



# Enhancing Production of Warm-Season Crops in Nevada Using Rootstocks: A Grower Survey

By Heidi A. Kratsch\* and Felipe Barrios-Masias, University of Nevada, Reno; Bindu Poudel-Ward, University of Arizona



EXTENSION  
College of Agriculture,  
Biotechnology & Natural Resources

## Introduction

Specialty crop growers in Nevada are challenged by a short growing season and slow establishment of warm-season vegetable crops, yet increased demand for local produce in nearby urban areas presents an opportunity to diversify farms while adapting to climate uncertainty. Due to increased demand in our region for organically produced crops, the majority of producers grow at least some of their crops organically. Rootstocks for vegetable production are widely used in production systems around the world, but adoption in the U.S. has been slow, despite their demonstrated benefits in overcoming a range of stresses. Rootstocks in vegetable production are mainly developed to overcome soil-borne pathogens and pests, but they can also confer desirable root traits to facilitate nutrient and water uptake under abiotic stress and could help increase yields under organic production.

## Objectives

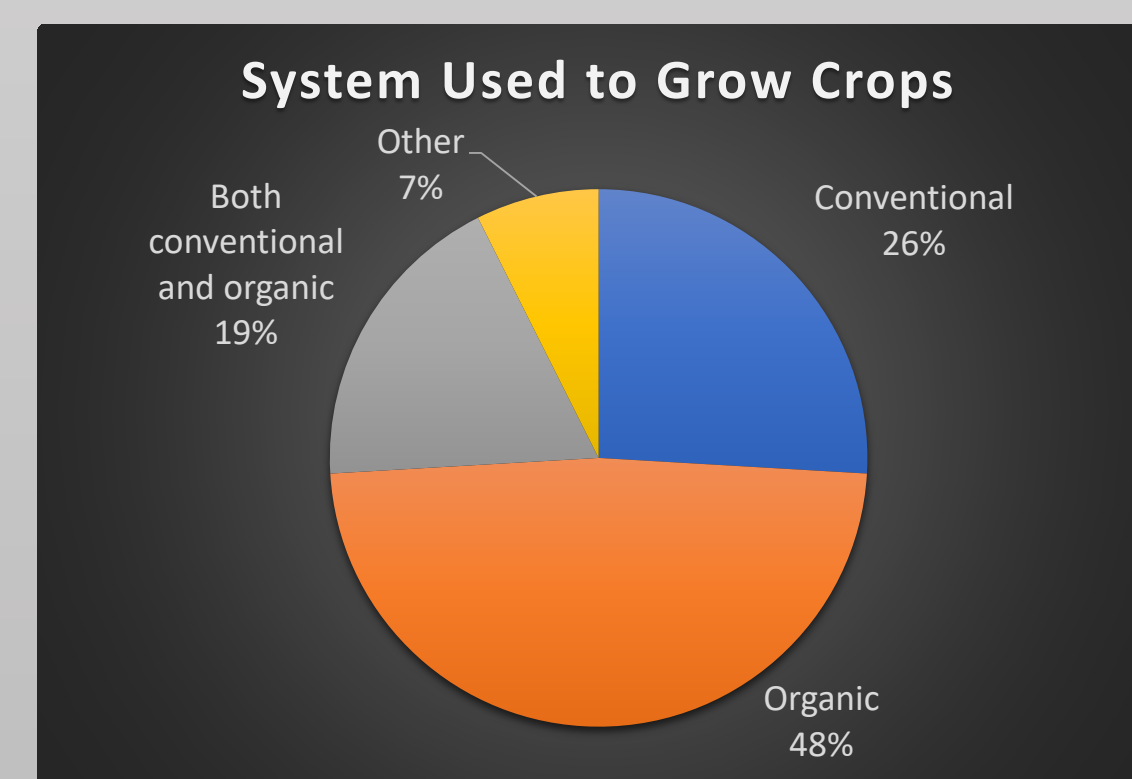
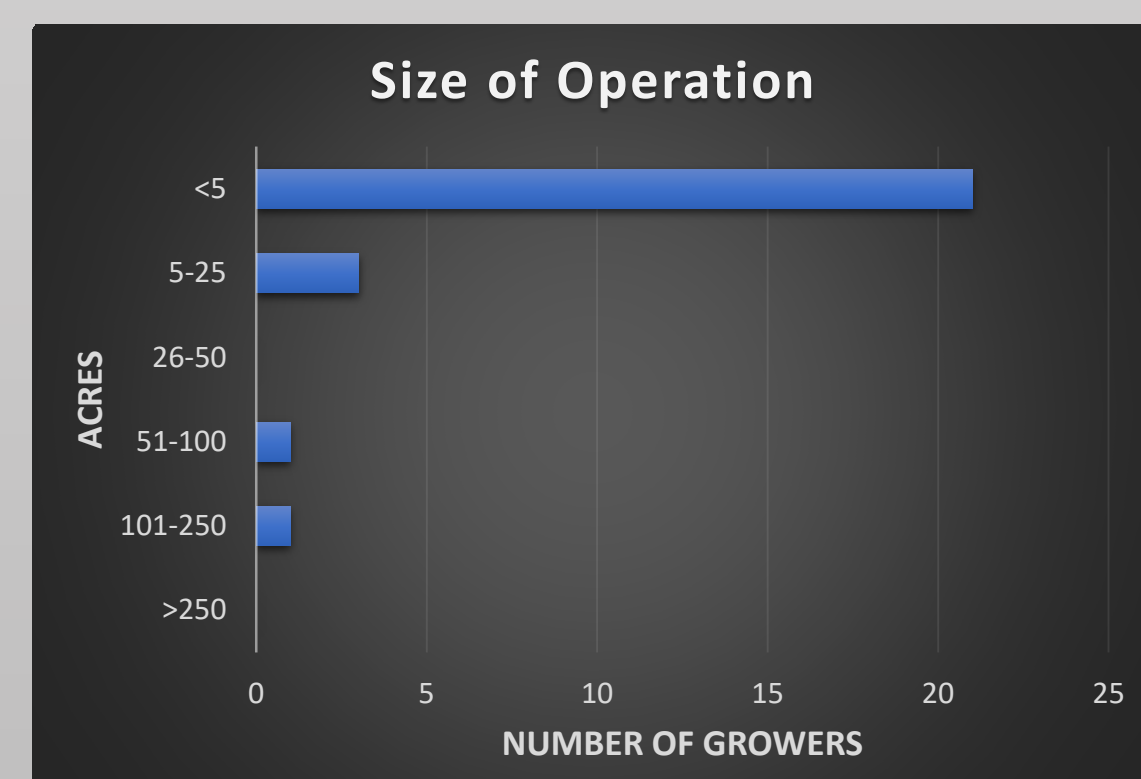
- Assess the agronomic needs of specialty crop growers in Nevada.
- Explore the potential for grower interest in using rootstocks for vegetable production.

