thanh Binh townlet had the lowest total weighted score, with 4.02. Almost 50% of communes had a low score for baling equipment availability, whereas others had a medium score for this factor. Thanh Binh townlet, Phu Loi commune, Tan Phu commune had a low score for straw buyer and labor availability. In contrast, other communes had a medium score for these factors. In addition, Tan Binh commune, Tan Hoa commune, Tan Hue commune, Tan Long commune, and Tan Quoi commune had a high score for farmers' interest, while others had a medium score for this factor. Most communes in this season had a high score for local government. Besides, all communes in this season had a medium score for farmers' organization. Almost 40% of commune in this season had a medium score for the time between seasons, while others had a low score for this factor. Some communes cultivated three cropping seasons; thus, farmers in these communes did not have enough time to remove rice straw. The score of straw management adoption capacity of Thanh Binh district in the Summer-Autumn season season was presented in Table 21.

Nine communes had rice production in the Autumn-Winter season. All communes cultivated in the Autumn-Winter season had a medium adoption capacity for straw removal management. Tan Long commune had the highest total weighted score, with 6.76, whereas Thanh Binh townlet had the lowest total weighted score, with 4.02. The

majority of communes cultivated this season had a medium score for baling equipment availability, straw buyer, and labor availability. 55% of communes had a high score for farmers' interest. In contrast, others had a medium score for this factor. Only Thanh Binh townlet had a medium score for local government, while others had a high score for this factor. In addition, all communes cultivated this season had a medium score for farmers' organization. Most communes had a low score for the time between seasons. Besides, only Tan Long commune had a high score for transportation, whereas others had a medium score for this factor. The score of straw management adoption capacity of Thanh Binh district in the Autumn-Winter season was presented in Table 22.

Table 20. Straw management adoption capacity of Thanh Binh district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Thanh Binh Townlet	3	0.51	3	0.36	3	0.42	3	0.15	3	0.18	1	0.03	1	0.02	5	0.40	5	0.75	6	0.54	6	0.66	4.02	Medium
2. An Phong Commune	5	0.85	6	0.72	5	0.70	5	0.25	7	0.42	2	0.06	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.98	Medium
3. Binh Thanh Commune	5	0.85	6	0.72	5	0.70	5	0.25	7	0.42	3	0.09	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	6.01	Medium
4. Binh Tan Commune	5	0.85	6	0.72	5	0.70	5	0.25	7	0.42	2	0.06	1	0.02	5	0.40	7	1.05	6	0.54	7	0.77	5.78	Medium
5. Phu Loi Commune	4	0.68	5	0.60	4	0.56	4	0.20	6	0.36	1	0.03	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.41	Medium
6. Tan Binh Commune	6	1.02	6	0.72	7	0.98	6	0.30	7	0.42	3	0.09	1	0.02	4	0.32	8	1.20	7	0.63	8	0.88	6.58	Medium
7. Tan Hoa Commune	6	1.02	6	0.72	6	0.84	6	0.30	7	0.42	3	0.09	1	0.02	4	0.32	8	1.20	7	0.63	8	0.88	6.44	Medium
8. Tan Hue Commune	6	1.02	7	0.84	6	0.84	6	0.30	7	0.42	3	0.09	1	0.02	4	0.32	8	1.20	7	0.63	8	0.88	6.56	Medium
9. Tan Long Commune	7	1.19	8	0.96	7	0.98	7	0.35	8	0.48	4	0.12	1	0.02	4	0.32	8	1.20	7	0.63	8	0.88	7.13	High
10. Tan My Commune	6	1.02	6	0.72	6	0.84	6	0.30	6	0.36	2	0.06	1	0.02	5	0.40	7	1.05	6	0.54	8	0.88	6.19	Medium
11. Tan Phu Commune	4	0.68	4	0.48	4	0.56	4	0.20	4	0.24	1	0.03	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.17	Medium
12. Tan Quoi Commune	5	0.85	6	0.72	5	0.70	5	0.25	6	0.36	3	0.09	1	0.02	4	0.32	8	1.20	7	0.63	8	0.88	6.02	Medium
13. Tan Thanh Commune	5	0.85	6	0.72	5	0.70	5	0.25	6	0.36	2	0.06	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.92	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 21. Straw management adoption capacity of Thanh Binh district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Thanh Binh Townlet	3	0.51	3	0.36	3	0.42	3	0.15	3	0.18	1	0.03	1	0.02	5	0.40	5	0.75	6	0.54	6	0.66	4.02	Medium
2. An Phong Commune	4	0.68	5	0.60	5	0.70	4	0.20	7	0.42	2	0.06	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.64	Medium
3. Binh Thanh Commune	4	0.68	5	0.60	5	0.70	4	0.20	7	0.42	3	0.09	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.67	Medium
4. Binh Tan Commune	4	0.68	5	0.60	5	0.70	4	0.20	7	0.42	2	0.06	1	0.02	5	0.40	7	1.05	6	0.54	7	0.77	5.44	Medium
5. Phu Loi Commune	4	0.68	4	0.48	4	0.56	4	0.20	6	0.36	1	0.03	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.29	Medium
6. Tan Binh Commune	5	0.85	5	0.60	7	0.98	4	0.20	7	0.42	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.11	Medium
7. Tan Hoa Commune	5	0.85	5	0.60	6	0.84	5	0.25	7	0.42	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.02	Medium
8. Tan Hue Commune	5	0.85	6	0.72	6	0.84	5	0.25	7	0.42	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.14	Medium
9. Tan Long Commune	6	1.02	7	0.84	7	0.98	6	0.30	8	0.48	4	0.12	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.71	Medium
10. Tan My Commune	5	0.85	5	0.60	6	0.84	5	0.25	6	0.36	2	0.06	1	0.02	4	0.32	7	1.05	6	0.54	8	0.88	5.77	Medium
11. Tan Phu Commune	4	0.68	4	0.48	4	0.56	4	0.20	4	0.24	1	0.03	1	0.02	4	0.32	7	1.05	7	0.63	8	0.88	5.09	Medium
12. Tan Quoi Commune	5	0.85	5	0.60	6	0.84	5	0.25	6	0.36	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	5.96	Medium
13. Tan Thanh Commune	5	0.85	5	0.60	5	0.70	5	0.25	6	0.36	2	0.06	1	0.02	4	0.32	7	1.05	7	0.63	8	0.88	5.72	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 22. Straw management adoption capacity of Thanh Binh district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Thanh Binh Townlet	3	0.51	3	0.36	3	0.42	3	0.15	3	0.18	1	0.03	1	0.02	5	0.40	5	0.75	6	0.54	6	0.66	4.02	Medium
2. An Phong Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Binh Thanh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Binh Tan Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Phu Loi Commune	4	0.68	4	0.48	4	0.56	4	0.20	6	0.36	1	0.03	1	0.02	5	0.40	7	1.05	7	0.63	8	0.88	5.29	Medium
6. Tan Binh Commune	5	0.85	5	0.60	7	0.98	6	0.30	7	0.42	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.21	Medium
7. Tan Hoa Commune	5	0.85	5	0.60	6	0.84	6	0.30	7	0.42	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.07	Medium
8. Tan Hue Commune	5	0.85	6	0.72	6	0.84	6	0.30	7	0.42	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.19	Medium
9. Tan Long Commune	6	1.02	7	0.84	7	0.98	7	0.35	8	0.48	4	0.12	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	6.76	Medium
10. Tan My Commune	5	0.85	5	0.60	6	0.84	6	0.30	6	0.36	2	0.06	1	0.02	4	0.32	7	1.05	6	0.54	8	0.88	5.82	Medium
11. Tan Phu Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Tan Quoi Commune	5	0.85	5	0.60	6	0.84	5	0.25	6	0.36	3	0.09	1	0.02	3	0.24	8	1.20	7	0.63	8	0.88	5.96	Medium
13. Tan Thanh Commune	5	0.85	5	0.60	5	0.70	5	0.25	6	0.36	2	0.06	1	0.02	4	0.32	7	1.05	7	0.63	8	0.88	5.72	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.8. Straw management adoption capacity in Thap Muoi district

