

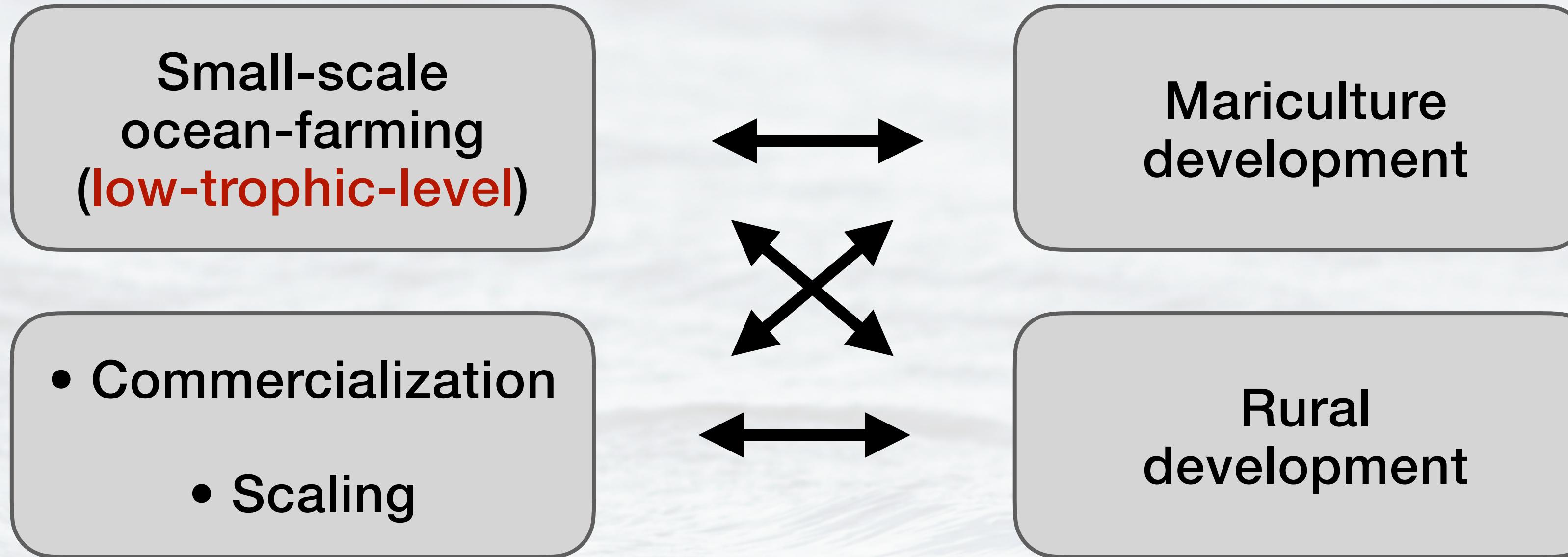


Has the LPA system been successful?

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

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I. Introduction

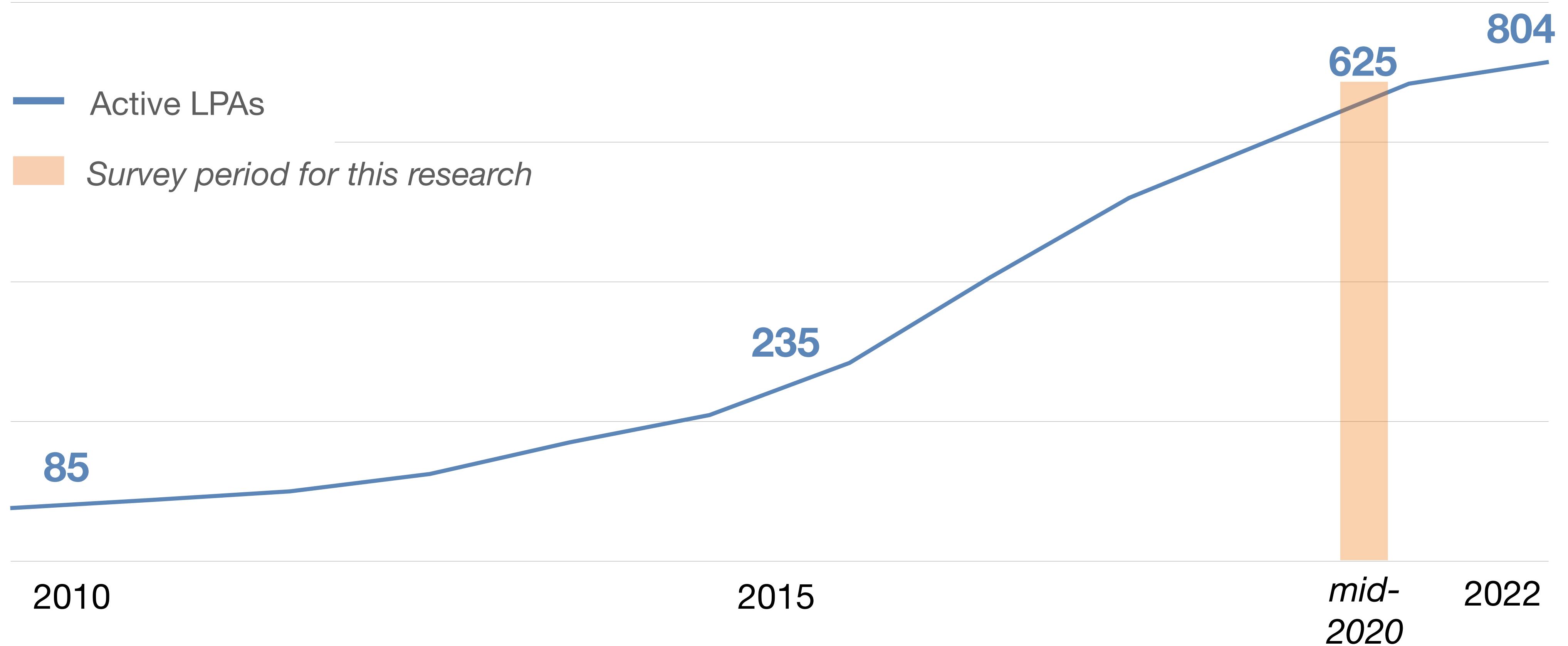


Research location: Maine, USA



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

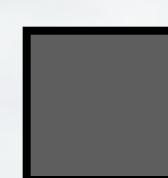
Maine Department of Marine Resources:



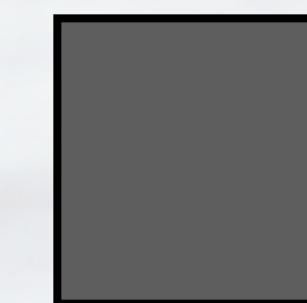
*created in
1999*



*created in
1998*



*created in
1975*



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



Oysters
Marine algae
(seaweeds and kelp)
Scallops
Clams
Mussels
Urchins



Finfish



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

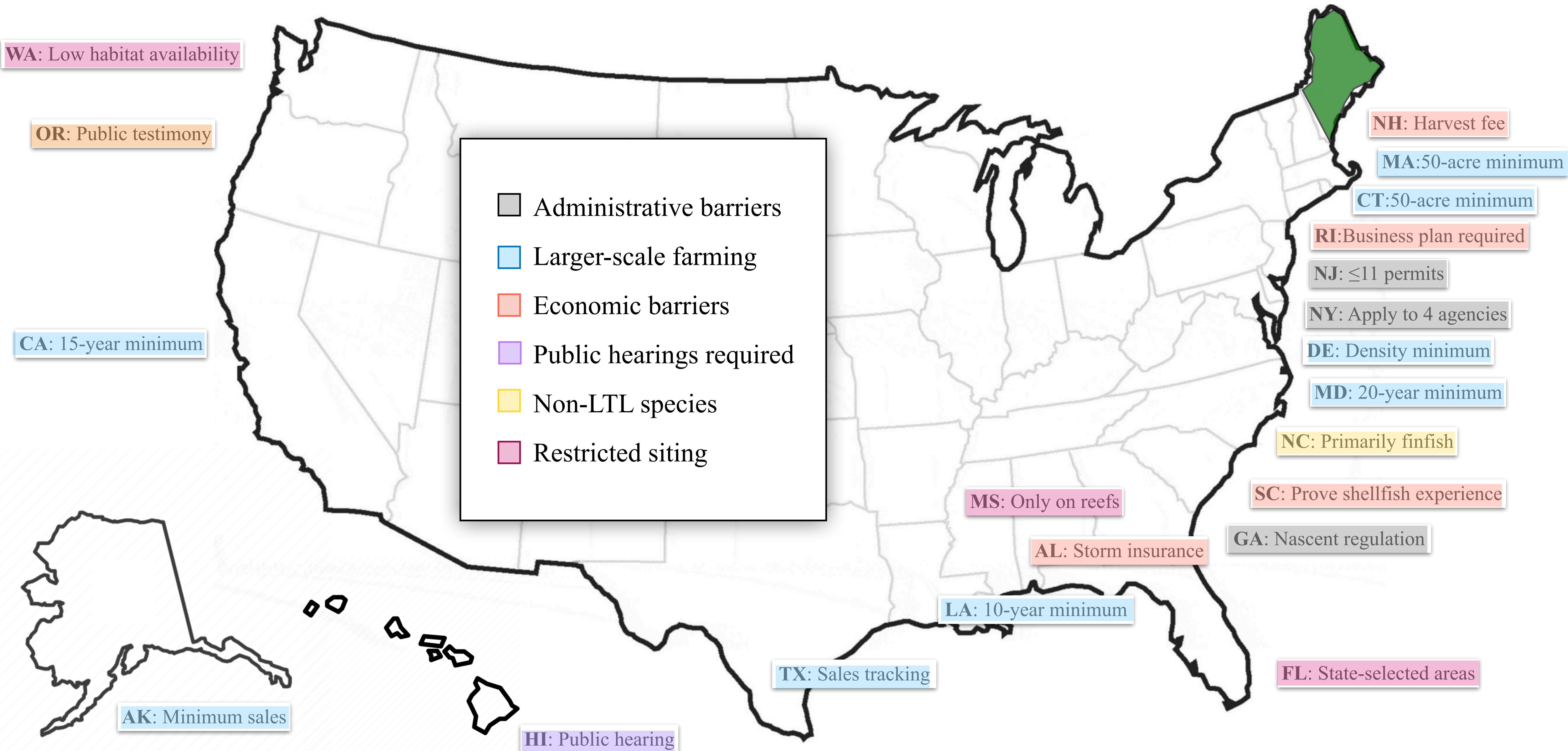
U.S. mariculture leasing outside of Maine

Many required permits /
High acreage minimums /
Detailed economic reporting /
Lengthy permit durations /
Mandated public hearings /

