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AGRICULTURE AND
NATURAL RESOURCE
ECONOMICS PROGRAM

Specialty Crop Growers' Perception of Best Management Practices Costs and Benefits

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Introduction

- Agriculture plays an important role in sustaining and improving Florida's natural resources

- We can increase this role by:
  1. Measuring the economic value of the services growers provide
  2. Implementing policies that reward agricultural stewardship

We can achieve this by examining factors that affect how growers make decisions to use conservation practices

Economist's Role:

- Economists help manage scarce resources
- Economists care about factors affecting choices:
  - Too expensive?
  - A need for more education?
  - Too time consuming?
  - Lack of interest?
  - Other factors…

Introduction

Agricultural best management practices (BMPs) are essential to mitigating agriculture's effects on the environment

Practices must be economically feasible if growers are going to adopt

Public benefits

- Sustained or improved water quality
- Sustained or increased water quantity
- Reduced soil erosion
- Improved air quality

Potential private benefits

- Improved crop yield
- Improved soil health
- Reduced input costs (e.g., fuel, labor, and fertilizer)

Knowledge Gaps in Best Management Practices (BMPs) Implementation

Growers provide a public service by absorbing the cost of implementing BMPs

- ***Information Gaps*:**
  - What are the full suite of costs and benefits?
  - Do benefits from BMPs outweigh the costs?
  - How do BMPs affect producers' bottom line?
  - Does the public benefit outweigh the grower benefit?
  - Do cost-share programs provide enough incentives to increase BMP use?
  - How do we communicate the financial benefits of BMP use to growers?
  - Who should be paying for BMP implementation?

More information is needed before we can have a conversation about who should be paying for BMP adoption and how to improve programs designs.

Florida BMP Adoption & Cost Survey

Primary Goal:

To better understand the burden placed on growers

We conducted a statewide grower survey to:

- **Identify which commodity groups are adopting certain BMPs**
- **Understand some of the challenges to adoption**
- **Obtain growers' perspectives on the additional cost of adoption**
- **Obtain growers' perspectives on the effect on yield**

These are the first steps to capture the cost of BMP adoption and document the services growers provide

Florida BMP
Adoption and Cost Survey

Core BMPs examined:

- ✓ Controlled release fertilizer
- ✓ Calibrate fertilizer equipment
- ✓ Cover crops
- ✓ Irrigation scheduling tools

Core BMPs questions:

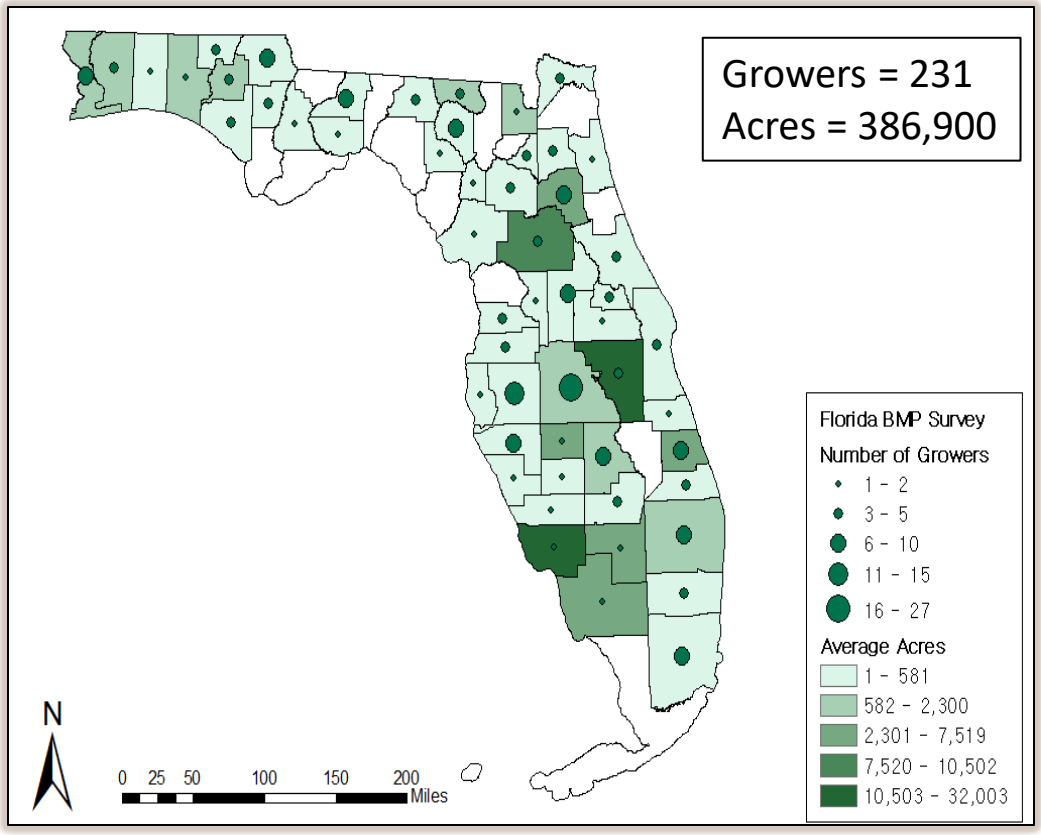
- ✓ Crop acres
- ✓ Additional cost
- ✓ Years used
- ✓ Change in yield

Other BMPs:

- ✓ Keep record of nutrient applications
- ✓ Apply fertilizer base on soil / tissue tests
- ✓ IFAS recommended fertilizer rates
- ✓ Apply fertilizer just before seeding
- ✓ Apply fertilizer at root zone
- ✓ Use soil test for second crop
- ✓ Drip irrigation
- ✓ Do not irrigate beyond field capacity
- ✓ Conservation tillage
- ✓ Conservation buffer

Survey Methods and Data Description

Grower Distribution for All Crops



Notes

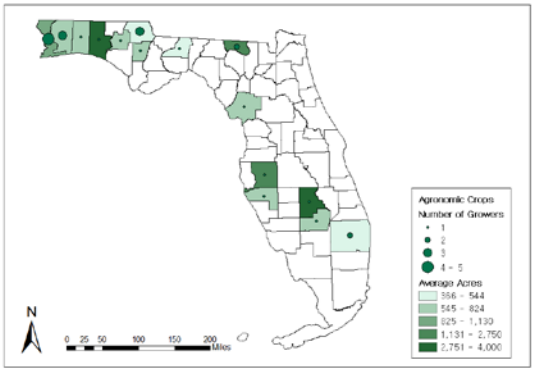
- Usable Surveys: 160
- *Second crop data are treated as separate responses*
  - Growers with secondary crop: 80
- Livestock or unreliable: 9
- **Total usable: 231**
  - ❖ Total Acres: 386,900
  - ❖ Mean Acres: 1,675
  - ❖ Median Acres: 200
  - ❖ Crops: **Citrus, Agronomic Crops, Vegetables**, Forage, Other Crops

Survey Methods and Data Description

Agronomic crops:

- Growers: 25
- Total Acres: 30,104
- Mean: 1,204
- Median: 750

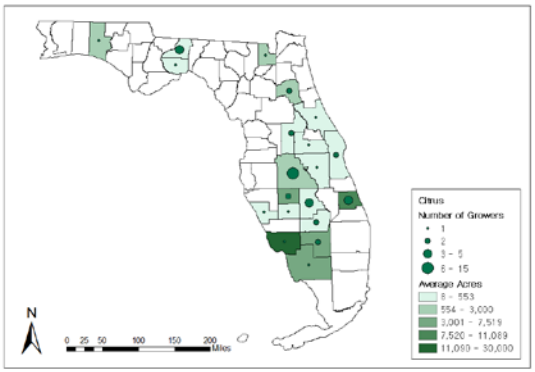
- Small farm: 0
- Medium farm: 4
- Large farm: 21



Citrus:

- Growers: 51
- Total Acres: 144,165
- Mean: 2,826
- Median: 320

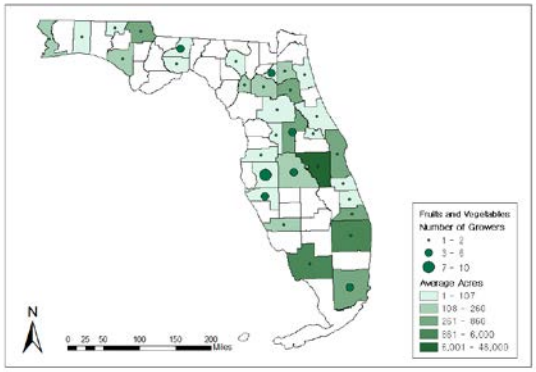
- Small farm: 17
- Medium farm: 15
- Large farm: 19



Fruits and vegetables:

- Growers: 70
- Total Acres: 125,688
- Mean: 1,795
- Median: 118

- Small farm: 40
- Medium farm: 15
- Large farm: 15

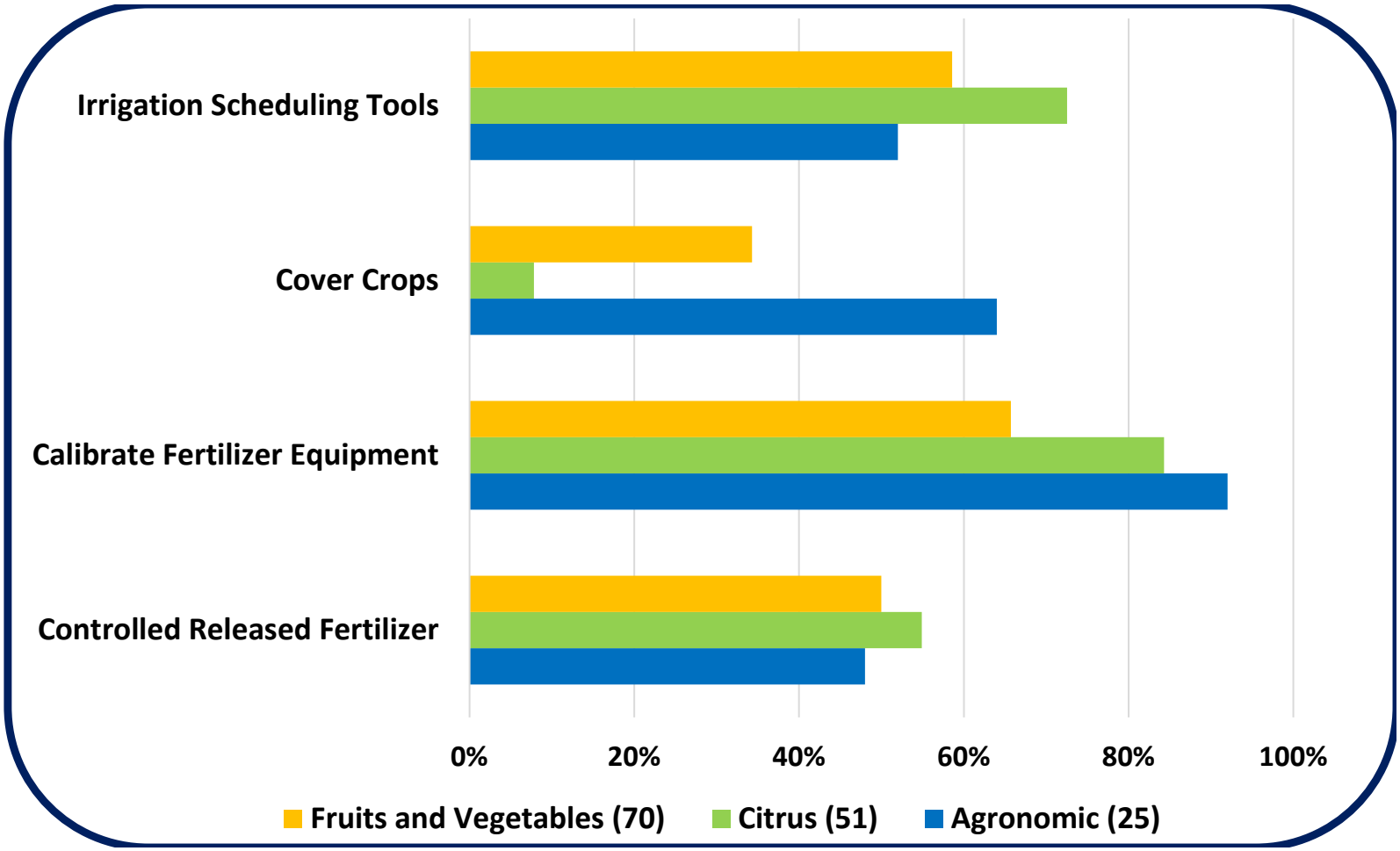


* Small farm < 180, 180 < Medium farm < 500, 500 < Large farm

* Forage, forestry, tree crops, and others are excluded.