In the Winter-Spring season, all communes in Thap Muoi district had a high adoption capacity for straw removal management. This season, Doc Binh Kieu commune and My Dong commune had the highest total weighted score, with 8.43, whereas Lang Bien commune, My Hoa commune, Phu Dien commune, and Tan Kieu commune had the lowest total weighted score, with 8.14. Only three communes, Doc Binh Kieu commune, My Dong commune, and My Quy commune, had a high score for baling equipment availability. In contrast, other communes had a medium score for this factor. It should be noted that Doc Binh Kieu commune and My Dong commune had many straw balers. In addition, all communes in Thap Muoi district had a high score for labor availability and straw buyers. There were many straw buyers in Thap Muoi district, and they usually paid the deposit to farmers to collect rice straw before one month of the rice harvest. Besides, all communes had a high score for farmers' interest. Farmers in Thap Muoi district were aware that removing rice straw could help them increase their income. In addition, all communes had a high score for local government, farmers' organization, and time between seasons. Only five communes, My An townlet, Doc Binh Kieu commune, My An commune, My Dong commune, and Thanh My commune, had a high score for transportation. These communes had more convenient transportation network than other communes. The score of straw management adoption capacity of Thap Muoi district in the Winter-Spring season was presented in Table 23.

In the Summer-Autumn season, all communes in Thap Muoi district had a high adoption capacity for straw removal management. My Dong commune had the highest total weighted score this season, with 8.26, whereas Lang Bien commune, My Hoa commune, My Quy commune, Phu Dien commune, and Tan Kieu commune had the lowest total weighted score, with 7.97. All communes in this season had a medium score for baling equipment availability, while they had a high score for labor availability and straw buyers. Besides, all communes in this season also had a high score for farmers' interest. Farmers were aware of the detrimental effect of burning rice straw in the open field and the benefit of removing rice straw. In addition, all communes had a high score for local government, farmers' organization, and time between seasons. Farmers' organizations and local governments encouraged farmers to remove rice straw on the field. Nearly 40% of communes had a high score for transportation, while other communes had a medium score for this factor.

Moreover, Hung Thanh commune, Thanh Loi commune, and Truong Xuan commune had a high score for the net gain to the farmer. These communes had a large rice cultivation area; thus, selling rice straw in these communes was higher than in other

communes. The score of straw management adoption capacity of Thap Muoi district in the Summer-Autumn season was presented in Table 24.

In the Autumn-Winter season, all communes in Thap Muoi district had a high adoption capacity for straw removal management. This season, My An townlet, Doc Binh Kieu commune, My An commune, My Dong commune, and Thanh My commune had the highest total weighted score, with 8.09. In contrast, Lang Bien commune, My Hoa commune, My Quy commune, Phu Dien commune, and Tan Kieu commune had the lowest total weighted score, with 7.97. All communes in this season had a medium score for baling equipment availability. However, they had a high score for labor availability, straw buyers, and farmers' interest. Besides, all communes in this season also had a high score for local government, farmers' organization, and time between seasons. In addition, most communes had a medium score for the net gain to the farmer, except for Hung Thanh commune, Thanh Loi commune, and Truong Xuan commune, with a high score. The score of straw management adoption capacity of Thap Muoi district in the Autumn-Winter season was presented in Table 25.

Table 23. Straw management adoption capacity of Thap Muoi district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. My An Townlet	7	1.19	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.26	High
2. Doc Binh Kieu Commune	8	1.36	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.43	High
3. Hung Thanh Commune	7	1.19	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.19	High
4. Lang Bien Commune	7	1.19	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.14	High
5. My An Commune	7	1.19	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.26	High
6. My Dong Commune	8	1.36	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.43	High
7. My Hoa Commune	7	1.19	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.14	High
8. My Quy Commune	8	1.36	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.31	High
9. Phu Dien Commune	7	1.19	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.14	High
10. Tan Kieu Commune	7	1.19	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.14	High
11. Thanh Loi Commune	7	1.19	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.19	High
12. Thanh My Commune	7	1.19	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.26	High
13. Truong Xuan Commune	7	1.19	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.19	High

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 24. Straw management adoption capacity of Thap Muoi district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. My An Townlet	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
2. Doc Binh Kieu Commune	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
3. Hung Thanh Commune	6	1.02	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.02	High
4. Lang Bien Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
5. My An Commune	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
6. My Dong Commune	7	1.19	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.26	High
7. My Hoa Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
8. My Quy Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
9. Phu Dien Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
10. Tan Kieu Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
11. Thanh Loi Commune	6	1.02	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.02	High
12. Thanh My Commune	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
13. Truong Xuan Commune	6	1.02	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.02	High

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 25. Straw management adoption capacity of Thap Muoi district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. My An Townlet	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
2. Doc Binh Kieu Commune	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
3. Hung Thanh Commune	6	1.02	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.02	High
4. Lang Bien Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
5. My An Commune	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
6. My Dong Commune	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
7. My Hoa Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
8. My Quy Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
9. Phu Dien Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
10. Tan Kieu Commune	6	1.02	9	1.08	9	1.26	7	0.35	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	7.97	High
11. Thanh Loi Commune	6	1.02	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.02	High
12. Thanh My Commune	6	1.02	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.09	High
13. Truong Xuan Commune	6	1.02	9	1.08	9	1.26	8	0.40	7	0.42	1	0.03	1	0.02	8	0.64	9	1.35	9	0.81	9	0.99	8.02	High

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.9. Straw management adoption capacity in Cao Lanh district

Cao Lanh district has eighteen communes. However, two communes, My Xuong commune and Binh Thanh commune, do not have rice cultivation. All communes in Cao Lanh district had a high adoption capacity for straw removal management in the Winter-Spring season. This season, Phuong Tra commune had the highest total weighted score, with 7.84, whereas Binh Hang Tay commune and My Long commune had the lowest total weighted score, with 7.18. All communes in Cao Lanh district had a high score for baling equipment availability, labor availability, and straw buyers. Phuong Tra commune, Ba Sao commune, Phuong Trinh commune, Gao Giong commune, and Tan Hoi Trung commune had a large rice cultivation area; thus, there were many straw balers in these communes. Besides, all communes in Cao Lanh district had a medium score for farmers' interest. Farmers realized that selling rice straws helped them to increase their income. All communes had a high score for local government, whereas they had a very low score for farmers' organization. In addition, they also had a high score for the time between seasons and transportation. The score of straw management adoption capacity of Cao Lanh district in the Winter-Spring season was presented in Table 26.

