# Crop Transition in Low-Lying Areas: A Case Study of Lotus Farming in Thua Thien Hue Province, Central Vietnam

Duong Thi Tuyen, PhD student
University of Economics, Hue University, Vietnam
Economy and Rural Development Department
Faculty of Gembloux Agro-Bio Tech, Liege University, Belgium

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# Outline

1. Problem statement & research questions
2. Study site & data collection
3. Findings
4. Conclusions

# 1. Problem statements & research questions

# Why crop conversion is needed under climate change?

- **Climate change** increases flood, drought, and storms → rice systems become highly vulnerable *(WB, 2022).*
- **Rice**: remains the main crop in Vietnam but with limited economic returns *(H.-T.-M. Nguyen et al., 2021).*
- **Changing demand**: rice consumption per capita has declined as incomes rise, while demand for high-value food products is increasing *(T.-T. Nguyen et al., 2023).*
- **Policy context**: crop restructuring policy promotes alternative crops *(MARD, 2013).*

***⇨ Change to more adaptive alternative crops***

# Lotus as an alternative crop in low-lying areas

💰 Promoted as a high-value crop in Asia (China, Vietnam, India) *(Lin et al., 2019).*

🌱 Flood-tolerant, suitable for low-lying flooded areas *(Jain et al., 2004).*

🍵 Emerging commodity with diverse by-products *(Lu et al., 2017).*

⇨Effective strategy for climate adaptation in Vietnamese Mekong Delta *(Vo et al., 2021; Tran et al., 2024).*

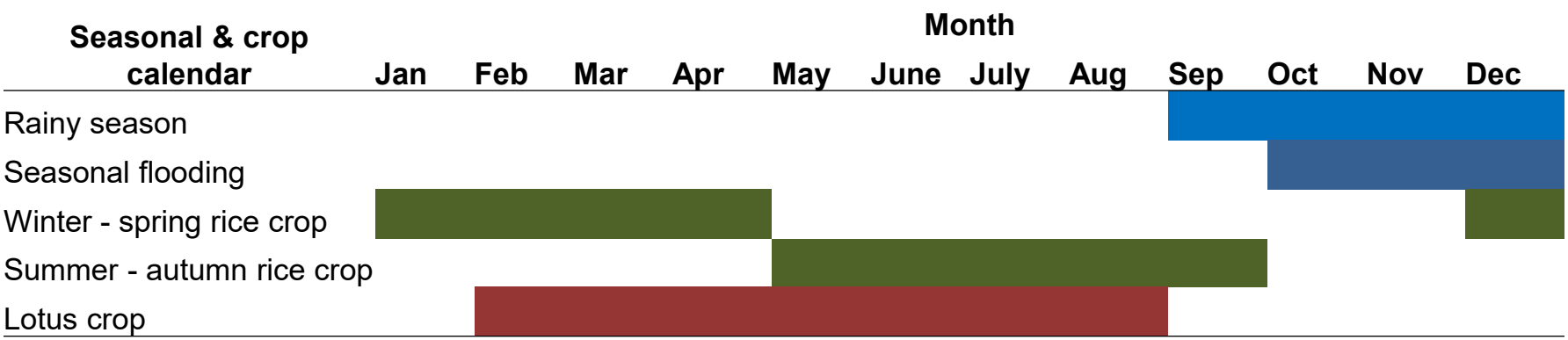



**Fig.1. Seasonal and crop calendar in Thua Thien Hue Province**

*Source: DARD, 2024*

## Research gap

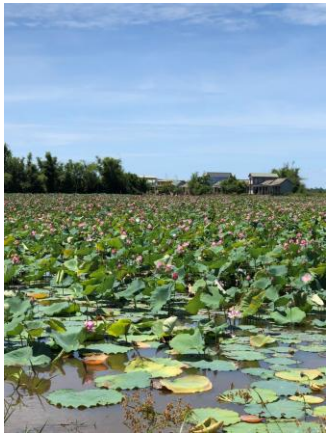
•Few studies on lotus in Central Vietnam, despite harsh climate and seasonal flooding → underexplored constraints.

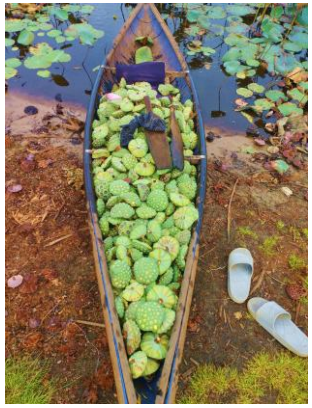
## Case study in Thua Thien Hue

- Largest lotus production area in Central Vietnam.
- Farmers face trade-off: **1 lotus crop vs. 2 rice crops**, no rotation.