## Methods

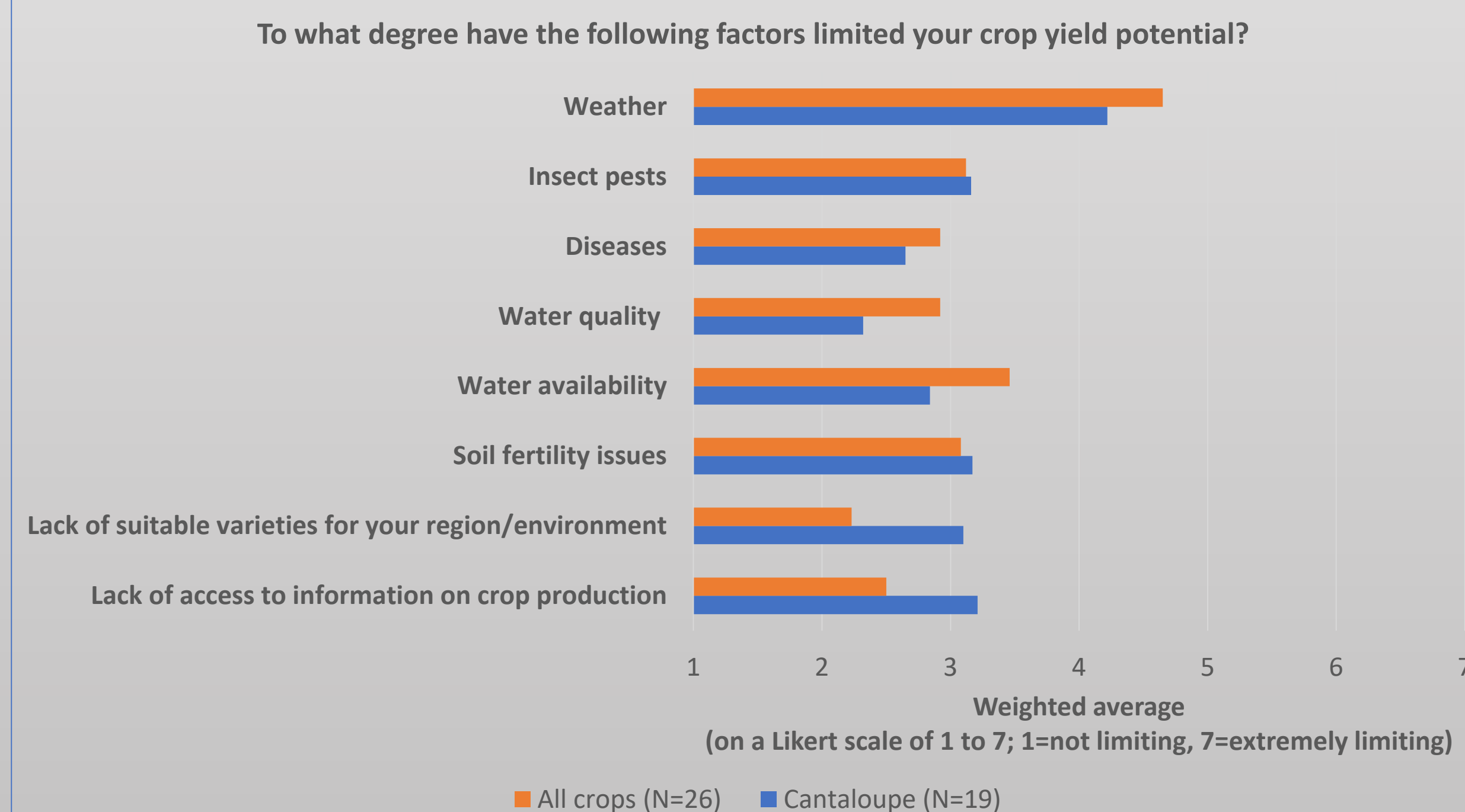
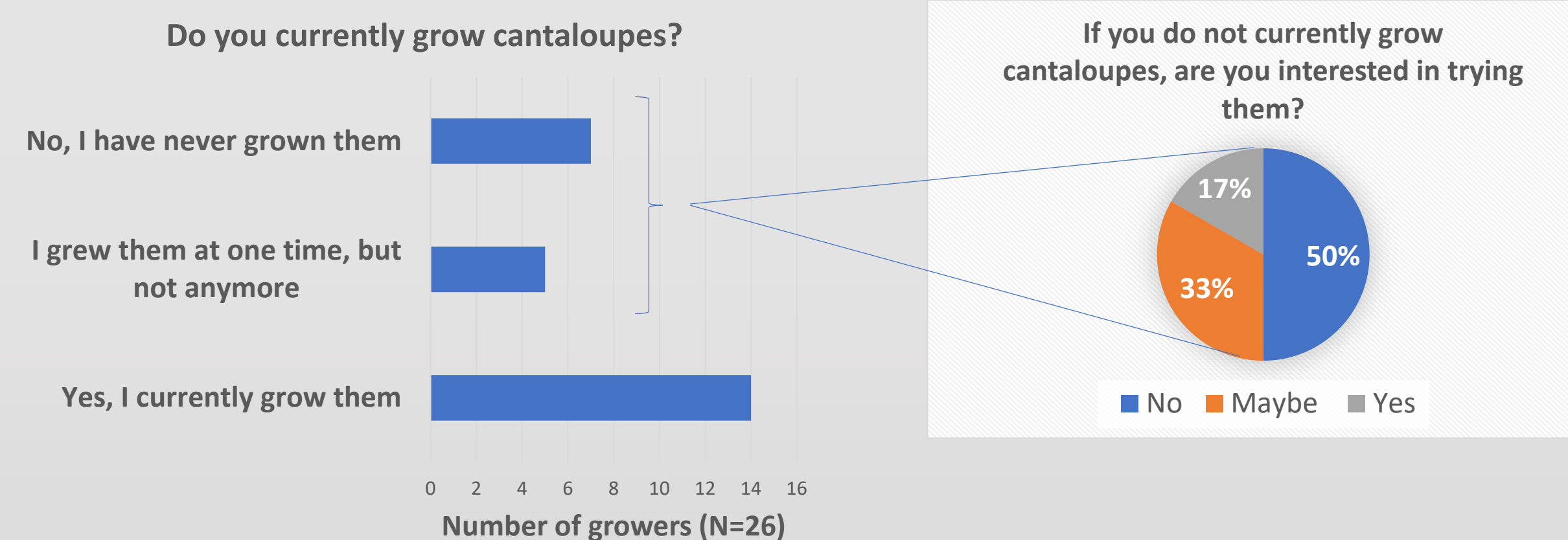
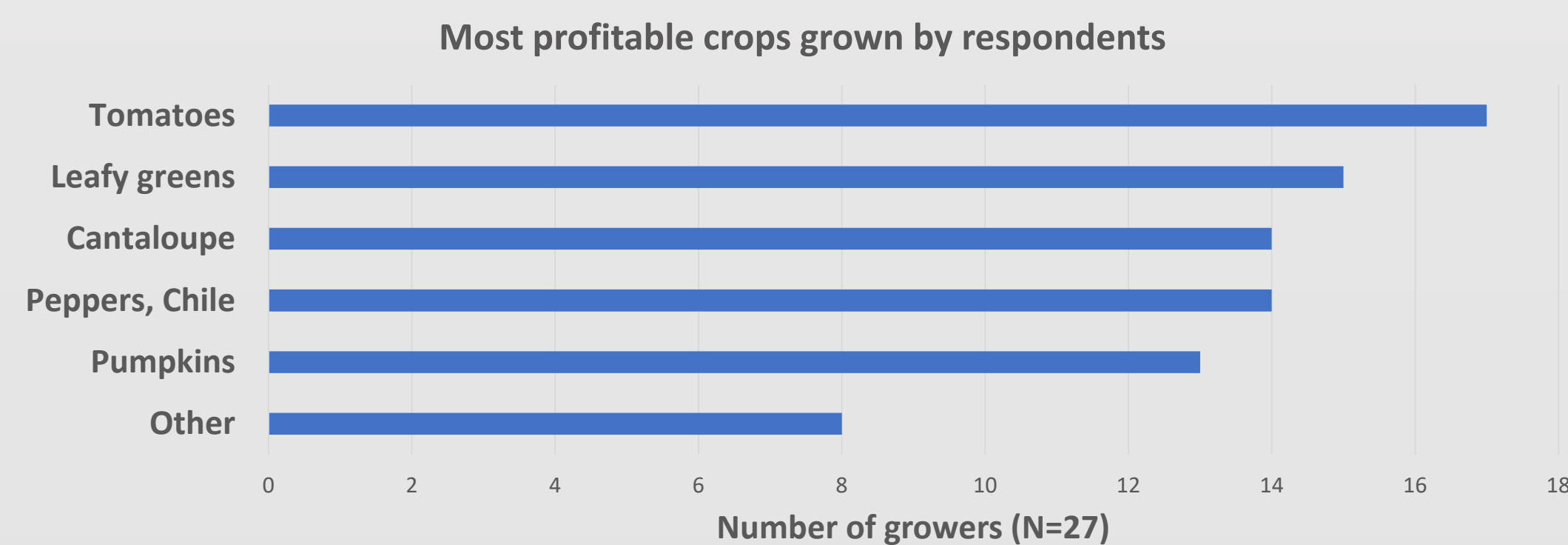
- In 2021, we surveyed specialty crop growers in Nevada by using the Survey Monkey online survey platform.
- The survey instrument was proof-tested by Nevada agricultural professionals.
- Our survey was exempted from IRB review; response rate was 26% (N=27).
- A survey recruitment email was sent March 15, with email reminders sent April 5 and 13.
- We used filtering questions to verify our target audience and reduce respondent burden.