In the Summer-Autumn season, all communes in Cao Lanh district had a high adoption capacity for straw removal management. Phuong Tra commune also had the highest total weighted score, with 7.84, whereas Binh Hang Tay commune and My Long commune also had the lowest total weighted score, with 7.18. All communes in this season also had a high score for baling equipment availability, labor availability, and straw buyers. There were many straw buyers in Cao Lanh district, and they paid the deposit to farmers to collect rice straw before the rice harvest. All communes in this season also had a medium score for farmers' interest. Besides, all communes also had a high score for local government. Local government in these communes propagated farmers not to burn rice straw on the field and encouraged farmers to remove rice straw after harvest. However, all communes had a deficient score for farmers' organization. This meant that farmers' organizations in these communes did not support farmers for removing rice straws. The score of straw management adoption capacity of Cao Lanh district in the Summer-Autumn season was presented in Table 27.

In the Autumn-Winter season, all communes in Cao Lanh district had a high adoption capacity for straw removal management. Phuong Tra commune also had the highest total weighted score, with 7.84, whereas An Binh commune, Nhi My commune, My Hoi commune, Binh Hang Trung commune, Binh Hang Tay commune, My Long commune, and My Hiep commune had the lowest total weighted score, with 7.18. All communes in this season had a high score for baling equipment availability, labor availability, and

straw buyers, while they had a medium score for farmers' interest. In addition, all communes in this season had a high score for local government. In contrast, they had a shallow score for farmers' organization. Besides, all communes had a high score for the time between seasons and transportation, whereas they had a medium score for the net gain to the farmer. The score of straw management adoption capacity of Cao Lanh district in the Autumn-Winter season was presented in Table 28.

Table 26. Straw management adoption capacity of Cao Lanh district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Phong My Commune	9	1.53	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.41	High
2. Tan Nghia Commune	9	1.53	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.41	High
3. Phuong Tra Commune	10	1.70	10	1.20	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.84	High
4. Ba Sao Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
5. Phuong Thinh Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
6. Gao Giong Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
7. An Binh Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
8. Nhi My Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
9. My Tho Town	10	1.70	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.52	High
10. My Tho Commune	9	1.53	9	1.08	9	1.26	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.49	High
11. Tan Hoi Trung Commune	10	1.70	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.72	High
12. My Hoi Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
13. My Xuong Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14. Binh Hang Trung Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
15. Binh Hang Tay Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
16. My Long Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
17. My Hiep Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
18. Binh Thanh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-: Not planted; S: Score; WS: Weighted score; TWS: Total weighted score

Table 27. Straw management adoption capacity of Cao Lanh district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Phong My Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
2. Tan Nghia Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
3. Phuong Tra Commune	10	1.70	10	1.20	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.84	High
4. Ba Sao Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
5. Phuong Thinh Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
6. Gao Giong Commune	10	1.70	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.58	High
7. An Binh Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
8. Nhi My Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
9. My Tho Town	10	1.70	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.52	High
10. My Tho Commune	9	1.53	9	1.08	9	1.26	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.49	High
11. Tan Hoi Trung Commune	9	1.53	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.55	High
12. My Hoi Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
13. My Xuong Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14. Binh Hang Trung Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
15. Binh Hang Tay Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
16. My Long Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
17. My Hiep Commune	9	1.53	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.35	High
18. Binh Thanh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-: Not planted; S: Score; WS: Weighted score; TWS: Total weighted score

Table 28. Straw management adoption capacity of Cao Lanh district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Phong My Commune	9	1.53	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.41	High
2. Tan Nghia Commune	9	1.53	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.41	High
3. Phuong Tra Commune	10	1.70	10	1.20	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.84	High
4. Ba Sao Commune	9	1.53	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.41	High
5. Phuong Thinh Commune	9	1.53	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.41	High
6. Gao Giong Commune	9	1.53	9	1.08	8	1.12	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.41	High
7. An Binh Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
8. Nhi My Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
9. My Tho Town	10	1.70	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.52	High
10. My Tho Commune	8	1.36	9	1.08	9	1.26	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.32	High
11. Tan Hoi Trung Commune	8	1.36	9	1.08	9	1.26	7	0.35	9	0.54	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.38	High
12. My Hoi Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
13. My Xuong Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14. Binh Hang Trung Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
15. Binh Hang Tay Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
16. My Long Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
17. My Hiep Commune	8	1.36	9	1.08	8	1.12	7	0.35	8	0.48	1	0.03	1	0.02	9	0.72	7	1.05	1	0.09	8	0.88	7.18	High
18. Binh Thanh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-: Not planted; S: Score; WS: Weighted score; TWS: Total weighted score

3.10. Straw management adoption capacity in Lap Vo district

In the Winter-Spring season, all communes in Lap Vo district had a low adoption capacity for straw removal management. In this season, My An Hung A and My An Hung B commune had the highest total weighted score, with 3.87, whereas Dinh An commune and Dinh Yen commune had the lowest total weighted score, with 2.93. All communes in Lap Vo district had a low score for baling equipment availability and labor availability. This meant that there were few straw balers in Lap Vo district. 46% of communes in Lap Vo district had a medium score for straw buyers. In contrast, other communes had a low score for this factor. In addition, Lap Vo townlet, Binh Thanh commune, Binh Thanh Trung commune, Hoi An Dong commune, My An Hung A commune, My An Hung B commune, and Tan My commune had a medium score for farmers' interest, whereas others had a low score for this factor. The income from selling rice straw was not high (only 500,000 VND/ha), and straw balers entering the field can make the field uneven. Thus, farmers' interest in straw removal was low in some communes. Besides, all communes in Lap Vo district had a low score for local government and farmers' organization. Most communes had a medium score for the time between seasons, except for Tan Khanh Trung commune, with a low score. The score of straw management adoption capacity of Lap Vo district in the Winter-Spring season was presented in Table 29.

In the Summer-Autumn season, all communes in Lap Vo district had a low adoption capacity for straw removal management. This season, Hoi An Dong commune had the highest total weighted score, with 3.80, whereas Dinh An commune had the lowest total weighted score, with 2.72. All communes in this season also had a low score for baling equipment availability and labor availability. Hoi An Dong commune, Long Hung B commune, My An Hung A commune, My An Hung B commune, Tan Khanh Trung commune, and Tan My commune had a medium score for straw buyers, while other communes had a low score for this factor. In addition, most communes in this season had a medium score for farmers' interest, except for Tan Khanh Trung commune, with a low score. In this season, farmers were interested in removing the straw from the field to avoid straw poisoning. Besides, all communes in Lap Vo this season also had a low score for local government and farmers' organization. Local governments and farmers' organizations in this district did not provide much support to farmers to remove rice straw. Only Binh Thanh commune, My An Hung A commune, and My An Hung B commune had a medium score for the time between seasons. In contrast, others had a low score for this factor. The score of straw management adoption capacity of Lap Vo district in the Summer-Autumn season was presented in Table 30.