# Hue lotus – a promising brand for value chain development

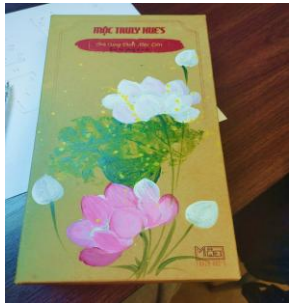
## Lotus is mainly cultivated for seeds





## Used in local cuisine

## Lotus-based specialty products

## Research questions

- ✓ What is the current status of rice–lotus conversion?
- ✓ What are farmers' motivations & challenges?

# 2. Study sites and data collection

## Study sites

- 2 districts: main lotus area
- Key agricultural production areas.
- Two typical low-lying plains.


**Fig. 2. Location of the study sites**

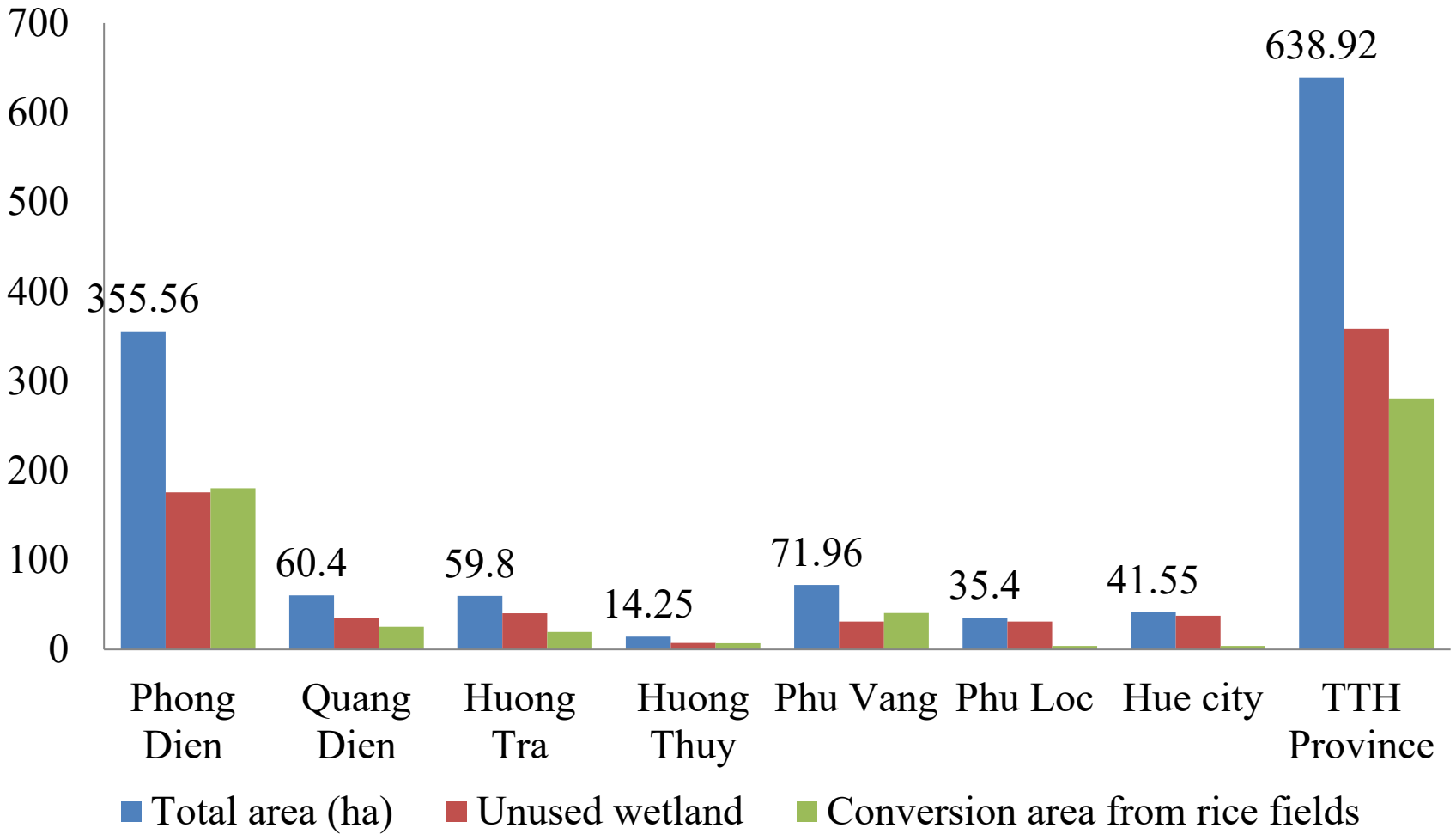



**Fig.3. Distribution of lotus production area in Thua Thien Hue in 2020**

Mixed-methods approach