## Respondent Demographics

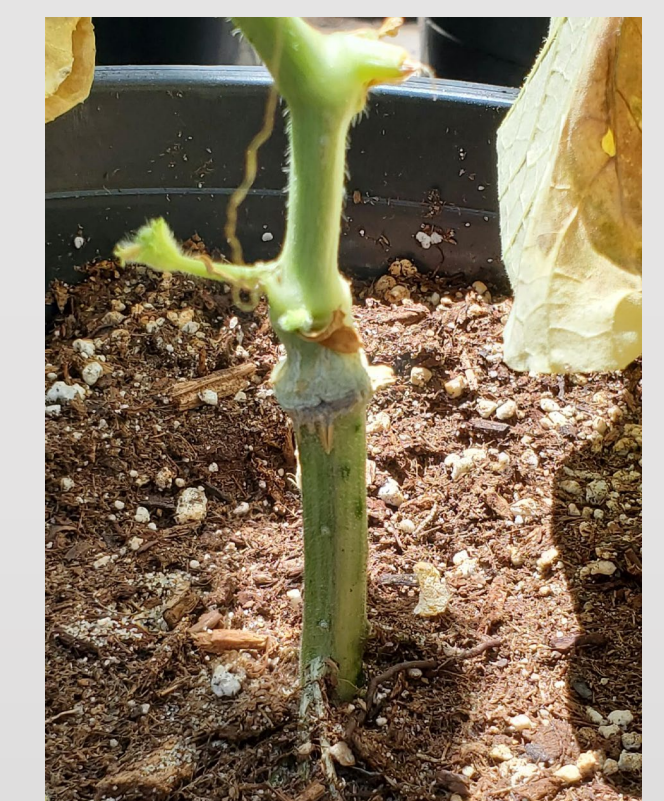
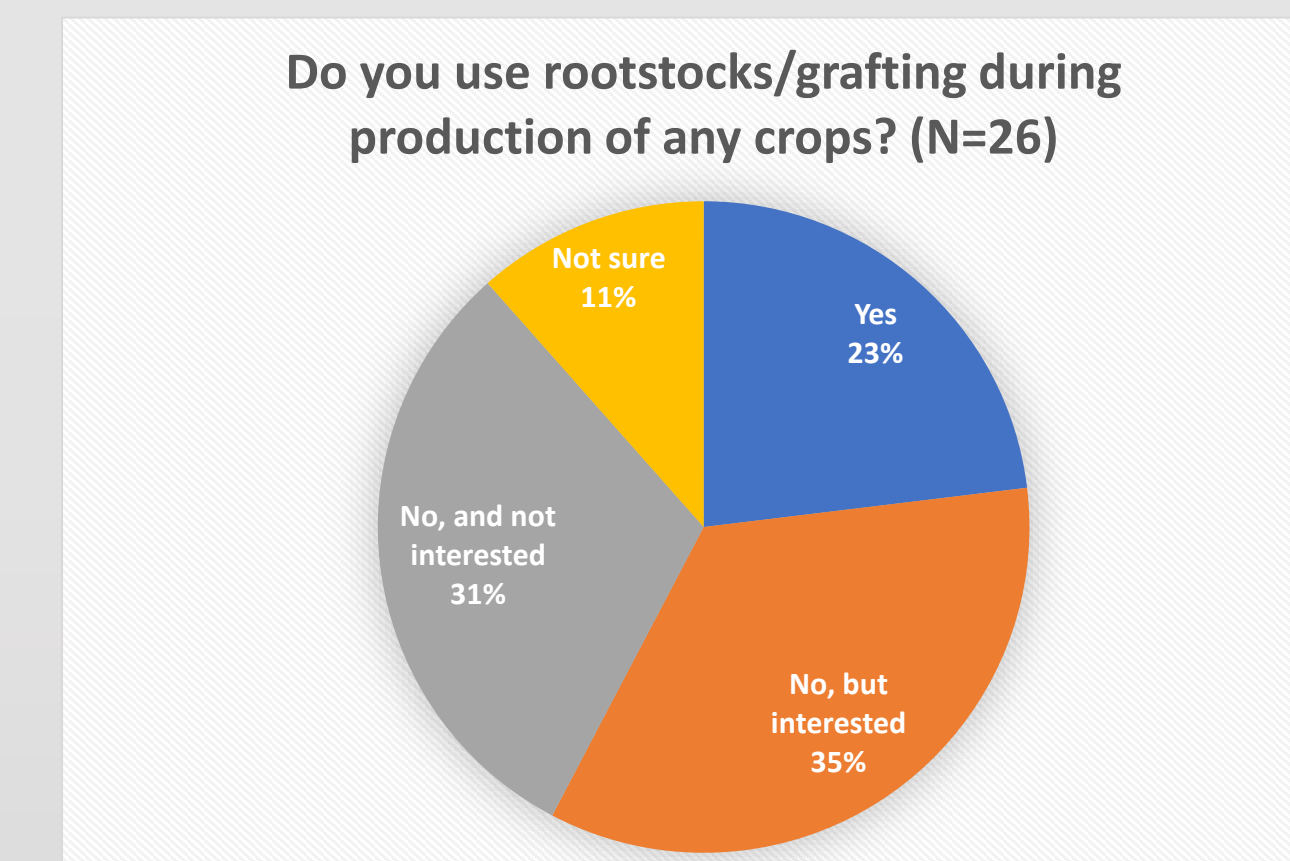
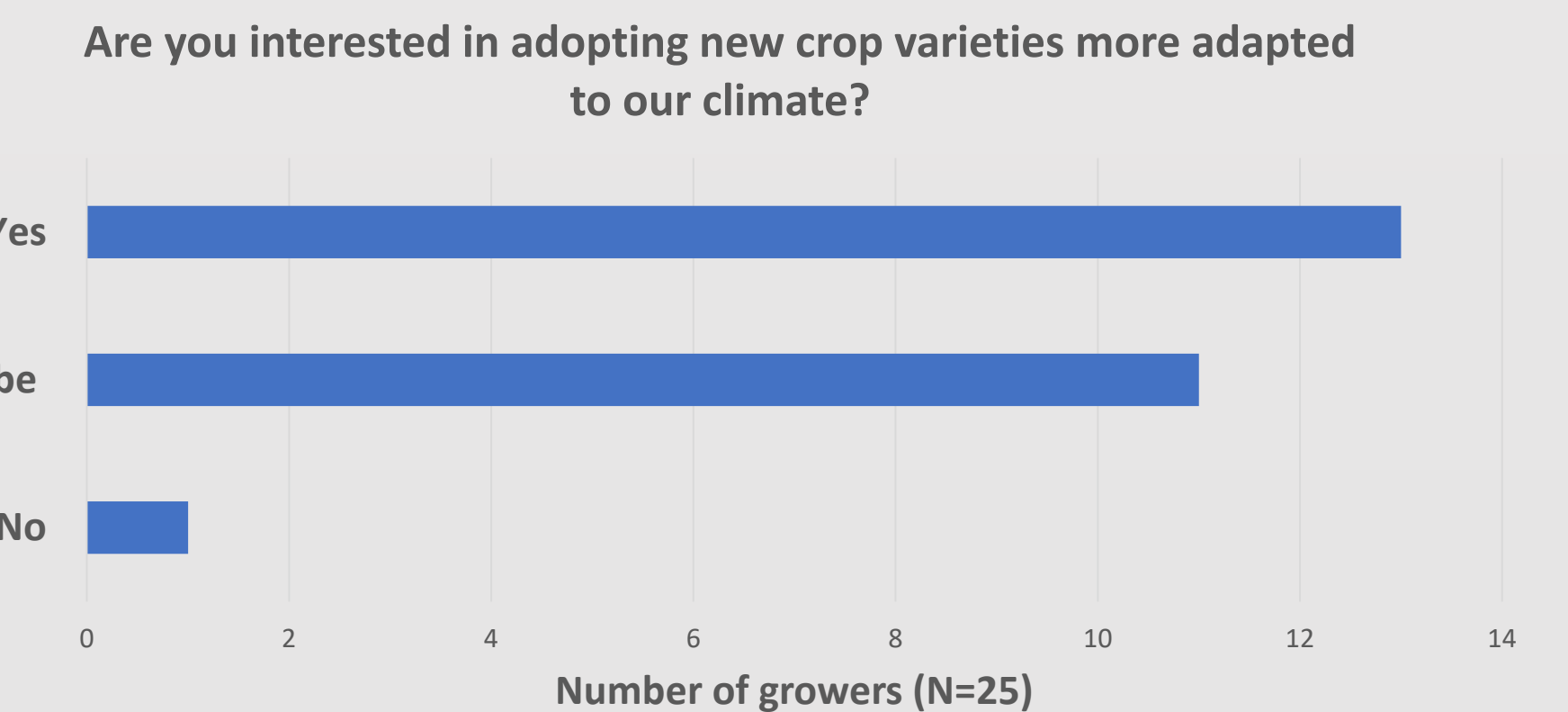
- Respondent age ranged from 30 years to 82 years, with an average age of 57.2 years.
- Sex: Female 45.8% (n=11); Male 50% (n=12); Prefer not to say 4.2% (n=1).
- Ethnicity: Hispanic 8.7% (n=2); Not Hispanic 69.6% (n=16); Unidentified/unknown/other 8.7% (n=2); Prefer not to say 13.0% (n=3).
- Race: Black 4.4% (n=1); White 82.6% (n=19); Prefer not to say 13.0% (n=3).



