Has the LPA system been successful?

Small-scale marine aquaculture recruitment in Maine, USA, through the limited-purpose aquaculture (“LPA”) licensing system

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I. Introduction

Small-scale ocean-farming (low-trophic-level)

Mariculture development

- Commercialization
- Scaling

Rural development

Research location: Maine, USA

II. Background

Small-scale, LTL ocean farms are increasingly popular in Maine. Can Maine's mariculture development be a model for others?

Maine's Mariculture Leasing/Licensing System

Maine Department of Marine Resources:

Limited-purpose aquaculture ("LPA") license

≤37 m^2

- 1-year renewal
- $100 / $300 fee
- ≤4 licenses/person
- LTL organisms

created in 1999

Experimental Lease

≤1.6 Ha

- 3-year duration
- non-renewable
- $100
- LTL + HTL organisms

created in 1998

Standard Lease

≤40 Ha

- 20-year renewal
- $500
- LTL + HTL organisms

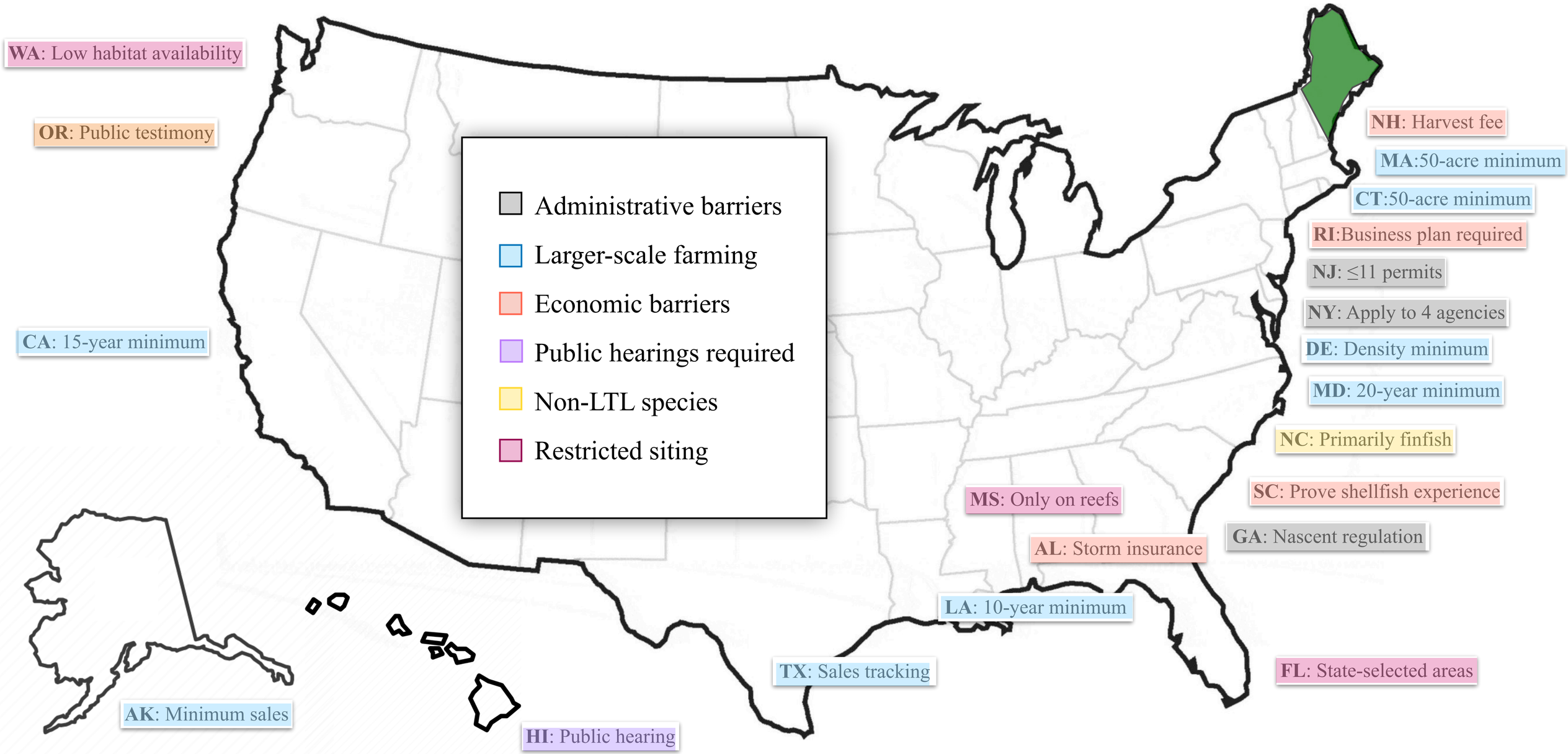
created in 1975

Only low-trophic-level organisms are permitted to be grown on LPAs

LPAs: a Mariculture System Unique in the U.S. to Maine

U.S. mariculture leasing outside of Maine		LPAs
Many required permits	/	Consolidated application
High acreage minimums	/	Small-scale, low-trophic-level experimentation
Detailed economic reporting	/	Minimal reporting
Lengthy permit durations	/	1-year duration
Mandated public hearings	/	*Narrow public input*
		Commercially viable species
		Access to the biologically rich Gulf of Maine

For small-scale mariculture, lower barriers-to-entry in Maine



Accessible by design

"LPAs are for **experimentation**,
allowing entrants to try and possibly fail."

"[They are] about **lowering barriers to entry**,
especially for fishing families with fewer resources or equity."

"Combined with rules to prevent permitted areas from interfering with existing uses, LPAs can accelerate **entrepreneurship** as well as **neighborliness**."

-LPA-legislation creators

III. Methodology

A Transdisciplinary Research Approach:

- Analyze Maine's LPA system as a **recruitment** mechanism for small-scale marine aquaculture in the state
- Collect data on LPA-users' **commercialization** and food security
- Respond to key informants' desires for an overview of LPA-user **demography**, LPA **farm characteristics**, and **commercialization experiences**

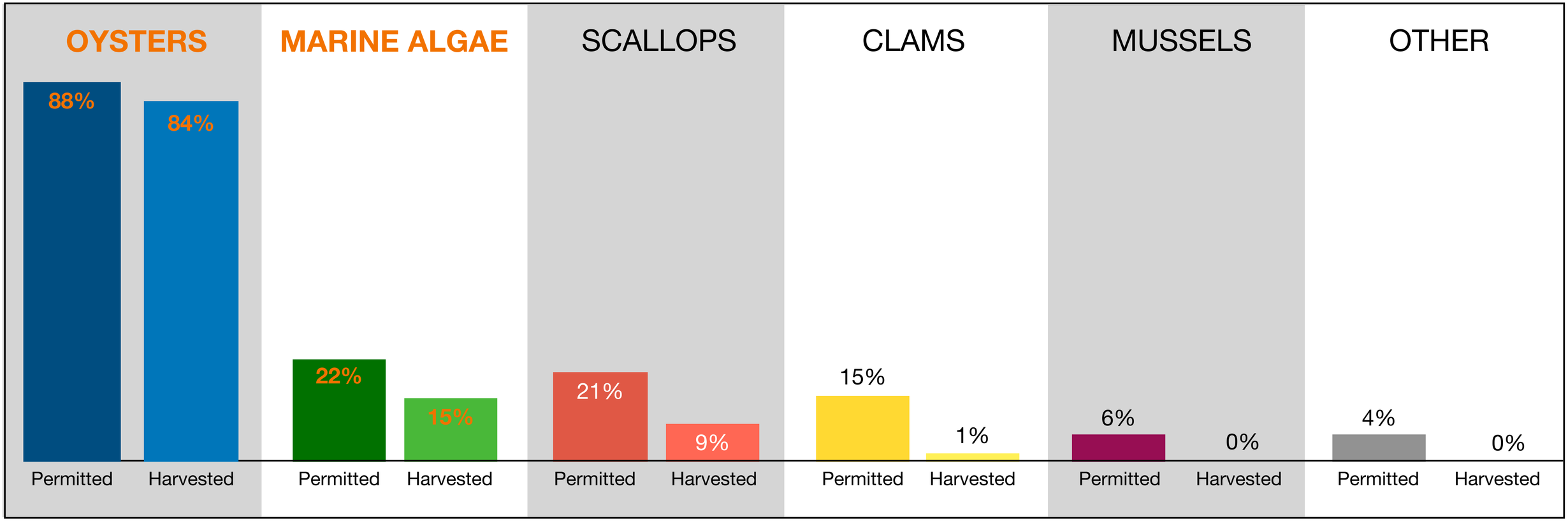
Methods:

Survey	Focus Group
n = 74	n = 7
29% response rate	

Q: What are small-scale farmers growing?