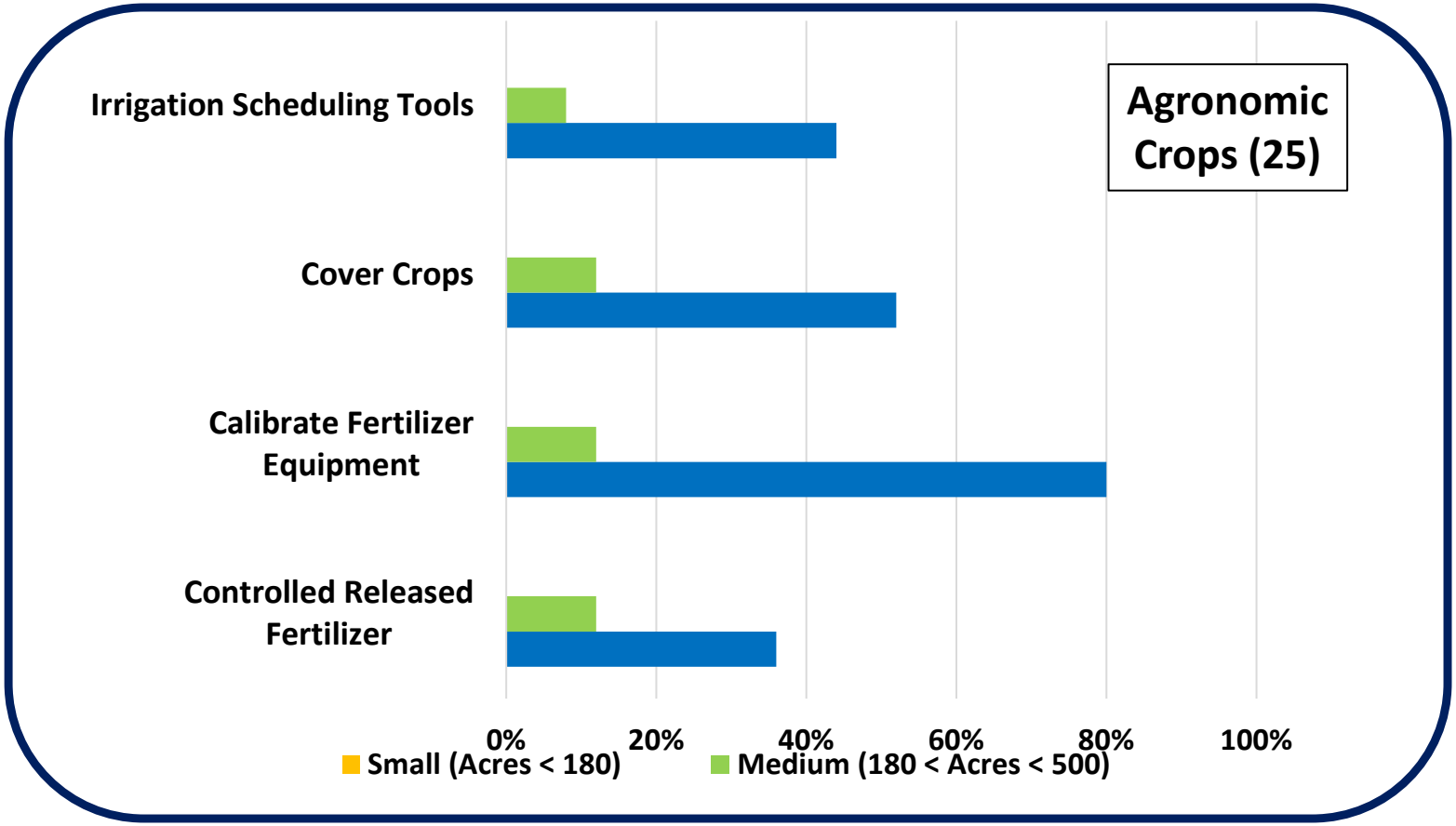
Growers' Use of Core BMPs

BMP use varies by crop category



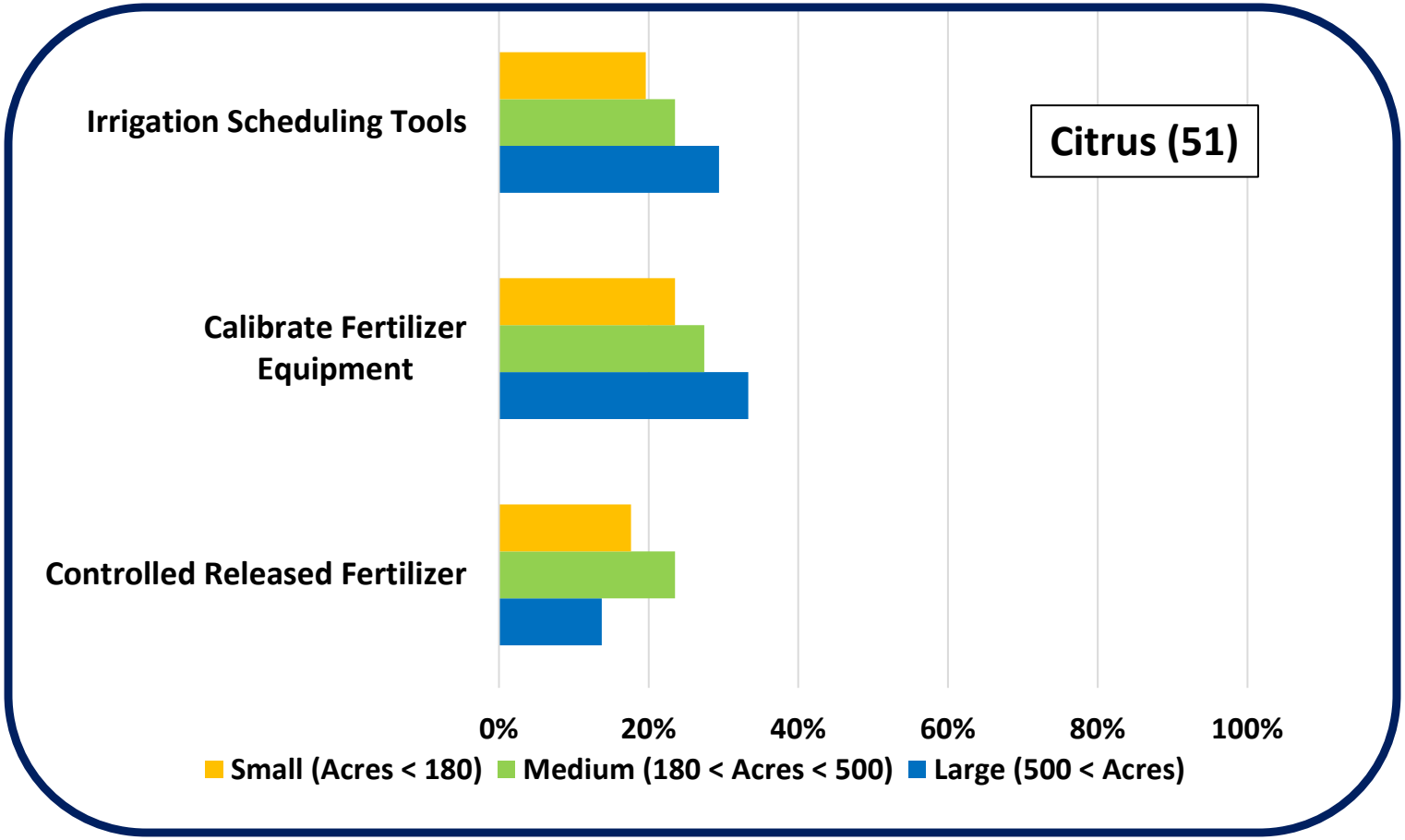
Growers' BMP Use by Farm Size

Agronomic crop growers with large farms are more likely use BMPs than those with medium farms



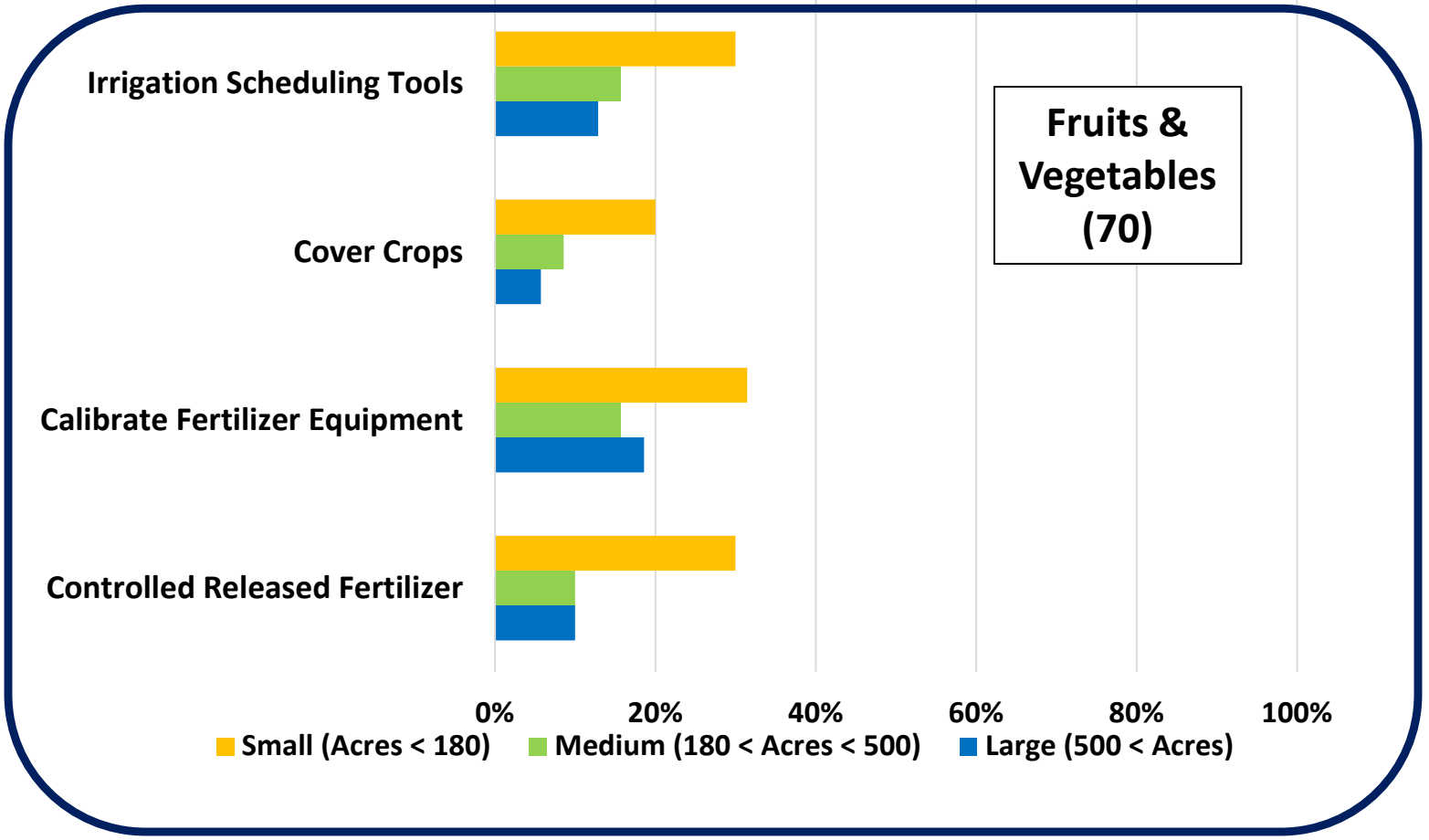
Growers' BMP Use by Farm Size

Farm size does not affect BMP use in citrus



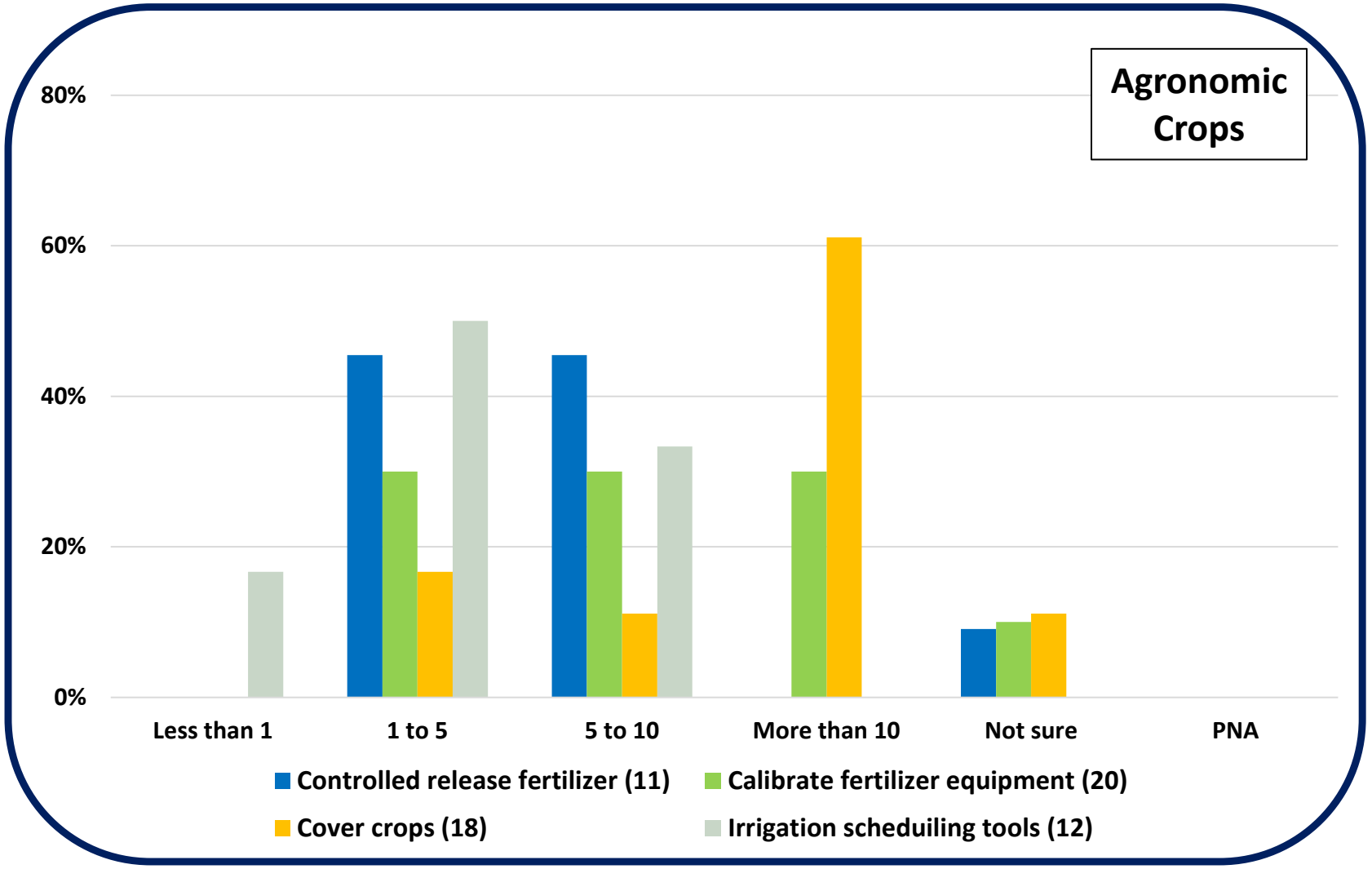
Growers' BMP Use by Farm Size

Vegetable growers with small farms are more likely use BMPs than those with other farms