## Results



Cantaloupe growers were asked to rate the degree to which each of these factors limits, or has limited, their success with cantaloupe cultivation. Results were compared with answers to a similar question about respondents' most profitable crops. Although results were not different statistically, data trends suggested 1) weather was an important factor limiting overall crop yield, and 2) a greater need exists among cantaloupe growers for suitable varieties for their region and for access to information on production.



'Sarah's Choice' cantaloupe grafted onto 'Carnivor' interspecific hybrid squash rootstock

**What information would help you decide whether using rootstocks/grafting makes sense for your operation? (open-ended)**

CODED TOPIC	NO. OF RESPONSES
Cost-benefit analysis of growing with and without rootstocks	2
Specific techniques for propagating rootstocks	2
Information on tomato rootstocks/grafting	2
Local experts in rootstocks/grafting	1
How rootstocks work	1
Which rootstocks work best in my area	1
I have the information I need	1

## Conclusions

- Over half of grower respondents are, or may be interested in, using rootstocks for warm-season vegetable production.
- Adoption of the technology will require a cost-benefit analysis of using rootstocks as an alternative to conventional production methods.
- Evaluation of rootstocks for cantaloupe production is currently underway to assess their establishment and performance under desert conditions.

### Acknowledgments

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2019-38640-29880 through the Western Sustainable Agriculture Research and Education program under project number SW20-918. USDA is an equal opportunity employer and service provider. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.