LPAs

Consolidated application
Small-scale, low-trophic-level experimentation
Minimal reporting
1-year duration
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

n = 74

29% response rate

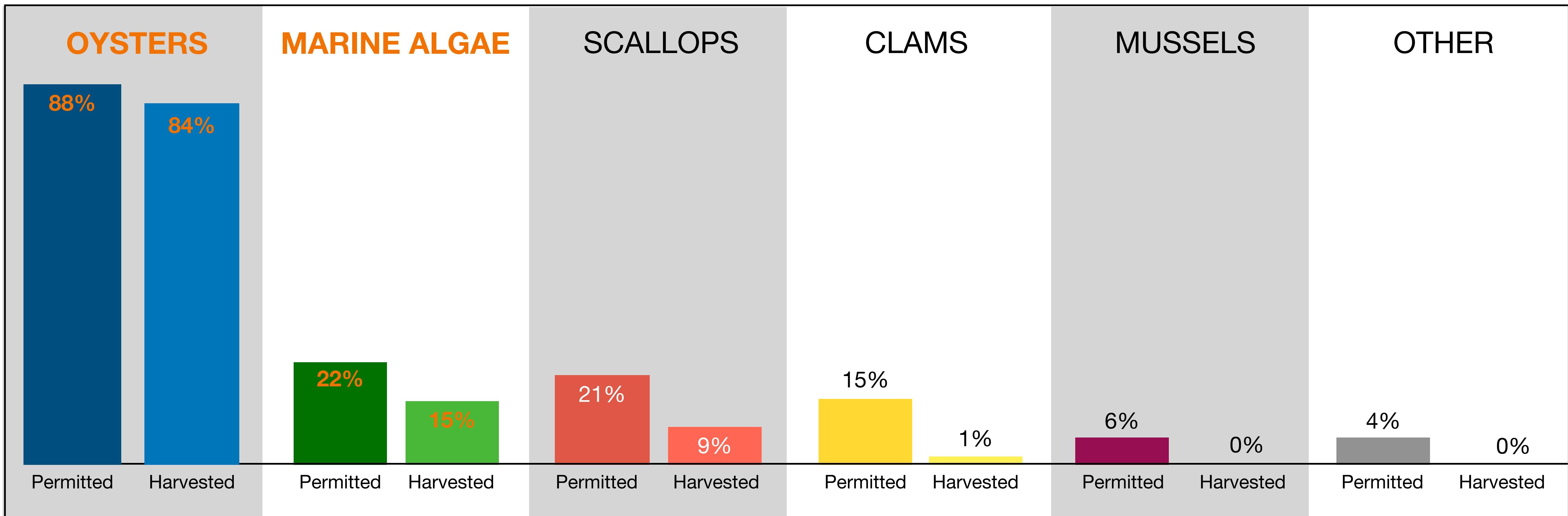
Focus Group

n = 7

Q: What are small-scale farmers growing?

A: Primarily oysters, followed by marine algae.

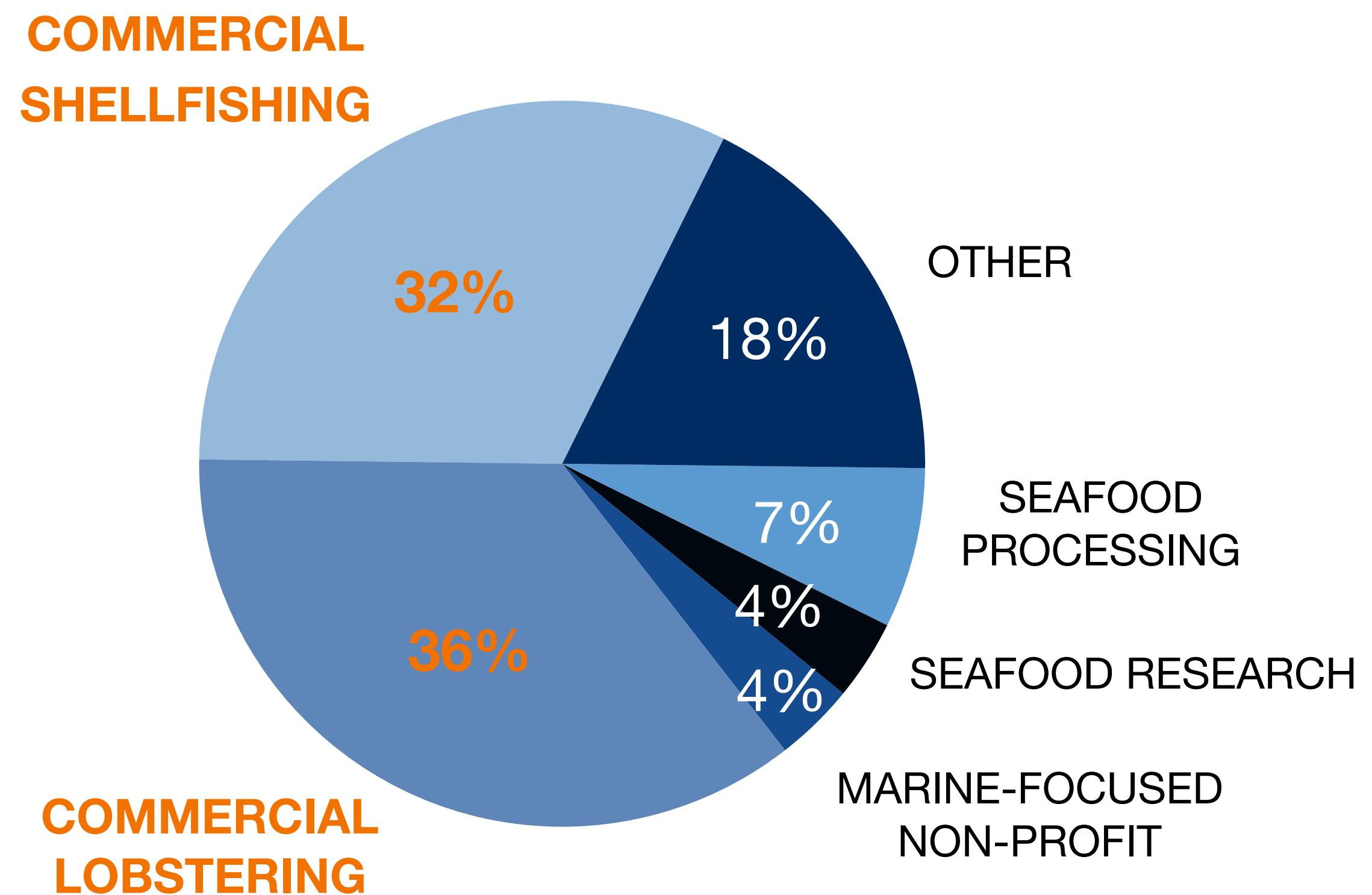
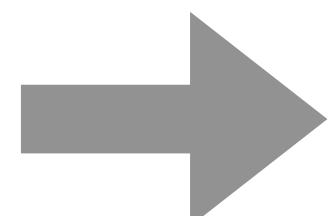
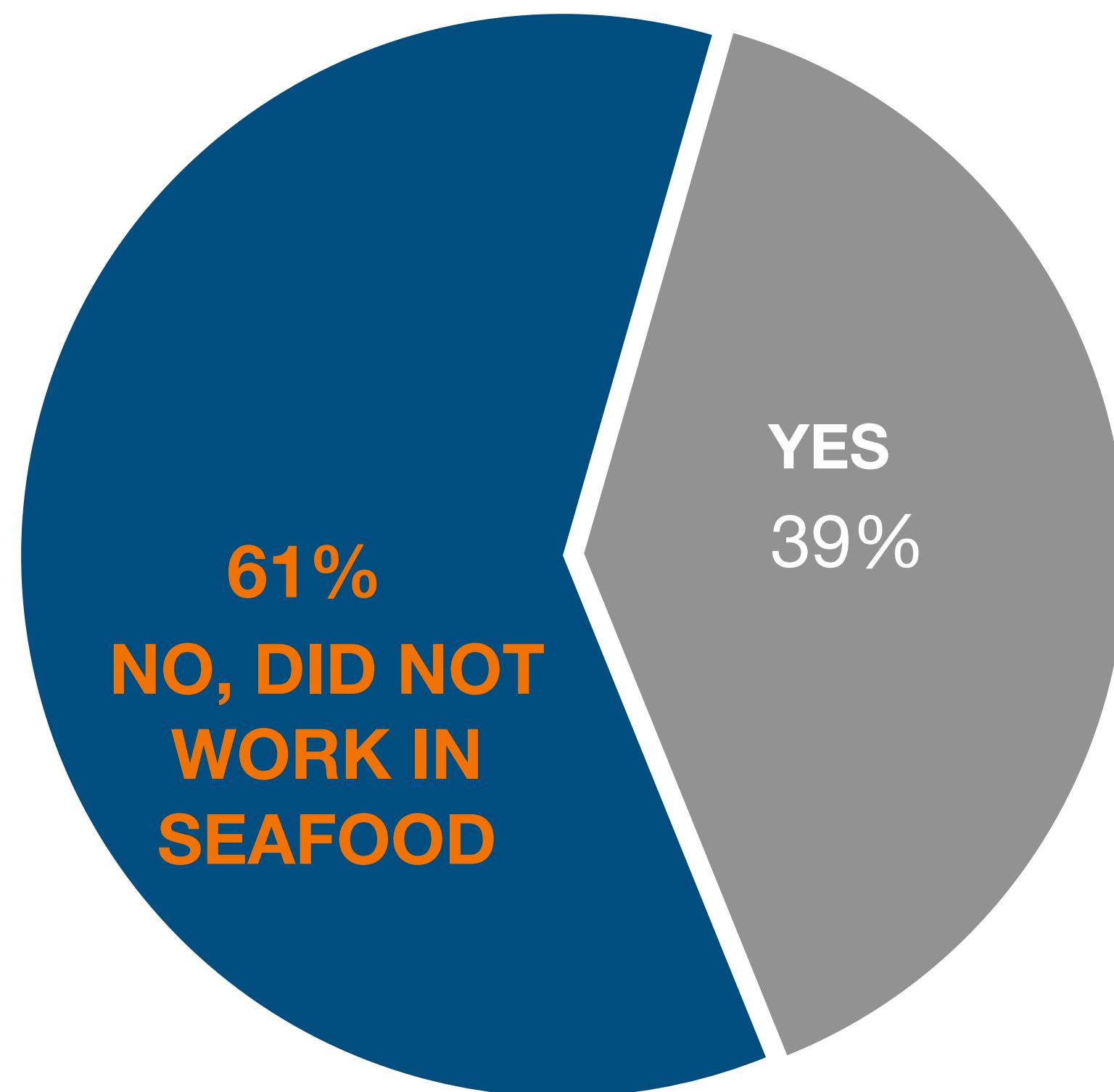
Users don't harvest all organisms for which they are permitted.



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

A: More than half are new to working in seafood.

