

SCRI - CLEAN WATER³

REDUCE, REMEDIATE, RECYCLE

How Growers Make Decisions

Water Conservation Technologies

Water Treatment Technologies

Dr. Alexa Lamm & Peyton Beattie

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Water Stewardship Among Growers

- Water Conservation
 - Drip-irrigation
 - Recycle and re-use
 - Soil moisture sensors
- Water Treatment
 - Chlorine
 - Ozone
 - Ultraviolet radiation
- Questions we had:
 - What are growers currently doing?
 - What has kept growers from adopting new technologies?
 - What encourages adoption of new technologies?



What we did

1. Conducted interviews with 24 growers across the U.S.
2. Used those findings to develop a survey
 - English & Spanish
 - Sent out via email fall 2016/spring 2017
 - Obtained 197 useable responses

INTERVIEW RESULTS

Attitude

“It’s a very efficient way to get a lot of plants watered quickly.”

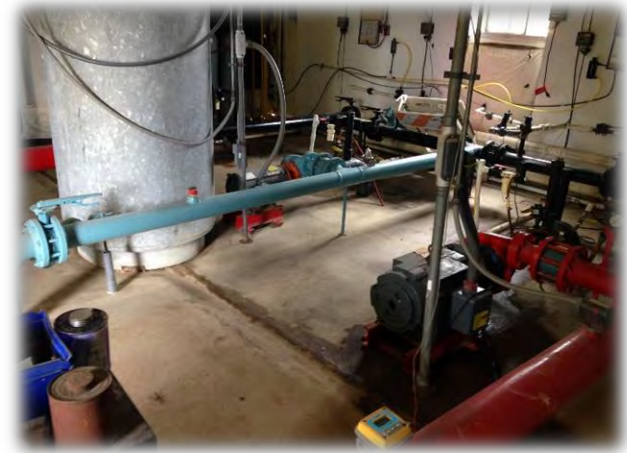
- Positive overall
- Negative associations with safety (chlorine) and equipment issues
- Believed technologies:
 - Solve problems
 - Reduce plant infections
 - Reduce costs



“we need to make sure we are properly treating the water to ensure the plants are seeing the cleanest and healthiest water possible.”

So what?

- New treatments and technologies need to:
 - Solve problems
 - Increase plant health
 - Reduce costs
- Need to study long term value compared to upfront costs (develop case studies)
- Safety risks need to be clear



Restrictions

- It is expensive to adopt new treatments and technologies
 - Small and large scale growers felt they couldn't afford it
- General lack of technical training and therefore not sure new techniques can be implemented
- Lack of infrastructure to integrate newest treatments

“we could be using more micro irrigation but we have the infrastructure in place for the overhead... it's very expensive to convert... has been prohibitively expensive.”



So what?

- Cost-benefit analyses need to be provided
- Need to study increased willingness of consumers to pay for sustainably grown products
- Increase access to subsidies and financial support
- Start with less complex technologies/practices
- Develop new technologies that work with existing systems



Support

- Generally positive sense of support from the industry
 - We want to do the right thing for society
 - Want to be seen as environmentally friendly

“As an industry, we need to do the right things to be good stewards of the environment and have a sustainable product.”



“There is a certain image that we like to project to our customers that we’re doing our share... public image is very important to us.”

So what?

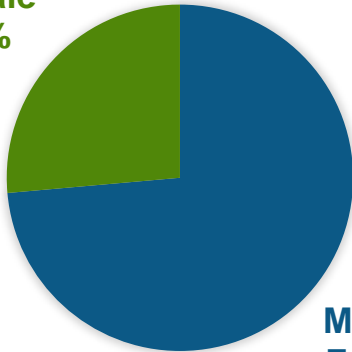
- Use the industry culture to drive change
- Current users need to advocate for practices/technologies
- Make a connection to land
- Develop communication campaigns that can help growers market environmental stewardship



