

# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)



# Smartscape Training Program for Landscape Professionals in Arizona



Summer Waters  
University of Arizona Cooperative Extension  
Extension Agent, Water Resources  
Maricopa County



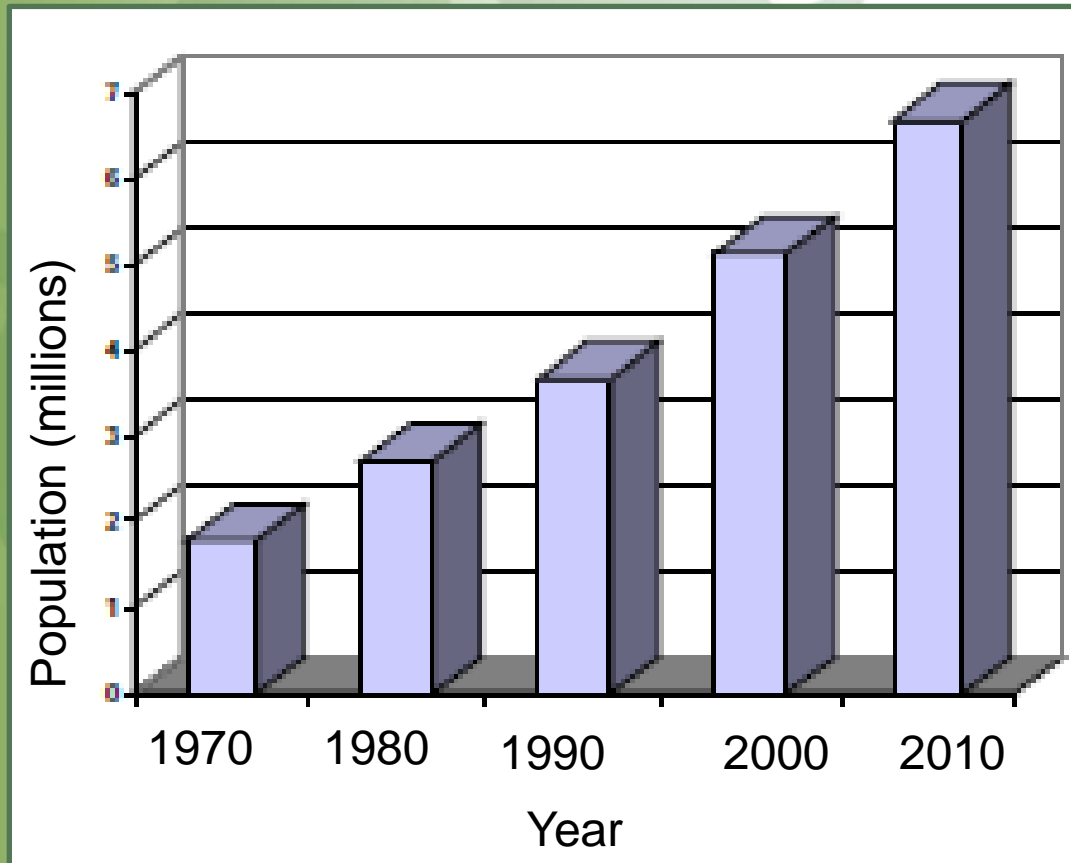
# Arizona's Water Resources



| Arizona Water Supply<br>Annual Water Budget – 2006 |                         |               |
|--|-------------------------|---------------|
| Water Source                                       | Million Acre-Feet (maf) | % of Total    |
| <b>SURFACE WATER</b>                               |                         |               |
| <b>Colorado River</b>                              | <b>2.8</b>              | <b>34.5 %</b> |
| <i>CAP</i>   | 1.6                     | 19.7%         |
| <i>On-River</i>                                    | 1.2                     | 14.8%         |
| <b>In-State Rivers</b>                             | <b>1.4</b>              | <b>17.2%</b>  |
| <i>Salt-Verde</i>                                  | 1.0                     | 12.3%         |
| <i>Gila &amp; others</i>                           | 0.4                     | 4.9%          |
| <b>GROUNDWATER</b>                                 | <b>2.9</b>              | <b>35.8%</b>  |
| <b>RECLAIMED WATER</b>                             | <b>1.0</b>              | <b>12.3%</b>  |
| <b>Total</b>                                       | <b>8.1 maf</b>          |               |