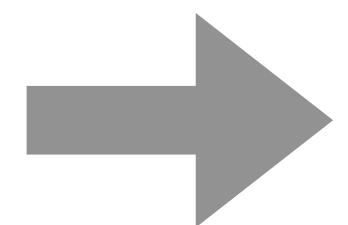
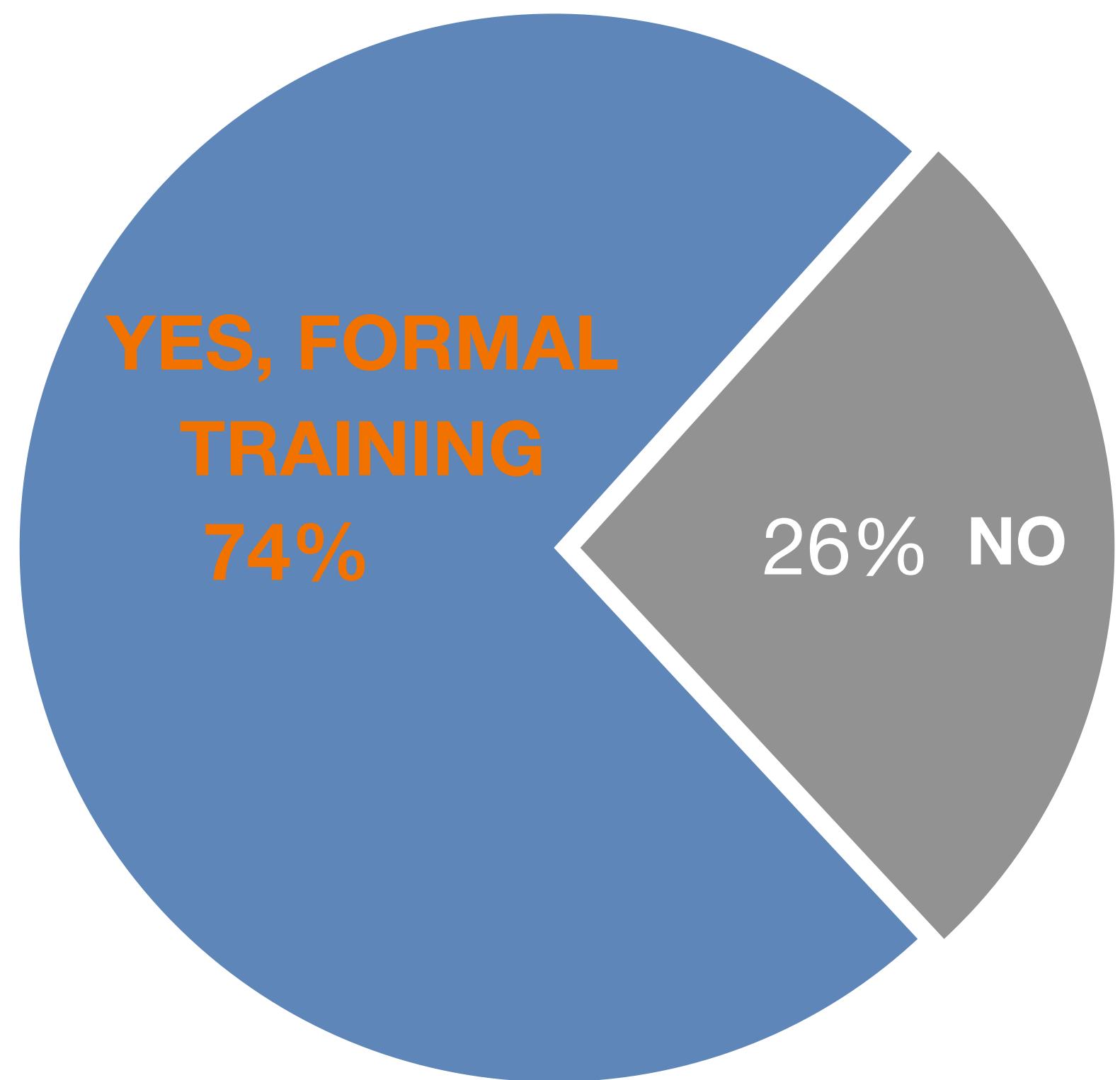
Many lobster and shellfish fishers are LPA-users.



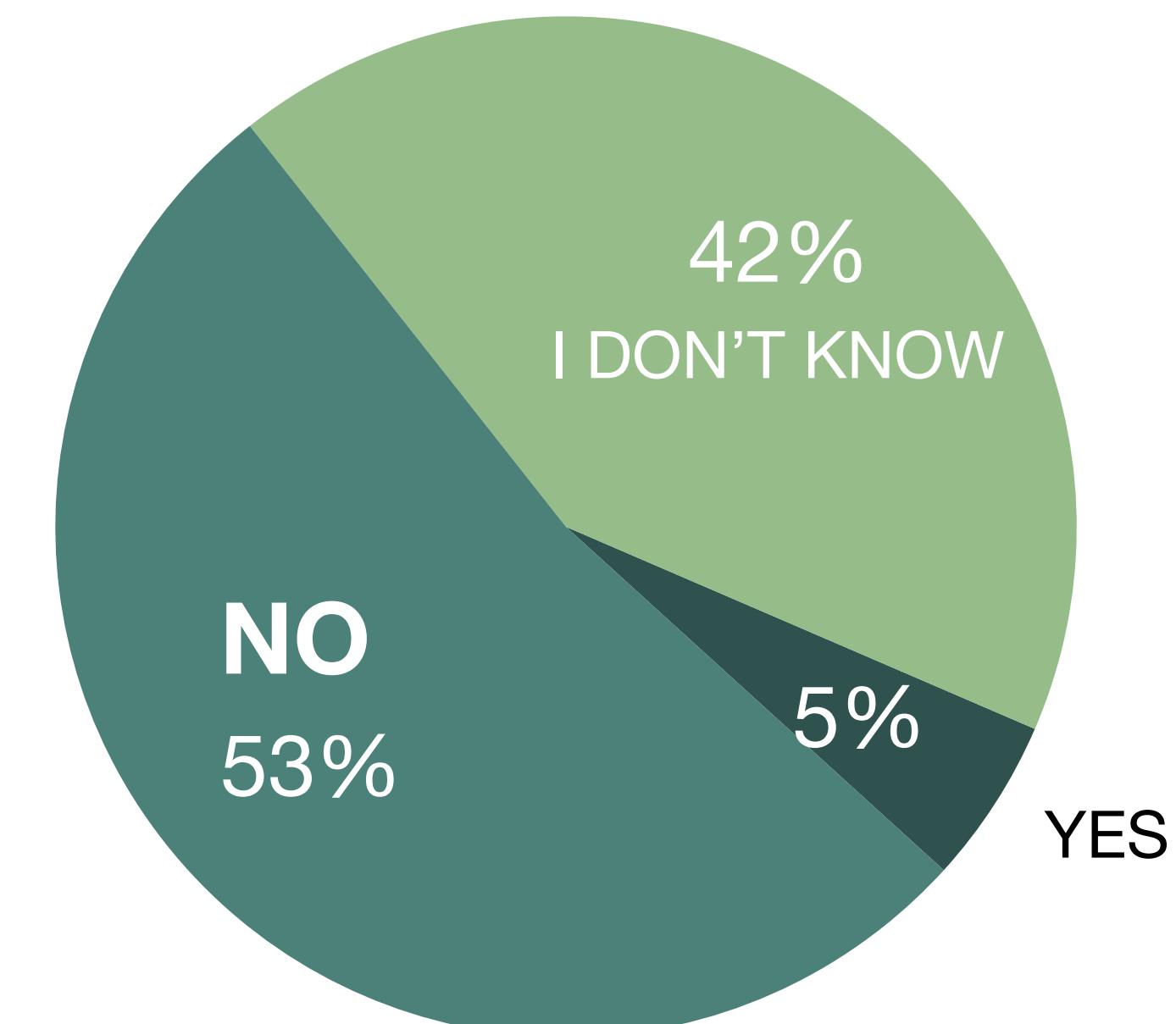
Q: Did small-scale farmers receive formal aquaculture training?

A: Most were formally trained (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: Most farmers have > 1 LPA license. Half have 3 or 4.

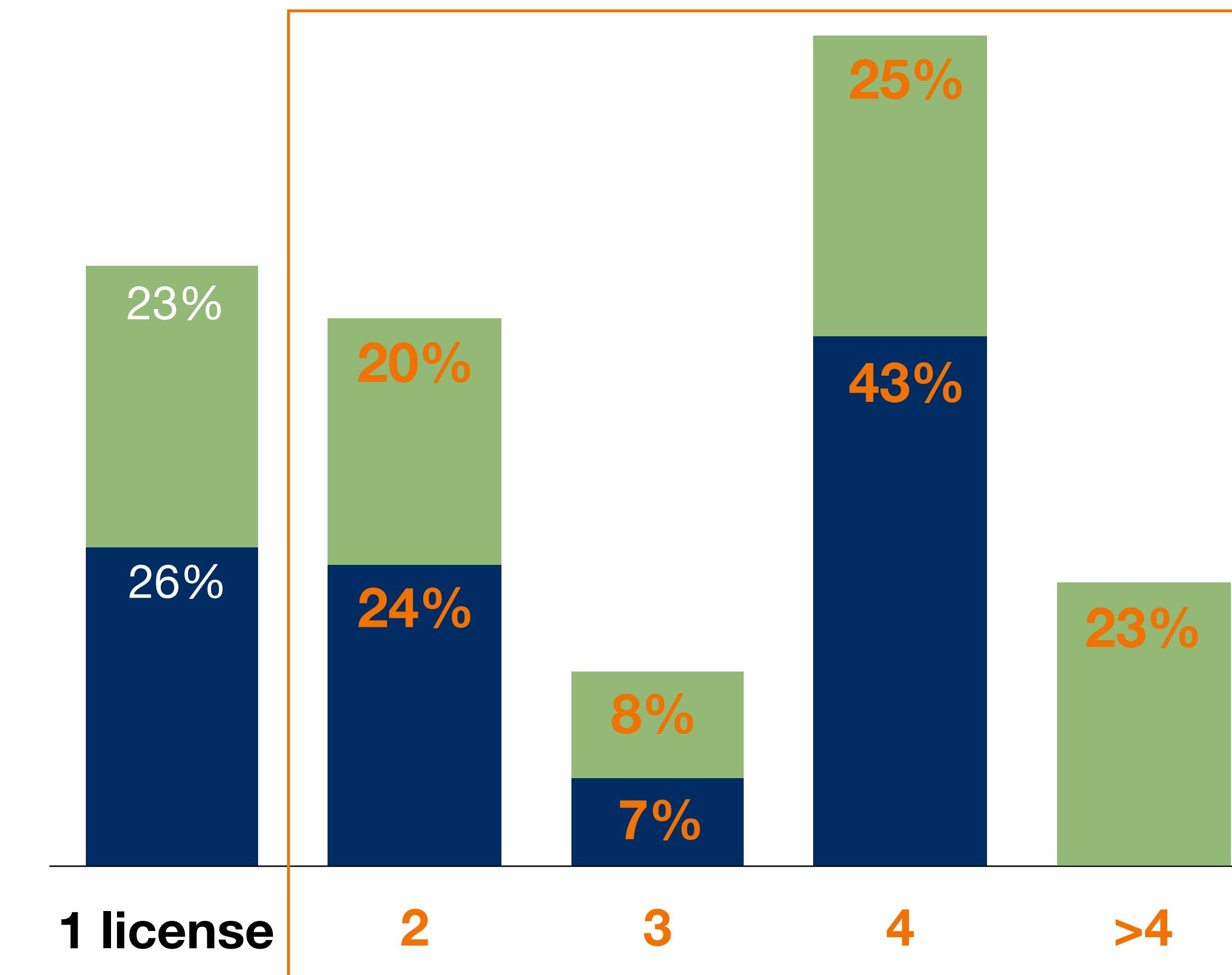
Some farmers work regularly on >4 LPAs.



“How many LPAs do you regularly work on?”