- Household survey: 95 households
- 14 KIIs (local officials, cooperatives, traders)
- 2 FGDs (farmers & stakeholders

# 3. Findings

## *Why farmers shift to lotus?*

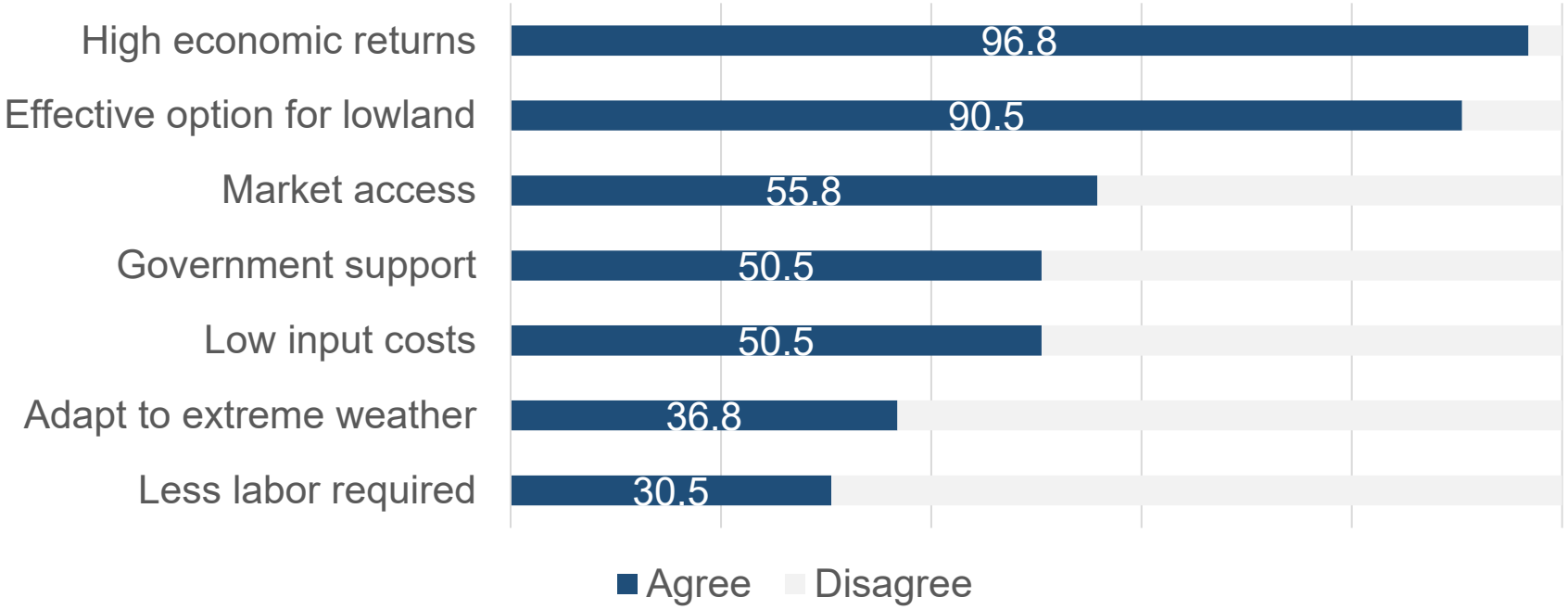
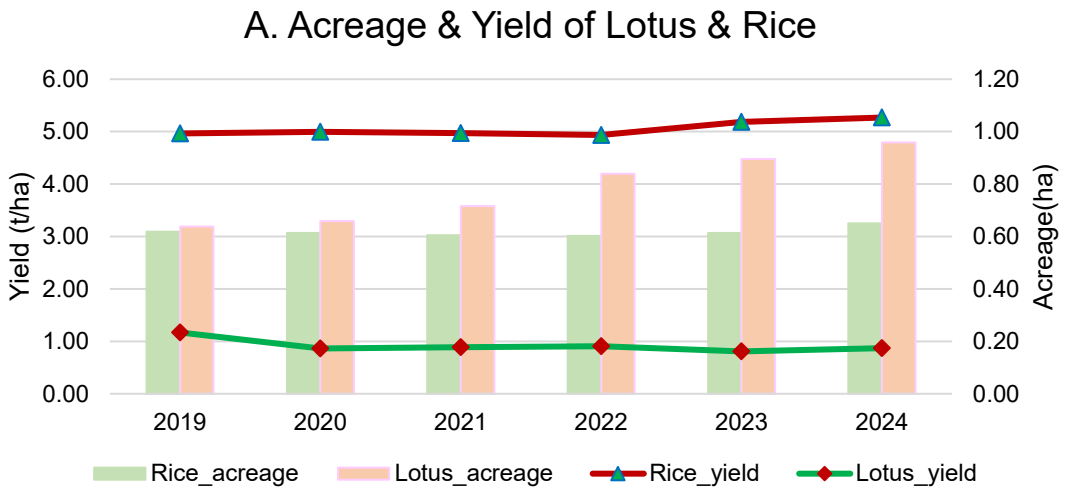
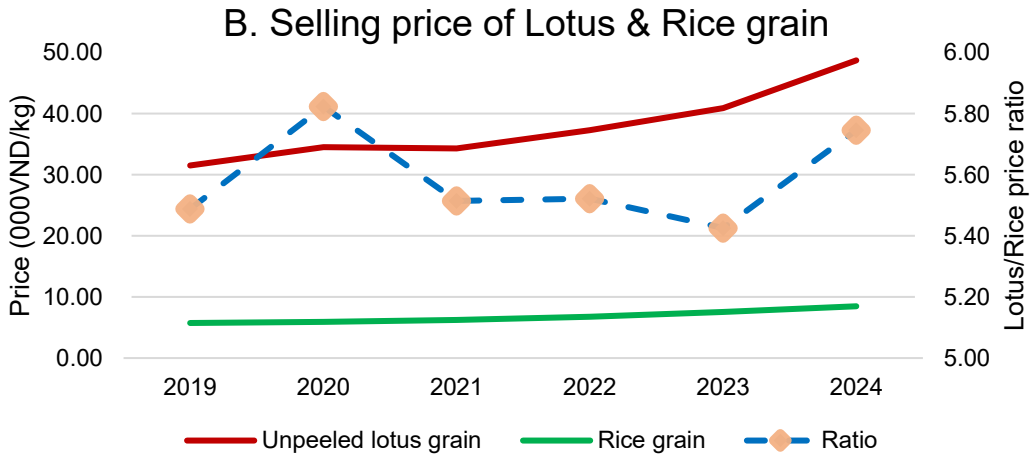