A: Primarily oysters, followed by marine algae.

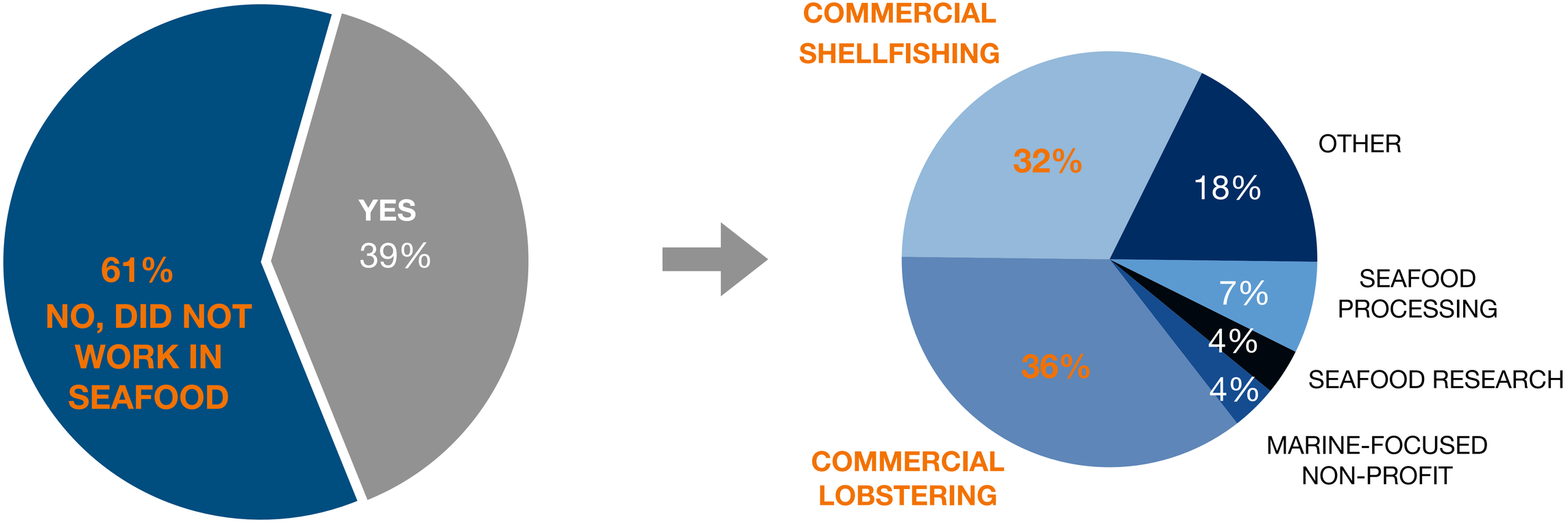
Users don't harvest all organisms for which they are permitted.



Q: Did/do small-scale farmers work in seafood industries?

A: More than half are <u>new to working in seafood</u>.

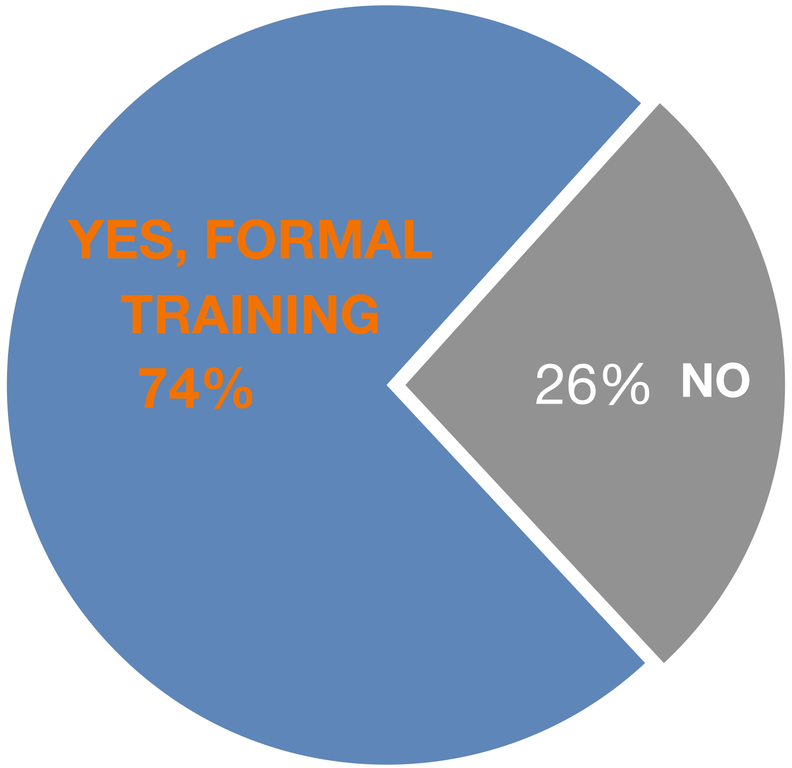
Many lobster and shellfish fishers are LPA-users.



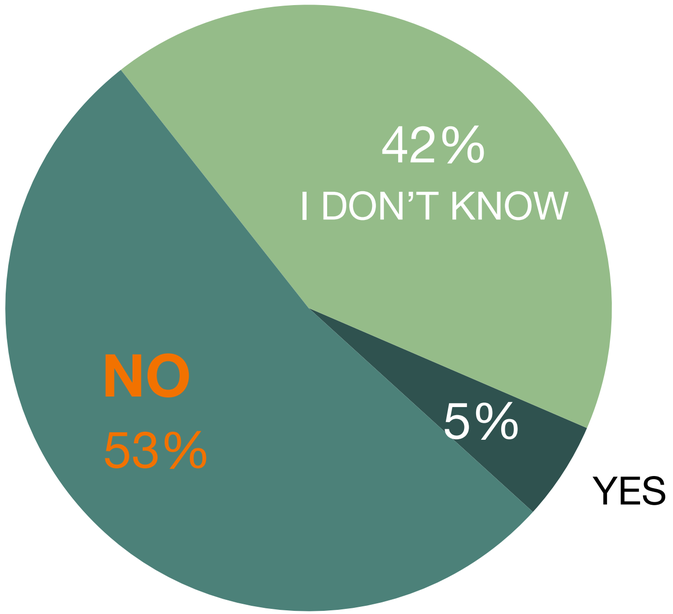
Q: Did small-scale farmers receive formal aquaculture training?

A: Most were <u>formally trained</u> (likely in Maine).

Few who are not trained want to be.