In the Autumn-Winter season, all communes in Lap Vo district had a low adoption capacity for straw removal management. This season, Binh Thanh commune, Hoi An

Dong commune, and Long Hung A commune had the highest total weighted score, with 2.19, whereas Dinh An commune and Dinh Yen commune had the lowest total weighted score, with 1.78. All communes in this season also had a low score for baling equipment availability and straw buyers. Dinh An commune, Dinh Yen commune, Tan Khanh Trung commune, and Vinh Thanh commune had a low score for labor availability. In contrast, others had a medium score for this factor. Besides, all communes in this season also had a low score for farmers' interest, local government, and farmers' organization factors. They also had a low score for the time between seasons, transportation, and the net gain to the farmer. The score of straw management adoption capacity of Lap Vo district in the Autumn-Winter season was presented in Table 31.

Table 29. Straw management adoption capacity of Lap Vo district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Lap Vo Townlet	1	0.17	3	0.36	2	0.28	2	0.10	5	0.30	1	0.03	1	0.02	7	0.56	5	0.75	2	0.18	3	0.33	3.08	Low
2. Binh Thanh Commune	2	0.34	4	0.48	3	0.42	2	0.10	7	0.42	2	0.06	3	0.06	7	0.56	5	0.75	2	0.18	3	0.33	3.70	Low
3. Binh Thanh Trung Commune	2	0.34	3	0.36	3	0.42	2	0.10	5	0.30	2	0.06	2	0.04	7	0.56	5	0.75	2	0.18	3	0.33	3.44	Low
4. Dinh An Commune	1	0.17	3	0.36	2	0.28	2	0.10	5	0.30	1	0.03	1	0.02	7	0.56	4	0.60	2	0.18	3	0.33	2.93	Low
5. Dinh Yen Commune	1	0.17	3	0.36	2	0.28	2	0.10	5	0.30	1	0.03	1	0.02	7	0.56	4	0.60	2	0.18	3	0.33	2.93	Low
6. Hoi An Dong Commune	2	0.34	3	0.36	5	0.70	2	0.10	5	0.30	2	0.06	3	0.06	5	0.40	6	0.90	2	0.18	4	0.44	3.84	Low
7. Long Hung A Commune	2	0.34	2	0.24	4	0.56	2	0.10	5	0.30	2	0.06	3	0.06	6	0.48	4	0.60	2	0.18	3	0.33	3.25	Low
8. Long Hung B Commune	2	0.34	2	0.24	5	0.70	2	0.10	6	0.36	2	0.06	2	0.04	6	0.48	4	0.60	2	0.18	3	0.33	3.43	Low
9. My An Hung A Commune	1	0.17	3	0.36	6	0.84	2	0.10	6	0.36	2	0.06	3	0.06	5	0.40	6	0.90	2	0.18	4	0.44	3.87	Low
10. My An Hung B Commune	1	0.17	3	0.36	6	0.84	2	0.10	6	0.36	2	0.06	3	0.06	5	0.40	6	0.90	2	0.18	4	0.44	3.87	Low
11. Tan Khanh Trung Commune	2	0.34	2	0.24	6	0.84	2	0.10	5	0.30	2	0.06	2	0.04	4	0.32	4	0.60	2	0.18	4	0.44	3.46	Low
12. Tan My Commune	2	0.34	3	0.36	6	0.84	2	0.10	6	0.36	1	0.03	2	0.04	5	0.40	5	0.75	2	0.18	4	0.44	3.84	Low
13. Vinh Thanh Commune	2	0.34	3	0.36	3	0.42	2	0.10	5	0.30	2	0.06	3	0.06	5	0.40	4	0.60	2	0.18	3	0.33	3.15	Low

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 30. Straw management adoption capacity of Lap Vo district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Lap Vo Townlet	1	0.17	3	0.36	2	0.28	1	0.05	4	0.24	1	0.03	1	0.02	4	0.32	6	0.90	2	0.18	3	0.33	2.88	Low
2. Binh Thanh Commune	2	0.34	4	0.48	3	0.42	2	0.10	6	0.36	2	0.06	3	0.06	5	0.40	6	0.90	2	0.18	3	0.33	3.63	Low
3. Binh Thanh Trung Commune	2	0.34	3	0.36	3	0.42	2	0.10	5	0.30	2	0.06	2	0.04	3	0.24	6	0.90	2	0.18	3	0.33	3.27	Low
4. Dinh An Commune	1	0.17	3	0.36	2	0.28	1	0.05	4	0.24	1	0.03	1	0.02	2	0.16	6	0.90	2	0.18	3	0.33	2.72	Low
5. Dinh Yen Commune	1	0.17	3	0.36	2	0.28	1	0.05	4	0.24	1	0.03	1	0.02	2	0.16	7	1.05	2	0.18	2	0.22	2.76	Low
6. Hoi An Dong Commune	2	0.34	3	0.36	5	0.70	2	0.10	5	0.30	2	0.06	3	0.06	4	0.32	7	1.05	2	0.18	3	0.33	3.80	Low
7. Long Hung A Commune	2	0.34	2	0.24	4	0.56	2	0.10	5	0.30	2	0.06	3	0.06	3	0.24	5	0.75	2	0.18	2	0.22	3.05	Low
8. Long Hung B Commune	2	0.34	2	0.24	5	0.70	2	0.10	4	0.24	2	0.06	2	0.04	2	0.16	5	0.75	2	0.18	2	0.22	3.03	Low
9. My An Hung A Commune	1	0.17	3	0.36	6	0.84	2	0.10	6	0.36	2	0.06	3	0.06	5	0.40	6	0.90	2	0.18	2	0.22	3.65	Low
10. My An Hung B Commune	1	0.17	3	0.36	6	0.84	2	0.10	6	0.36	2	0.06	3	0.06	5	0.40	6	0.90	2	0.18	2	0.22	3.65	Low
11. Tan Khanh Trung Commune	2	0.34	2	0.24	6	0.84	2	0.10	5	0.30	2	0.06	2	0.04	4	0.32	4	0.60	2	0.18	2	0.22	3.24	Low
12. Tan My Commune	2	0.34	3	0.36	6	0.84	2	0.10	6	0.36	1	0.03	2	0.04	3	0.24	6	0.90	2	0.18	2	0.22	3.61	Low
13. Vinh Thanh Commune	2	0.34	3	0.36	3	0.42	1	0.05	5	0.30	2	0.06	3	0.06	3	0.24	6	0.90	2	0.18	2	0.22	3.13	Low