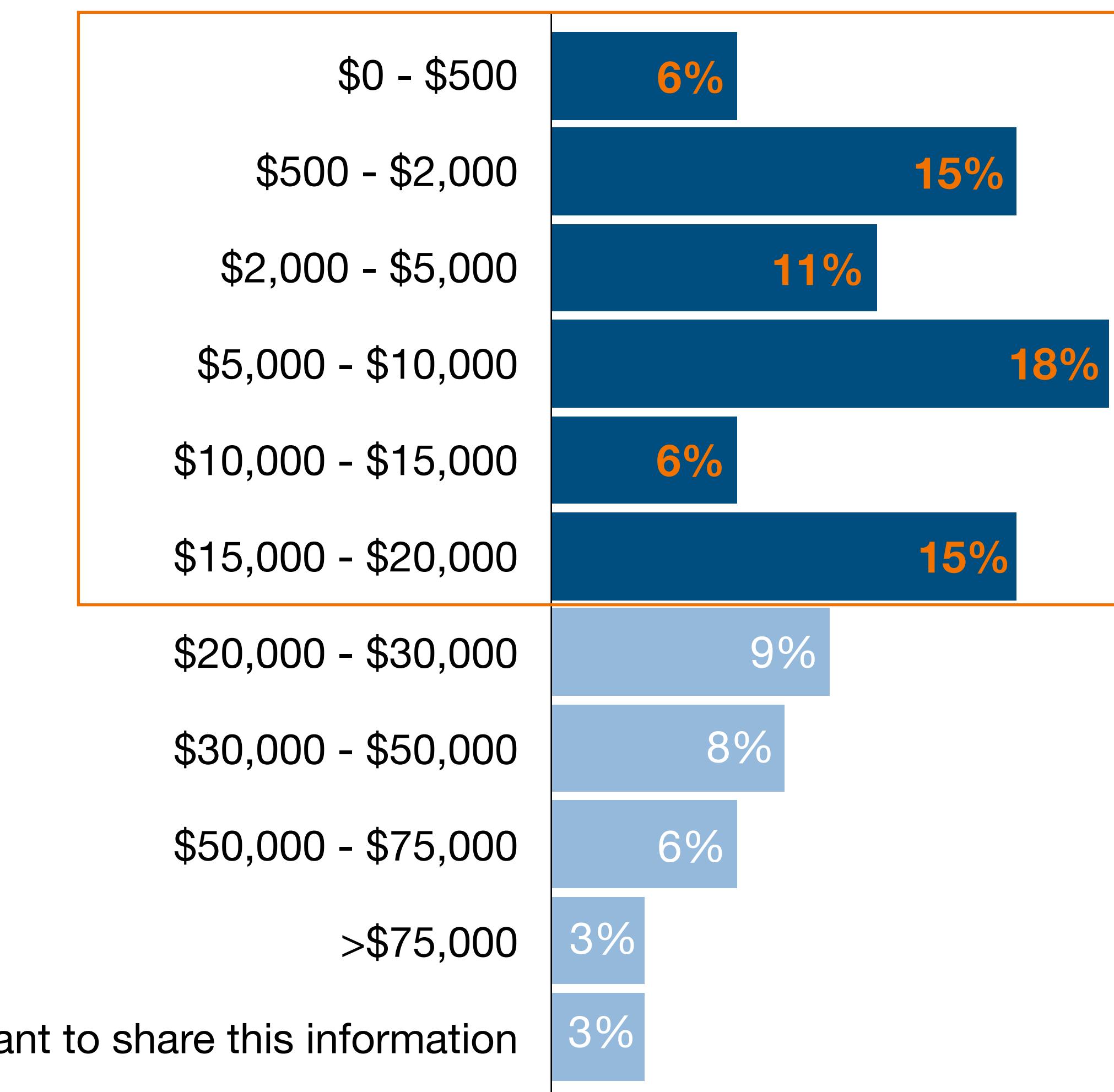


“How many LPAs are you licensed to operate?”



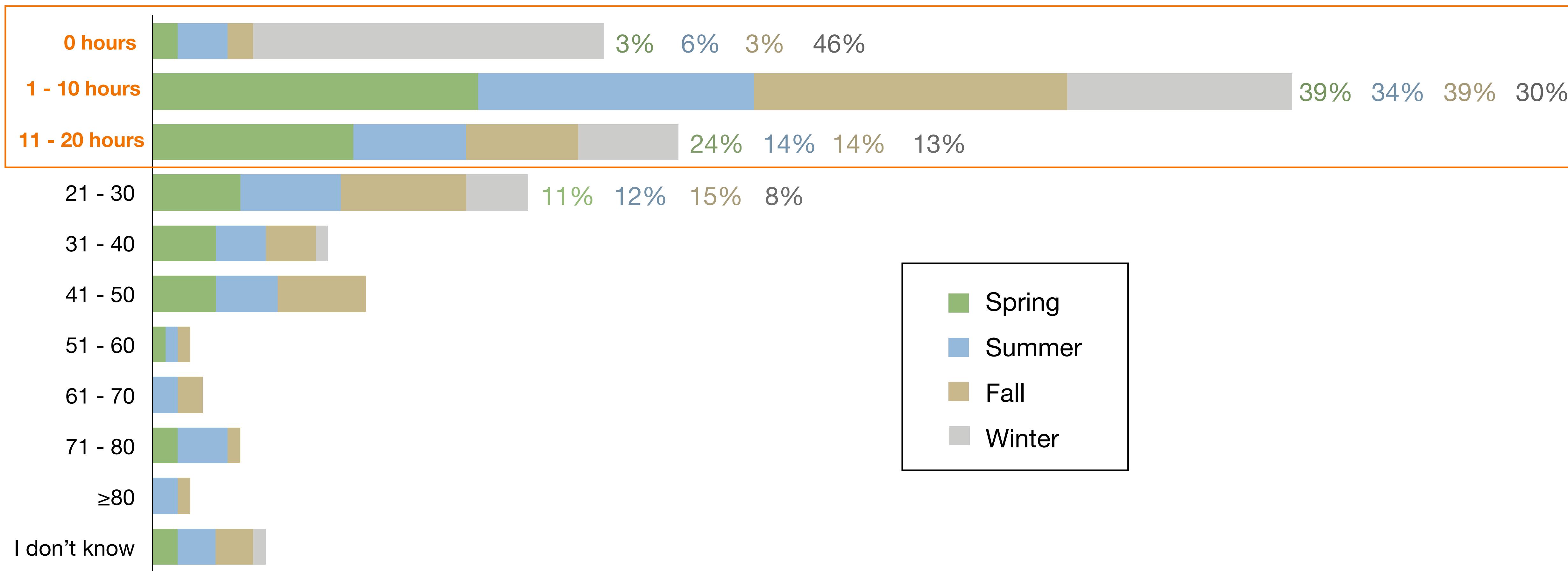
Q: How much money are small-scale farmers investing in their LPAs?

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



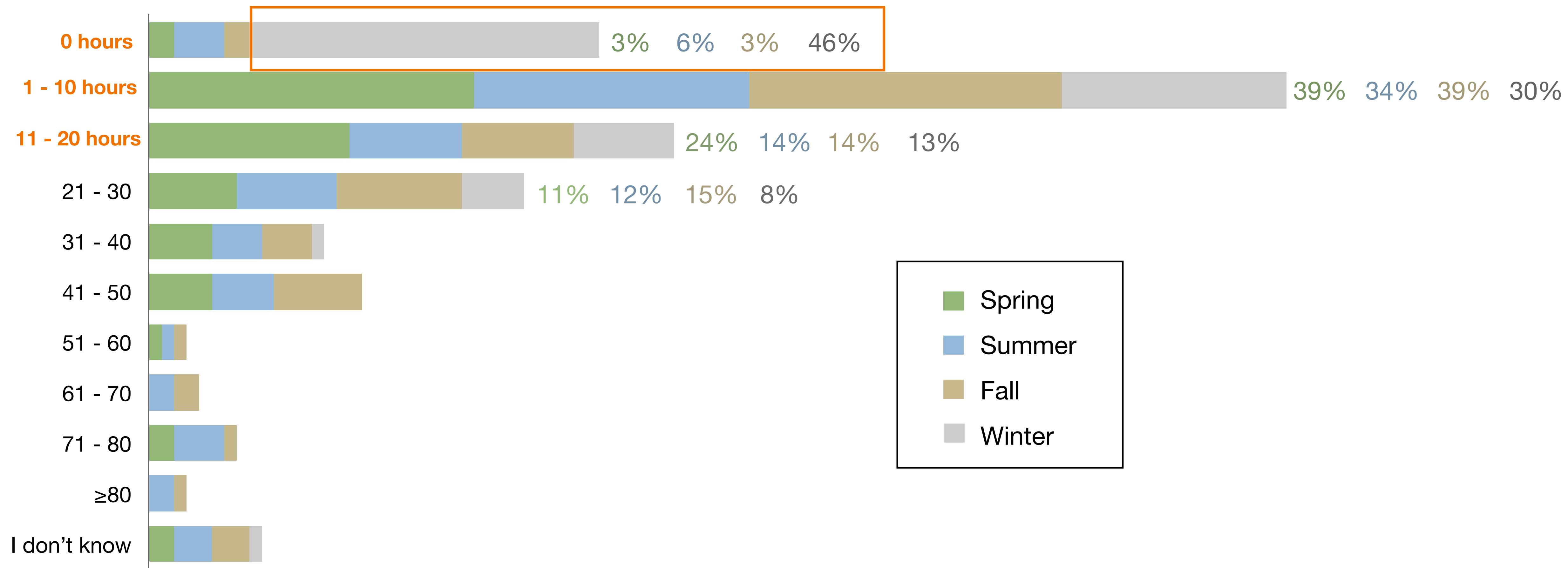
Q: How many hours, and during which seasons, are LPA-users working per week?