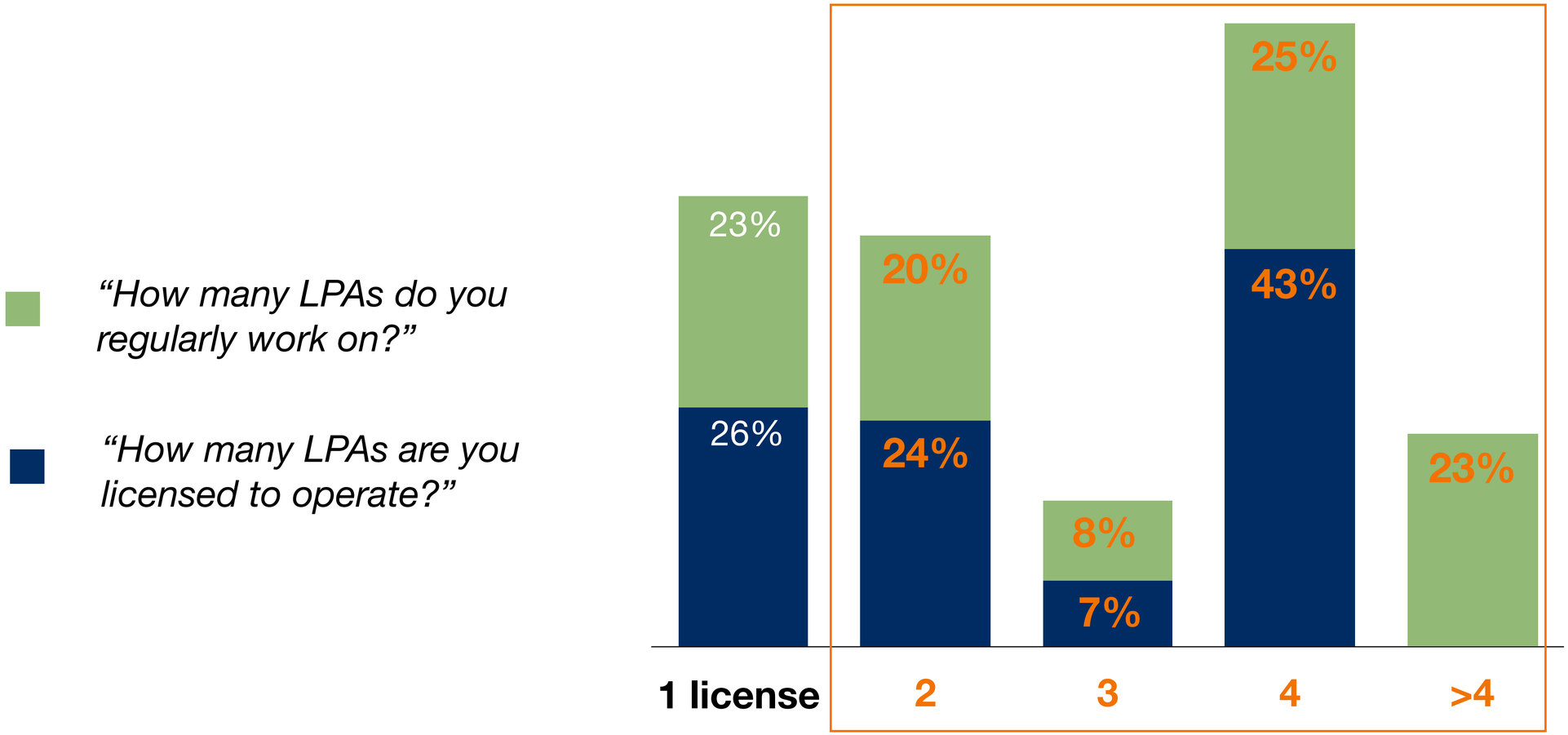
"Do you want to participate in a formal aquaculture training program?"



Q: How large are small-scale farms?

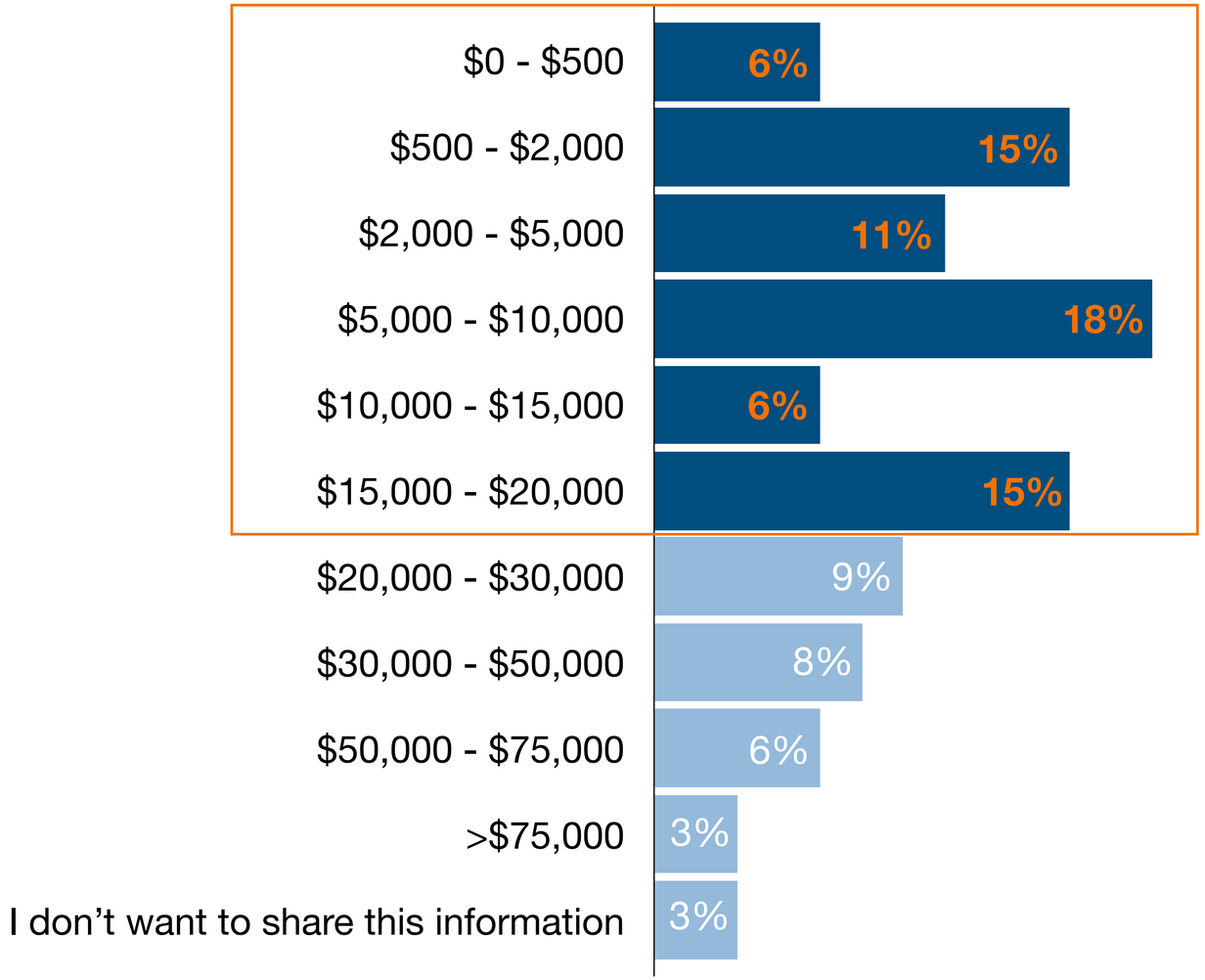
A: <u>Most farmers have > 1 LPA license</u>. Half have 3 or 4.

Some farmers work regularly on >4 LPAs.



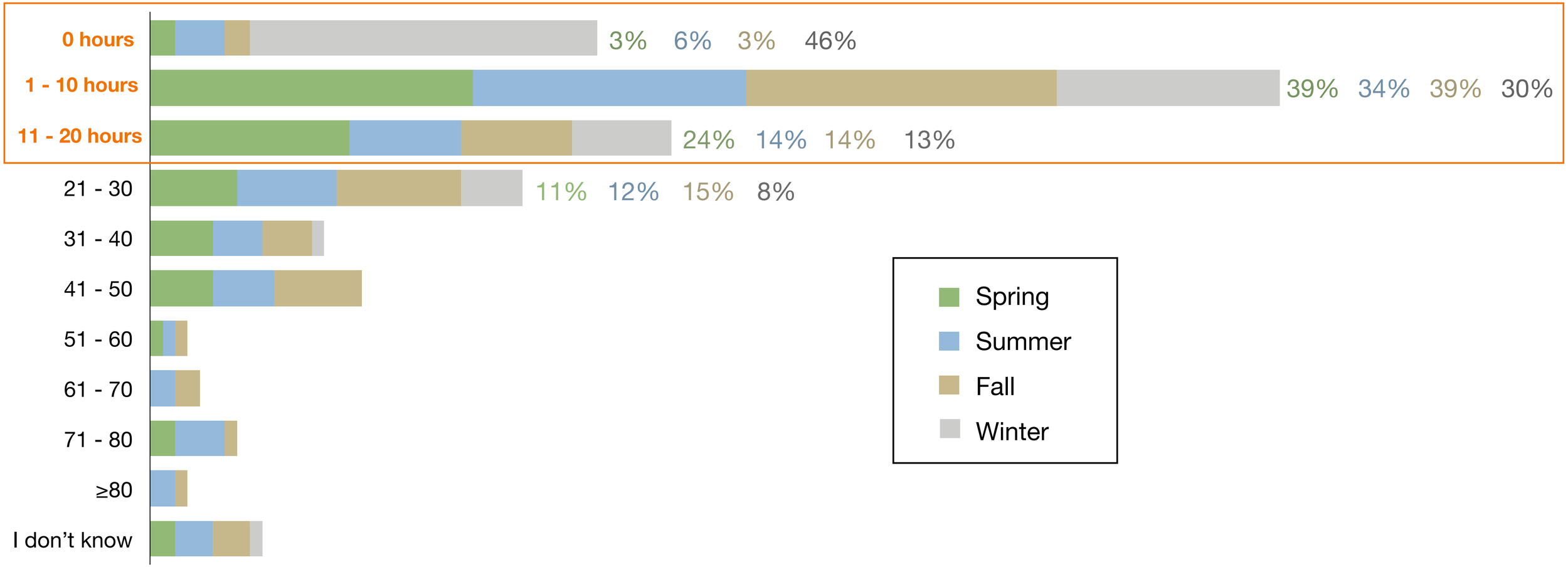
Q: How much money are small-scale farmers investing in their LPAs?