SURVEY RESULTS

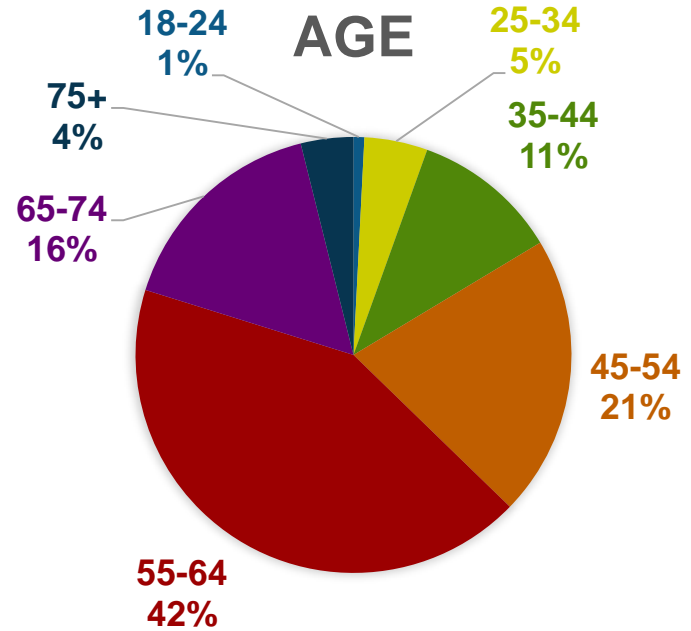
GENDER

Female
26%



Male
74%

AGE

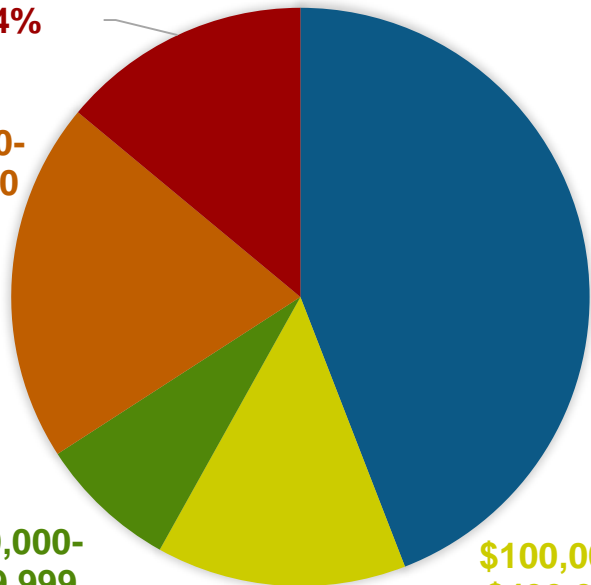


GROSS ANNUAL SALES

\$10,000,000+
14%

\$1,000,000-
\$9,999,000
20%

\$500,000-
\$999,999
8%



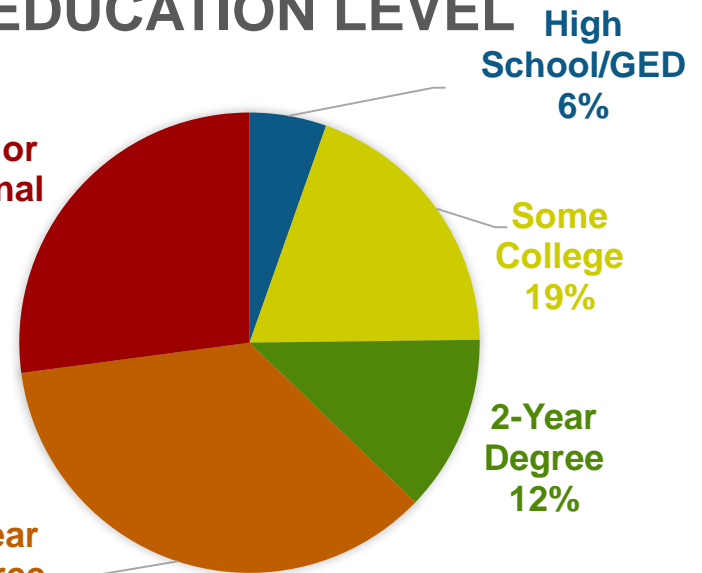
\$10,000-
\$99,999
44%

\$100,000-
\$499,999
14%

EDUCATION LEVEL

Graduate or
Professional
Degree
27%

4-Year
Degree
36%

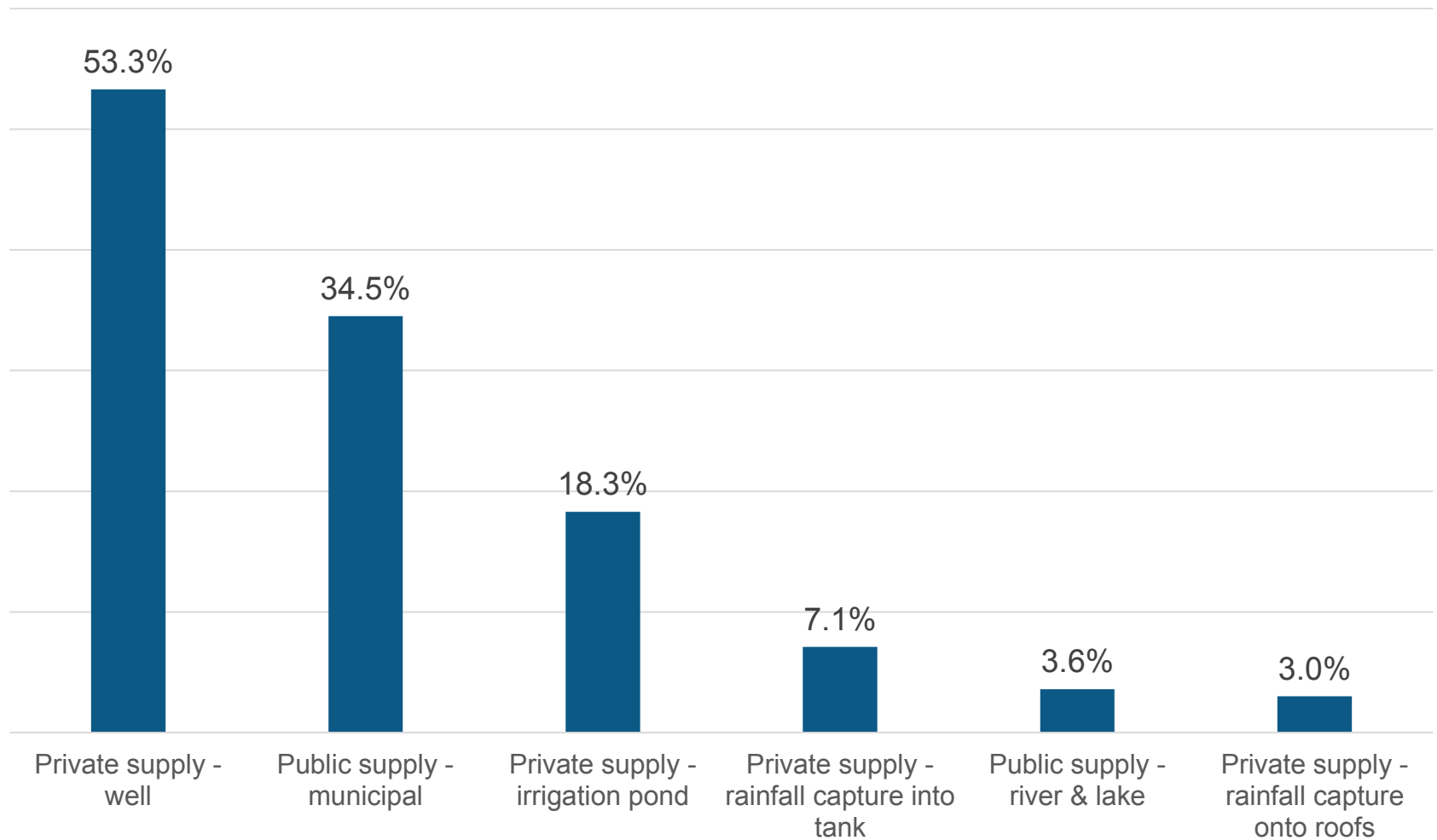


High
School/GED
6%

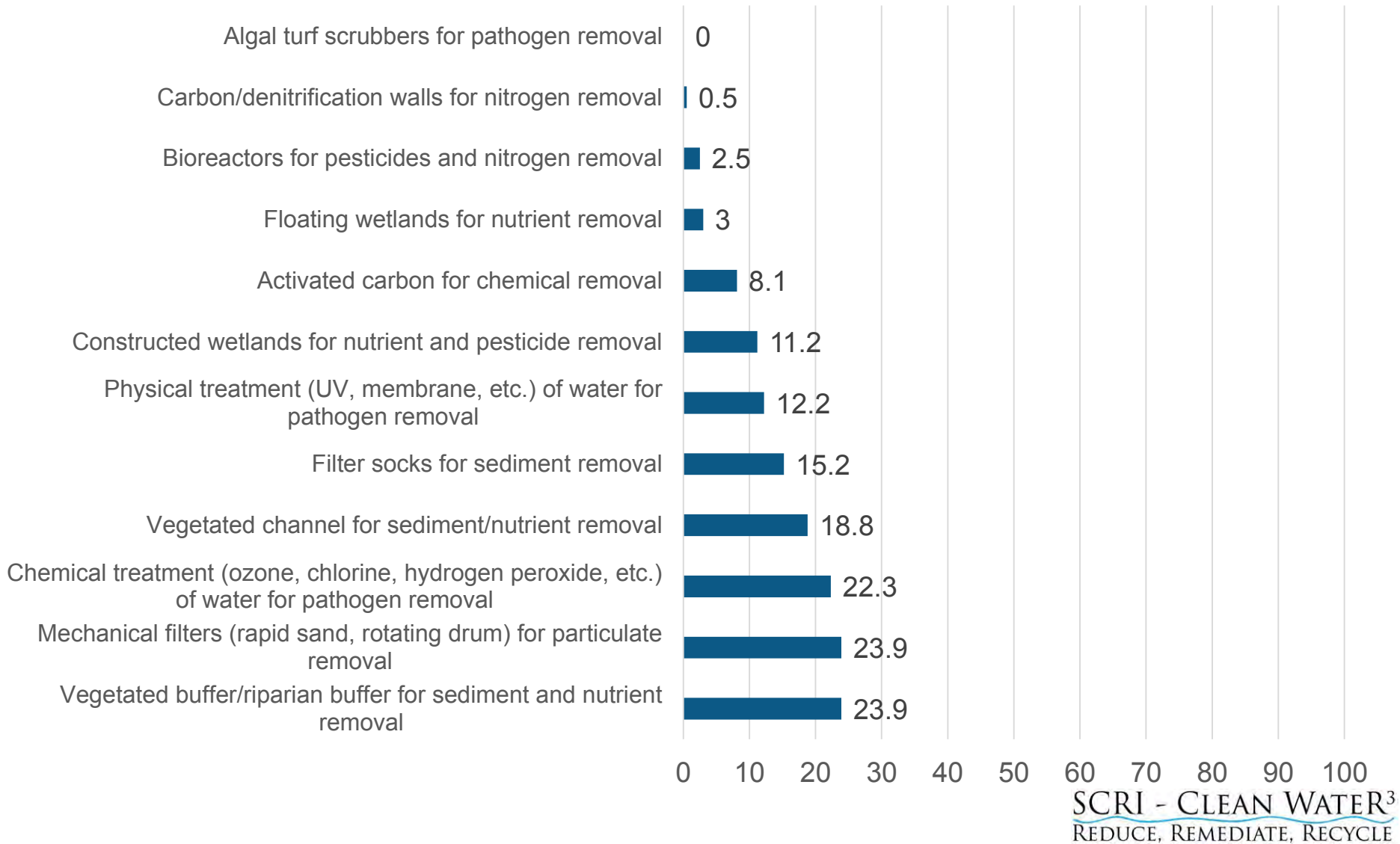
Some
College
19%

2-Year
Degree
12%