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 31. Straw management adoption capacity of Lap Vo district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Lap Vo Townlet	1	0.17	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	1	0.02	3	0.24	2	0.30	1	0.09	2	0.22	1.98	Low
2. Binh Thanh Commune	2	0.34	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	3	0.06	3	0.24	2	0.30	1	0.09	2	0.22	2.19	Low
3. Binh Thanh Trung Commune	2	0.34	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	2	0.04	2	0.16	2	0.30	1	0.09	2	0.22	2.09	Low
4. Dinh An Commune	1	0.17	4	0.48	1	0.14	1	0.05	2	0.12	1	0.03	1	0.02	2	0.16	2	0.30	1	0.09	2	0.22	1.78	Low
5. Dinh Yen Commune	1	0.17	4	0.48	1	0.14	1	0.05	2	0.12	1	0.03	1	0.02	2	0.16	2	0.30	1	0.09	2	0.22	1.78	Low
6. Hoi An Dong Commune	2	0.34	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	3	0.06	3	0.24	2	0.30	1	0.09	2	0.22	2.19	Low
7. Long Hung A Commune	2	0.34	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	3	0.06	3	0.24	2	0.30	1	0.09	2	0.22	2.19	Low
8. Long Hung B Commune	2	0.34	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	2	0.04	2	0.16	2	0.30	1	0.09	2	0.22	2.09	Low
9. My An Hung A Commune	1	0.17	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	3	0.06	3	0.24	2	0.30	1	0.09	2	0.22	2.02	Low
10. My An Hung B Commune	1	0.17	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	3	0.06	3	0.24	2	0.30	1	0.09	2	0.22	2.02	Low
11. Tan Khanh Trung Commune	2	0.34	4	0.48	1	0.14	1	0.05	2	0.12	1	0.03	2	0.04	2	0.16	2	0.30	1	0.09	2	0.22	1.97	Low
12. Tan My Commune	2	0.34	5	0.60	1	0.14	1	0.05	2	0.12	1	0.03	2	0.04	3	0.24	2	0.30	1	0.09	2	0.22	2.17	Low
13. Vinh Thanh Commune	2	0.34	4	0.48	1	0.14	1	0.05	2	0.12	1	0.03	3	0.06	3	0.24	2	0.30	1	0.09	2	0.22	2.07	Low

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.11. Straw management adoption capacity in Lai Vung district

Lai Vung district has 12 communes, but only Tan Thanh commune does not have rice cultivation. In the Winter-Spring season, communes in Lai Vung district had medium and high adoption capacity for straw removal management. Dinh Hoa commune, Long Thang commune, and Vinh Thoi commune had a high adoption capacity for straw removal management. In contrast, other communes had a medium adoption capacity for straw removal management. This season, Dinh Hoa commune and Long Thang commune had the highest total weighted score, with 8.01, whereas Long Hau commune and Tan Phuoc commune had the lowest total weighted score, with 6.07. Only three communes, Dinh Hoa commune, Long Thang commune, and Vinh Thoi commune, had a high score for baling equipment availability. In contrast, others had a meager score for this factor. Some communes did not have straw balers; farmers in these communes had to rent straw balers from other communes. In addition, all communes had a high score for straw buyers and labor availability. Lai Vung district had mushroom cultivation; thus, mushroom growers needed to use a lot of rice straw. However, rice straw in Lai Vung district could only provide 60% for mushroom cultivation, and the remaining rice straw must be purchased from other provinces or districts. Besides, all communes had a high score for farmers' interest. Nevertheless, they had a medium score for local government and farmers' organization. The score of straw management adoption capacity of Lai Vung district in the Winter-Spring season was presented in Table 32.

In the Summer-Autumn season, communes in Lai Vung district had medium and high adoption capacity for straw removal management. Dinh Hoa commune, Long Thang commune, and Vinh Thoi commune had a high adoption capacity for straw removal management. In contrast, other communes had a medium adoption capacity for straw removal management. In this season, Dinh Hoa commune and Long Thang commune had the highest total weighted score, with 7.90, whereas Long Hau commune and Tan Phuoc commune had the lowest total weighted score, with 6.02. Most communes had a shallow score for baling equipment availability, except for Dinh Hoa commune, Long Thang commune, and Vinh Thoi commune, with a high score. Besides, all communes had a high score for straw buyers, labor availability, and farmers' interest. However, they had a medium score for local government and farmers' organization. Local governments and farmers' organizations mainly propagated farmers to handle rice straw to avoid straw poisoning in the Summer-Autumn season and Autumn-Winter season. In addition, all communes had a high score for the time between seasons. The score of straw management adoption capacity of Lai Vung district in the Summer-Autumn season was presented in Table 33.

In the Autumn-Winter season, communes in Lai Vung district had medium and high adoption capacity for straw removal management. Dinh Hoa commune, Long Thang commune, and Vinh Thoi commune also had a high adoption capacity for straw removal management in this season, while others had a medium adoption capacity for straw removal management. Only three communes, Dinh Hoa commune, Long Thang commune, and Vinh Thoi commune, had a high score for baling equipment availability. In contrast, others had a meager score for this factor. All communes in this season had a high score for straw buyers and labor availability, and farmers' interest, whereas they had a medium score for local government and farmers' organization. Besides, all communes had a high score for the time between seasons. There were straw balers in Dinh Hoa commune and Long Thang commune; thus, farmers in these communes could remove quickly rice straw on the field. Most communes in this season had a high score for transportation, except for Long Hau commune and Tan Phuoc commune, with a medium score. In addition, all communes had a low score for the net gain to the farmer. The quality rice straw in the Summer-Autumn season and Autumn-Winter season was poorer than that of the Winter-Spring season. Thus, the price of rice straw in the Summer-Autumn season and Autumn-Winter season was lower than that of the Winter-Spring season. The score of straw management adoption capacity of Lai Vung district in the Autumn-Winter season was presented in Table 34.

Table 32. Straw management adoption capacity of Lai Vung district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Lai Vung Townlet	1	0.17	9	1.08	9	1.26	5	0.25	8	0.48	8	0.24	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.34	Medium
2. Dinh Hoa Commune	10	1.70	9	1.08	9	1.26	5	0.25	9	0.54	8	0.24	1	0.02	9	0.72	8	1.20	5	0.45	5	0.55	8.01	High
3. Hoa Long Commune	1	0.17	9	1.08	9	1.26	5	0.25	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.19	Medium
4. Hoa Thanh Commune	1	0.17	9	1.08	9	1.26	5	0.25	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.19	Medium
5. Long Hau Commune	1	0.17	9	1.08	9	1.26	5	0.25	7	0.42	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.07	Medium
6. Long Thang Commune	10	1.70	9	1.08	9	1.26	5	0.25	9	0.54	8	0.24	1	0.02	9	0.72	8	1.20	5	0.45	5	0.55	8.01	High
7. Phong Hoa Commune	1	0.17	9	1.08	9	1.26	5	0.25	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.19	Medium
8. Tan Duong Commune	1	0.17	9	1.08	9	1.26	5	0.25	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.19	Medium
9. Tan Hoa Commune	1	0.17	9	1.08	9	1.26	5	0.25	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.19	Medium
10. Tan Phuoc Commune	1	0.17	9	1.08	9	1.26	5	0.25	7	0.42	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.07	Medium
11. Tan Thanh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Vinh Thoi Commune	8	1.36	9	1.08	9	1.26	5	0.25	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	7.38	High