A: Most are investing <$20,000. 50% invest <$10,000.



Q: How many hours, and during which seasons, are LPA-users working per week?

A: Most are working 1-20 hours/week, and working least often in winter.



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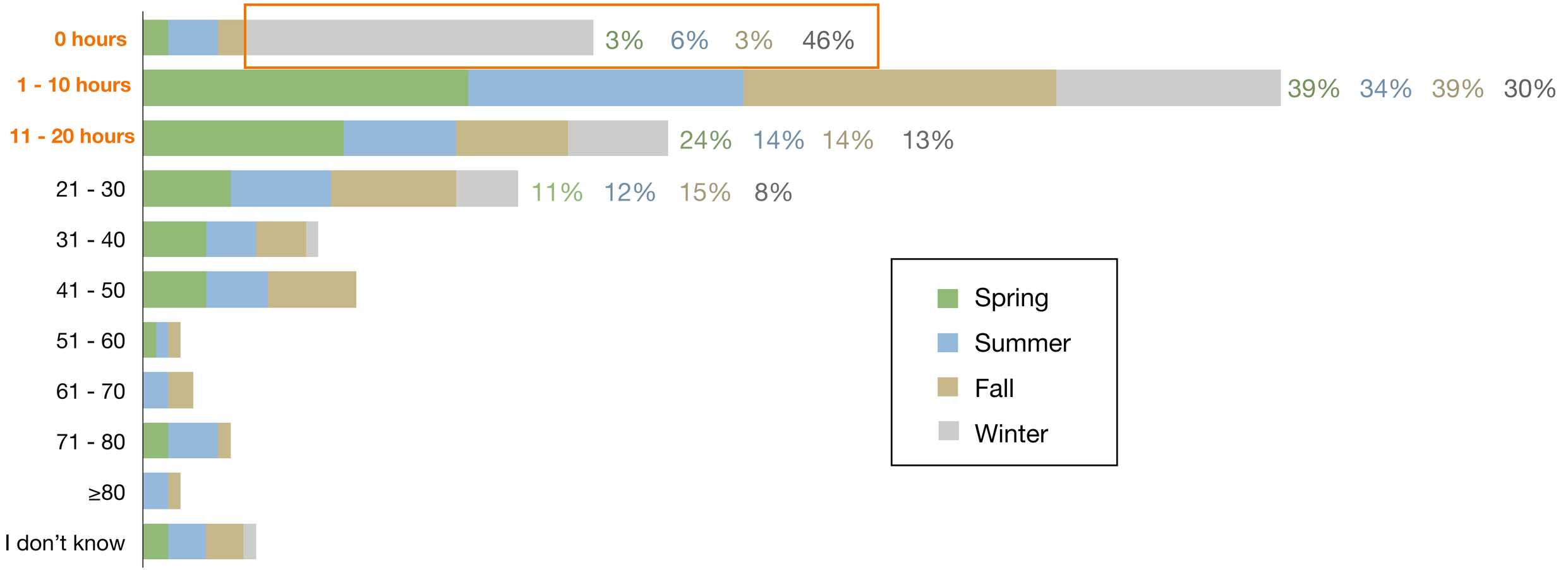
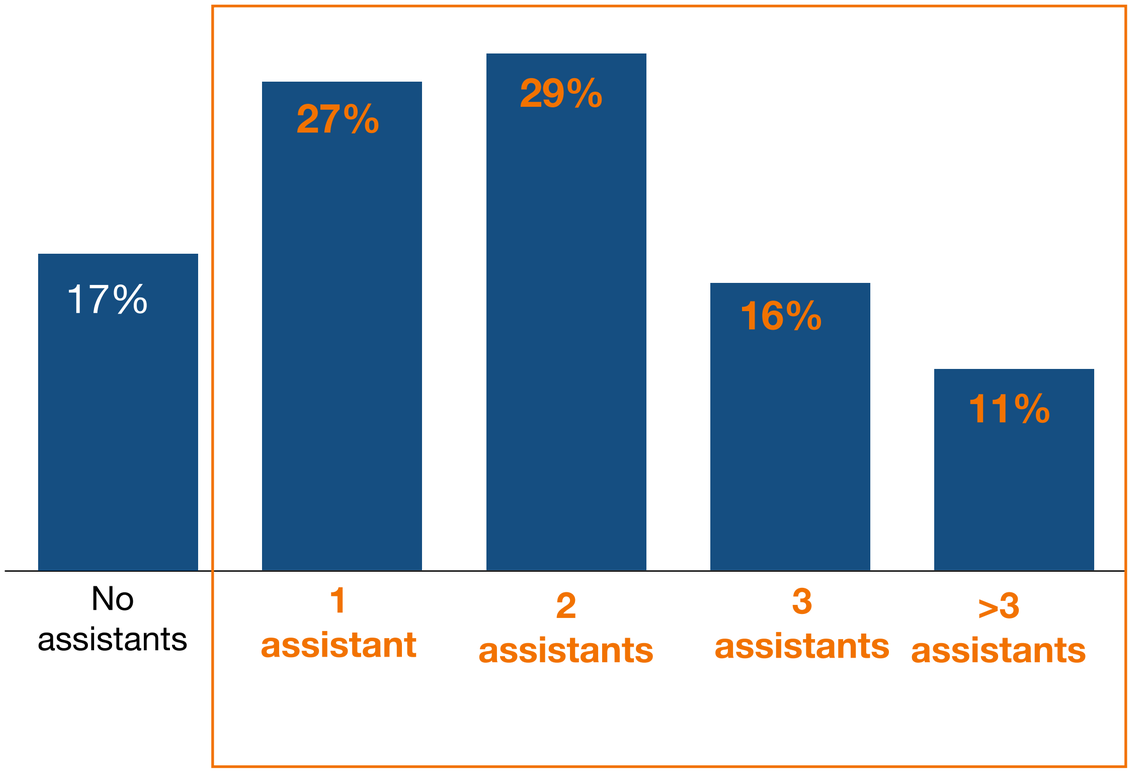


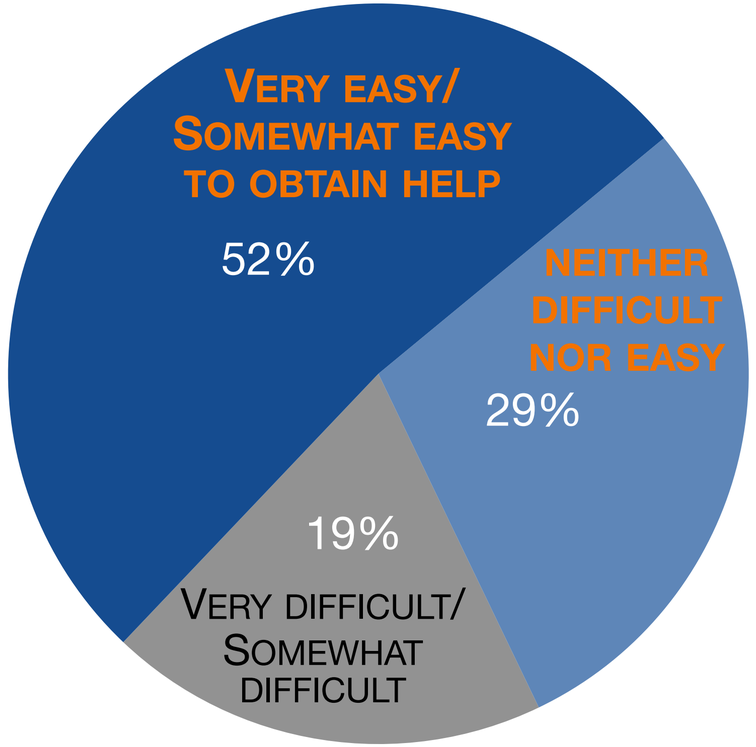
Q: Are small-scale farmers working alone or with assistants?