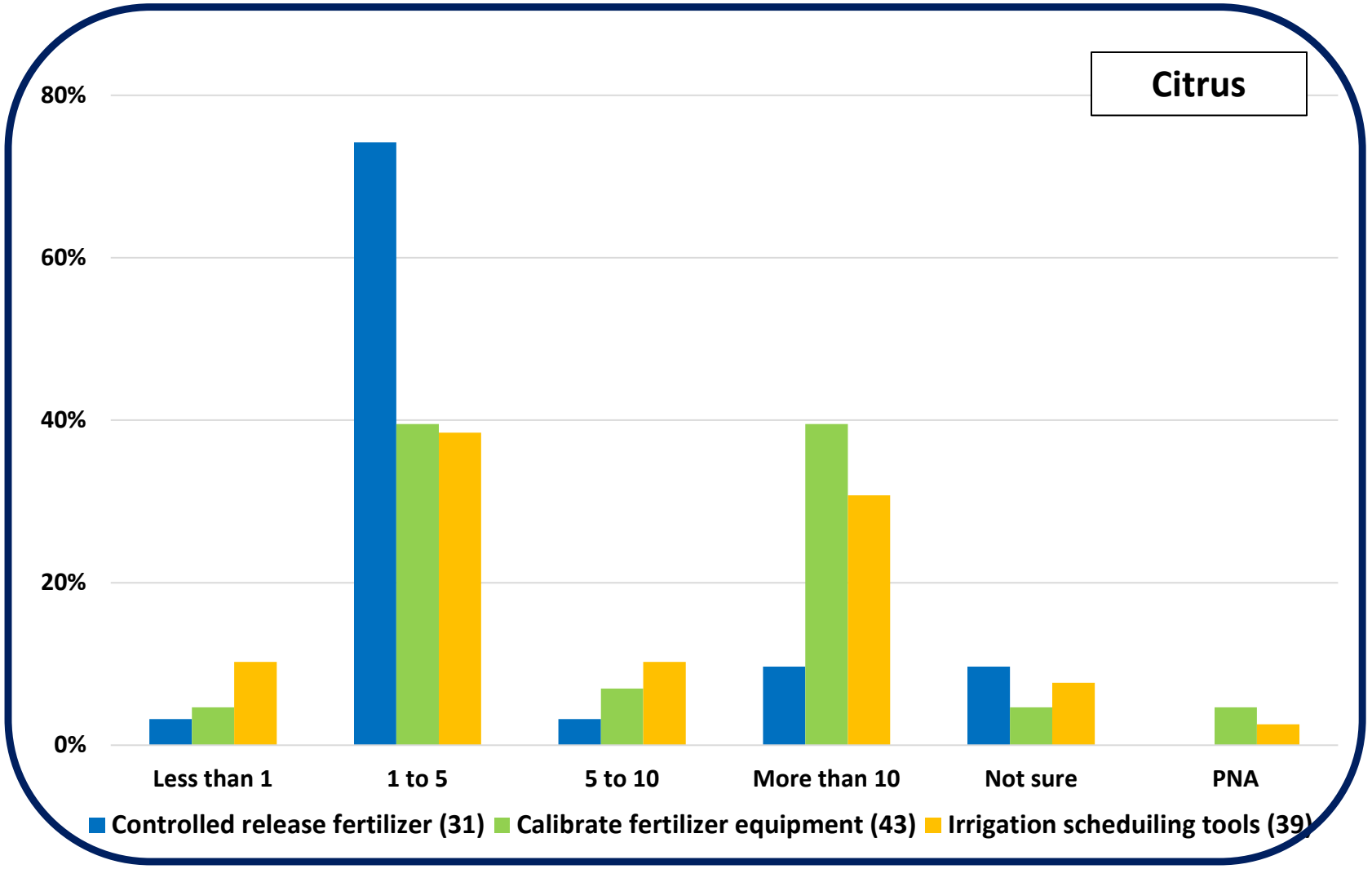
Adoption Timing for Core BMPs (in years)

Overall, 88% of growers use BMPs for more than 1 year



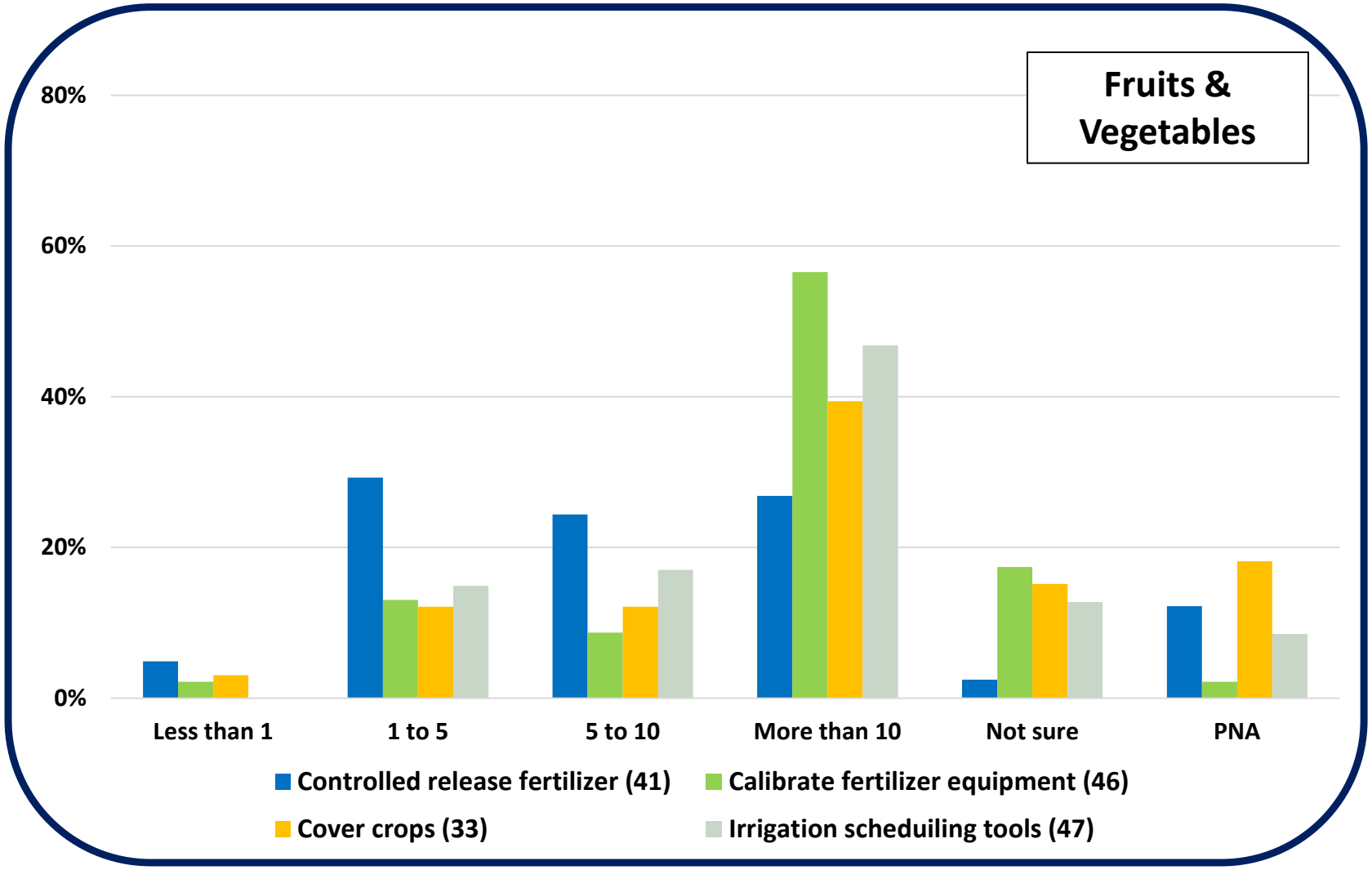
Adoption Timing for Core BMPs (in years)