**Fig. 4: Farmer's reasons for conversion to lotus (n=95)**

(Source: Author's survey, 2024)




## Expectation of high economic return = Main driver?

**Paradox for lotus farmers:**
Acreage ↑ (expansion)
Price ↑ (stable & high)
Yield ↓ (unstable & low)

**Cost–Benefit Analysis (2024):**

- **TC:** 40.2 mil. VND/ha
- **GO:** 42.1 mil. VND/ha
- **Net income:** 1.9 mil. VND/ha
- **B/C ratio:** 0.05

**Fig. 5 : Trends in Acreage, Yield, and Prices of Lotus and Rice (2019–2024)**

# Production Risks and Economic Concerns

- Unstable yields and recurrent crop failures
- Economic returns below expectations

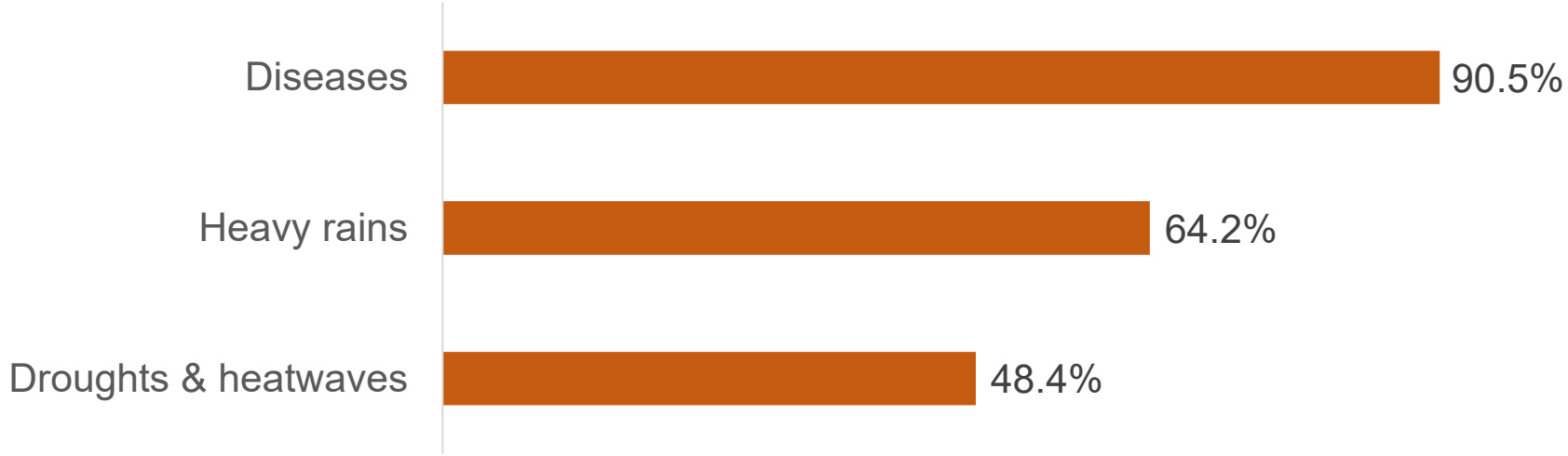



**Fig.6. Major risks reported by lotus-farming households (% of households)**

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# Lotus emerges as an adaptive option to address problems of rice farming in low-lying areas

## Rice in low-lying areas

- Flooded, waterlogged soils → no mechanization possible
- High labor demand & costs (~3× machine cost)
- Low yield → inefficient & low profit

➔ Risk of land abandonment

## Lotus as an alternative

- Tolerates waterlogging, well adapted to flood-prone soils
- Low care requirement; hand harvesting fits family labor
- High-value specialty crop with “Hue Lotus” brand