A: Most <u>work with assistants</u>.

Assistant labor is not difficult to obtain.



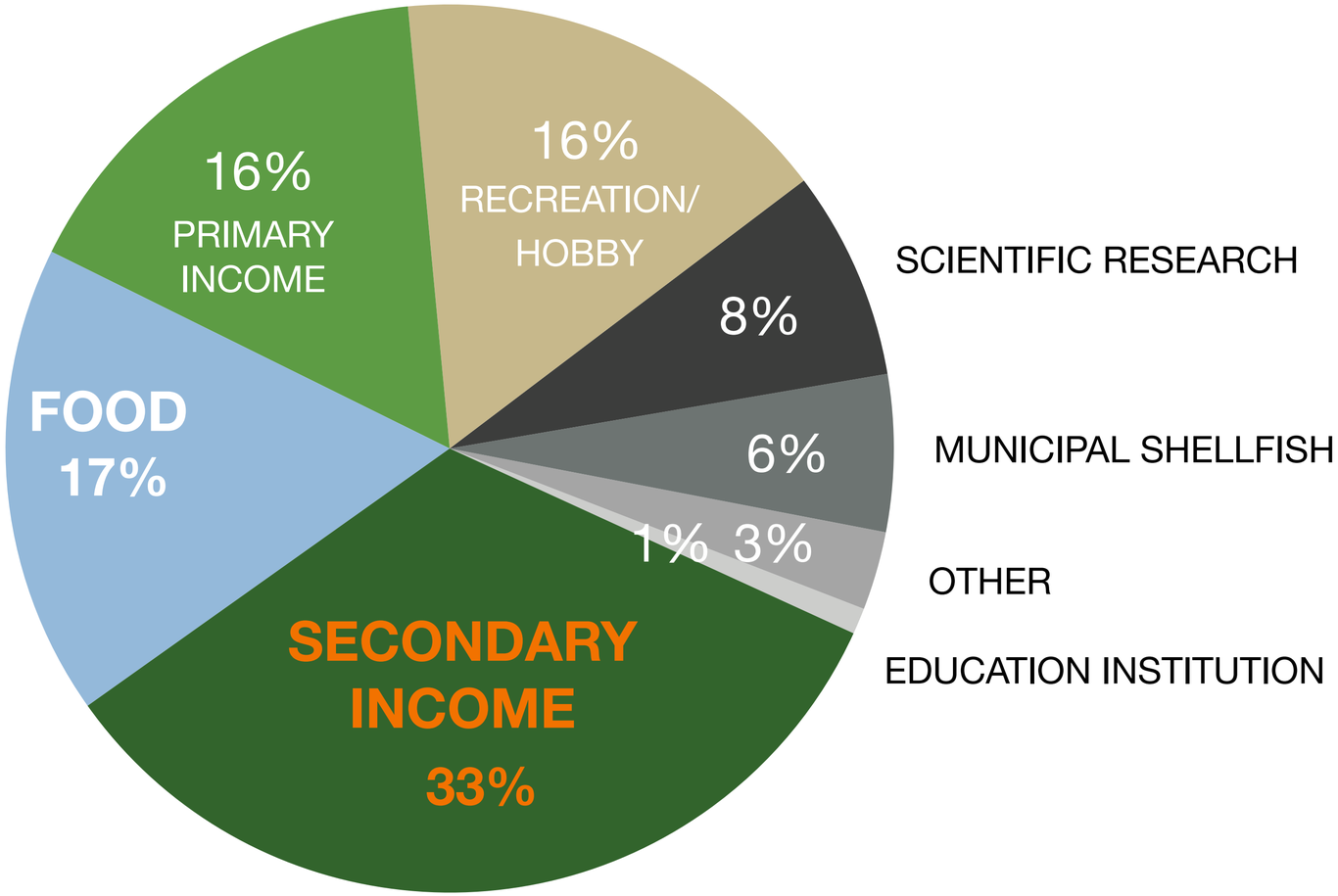
"How difficult is it for you to find people to regularly help you on your LPA(s)?"



Q: For what purposes are small-scale farmers using LPAs?

A: 33% use LPAs for secondary income, 17% for food.

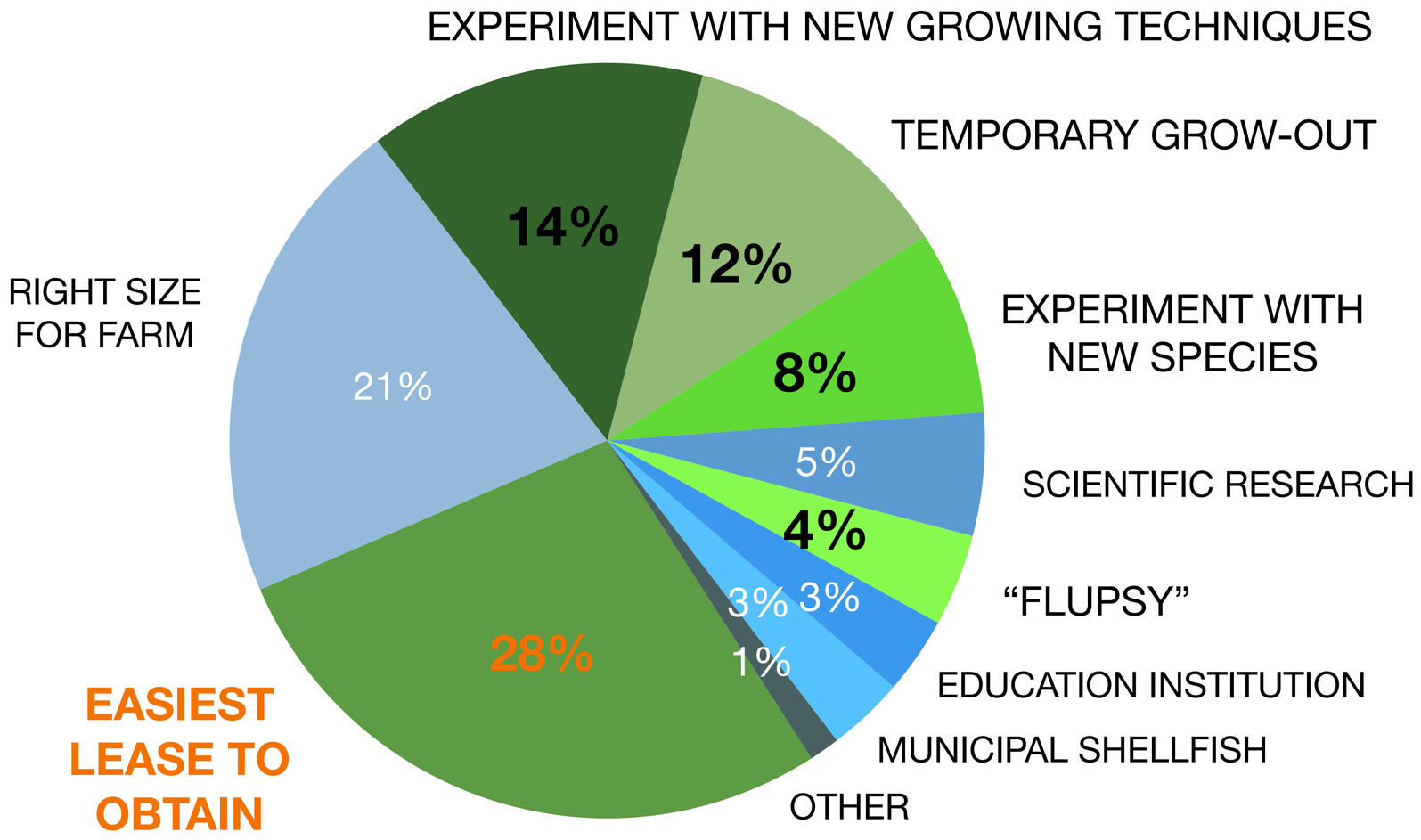
Respondents could select 1-2 responses.



Q: Why did small-scale farmers choose an LPA in particular?