74% of citrus growers use controlled release fertilizer for 1 to 5 years



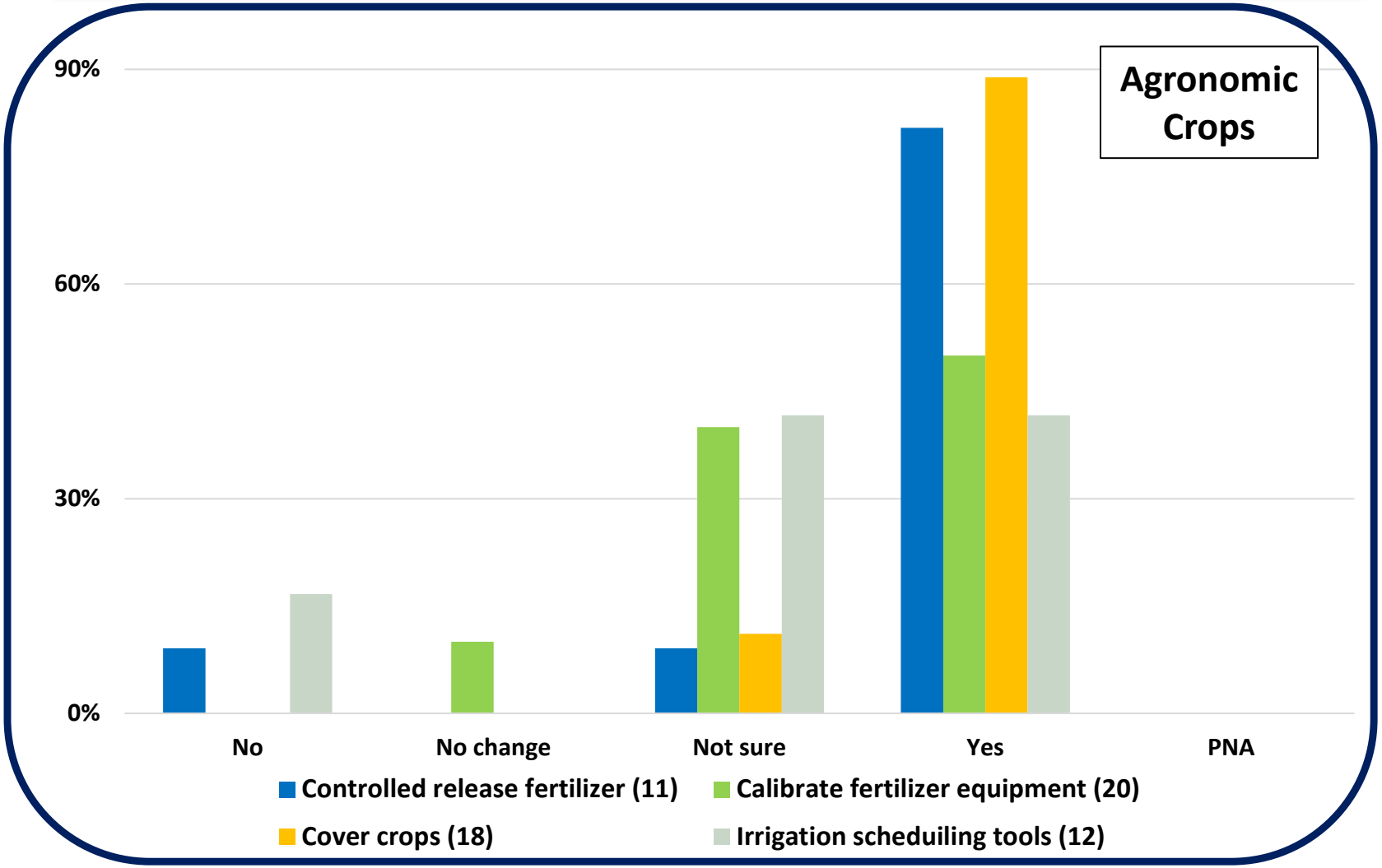
Adoption Timing for Core BMPs (in years)

Most vegetable growers use BMPs for more than 10 years



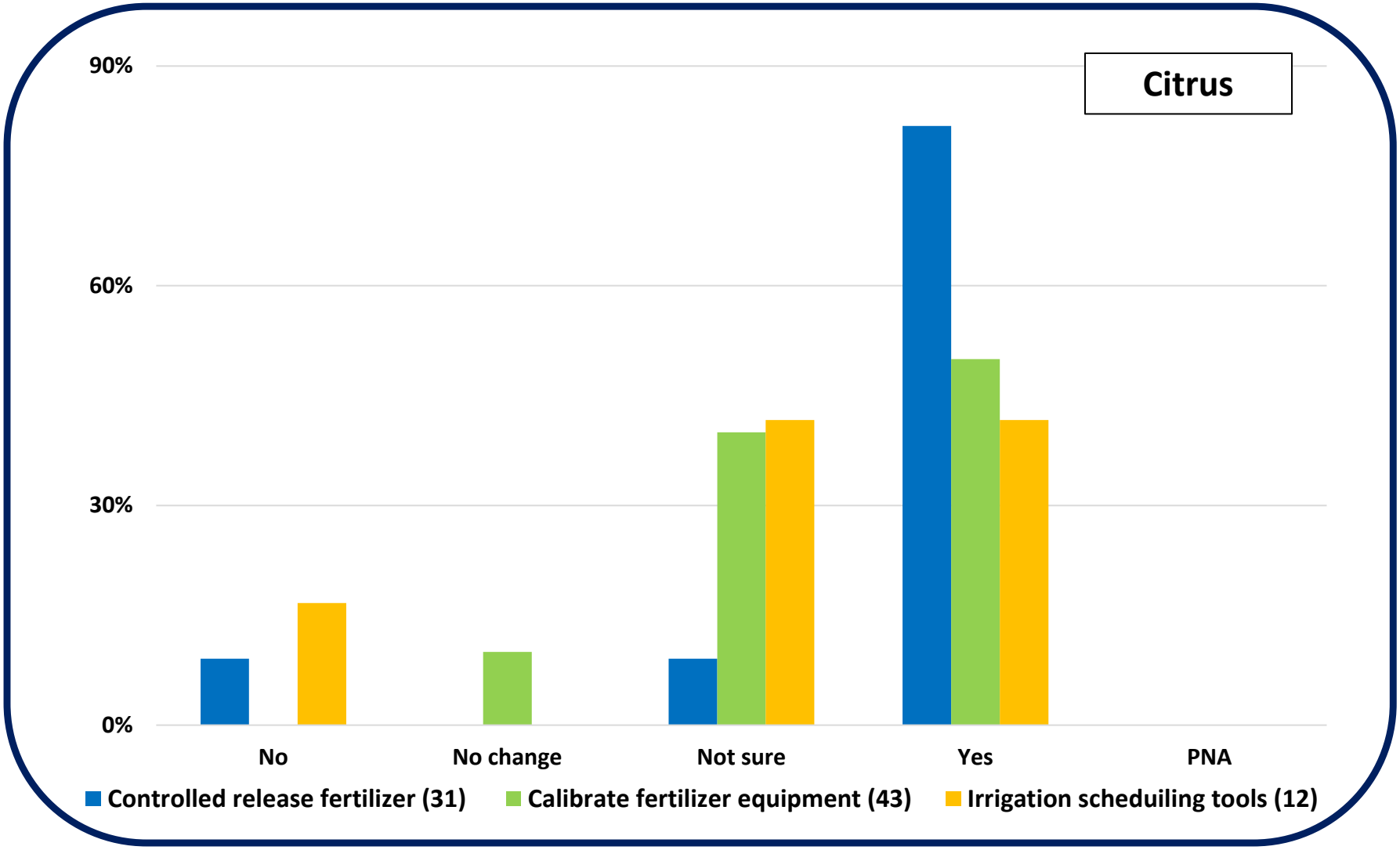
Growers' Perceptions of Profitability of Core BMPs