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



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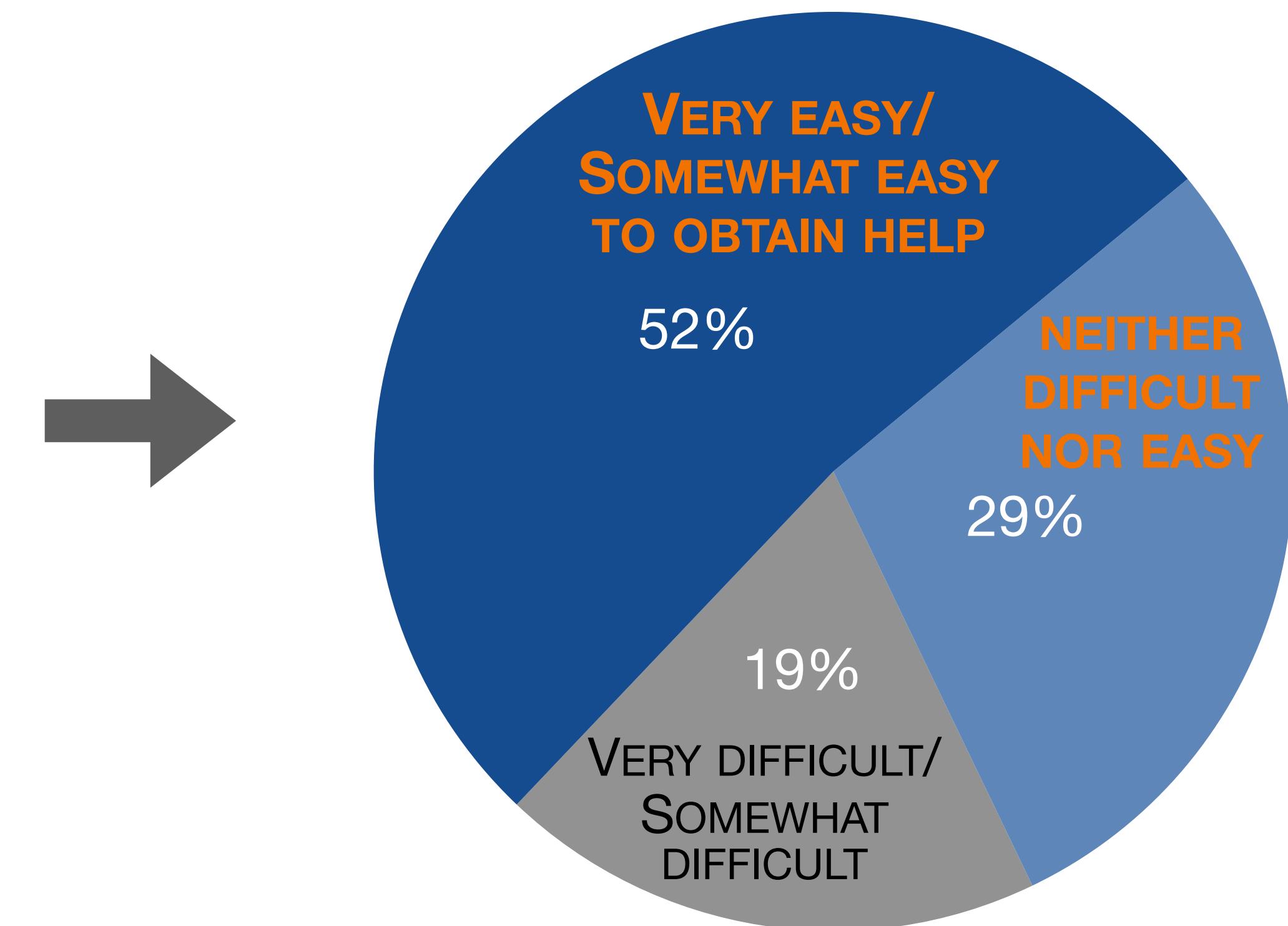
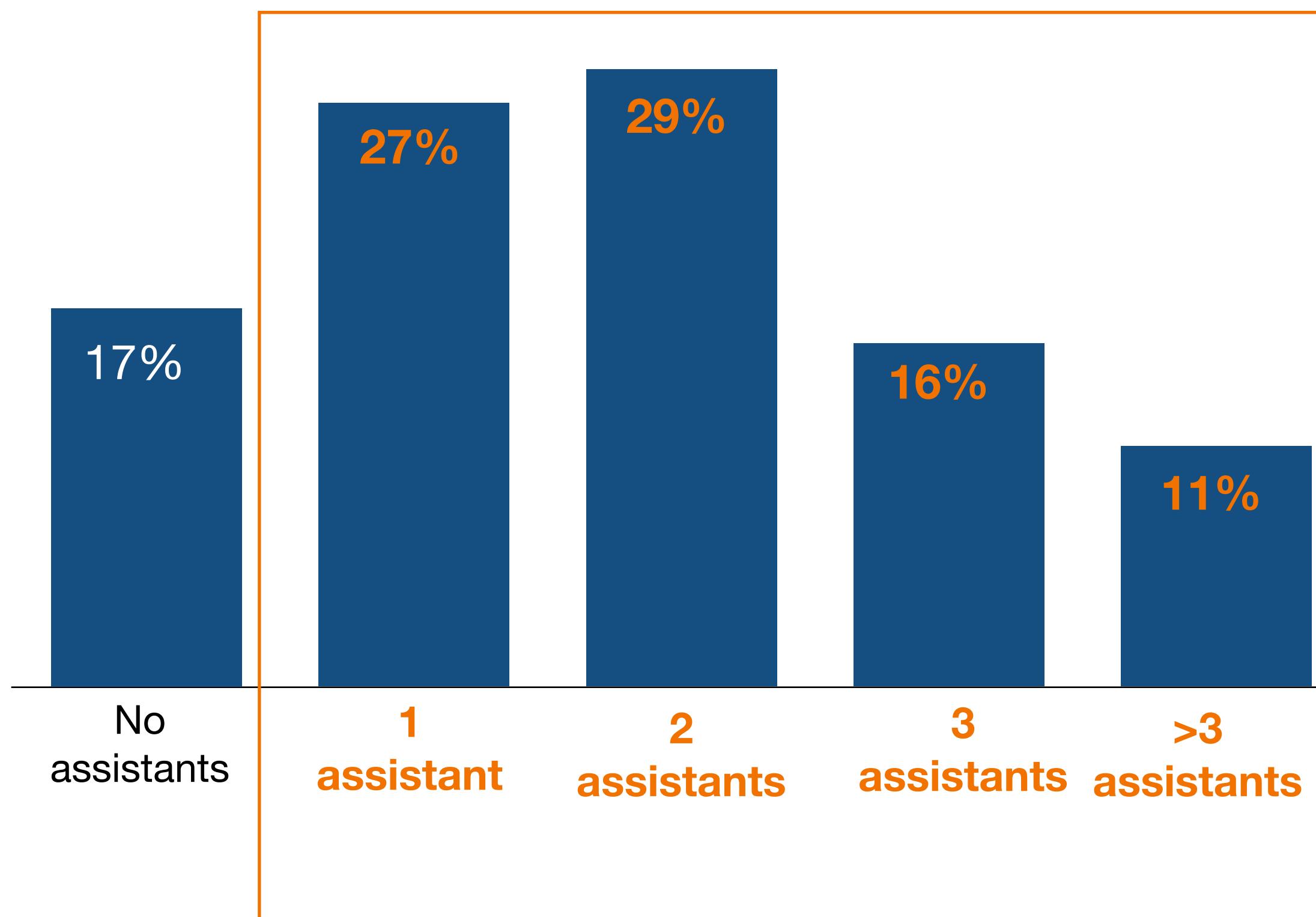


Q: Are small-scale farmers working alone or with assistants?

A: Most work with assistants.

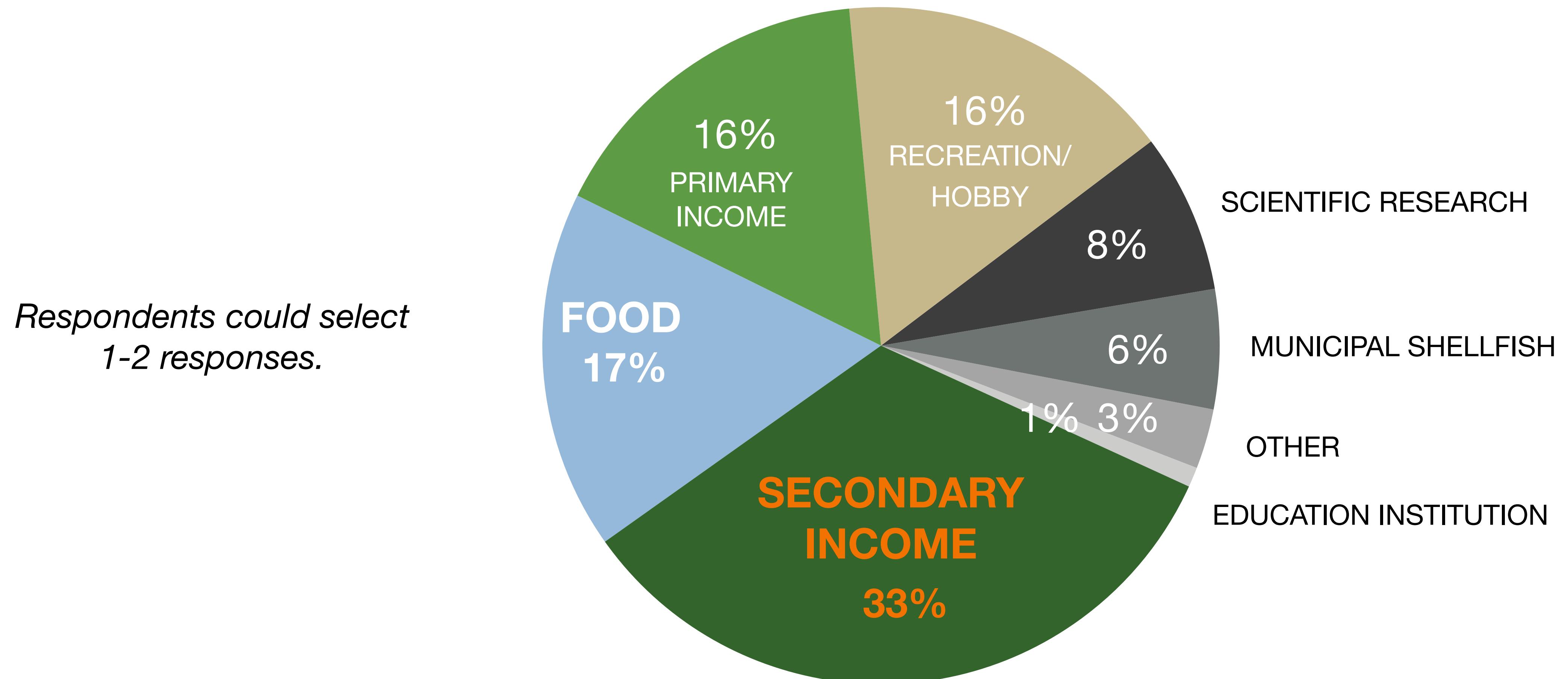
Assistant labor is not difficult to obtain.

“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?

