

Case study of lotus crop in Thua Thien Hue Province

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INTRODUCTION AND OBJECTIVE

The transition from rice cultivation to lotus farming has been widely adopted in many low-lying areas in Vietnam, seen as a solution in the strategy for climate change adaptation and improving rural income [1,2]. This is also being strongly promoted in Thua Thien Hue, one of the regions most affected by weather and climate in Central Vietnam. With the largest lotus production area of Central Vietnam, lotus crop has become the most important agricultural commodities of this province. The study aims to clarify the expansion of lotus farming, farmers' adaptations, and the challenges to its sustainability.

METHODOLOGY

- Phong Dien district, a typical low-lying plain, was chosen as the study site for its key agricultural role and as the largest lotus production area of the province.
- A qualitative-based approach with a four-step research design process.
 - Key informant interviews: 14 individuals from local governments, universities, lotus traders.
 - Two focus group discussions: 5 and 8 lotus farmers from two selected communes.
 - Household surveys: 41 households using a semi-structured questionnaire.
 - In-depth interviews: 8 farmers using open-ended questions.
- 4 communes was purposely selected to be study sites.



Field surveys and direct interviews lotus farmers and traders in TTHue, 2023

RESULTS

Lotus farming was introduced in the study sites in the 1990s, but it rapidly expanded from 2017 to 2020 (Fig.1) due to increased market demand and a significant shift from rice monoculture to lotus farming in low-lying areas.

However, limitations in product diversification and coordination within value chains, along with unstable yields caused by frequent occurrences of crop failure (Table 1), have raised concerns about the sustainability of lotus farming.

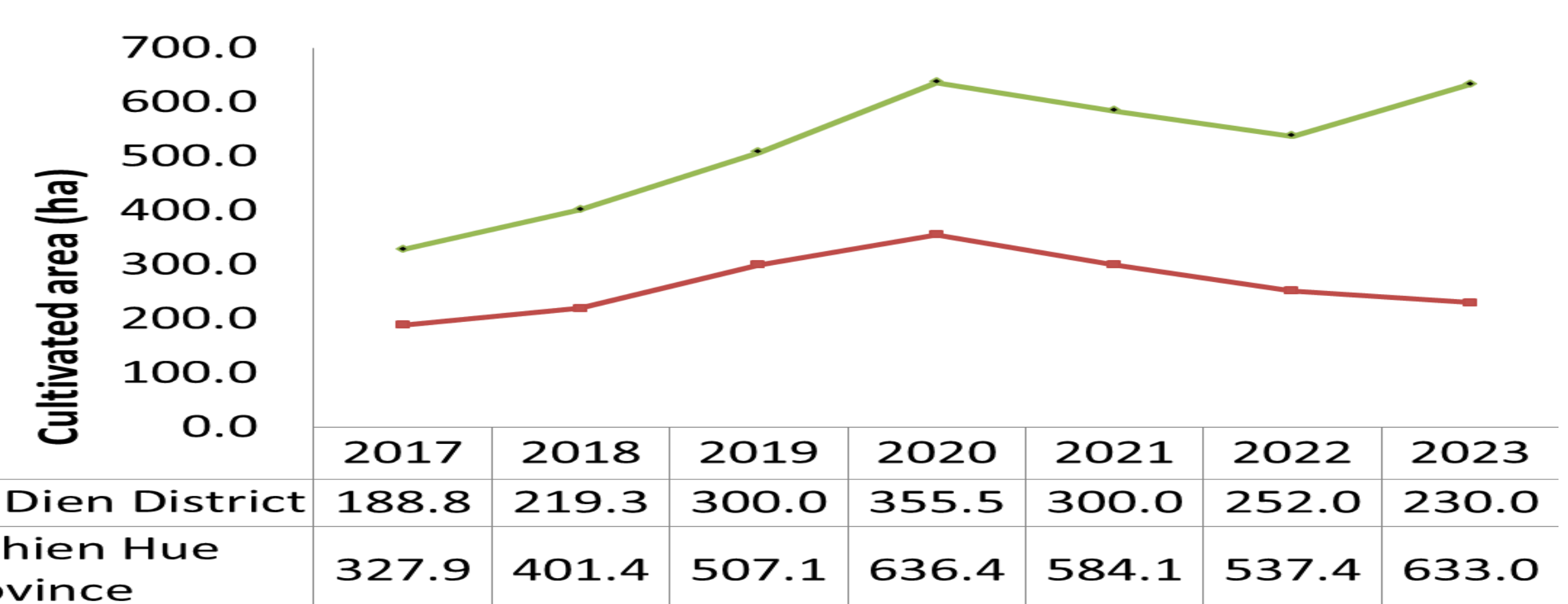


Fig.1: Change in annual lotus cultivation area at study sites

Source: Reports of Plant Protection Department

Table 1: Household's experience with crop failure over the past five years (2017-2022)

Variable		Phong Dien Phong				Total
		Phong Son (n=5)	Dien (n=4)	Hoa (n=13)	Hien (n=19)	
Experience of crop failure	No	20.00%	25.00%	76.92%	15.79%	37.00%
	Yes	80.00%	75.00%	23.08%	84.21%	64.00%
Number of times crop failed	Average	3.20	2.00	0.69	3.26	2.31

Source: Author survey, 2023

Table 2: Farmer's opinion on main causes of crop failure (n=41)

Causes	Farmer's opinion	
	Yes (%)	No (%)
Heavy rains	87.80	12.20
Unseasonal floods	85.37	14.63
Prolonged drought or severe heat waves	56.10	43.90
Diseases	85.37	14.63
Pets	19.51	80.49
Land degradation	31.71	68.29
Polluted irrigation	41.46	58.54

Source: Author survey, 2023

Farmers motivations and their intentions on continuing lotus farming

An old small-scaled farmers stated: "My farmland is in a low-lying area, making rice cultivation very difficult because plow and harvester can't be used. My spouse and I are also getting older, therefore, if we don't grow lotus, we will likely leave the land fallow rather than continue farming on it".

A large-scaled farmer stated: "Agricultural production is heavily weather-dependent, no matter which crop you choose to cultivate, you must accept the risk of failure. There is no crop that is more profitable than lotus; a successful crop can cover losses of three previous crops. As long as I continue to grow lotus, I still have a chance to get back the money I lost".

CONCLUSION

Notwithstanding its potential to enhance farmer's income and climate adaptation, the transition from rice monoculture to high-value alternative crops faces many practical challenges. By the case study of lotus crop in Thua Thien Hue province, the results revealed that the expansion of lotus farming was initiated by local farmers who recognized lotus crop as a potential opportunity to increase income and reduce highly reliance on rice cultivation. However, the lack of knowledge in pests and diseases management, coupled with the absence of high-yielding varieties and challenges from disease outbreaks and extreme weather, pose significant obstacles to the sustainable development of the lotus crop.

REFERENCES

- Vo, H. T. M., Van Halsema, G., Hellegers, P., Wyatt, A., & Nguyen, Q. H. (2021). The emergence of lotus farming as an innovation for adapting to climate change in the upper vietnamese mekong delta. *Land*, 10(4), 350.
- Tran, D. D., van Halsema, G., Hellegers, P. J., Ludwig, F., & Wyatt, A. (2018). Questioning triple rice intensification on the Vietnamese mekong delta floodplains: An environmental and economic analysis of current land-use trends and alternatives. *Journal of environmental management*, 217, 429-441.