Most agronomic crop growers (40%-88%) agreed that BMPs profitable



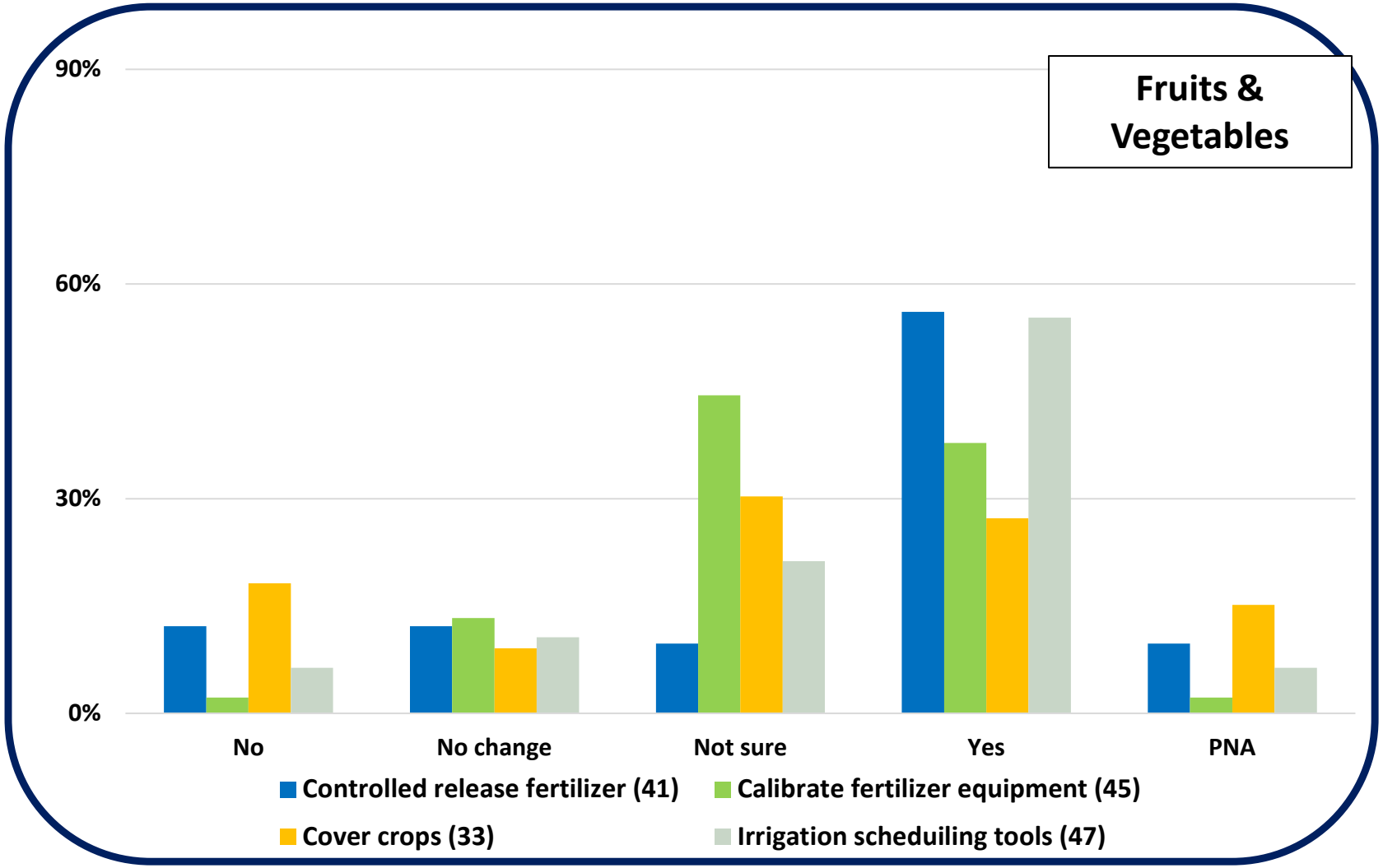
Growers' Perceptions of Profitability of Core BMPs

33%-56% of citrus growers agreed that BMPs profitable



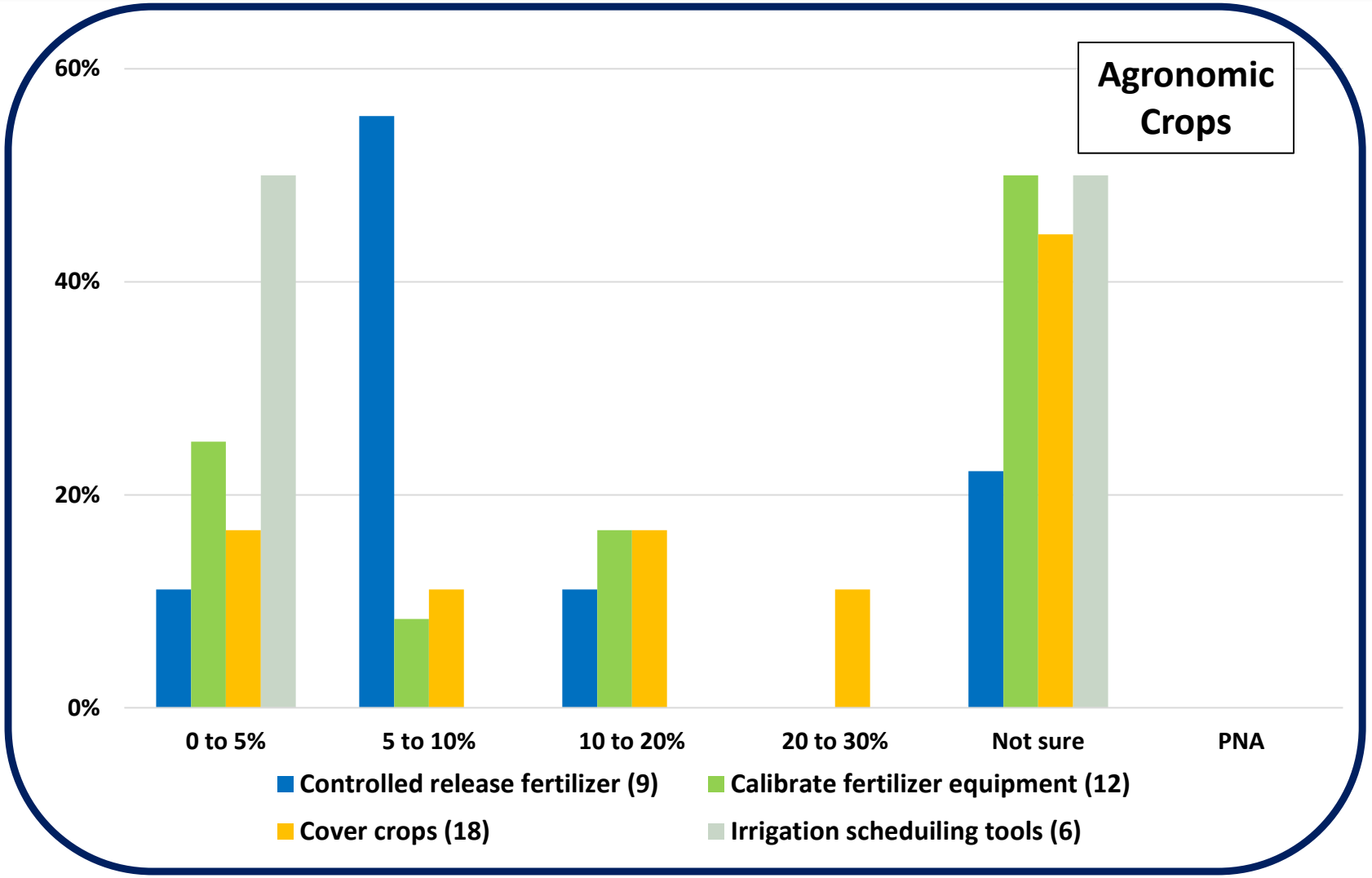
Growers' Perceptions of Profitability of Core BMPs

27%-56% of vegetable growers agreed that BMPs profitable



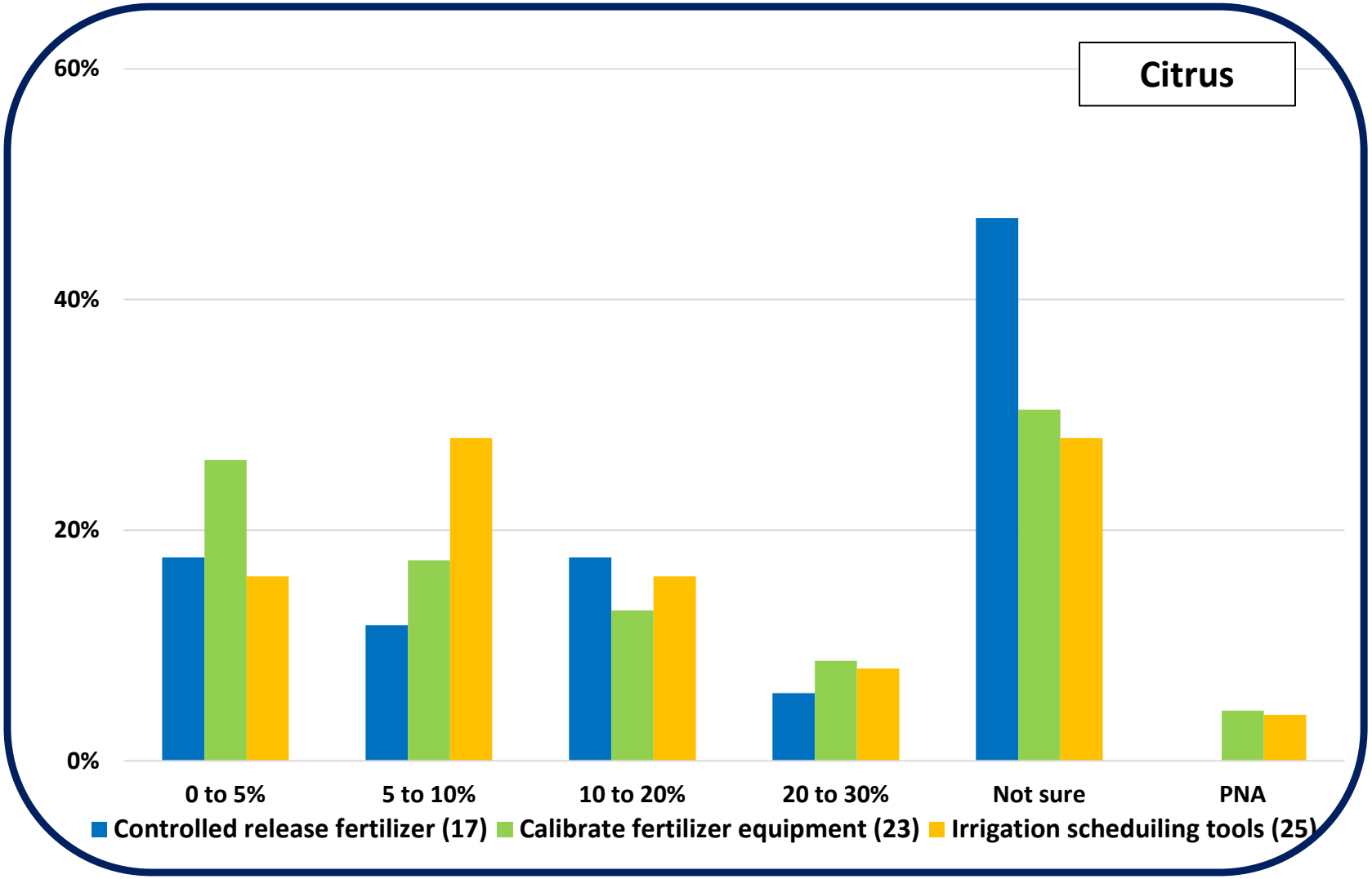
Growers' Perceptions of Yield Increase with Core BMPs Use