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 33. Straw management adoption capacity of Lai Vung district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Lai Vung Townlet	1	0.17	9	1.08	9	1.26	4	0.20	8	0.48	6	0.18	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.23	Medium
2. Dinh Hoa Commune	10	1.70	9	1.08	9	1.26	4	0.20	9	0.54	6	0.18	1	0.02	9	0.72	8	1.20	5	0.45	5	0.55	7.90	High
3. Hoa Long Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
4. Hoa Thanh Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
5. Long Hau Commune	1	0.17	9	1.08	9	1.26	4	0.20	7	0.42	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.02	Medium
6. Long Thang Commune	10	1.70	9	1.08	9	1.26	4	0.20	9	0.54	6	0.18	1	0.02	9	0.72	8	1.20	5	0.45	5	0.55	7.90	High
7. Phong Hoa Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
8. Tan Duong Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
9. Tan Hoa Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
10. Tan Phuoc Commune	1	0.17	9	1.08	9	1.26	4	0.20	7	0.42	1	0.03	1	0.02	8	0.64	8	1.20		0.45	5	0.55	6.02	Medium
11. Tan Thanh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Vinh Thoi Commune	8	1.36	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	7.33	High

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 34. Straw management adoption capacity of Lai Vung district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Lai Vung Townlet	1	0.17	9	1.08	9	1.26	4	0.20	8	0.48	4	0.12	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.17	Medium
2. Dinh Hoa Commune	10	1.70	9	1.08	9	1.26	4	0.20	9	0.54	4	0.12	1	0.02	9	0.72	8	1.20	5	0.45	5	0.55	7.84	High
3. Hoa Long Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
4. Hoa Thanh Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
5. Long Hau Commune	1	0.17	9	1.08	9	1.26	4	0.20	7	0.42	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.02	Medium
6. Long Thang Commune	10	1.70	9	1.08	9	1.26	4	0.20	9	0.54	4	0.12	1	0.02	9	0.72	8	1.20	5	0.45	5	0.55	7.84	High
7. Phong Hoa Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
8. Tan Duong Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
9. Tan Hoa Commune	1	0.17	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.14	Medium
10. Tan Phuoc Commune	1	0.17	9	1.08	9	1.26	4	0.20	7	0.42	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	6.02	Medium
11. Tan Thanh Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Vinh Thoi Commune	8	1.36	9	1.08	9	1.26	4	0.20	9	0.54	1	0.03	1	0.02	8	0.64	8	1.20	5	0.45	5	0.55	7.33	High

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

3.12. Straw management adoption capacity in Chau Thanh district

Chau Thanh district has 12 communes, but Cai Tau Ha townlet and An Hiep commune do not have rice cultivation. In the Winter-Spring season, all communes in Chau Thanh district had a medium adoption capacity for straw removal management. This season, Tan Phu Trung commune had the highest total weighted score, with 6.17, whereas Phu Long commune had the lowest total weighted score, with 4.70. Most communes in Chau Thanh district had a medium score for baling equipment availability and straw buyer factors. Only three communes, Hoa Tan commune, Phu Long commune, and Tan Phu commune, had a low score for labor availability. In contrast, others had a medium score for this factor. In addition, all communes had a medium score for farmers' interest. Farmers were aware that removing rice straw could help them increase their income and return nutrients to the soil. Besides, all communes had a medium score for local government and farmers' organization. They also had a medium score for the time between seasons and transportation. The score of straw management adoption capacity of Chau Thanh district in the Winter-Spring season was presented in Table 35.

In the Summer-Autumn season, all communes in Chau Thanh district had a medium adoption capacity for straw removal management. This season, Tan Phu Trung commune had the highest total weighted score, with 5.52, whereas Hoa Tan commune and Phu Long commune had the lowest total weighted score, with 4.51. All communes in this season had a low score for baling equipment availability. An Phu Thuan commune, Tan Nhuan Dong commune, and Tan Phu Trung commune had a medium score for labor availability, while other communes had a low score for this factor. 40% of communes in this season had a medium score for straw buyers. In addition, all communes in this season had a medium score for local government and farmers' organization. Local government and farmers' organizations conducted training for farmers about the harmful effect of burning rice straw and the benefits of removing rice straw. Most communes in this season had a medium score for the time between seasons, except for Phu Huu commune and Tan Phu commune, with a low score. Besides, 60% of communes in this season had a medium score for transportation, while others had a low score for this factor. The score of straw management adoption capacity of Chau Thanh district in the Summer-Autumn season was presented in Table 36.

In the Autumn-Winter season, all communes in Chau Thanh district had a medium adoption capacity for straw removal management. This season, Tan Phu Trung commune had the highest total weighted score, with 6.14, whereas Phu Long commune had the lowest total weighted score, with 4.73. All communes in this season had a medium score for baling equipment availability. Only three communes, Phu Long commune, Tan Binh commune, and Tan Phu commune, had a low score for labor availability. In contrast, others had a medium score for this factor. In addition, half of

the communes had a medium score for straw buyers, while others had a low score for this factor. Besides, all communes in this season had a medium score for farmers' interest, local government, and farmers' organization. In addition, most communes in this season had a medium score for the time between season and transportation. The score of straw management adoption capacity of Chau Thanh district in the Autumn-Winter season was presented in Table 37.