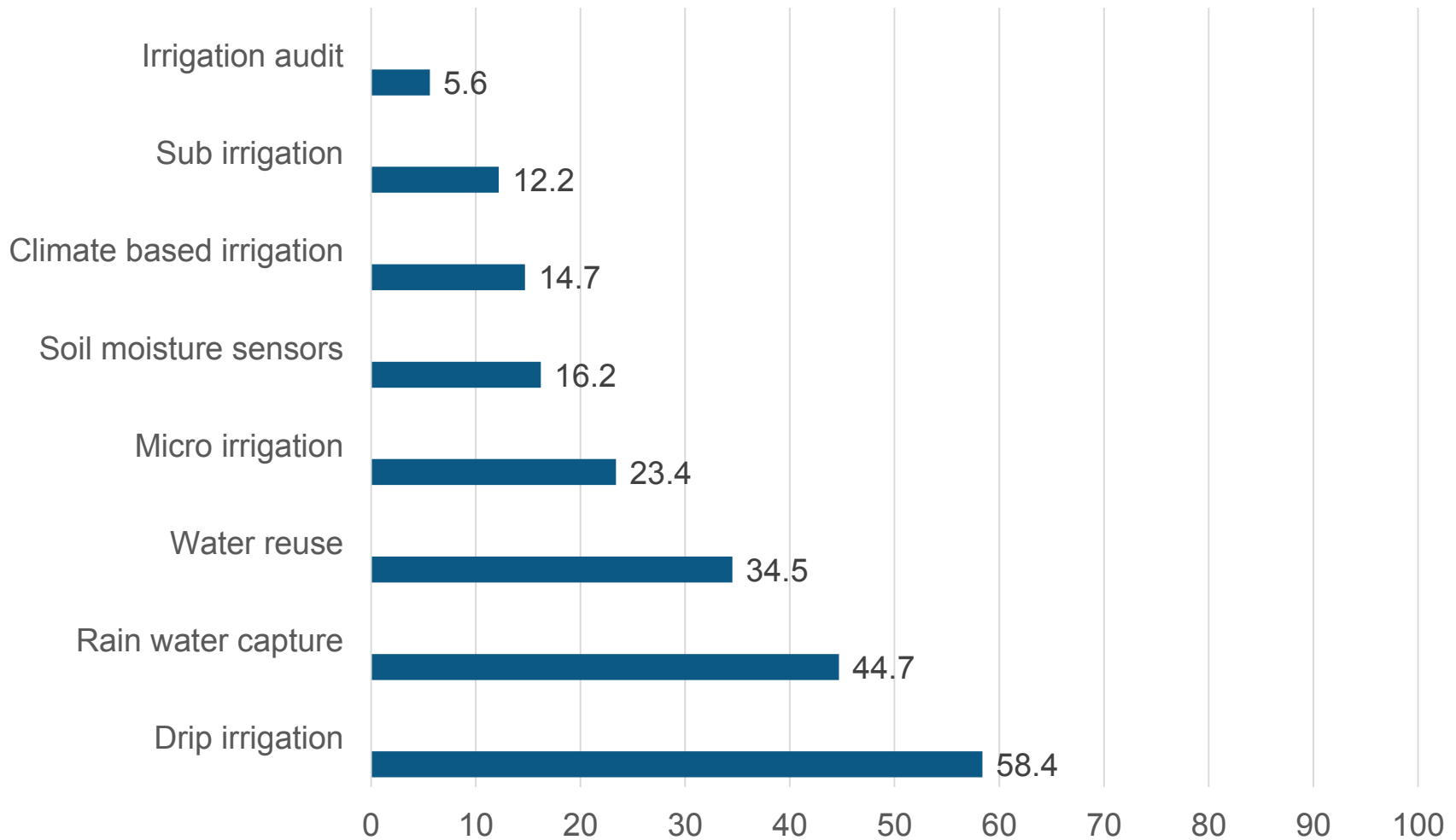
Water sources



Use of Treatment Technologies

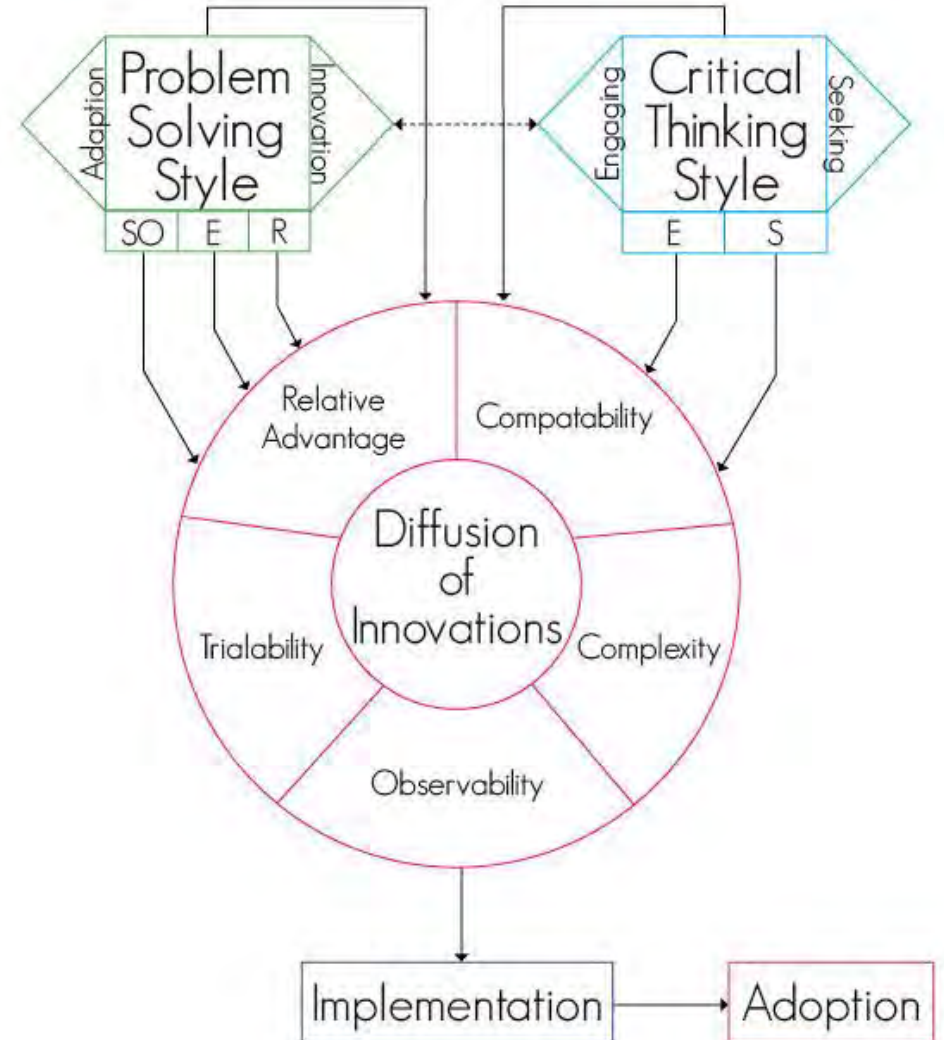


Use of Conservation Technologies



Understanding adoption decisions

- Characteristics of technologies
 - Relative Advantage
 - Compatibility
 - Complexity
 - Trialability
 - Observability
- Cognitive measures
 - Critical thinking style
 - Problem solving style



CONSERVATION TECHNOLOGY

- Most knowledgeable about **drip irrigation** and **rain water capture**