On average, 41% of growers are not sure how much BMP use increases yields



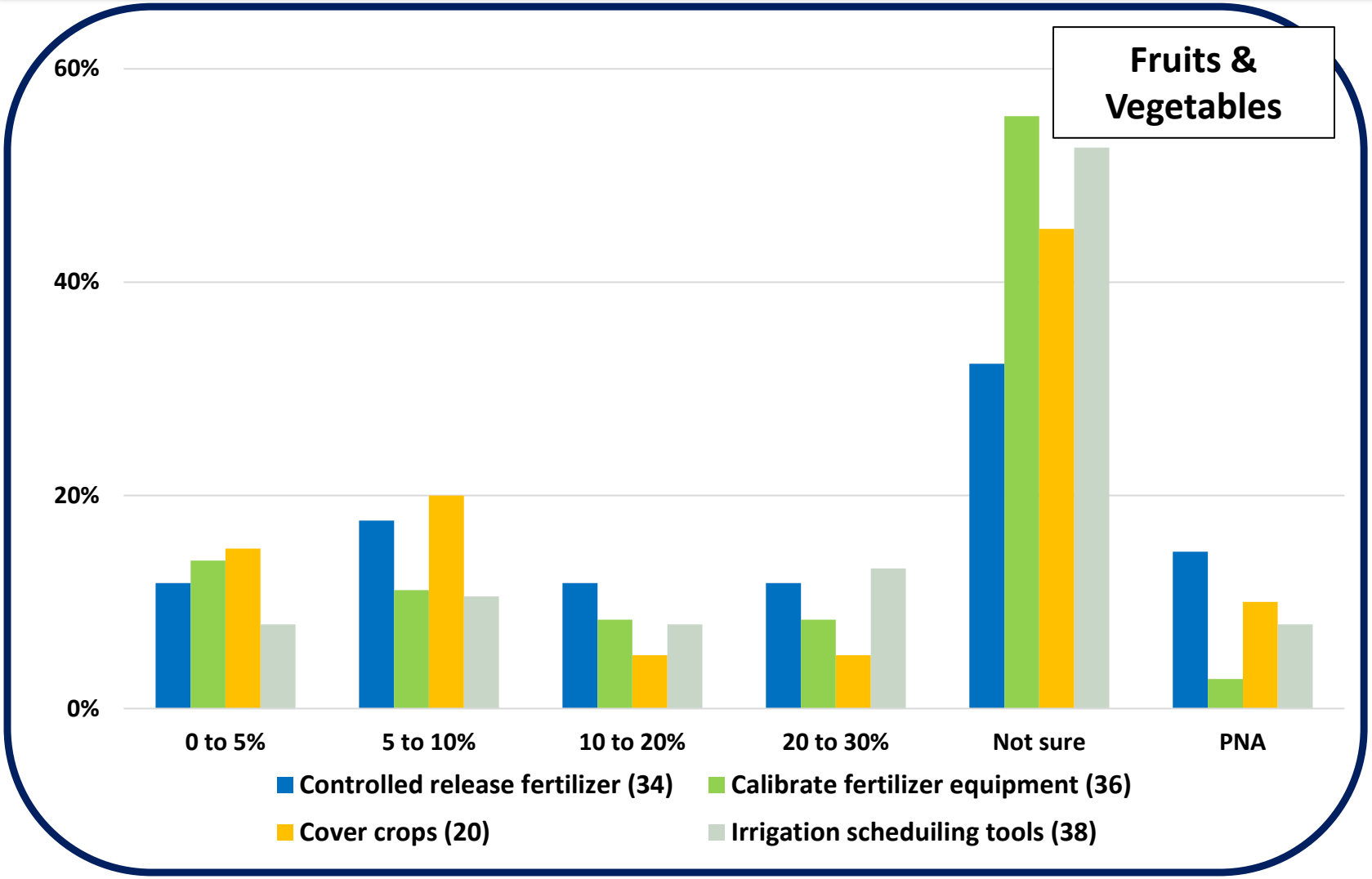
Growers' Perceptions of Yield Increase with Core BMPs Use

On average, 38% of citrus growers are not sure how much BMP use increases yields



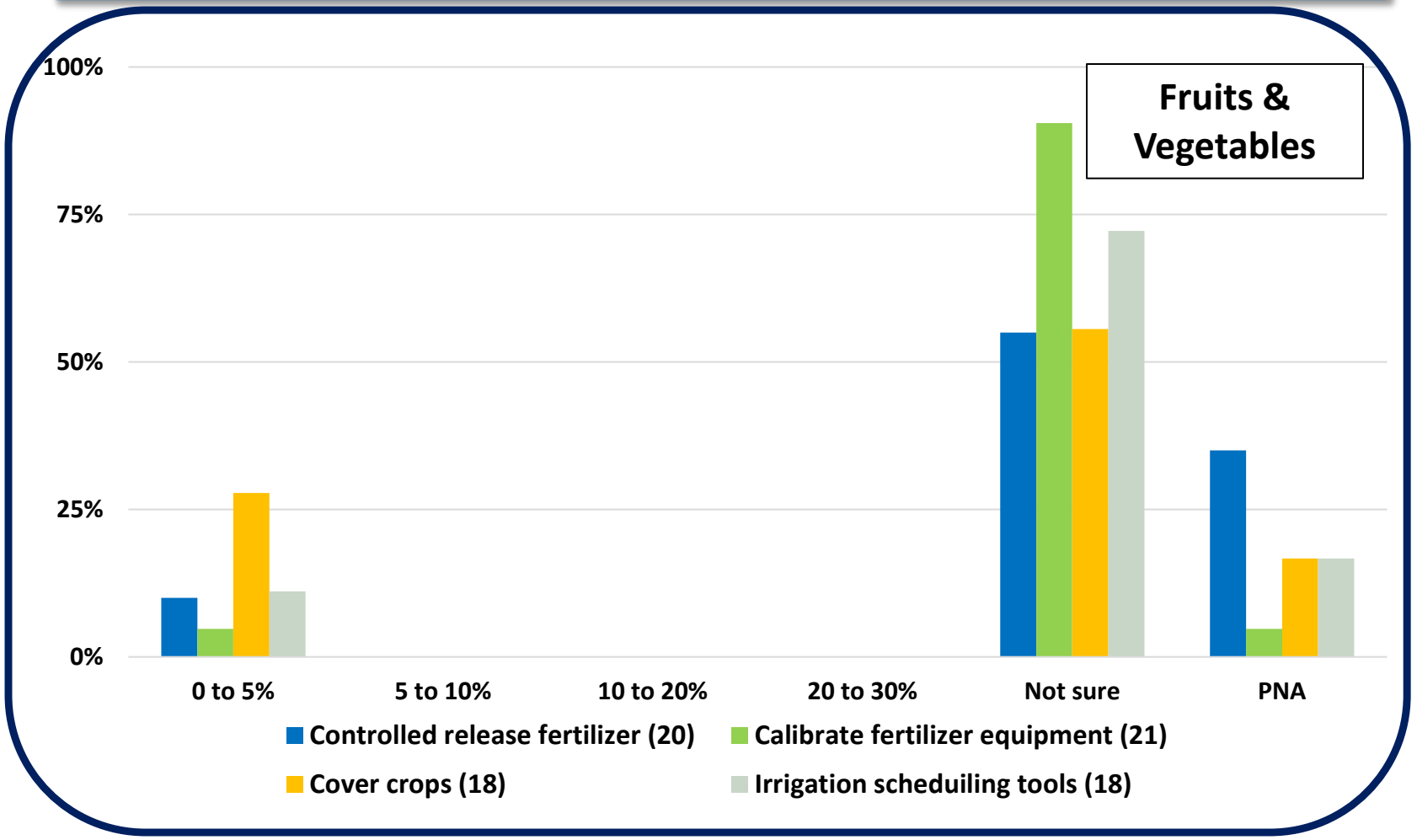
Growers' Perceptions of Yield Increase with Core BMPs Use