Table 35. Straw management adoption capacity of Chau Thanh district in Winter-Spring season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Cai Tau Ha Townlet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. An Hiep Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. An Khanh Commune	6	1.02	5	0.60	5	0.70	6	0.30	6	0.36	5	0.15	5	0.10	5	0.40	6	0.90	6	0.54	6	0.66	5.73	Medium
4. An Nhon Commune	5	0.85	5	0.60	4	0.56	5	0.25	6	0.36	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	5.02	Medium
5. An Phu Thuan Commune	6	1.02	5	0.60	6	0.84	5	0.25	6	0.36	6	0.18	5	0.10	6	0.48	7	1.05	5	0.45	7	0.77	6.10	Medium
6. Hoa Tan Commune	5	0.85	3	0.36	5	0.70	4	0.20	5	0.30	5	0.15	4	0.08	5	0.40	5	0.75	5	0.45	5	0.55	4.79	Medium
7. Phu Huu Commune	4	0.68	5	0.60	5	0.70	5	0.25	5	0.30	5	0.15	4	0.08	5	0.40	5	0.75	5	0.45	5	0.55	4.91	Medium
8. Phu Long Commune	5	0.85	3	0.36	4	0.56	5	0.25	5	0.30	5	0.15	4	0.08	5	0.40	5	0.75	5	0.45	5	0.55	4.70	Medium
9. Tan Binh Commune	5	0.85	5	0.60	5	0.70	5	0.25	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	6	0.66	5.21	Medium
10. Tan Nhuan Dong Commune	5	0.85	5	0.60	5	0.70	5	0.25	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	5.10	Medium
11. Tan Phu Commune	5	0.85	4	0.48	6	0.84	5	0.25	5	0.30	4	0.12	4	0.08	5	0.40	6	0.90	5	0.45	6	0.66	5.33	Medium
12. Tan Phu Trung Commune	6	1.02	5	0.60	7	0.98	6	0.30	7	0.42	5	0.15	5	0.10	6	0.48	6	0.90	5	0.45	7	0.77	6.17	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 36. Straw management adoption capacity of Chau Thanh district in Summer-Autumn season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Cai Tau Ha Townlet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. An Hiep Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. An Khanh Commune	4	0.68	4	0.48	4	0.56	5	0.25	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	4.67	Medium
4. An Nhon Commune	4	0.68	4	0.48	4	0.56	4	0.20	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	4.62	Medium
5. An Phu Thuan Commune	4	0.68	5	0.60	5	0.70	5	0.25	6	0.36	4	0.12	5	0.10	6	0.48	6	0.90	5	0.45	6	0.66	5.30	Medium
6. Hoa Tan Commune	4	0.68	4	0.48	4	0.56	4	0.20	4	0.24	4	0.12	4	0.08	5	0.40	5	0.75	5	0.45	5	0.55	4.51	Medium
7. Phu Huu Commune	4	0.68	4	0.48	4	0.56	5	0.25	5	0.30	4	0.12	4	0.08	4	0.32	5	0.75	5	0.45	5	0.55	4.54	Medium
8. Phu Long Commune	4	0.68	4	0.48	4	0.56	4	0.20	4	0.24	4	0.12	4	0.08	5	0.40	5	0.75	5	0.45	5	0.55	4.51	Medium
9. Tan Binh Commune	4	0.68	4	0.48	4	0.56	5	0.25	4	0.24	4	0.12	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	4.58	Medium
10. Tan Nhuan Dong Commune	4	0.68	5	0.60	5	0.70	5	0.25	4	0.24	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	4.87	Medium
11. Tan Phu Commune	4	0.68	4	0.48	5	0.70	5	0.25	5	0.30	4	0.12	4	0.08	4	0.32	5	0.75	5	0.45	5	0.55	4.68	Medium
12. Tan Phu Trung Commune	4	0.68	5	0.60	6	0.84	6	0.30	6	0.36	5	0.15	5	0.10	6	0.48	6	0.90	5	0.45	6	0.66	5.52	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

Table 37. Straw management adoption capacity of Chau Thanh district in Autumn-Winter season

Commune	Baling equipment availability (0.17)		Labor availability (0.12)		Straw buyers (0.14)		Net gain to farmer (0.05)		Transportation (0.06)		Storage availability (0.03)		Storage affordability (0.02)		Time between seasons (0.08)		Farmers' interest (0.15)		Farmers' organization (0.09)		Local government (0.11)		TWS	Adoption Capacity
	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS	S	WS		
1. Cai Tau Ha Townlet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. An Hiep Commune	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. An Khanh Commune	6	1.02	5	0.60	4	0.56	5	0.25	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	5.13	Medium
4. An Nhon Commune	5	0.85	5	0.60	4	0.56	5	0.25	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	4.96	Medium
5. An Phu Thuan Commune	7	1.19	5	0.60	5	0.70	5	0.25	6	0.36	4	0.12	5	0.10	6	0.48	5	0.75	5	0.45	6	0.66	5.66	Medium
6. Hoa Tan Commune	5	0.85	5	0.60	4	0.56	4	0.20	5	0.30	4	0.12	4	0.08	5	0.40	5	0.75	5	0.45	6	0.66	4.97	Medium
7. Phu Huu Commune	5	0.85	5	0.60	4	0.56	5	0.25	4	0.24	4	0.12	4	0.08	4	0.32	5	0.75	5	0.45	5	0.55	4.77	Medium
8. Phu Long Commune	5	0.85	4	0.48	4	0.56	5	0.25	4	0.24	4	0.12	4	0.08	5	0.40	5	0.75	5	0.45	5	0.55	4.73	Medium
9. Tan Binh Commune	6	1.02	4	0.48	5	0.70	5	0.25	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	5	0.55	5.15	Medium
10. Tan Nhuan Dong Commune	5	0.85	5	0.60	5	0.70	5	0.25	5	0.30	5	0.15	5	0.10	5	0.40	5	0.75	5	0.45	6	0.66	5.21	Medium
11. Tan Phu Commune	5	0.85	4	0.48	6	0.84	5	0.25	5	0.30	4	0.12	4	0.08	5	0.40	5	0.75	5	0.45	5	0.55	5.07	Medium
12. Tan Phu Trung Commune	7	1.19	5	0.60	6	0.84	6	0.30	6	0.36	5	0.15	5	0.10	6	0.48	6	0.90	5	0.45	7	0.77	6.14	Medium

-: Not planted

S: Score; WS: Weighted score; TWS: Total weighted score

IV. Conclusion

The purpose of this study is to evaluate the straw management adoption capacity in Dong Thap province. Key informant interview (KII) with twelve district-level DARD officials in Dong Thap province to determine the straw management adoption capacity in Winter-Spring, Summer-Autumn, and Autumn-Winter season. District-level DARD officials evaluated every commune in their district on the influencing factors related to straw removal. These factors included baling equipment availability, labor availability, straw buyers, the net gain to the farmer, transportation, storage availability, storage affordability, the time between seasons, farmers' interest, farmers' organization, and local government. The scale from 1-10 was used to evaluate the factors that influence the straw adoption capacity for each commune.

In the Winter-Spring season, all communes in Thap Muoi district and Cao Lanh district had a high adoption capacity for straw removal management. Communes in Tan Hong district, Lai Vung district, and Thanh Binh district had medium and high adoption capacity for straw removal management, with the percentage of communes at a high level in these districts at 22%, 27%, 8%, respectively. Besides, all communes in Sa Dec city, Hong Ngu city, Tam Nong district, and Chau Thanh district had a medium adoption capacity for straw removal management. Most communes in Hong Ngu district had a low adoption capacity for straw removal management. In contrast, all communes in Cao Lanh city and Lap Vo district had a low adoption capacity for straw removal management. Besides, Doc Binh Kieu commune and My Dong commune in Thap Muoi district had the highest total weighted score in Dong Thap province, with 8.43. In contrast, My Ngai commune, My Tra commune, and My Tan commune in Cao Lanh city had the lowest total weighted score in Dong Thap province, with 2.22.

In the Summer-Autumn season, all communes in Thap Muoi district and Cao Lanh district had a high adoption capacity for straw removal management. Communes in Tan Hong district and Lai Vung district had medium and high adoption capacity for straw removal management, with the percentage of communes at a high level in these districts at 22% and 27%, respectively. Besides, all communes in Sa Dec city, Hong Ngu city, Tam Nong district, Thanh Binh district, and Chau Thanh district had a medium adoption capacity for straw removal management. In contrast, all communes in Cao Lanh city, Hong Ngu district, and Lap Vo district had a low adoption capacity for straw removal management. This season, My Dong commune in Thap Muoi district had the highest total weighted score in Dong Thap province, with 8.26. In contrast, Thuong Thoi Tien townlet and Thuong Phuoc 2 commune in Hong Ngu district had the lowest total weighted score in Dong Thap province, with 1.38.