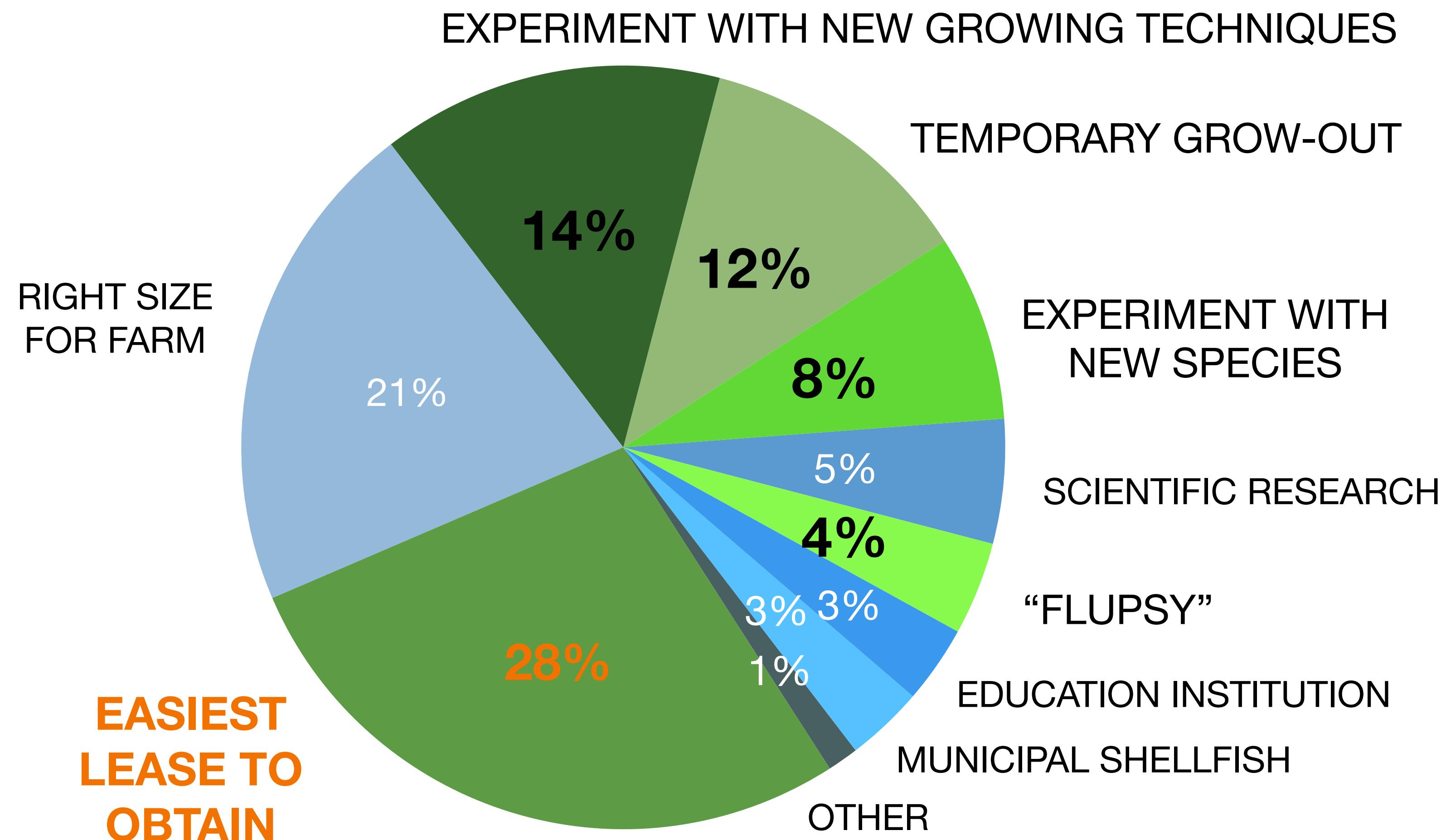
A: 33% use LPAs for secondary income, 17% for food.



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

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

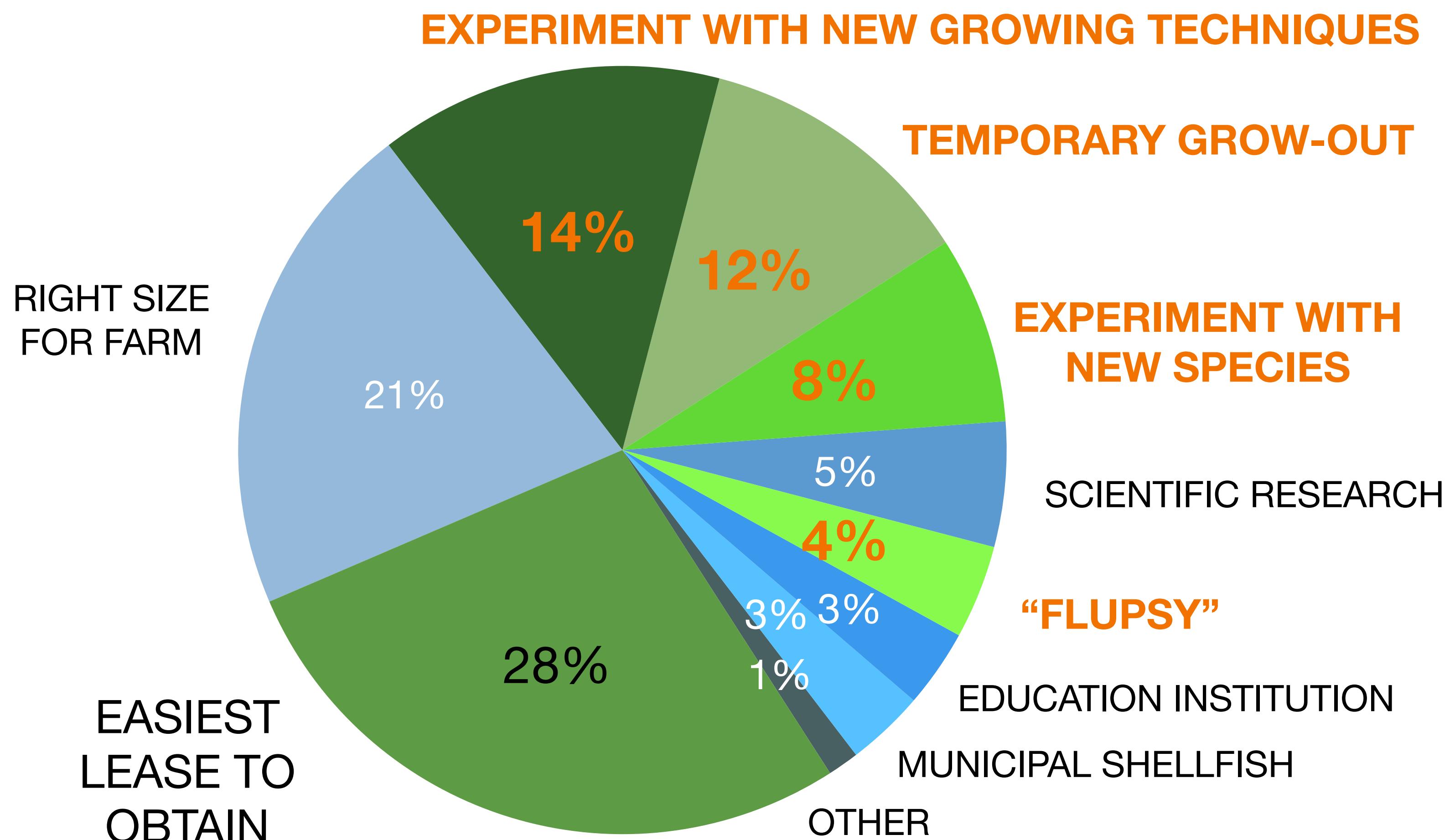
38% chose the LPA for reasons likely related to larger leases.



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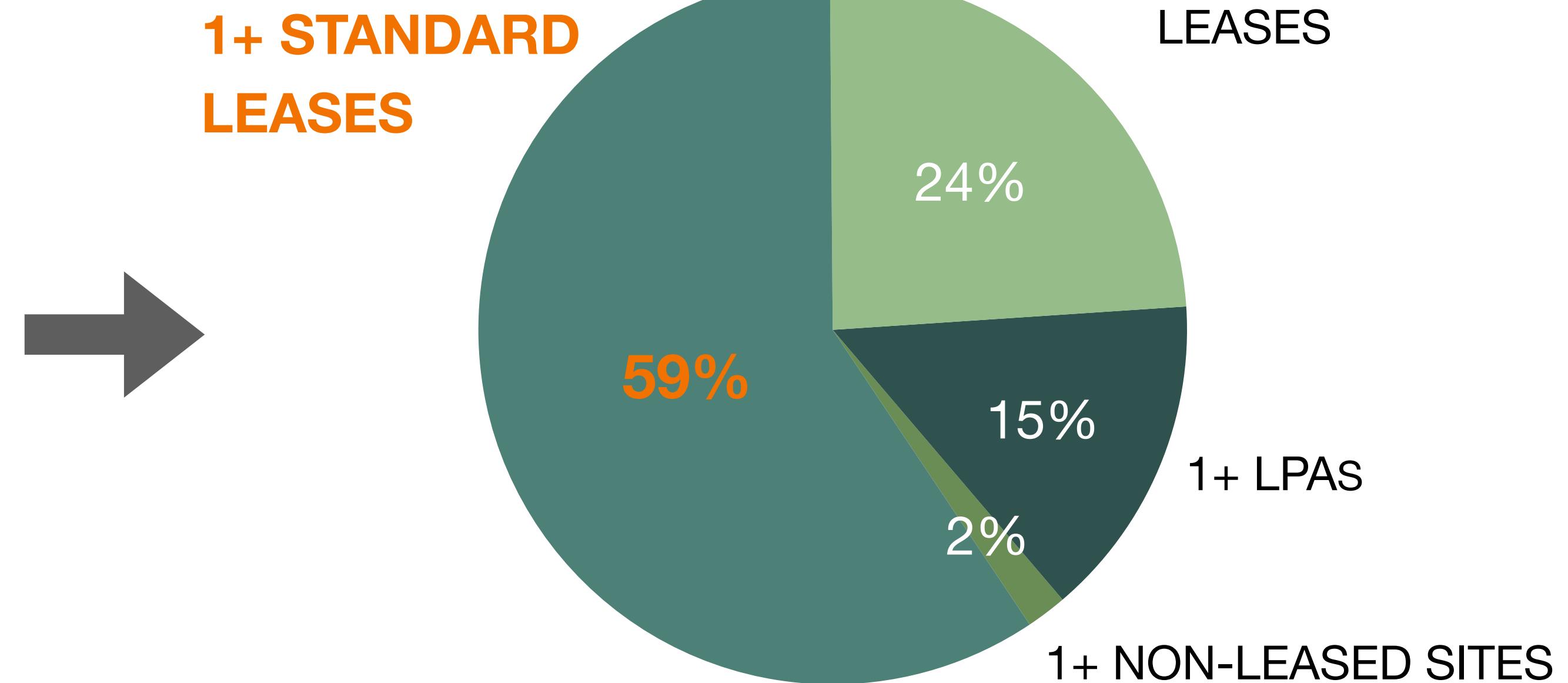
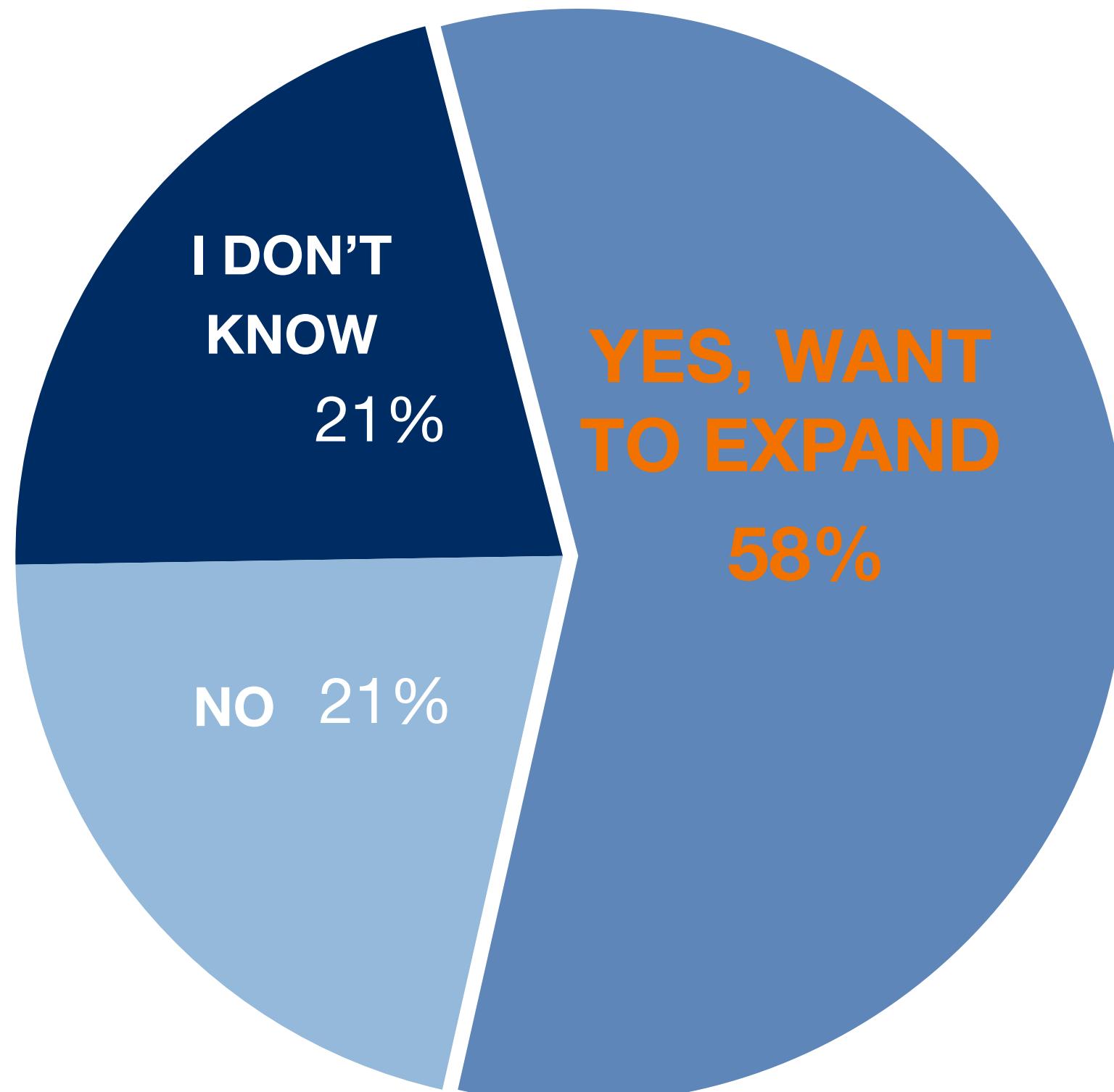
38% chose the LPA for reasons likely related to larger leases.