On average, 46% of vegetable growers are not sure how much BMP use increases yields



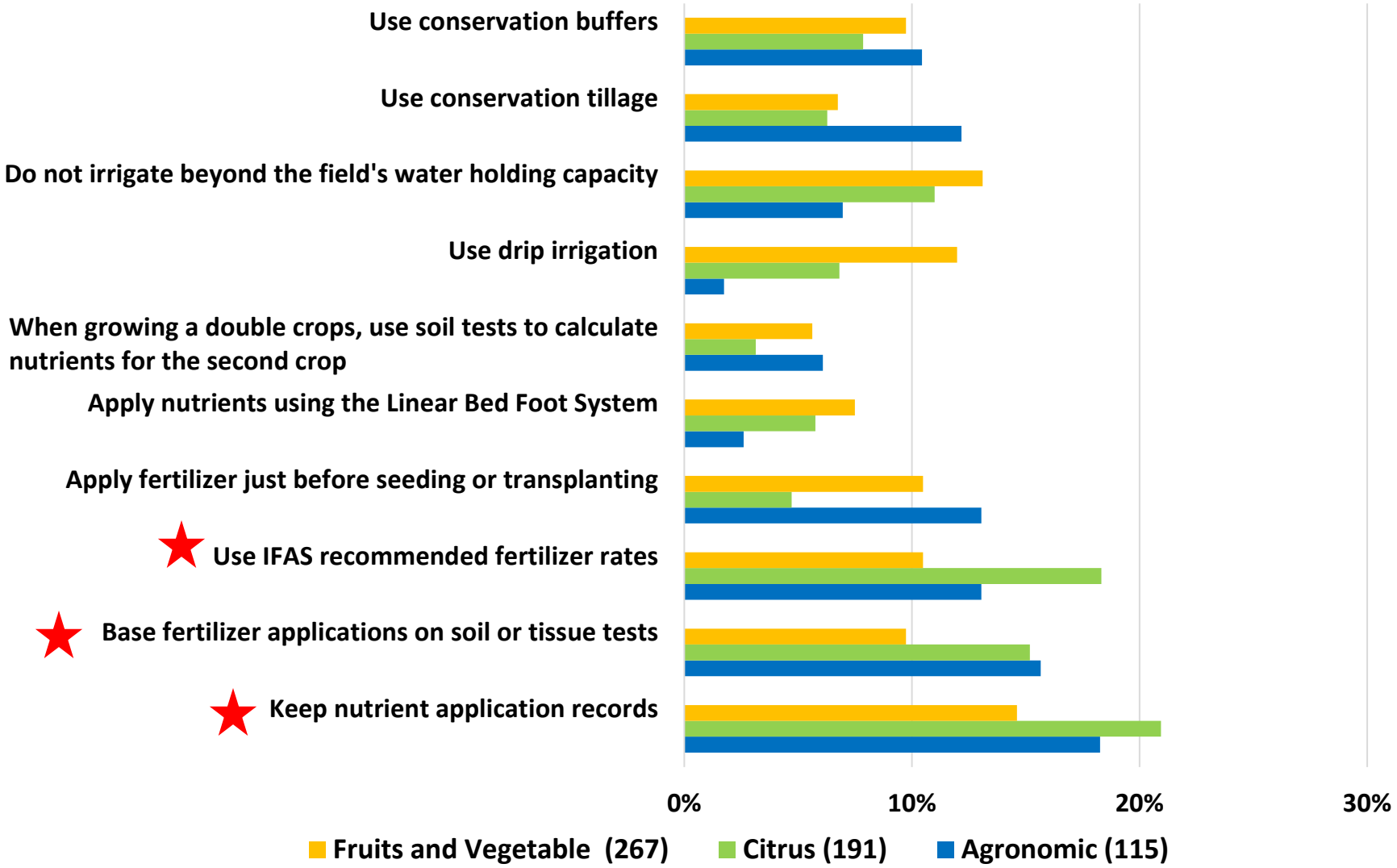
Growers' Perceptions of Yield Decrease with Core BMPs Use

More than 55% of vegetable growers do not know how much BMPs decrease yield



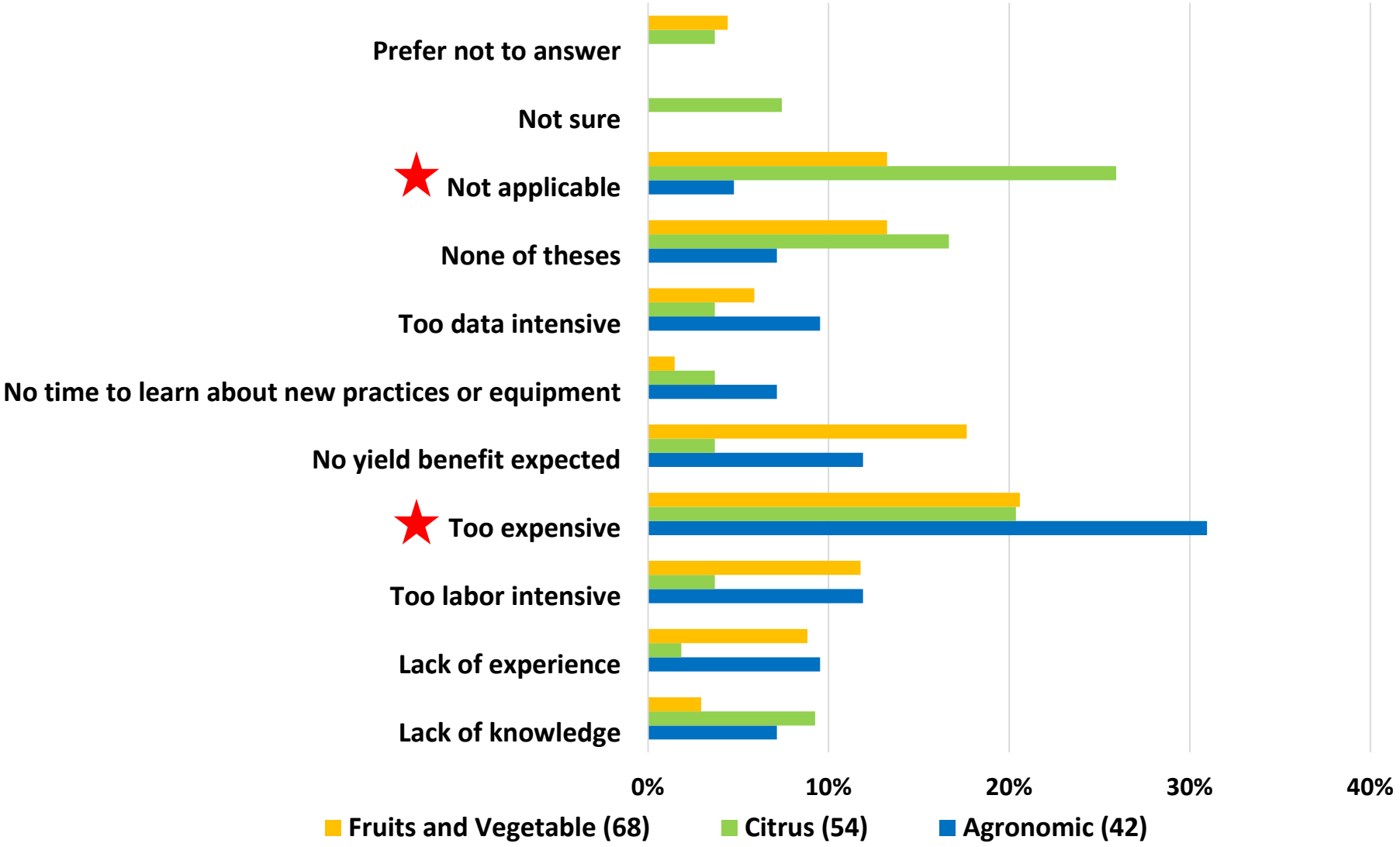
Growers' Use of Other BMPs

Fertilizer related BMPs are more likely to be adopted than other BMPs



Growers' Reasons for Not Implementing BMPs

Most growers do not implement BMPs because they are expensive



Summary

- BMPs use varies by crop category.
- Growers think BMPs are expensive to use.
- Growers said that BMPs are not applicable to their farms.
- Few growers indicate that they do not have time to learn about a practice.
- Growers generally use BMPs more than 1 year.
- Most growers who use BMPs think they are profitable.
  - There are still a few growers who think BMPs are not profitable.
  - Although growers think BMPs are profitable, they don't know how much BMP use increases yields.
- A substantial number of growers are not sure how BMPs affect yields and profits.
- Identifying the causal effect of BMPs use on profit and implementing the educational outreach program about BMPs' profitability may increase BMPs use.

Acknowledgements

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Questions???

Evaluation Survey:
https://ufl.qualtrics.com/jfe/form/SV_6MbqtPWcHhI9eYK

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