A: 28% chose the LPA because it is the easiest lease to obtain.

38% chose the LPA for reasons likely related to larger leases.



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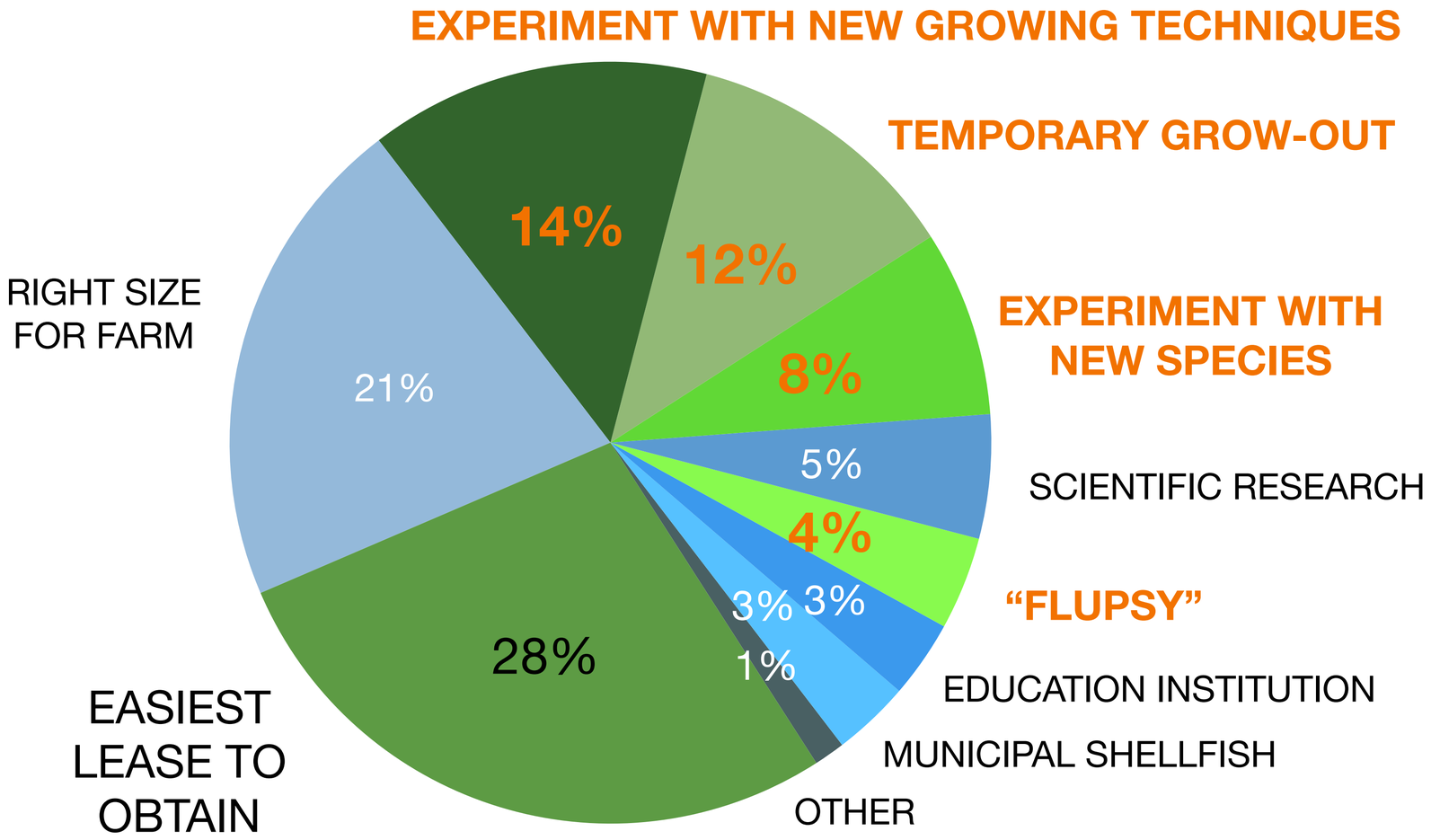
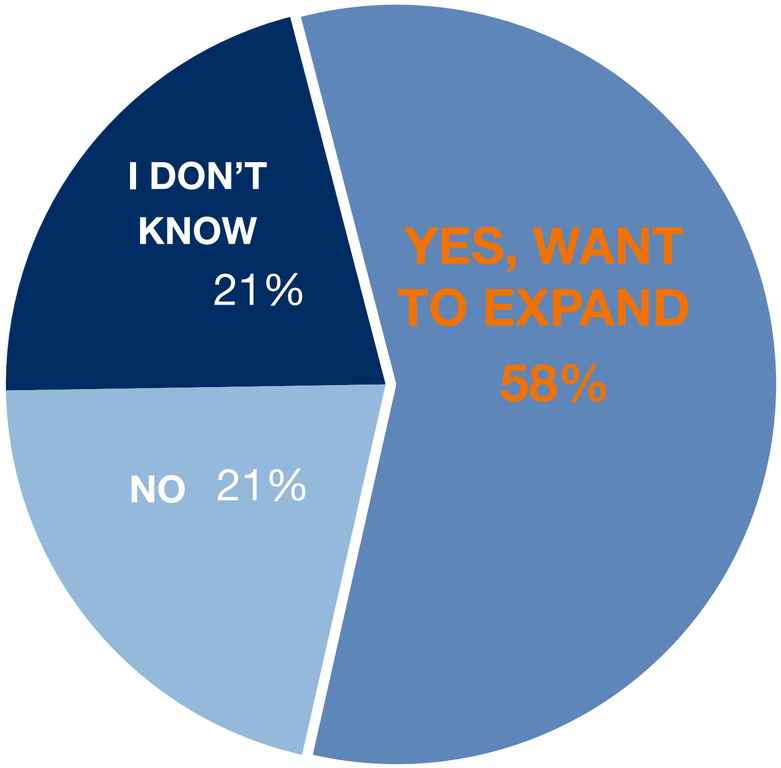
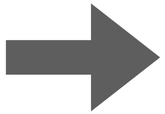


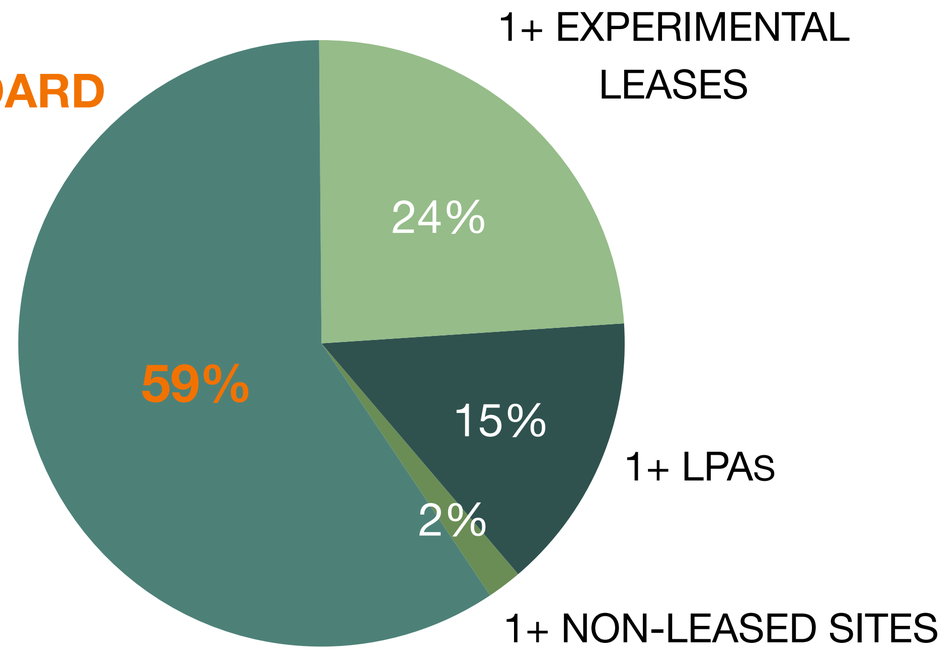
Q: Do small-scale farmers want to expand their farms?

A: Most <u>want to expand</u>.

Most want to obtain 1+ <u>Standard Lease sites</u>.