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

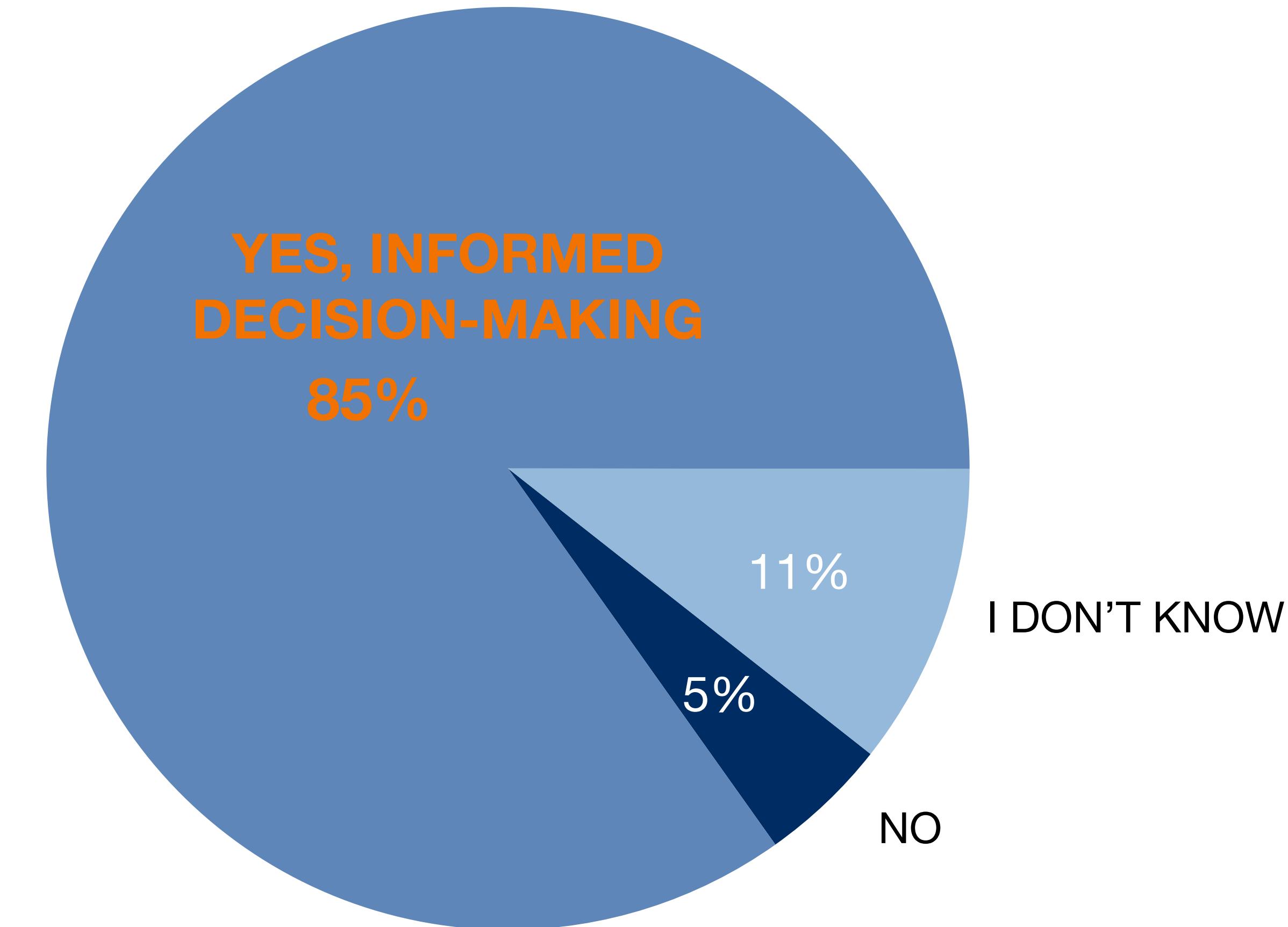
A: Most want to expand.

Most want to obtain 1+ Standard Lease sites.



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

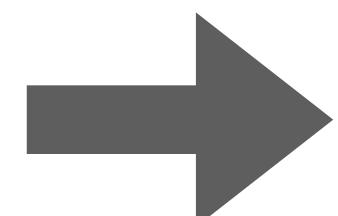
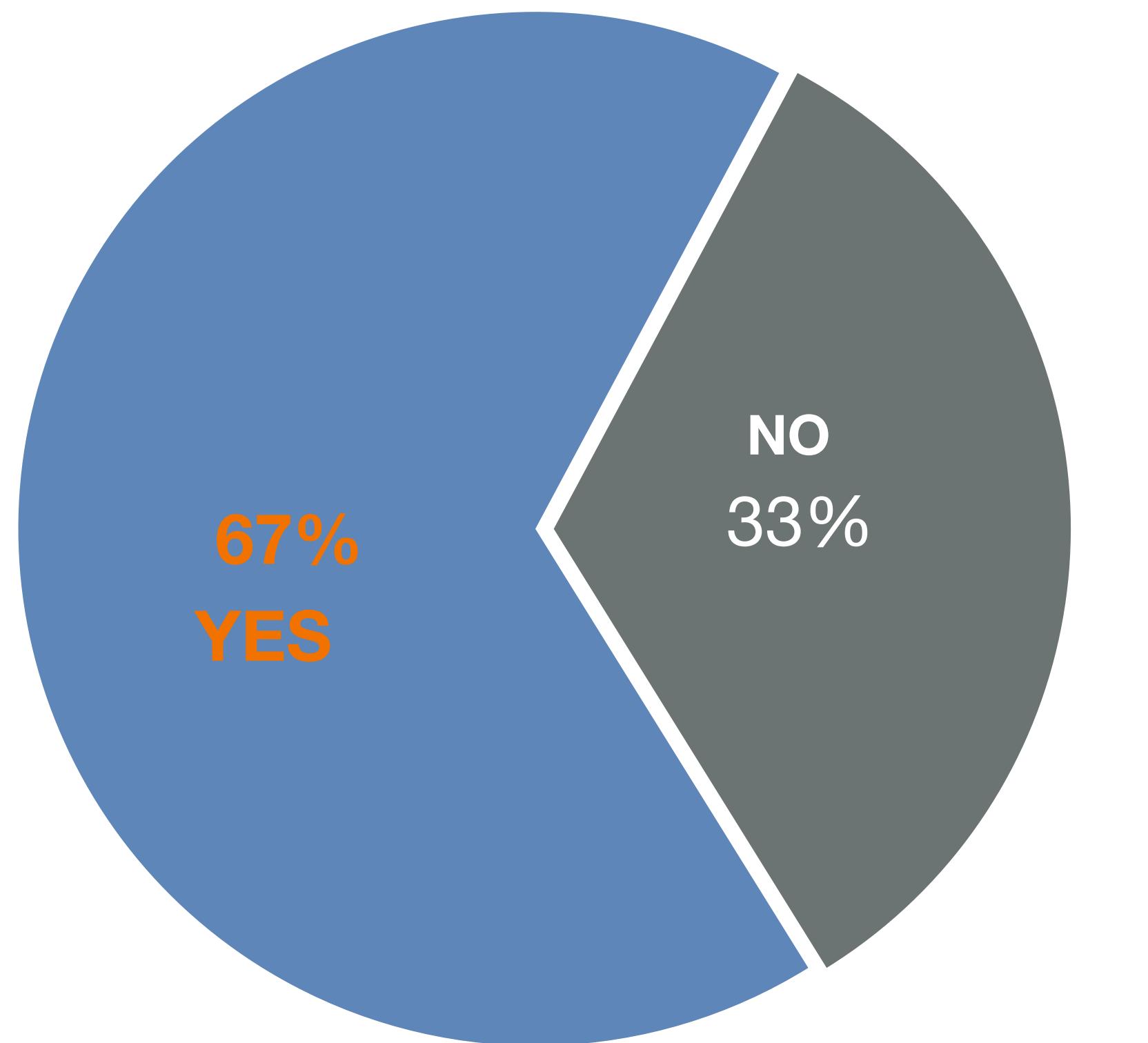
A: Most feel their LPA experience gives enough information for informed decision-making.