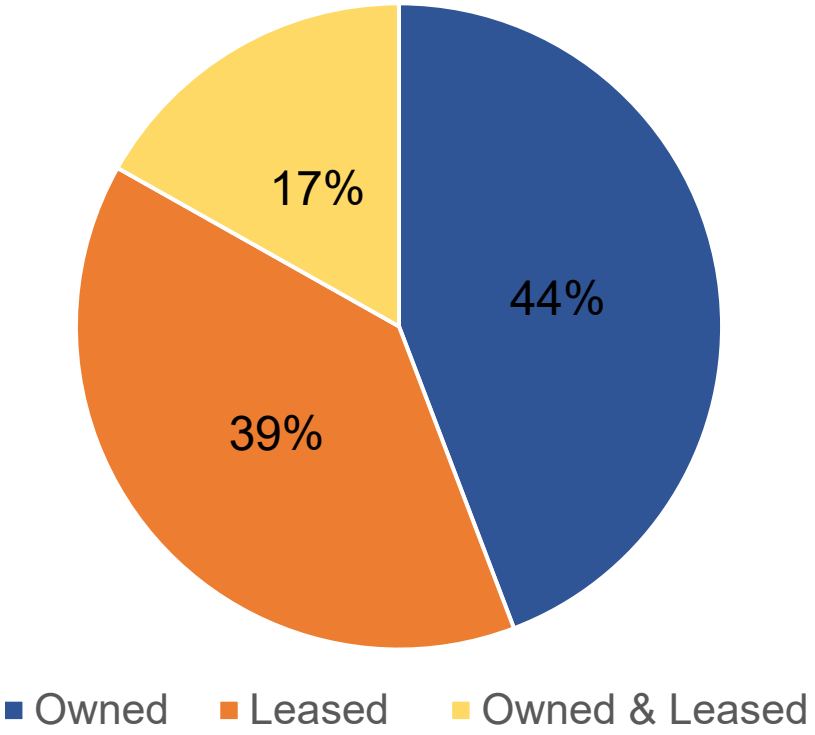


**Fig. 7: Household distribution by land tenure type (n=95)**

# Land Tenure and Strategies for Lotus Cultivation

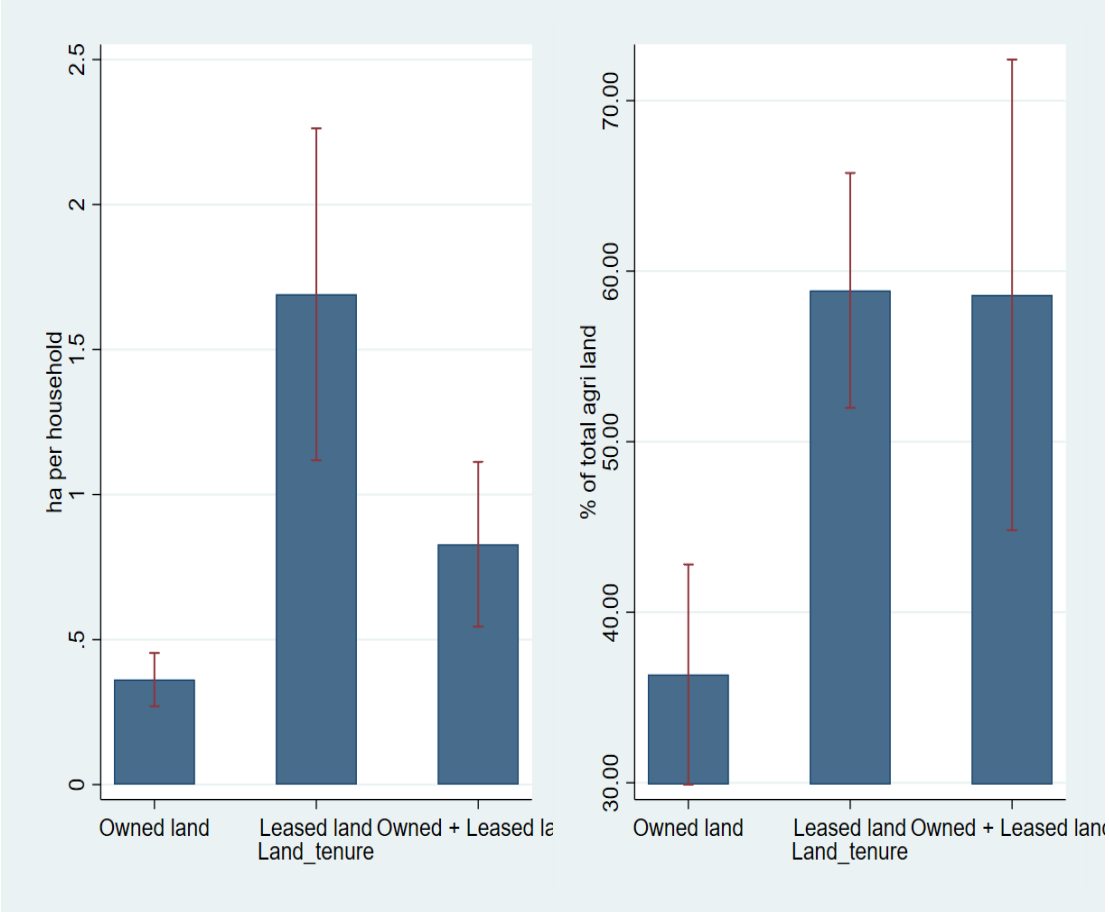


**Fig. 8: Lotus Cultivation by Land Tenure Type**

- **Leased land: highest lotus area & share**

→ larger producers rely on rented land to scale up

- **Owned-only: lowest conversion**

→smallholders convert only part of their land

- **Mixed: moderate but varied**

"It's ironic—some farmers can lease land to grow lotus, yet they can't convert their own rice fields."

## Land policy: driver vs. barrier

### National & local policy

- 2013: crop restructuring for high-value crops
- 2016: conversion allowed on inefficient lowland rice plots

### Reality

- Fragmented, flood-prone, low-yield rice plots(<0.05 ha/HH) → **convertible**
- 2021-policy on rice land protection: productive paddy land designated for rice → **cannot be converted**

→Expansion relies on leasing low-lying plots from other farmers or communes.

# 4. Conclusions

❖ Lotus is a promising alternative crop for low-lying rice areas in Central Vietnam.

❖ Economic benefits drive adoption, but unstable yields and high risks raise sustainability concerns.

❖ Expansion relies mainly on land rental; policy support acts as both a driver and a barrier.

# Thank you for your attention!

DUONG Thi Tuyen
Email: dttuyen@uliege.be;
dttuyen@hce.edu.vn