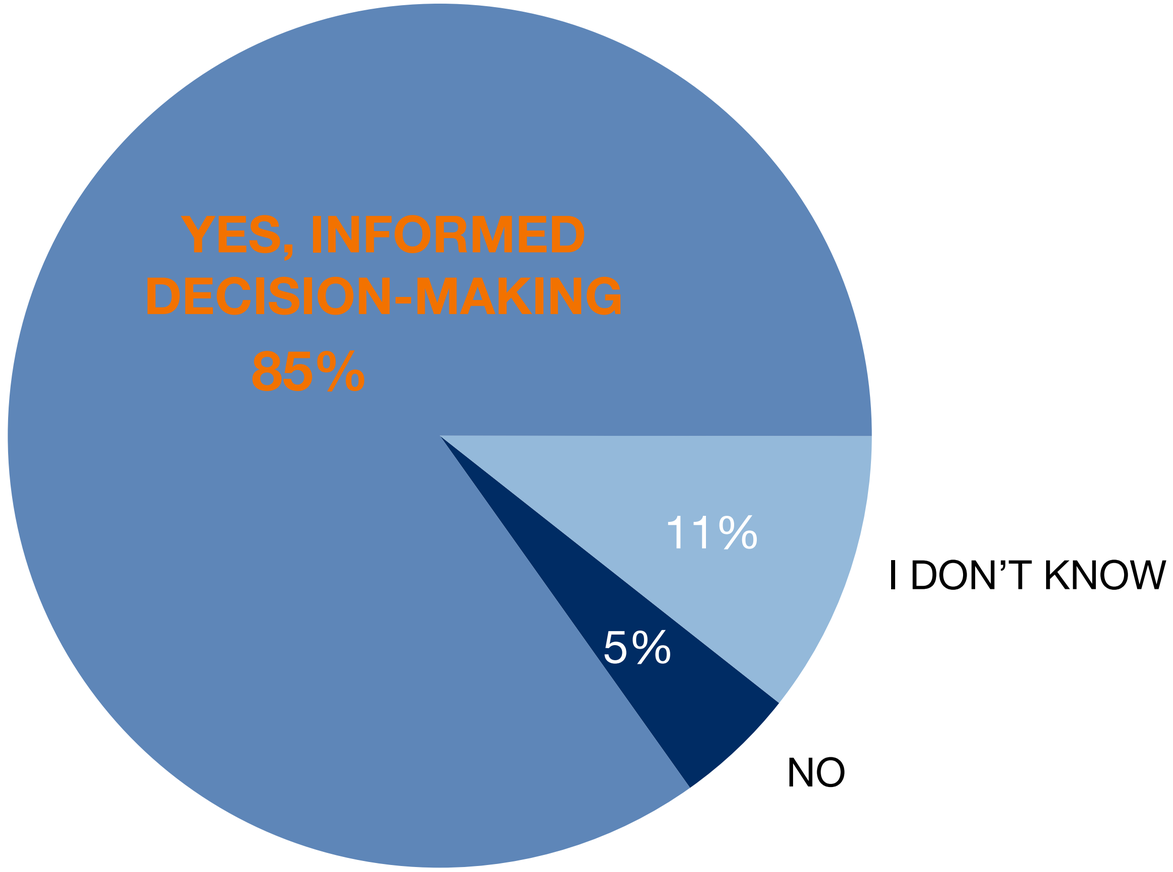






Q: Are small-scale farmers informed decision-makers about expansion?

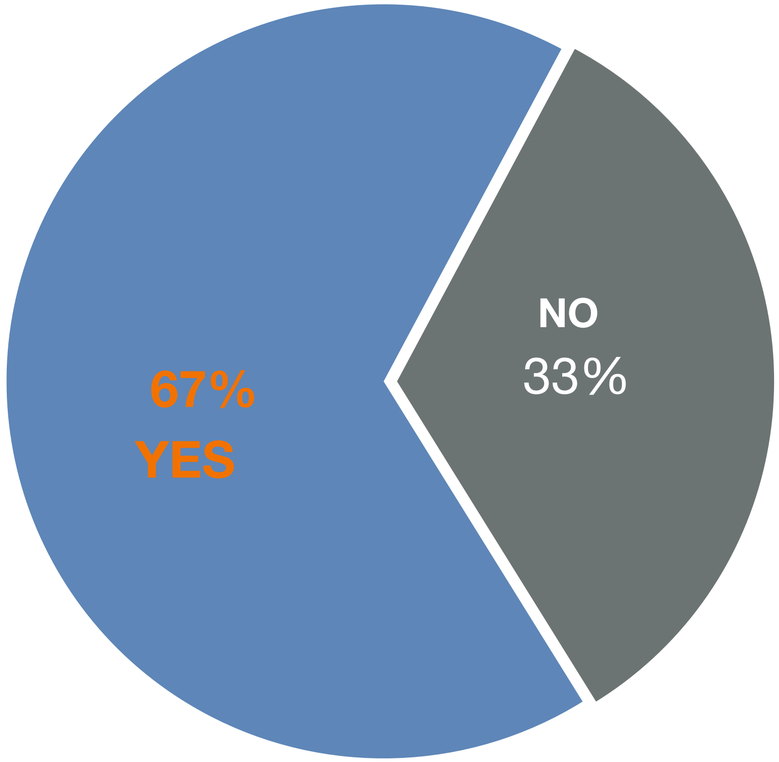
A: Most feel their LPA experience gives <u>enough information for informed decision-making</u>.

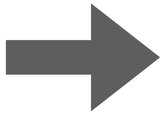


Q: Are small-scale farmers selling their products?

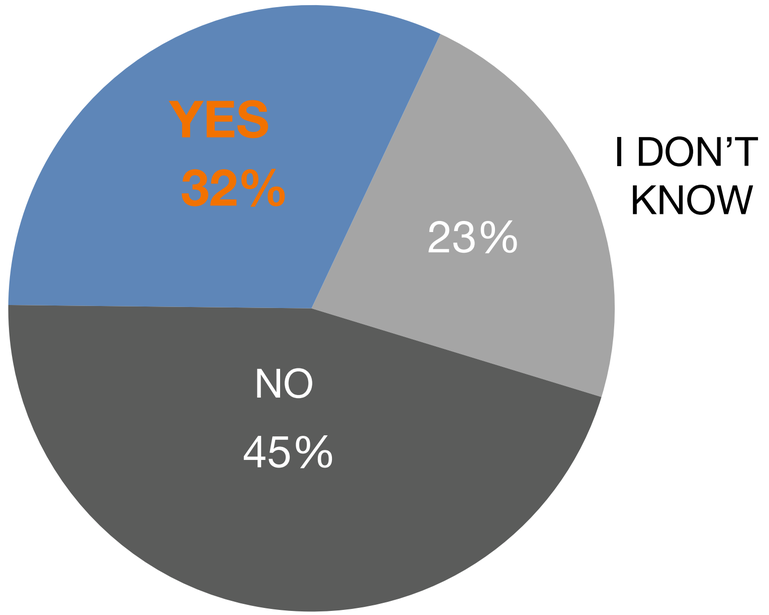
A: Most <u>are commercialized</u>.

(Of those who have not, 32% want to commercialize.)