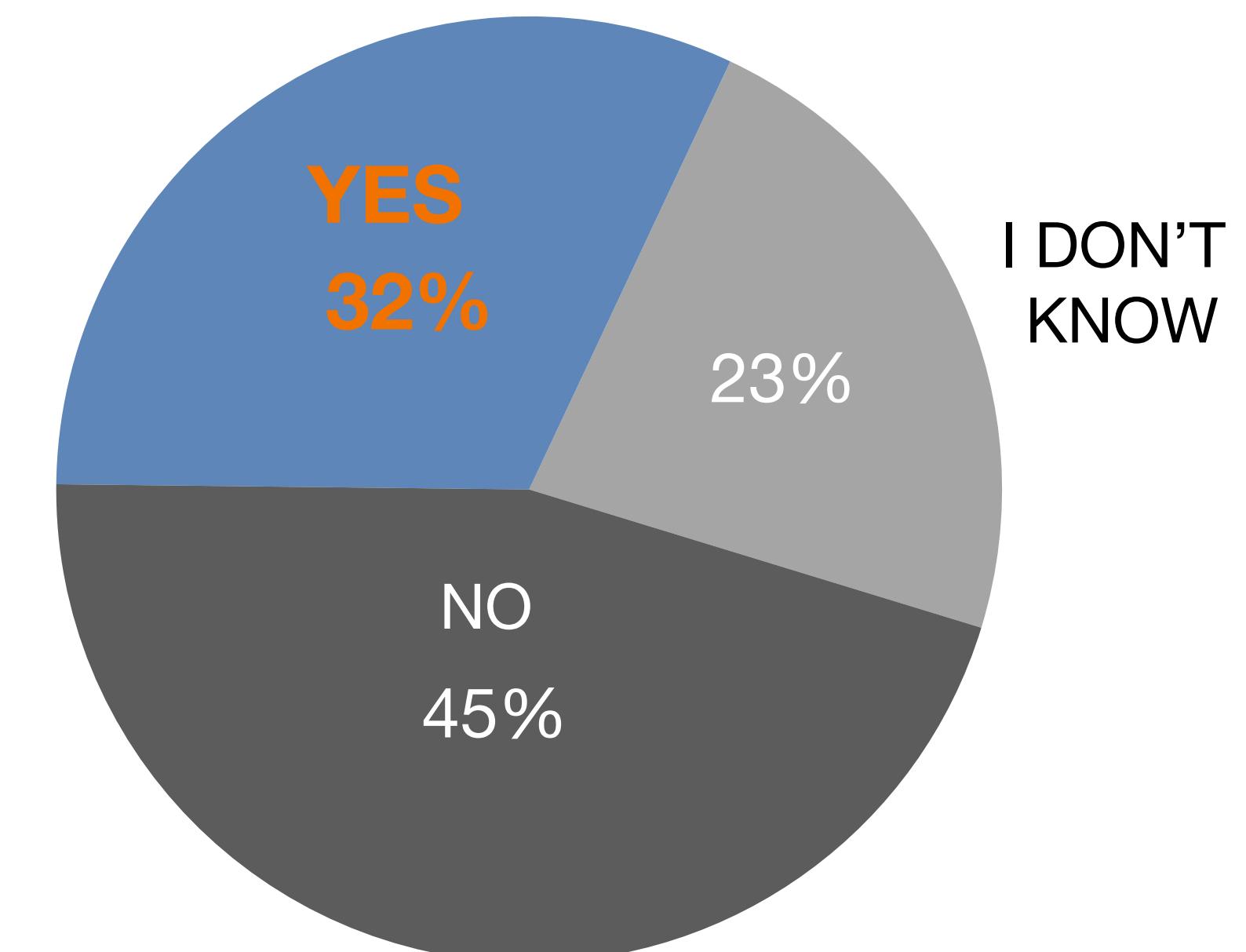
Q: Are small-scale farmers selling their products?

A: Most are commercialized.

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

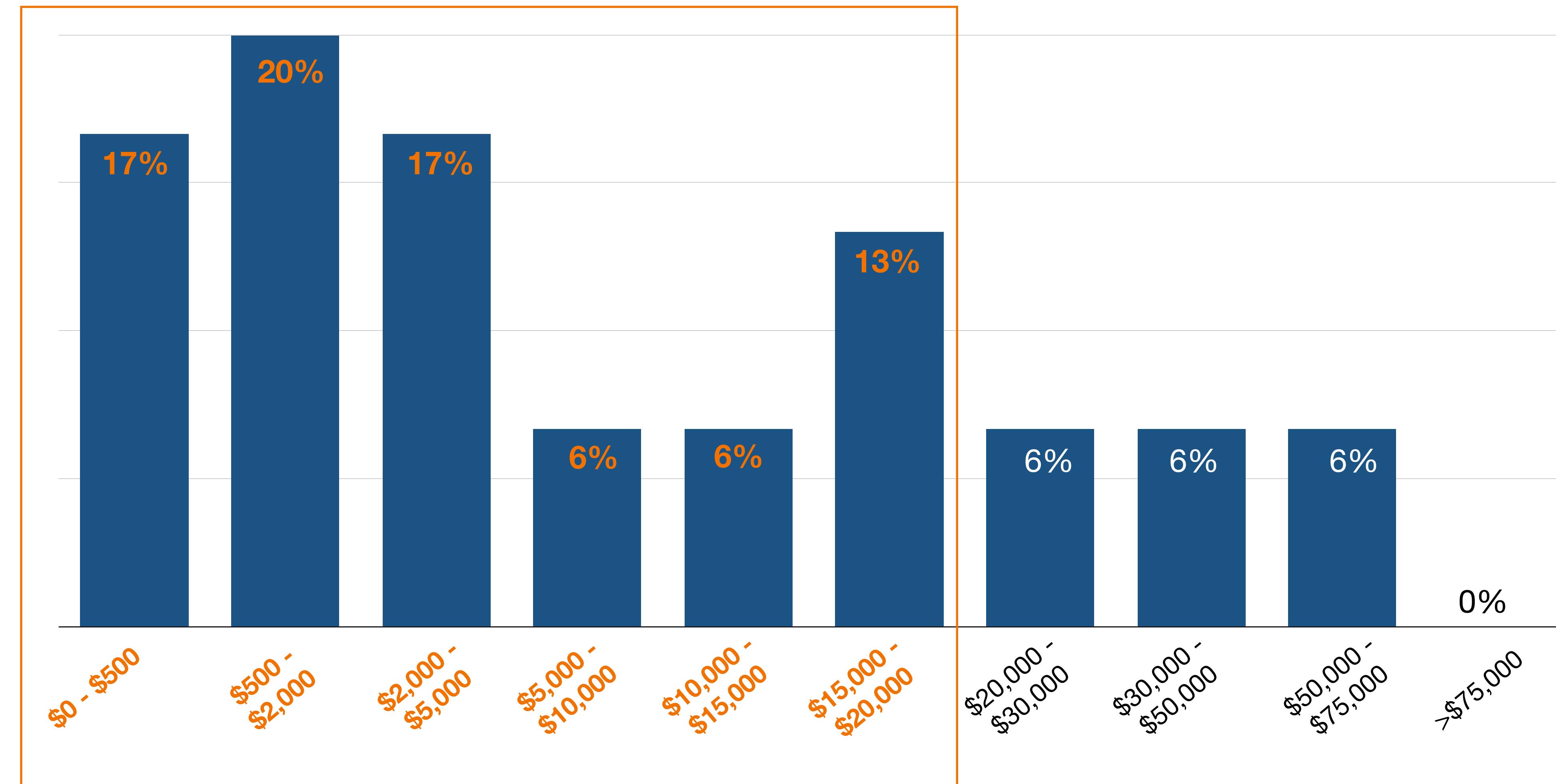


"Do you want to sell product(s) that you grow on your LPA(s)?"



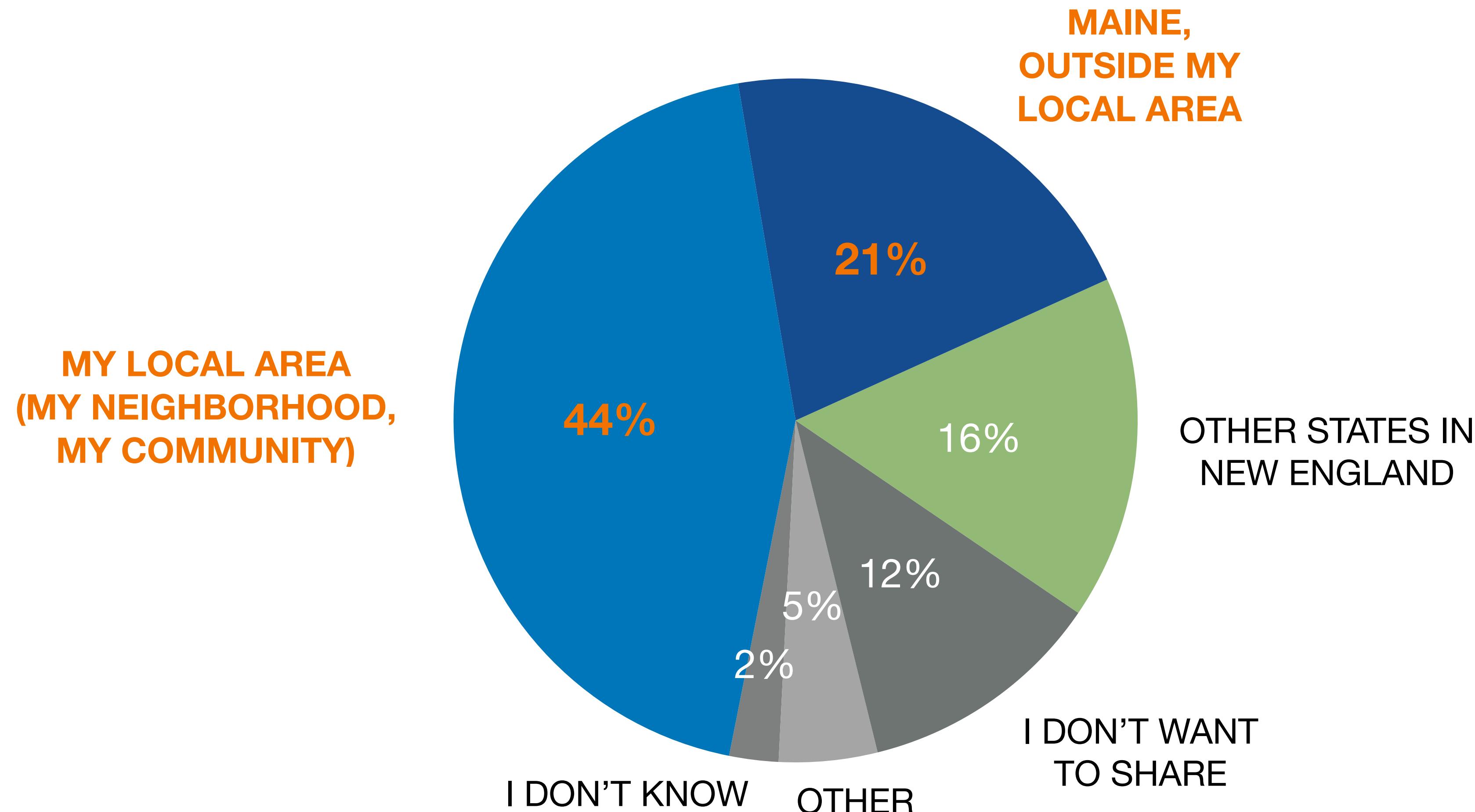
Q: How much money are commercialized small-scale farmers making?

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



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

A: Most are selling to buyers in the state of Maine.



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

Is the LPA system working as designed?

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?*