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Is lotus a viable alternative crop in low-lying agricultural areas? Evidence from Thua Thien Hue Province, Central Vietnam

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INTRODUCTION & AIM

Lotus cultivation is rapidly expanding across Asia as a high-value alternative to rice, contributing to flood-based farming and wetland conservation in countries such as China, India, and Vietnam. However, most research focuses on favorable regions, leaving a gap in understanding its viability in marginal, low-lying areas with weaker hydrological infrastructure. This study addresses that gap by examining whether lotus is a viable alternative crop in Thua Thien Hue Province, Central Vietnam—a flood-prone region facing both climate vulnerability and a need for agricultural diversification.

METHOD

Mix-method approaching
Quantitative ⇔ Qualitative

❶ Study sites: 2 districts (Phong Dien & Quang Dien) key low-lying plains and main lotus production zones.

❷ Sample design: 101 households (2024)
- ❖ 95 HHs: converted paddy ➔ lotus
- ❖ 6 HHs: converted from water-surface (case studies)

❸ Data collection:
- ✓ Direct HH interview (structured-questionnaire)
- ✓ 14 KIIs (local officials, extension, cooperatives)
- ✓ 2 FGDs (8 & 10 lotus farmers)

❹ Data analysis:
- Quantitative: descriptive, group comparison (BCA)
- Qualitative: thematic coding (KIIs/FGDs)

RESULTS & DISCUSSION

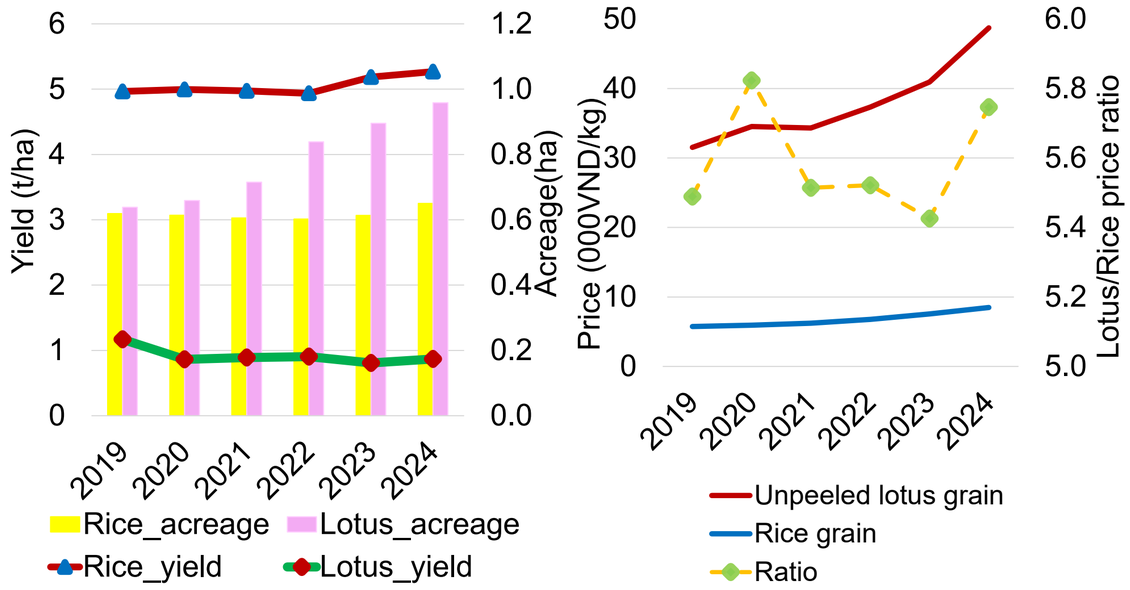

Fig.1: Trends in Acreage, Yield, and Prices of Lotus & Rice (2019–2024)

Table 1. Economic efficiency of lotus by farm size (2024)

Variable	Farm size group			Overall	P_value[1]
	Small	Medium	Large		
Yield (ton/hectare)	0.89	0.75	1.03	0.87	0.44
Selling Price (thousand VND/kg)	49.41	47.71	47.00	48.73	0.04*
Gross Production (mil.VND/hectare)	43.63	35.74	47.63	42.06	0.46
Total costs (mil.VND/hectare)	34.02[a]	45.65[b]	64.83[c]	40.20	0.00*
Net Income (mil.VND/hectare)	**9.61[a]**	**-9.91[b]**	**-17.20[b]**	1.86	0.00*
Cost-benefit ratio	**0.28[a]**	**-0.22[b]**	**-0.27**	0.05	0.01*
No. of observations	61	24	10	95	

*Note: [1] p-value of one-way ANOVA tests on the equality of means; * significantly different at 5%. Different superscript letters [(a, b, c)] indicate significant differences between groups (p < 0.05). Vietnam Dong; USD 1.00 = VND 25,488.00 (2024)*

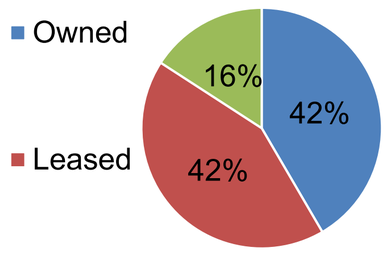

Fig 2. HH distribution by land tenure type (n=101)

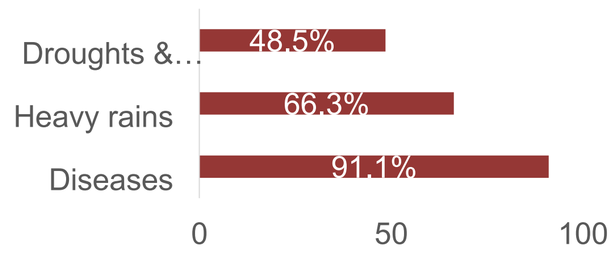

Fig. 3. Major risks reported by households (n=101)

Policies encouraged crop conversion & diversification ⇔ Policies on rice land protection

CONCLUSION

Even with climatic and disease risks, lotus farming is emerging as a viable alternative on low-lying rice lands. However, in order to make this transition sustainable, land-use policies must evolve—and farmers need stronger technical guidance and reliable market access.

FUTURE WORK / REFERENCES

•Lin, Z., Zhang, C., Cao, D., Damaris, R. N., & Yang, P. (2019). The latest studies on lotus (Nelumbo nucifera)-an emerging horticultural model plant. *International journal of molecular sciences, 20*(15), 3680.

•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.

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