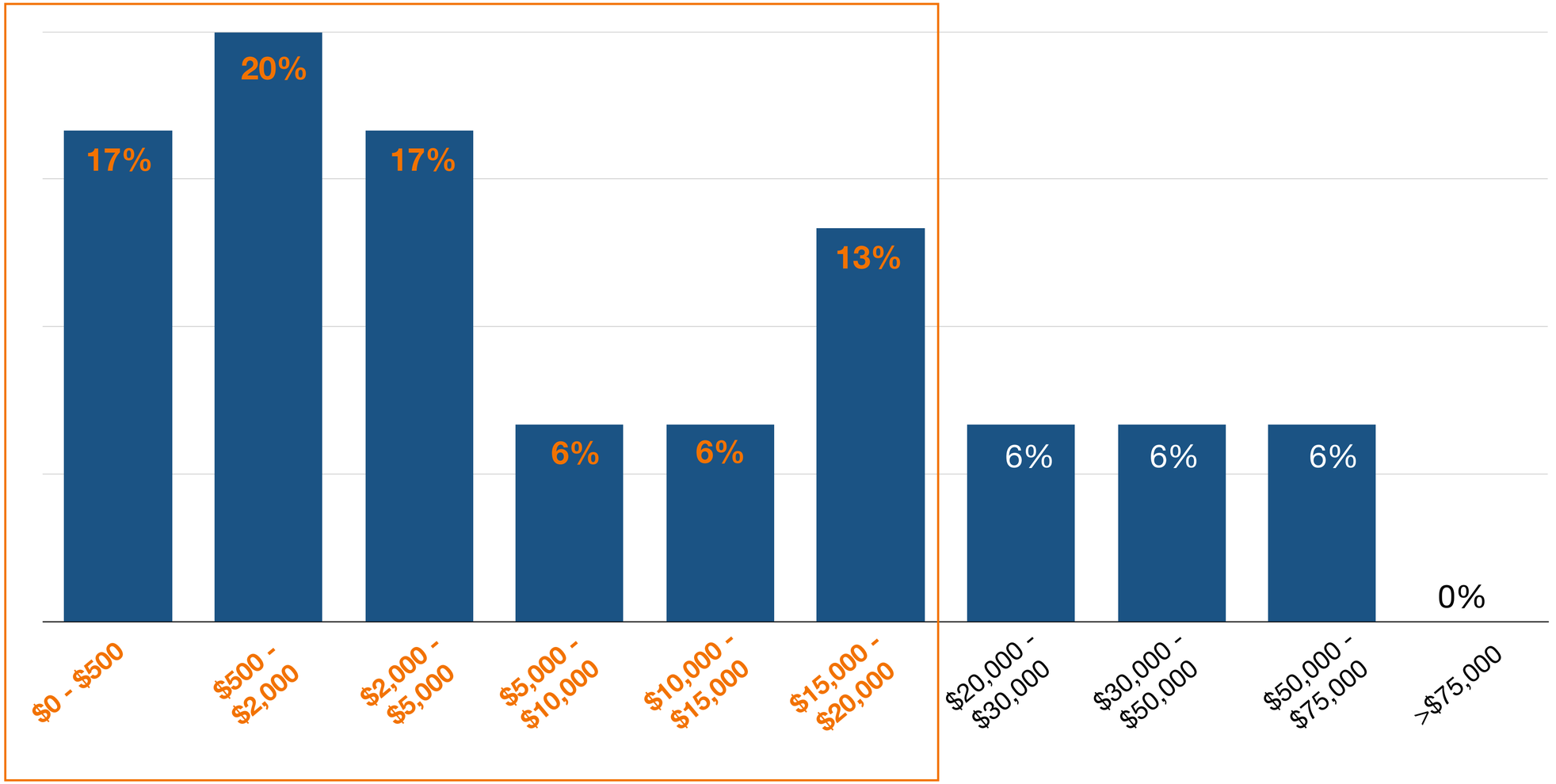


“Do you want to sell product(s) that you grow on your LPA(s)?”



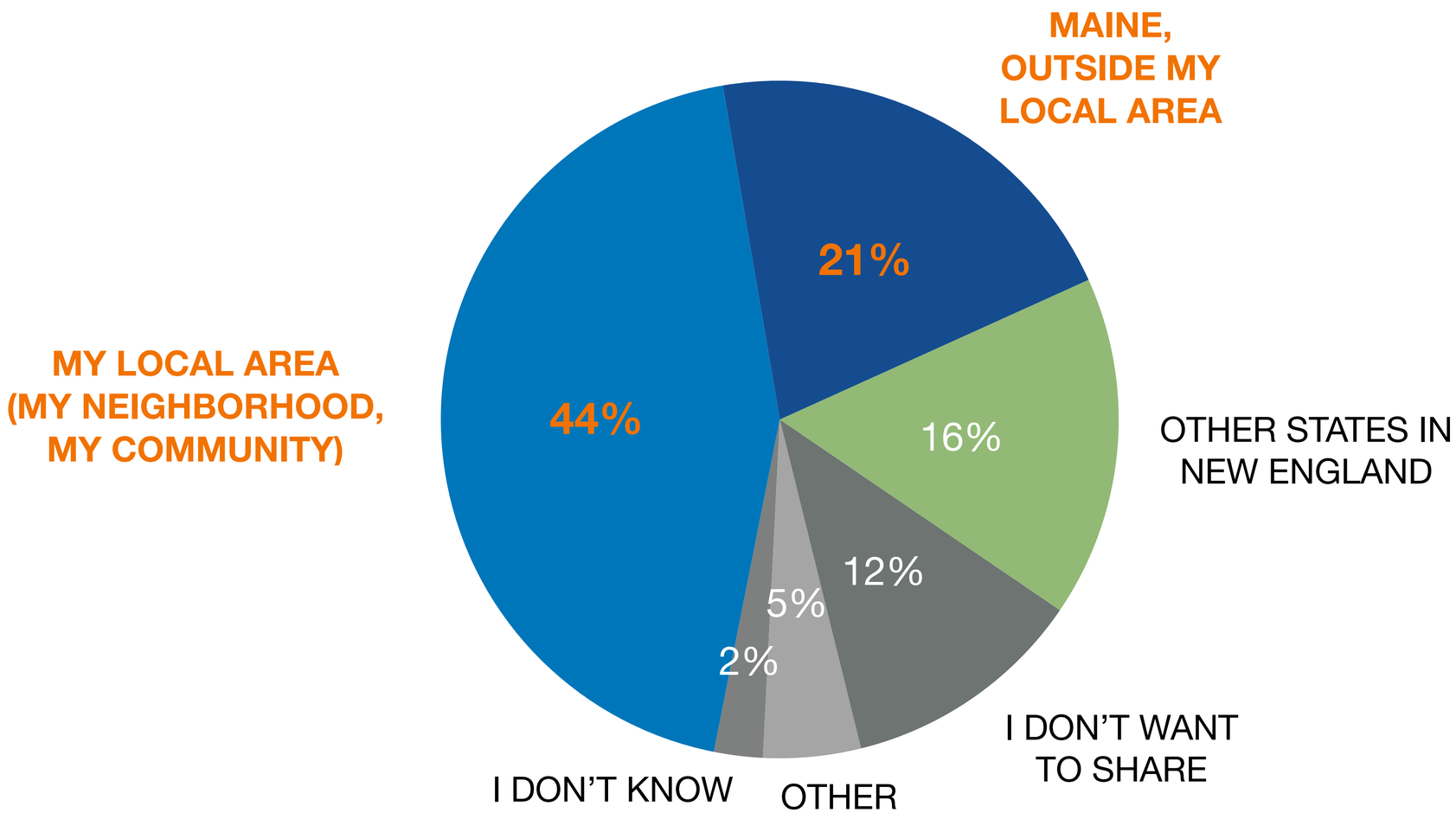
Q: How much money are commercialized small-scale farmers making?

A: Most making <u>less than $15,000 in average annual sales (during COVID-19*)</u>.



Q: In which areas are commercial small-scale farmers selling?

A: Most are selling to <u>buyers in the state of Maine</u>.



IV. Results: Focus Group highlights

COMMERCIALIZATION

✓ LPAs allow for experimentation toward operational expansion

✗ Generating capital to increase production is very challenging

✗ Accessing non-local markets is challenging

✗ Inconsistencies impede business-plan development

SOCIAL LICENCE TO OPERATE

✗ Conflicts with riparian neighbors are a primary concern for those who want to expand

(when public input is enfranchised for larger leases)

LEGAL LICENCE TO OPERATE

✗ Application processes for mariculture leases, especially for larger leases, is frustratingly slow and onerous

V. Conclusions

<u>Is the LPA system working as designed?</u>

Design:

- Attract and retain entrants to small-scale, LTL marine aquaculture in Maine
- Support experimentation, especially with commercialization
- Decrease “SLO” issues

Data indicate that this design is being realized to a significant extent.

Maine’s LPA system exemplifies aspects of sustainable small-scale, low-trophic-level mariculture development.

Outcomes of Maine's small-scale marine aquaculture development

- Effective LTL marine aquaculture training programs
- A boom of successful small-scale ocean farmers
- Informed decision-making about operational expansion
- Most LPA-users are commercialized or want to be

Maine's LTL mariculture system is firmly situated at the small-scale

- **Labor bottleneck at a particular small-scale level**

- Commercial LPAs: Part-time, secondary-income
- Investments and sales >$15,000
- Mostly only local markets

- Expansion concern: Slow lease-application processing
- Expansion concern: SLO conflicts with riparian neighbors

- How can Maine's larger lease processes meet this demand?
- *Where are comparable global locations?*