Source: ADWR, 2006

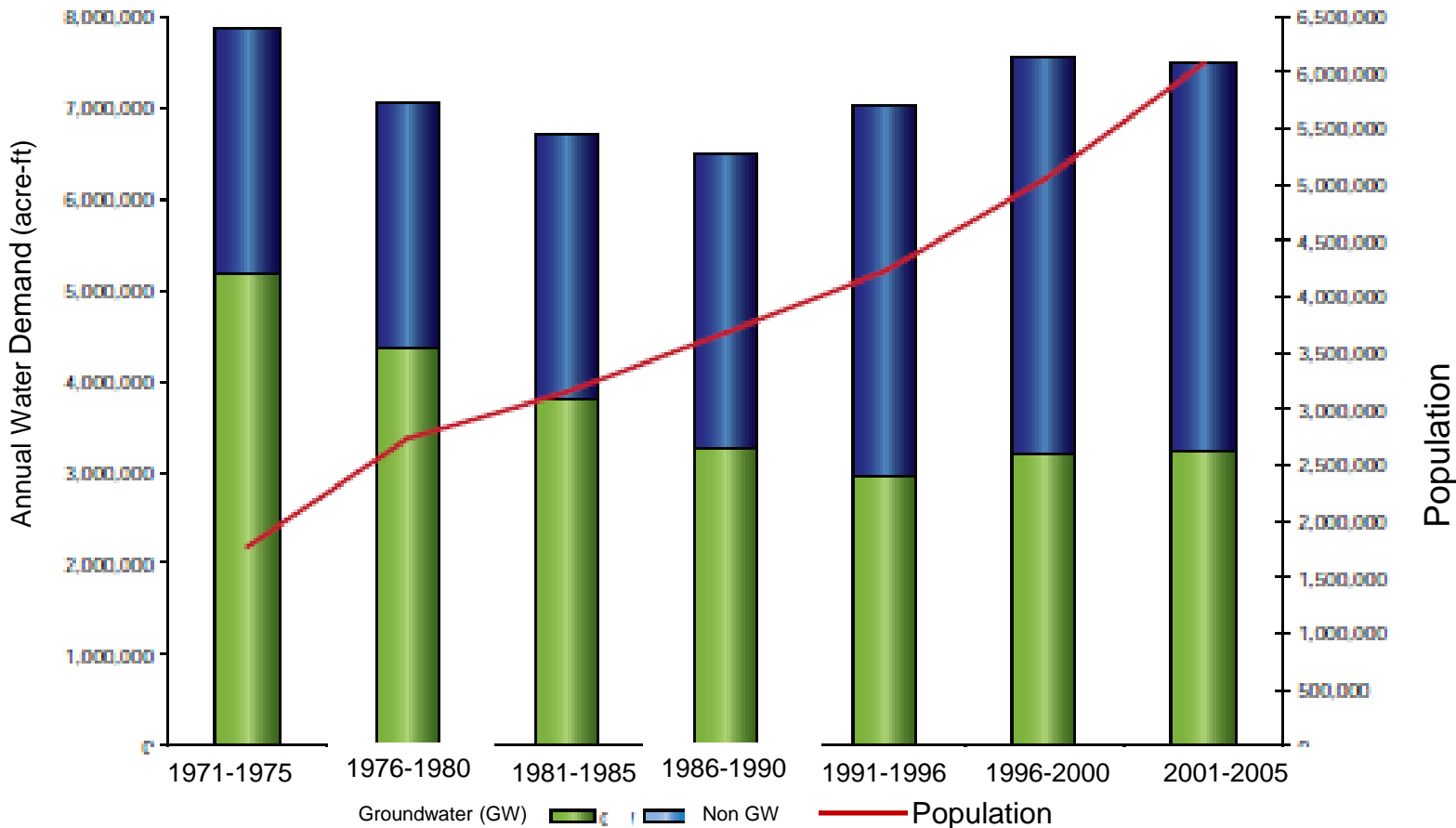
# Arizona's Population Growth



# Arizona's Population and Water Supply

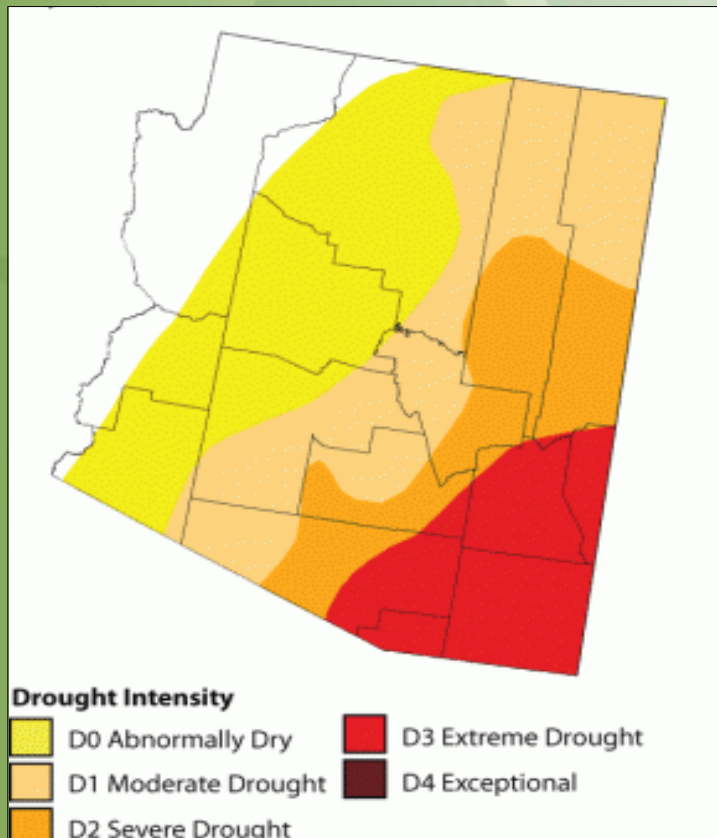


Comparison of Arizona's Average Annual Demand vs. Population

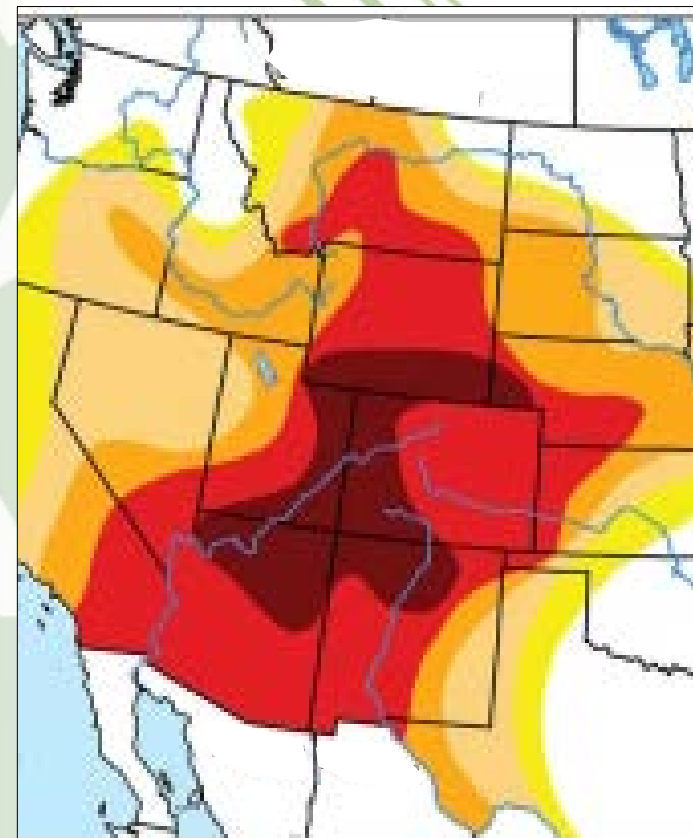


Various data sources, see Arizona Water Atlas Volumes 2-8

# Drought Impacts



Arizona Drought Status May, 2011



Southwest Drought Status July, 2002

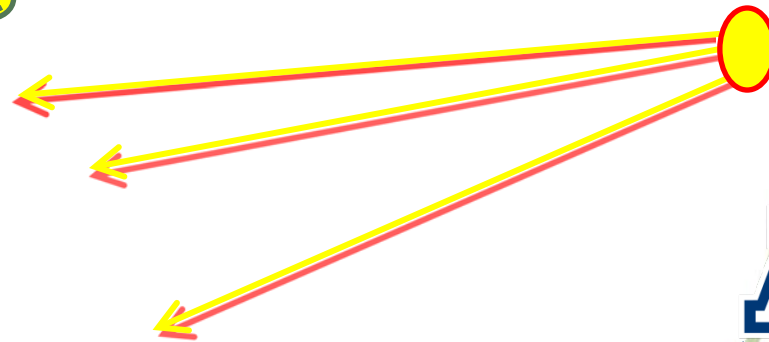
# Smartscape Background



- Originated in 1990's as collaboration between Tucson Water and Cooperative Extension
- Funded in Maricopa County by AMWUA since 1994
- Implemented through Cooperative Extension Statewide