Only 11 districts in Dong Thap province had rice cultivation in the Autumn-Winter season. All communes in Thap Muoi district and Cao Lanh district had a high adoption capacity for straw removal management. In addition, communes in Lai Vung district had

medium and high adoption capacity for straw removal management, with 27% of communes at a high level. Besides, all communes in Sa Dec city, Hong Ngu city, Tan Hong district, Tam Nong district, Thanh Binh district, and Chau Thanh district had a medium adoption capacity for straw removal management. In contrast, all communes in Hong Ngu district and Lap Vo district had a low adoption capacity for straw removal management. This season, My An townlet, Doc Binh Kieu commune, My An commune, My Dong commune, and Thanh My commune in Thap Muoi district had the highest total weighted score in Dong Thap province, with 8.09. In contrast, Thuong Phuoc 2 commune in Hong Ngu district had the lowest total weighted score in Dong Thap province, with 1.14.

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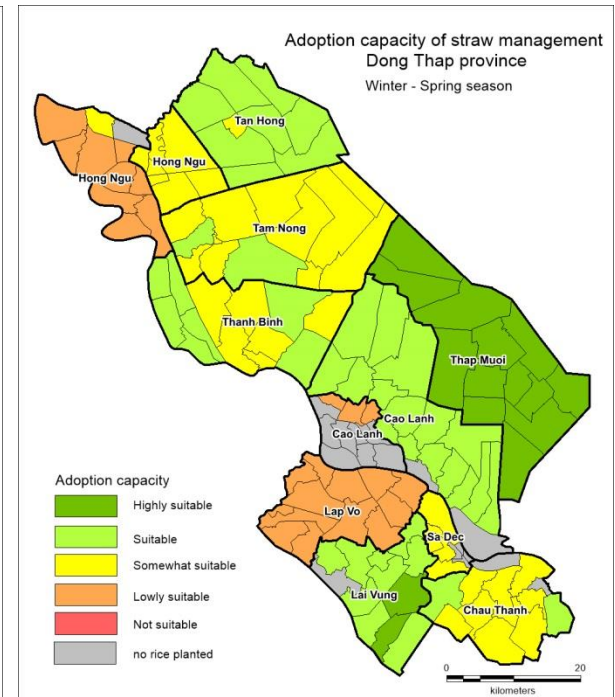
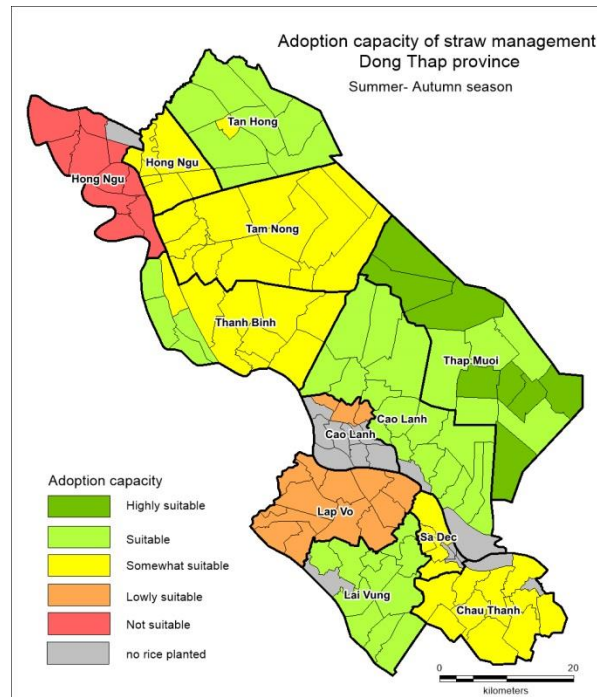
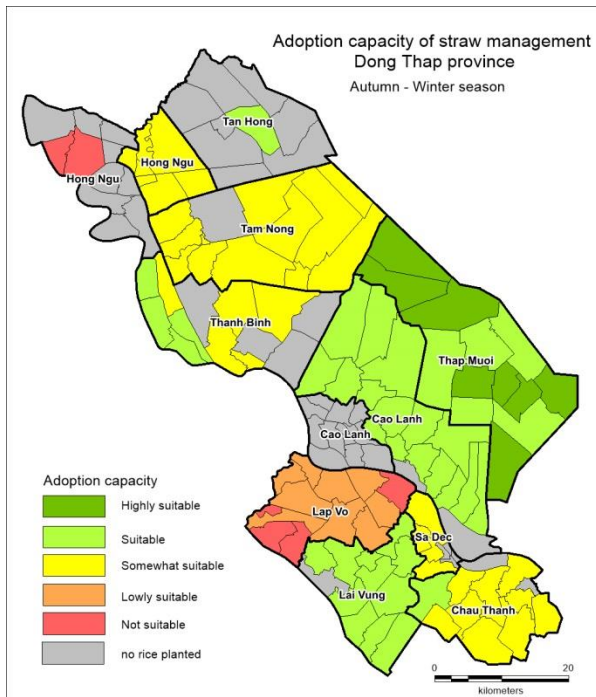
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Appendix 1: The adoption capacity for straw removal management by district, Dong Thap province

No	District	No of commune	Winter-Spring	Summer-Autumn	Autumn-Winter
1	Cao Lanh City	15	3 Low (2.22)	3 Low (2.22)	-
2	Sa Dec City	9	5 Medium (5.43-5.75)	5 Medium (5.43-5.75)	5 Medium (5.43-5.75)
3	Hong Ngu City	7	7 Medium (5.61)	7 Medium (5.61)	7 Medium (5.61)
4	Tan Hong District	9	7 Medium, 2 High (4.99-7.43)	7 Medium, 2 High (4.99-7.43)	1 Medium (6.44)
5	Hong Ngu District	10	9 Low, 1 Medium (2.91-4.03)	10 Low (1.38-1.81)	1 Low (1.14)
6	Tam Nong District	12	12 Medium (4.98-6.17)	12 Medium (4.69-5.88)	11 Medium (4.67-5.88)
7	Thanh Binh District	13	12 Medium, 1 High (4.02-7.13)	13 Medium (4.02-6.71)	9 Medium (4.02-6.76)
8	Thap Muoi District	13	13 High (8.14-8.43)	13 High (7.97-8.26)	13 High (7.97-8.09)
9	Cao Lanh District	18	16 High (7.18-7.84)	16 High (7.18-7.84)	16 High (7.18-7.84)
10	Lap Vo District	13	13 Low (2.93-3.87)	13 Low (2.72-3.80)	13 Low (1.78-2.19)
11	Lai Vung District	12	8 Medium, 3 High (6.07-8.01)	8 Medium, 3 High (6.02-7.90)	8 Medium, 3 High (6.02-7.84)
12	Chau Thanh District	12	10 Medium (4.70-6.17)	10 Medium (4.51-5.52)	10 Medium (4.73-6.14)

-: Not planted



The **Initiative on Asian Mega-Deltas** (AMD) aims to create resilient, inclusive and productive deltas, which maintain socio-ecological integrity, adapt to climatic and other stressors, and support human prosperity and wellbeing, by removing systemic barriers to the scaling of transformative technologies and practices at community, national and regional levels.

Alliance