 - Additionally, these were the two practices most respondents had implemented and continued to use
- **Observability** was the innovation trait most likely to advance adoption of a water conservation technology.
 - 50% said that if they could observe someone else using the technology they would be somewhat likely or very likely to adopt the new technology.

TREATMENT TECHNOLOGY

- Growers were most familiar, most likely to have previously implemented, and still use:
 - Vegetated channels and buffers for sediment removal
 - Chemical treatment of water for pathogen removal
- Most respondents either agreed or strongly agreed water treatment technologies could be a **solution to combating drought**.
- Respondents reported they **had not** been able to **observe others** using or demonstrating treatment technologies
 - The **opportunity to observe** might alter their rate of adoption.
- +50% would **prefer to try** a treatment technology before implementing it in their nursery or greenhouse.

What does all this mean?

- New treatment technologies need to be developed with growers' **current systems** in mind.
- Opportunities to see new technologies in action should be developed and widely offered
 - Field days
 - Trial areas/facilities
 - Online through YouTube videos
- Commodity groups should consider developing an exchange program where members are paired together to observe one another's water conservation practices and gain first-hand knowledge of the pros and cons associated with adoption.

Thank you!



Any Questions??

Alexa Lamm
alamm@ufl.edu

Peyton Beattie
pbeattie@ufl.edu

Check out our work at: www.Cleanwater3.org