# Arizona Smartscape

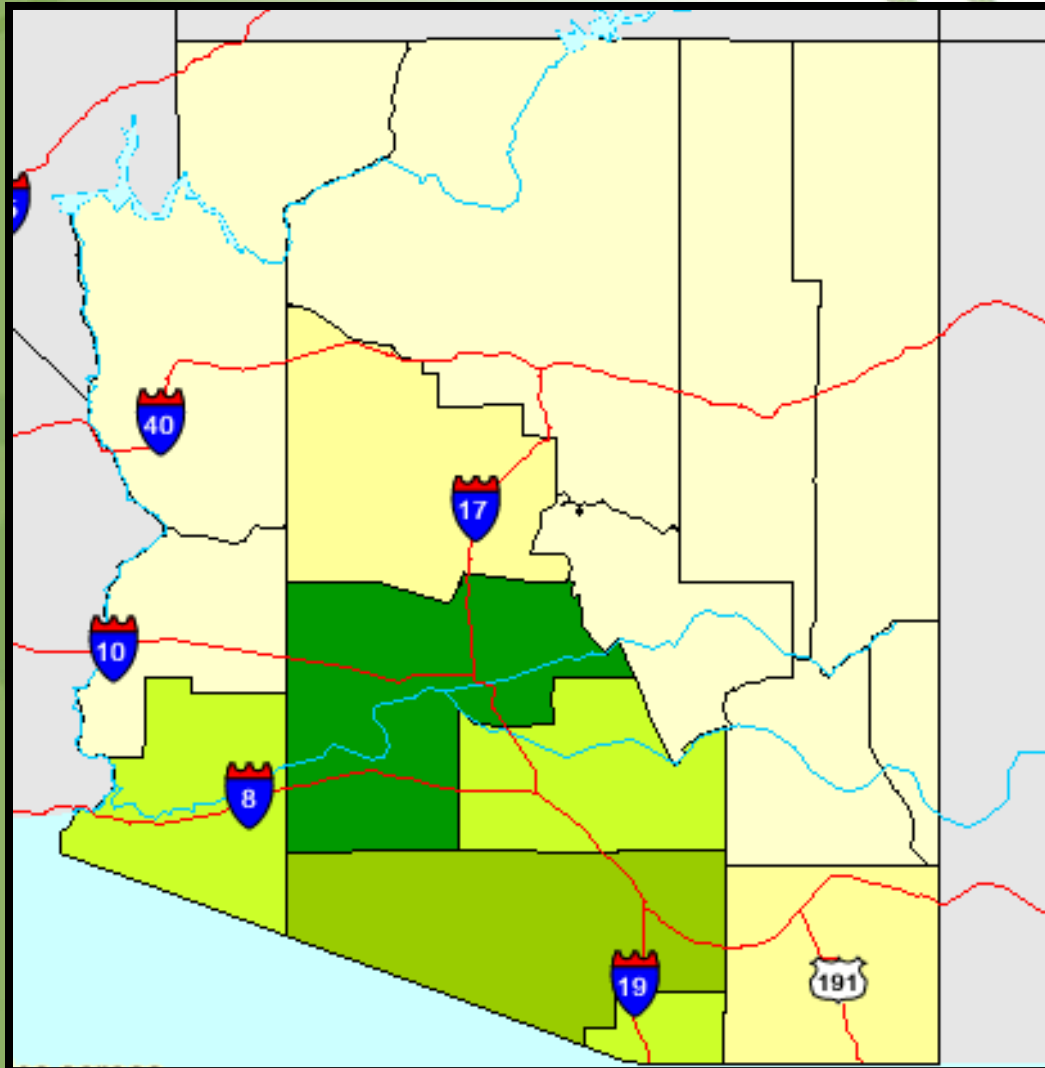


Established  
Smartscape  
Programs



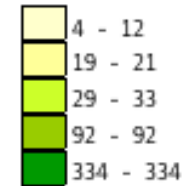


# Population Density in Arizona

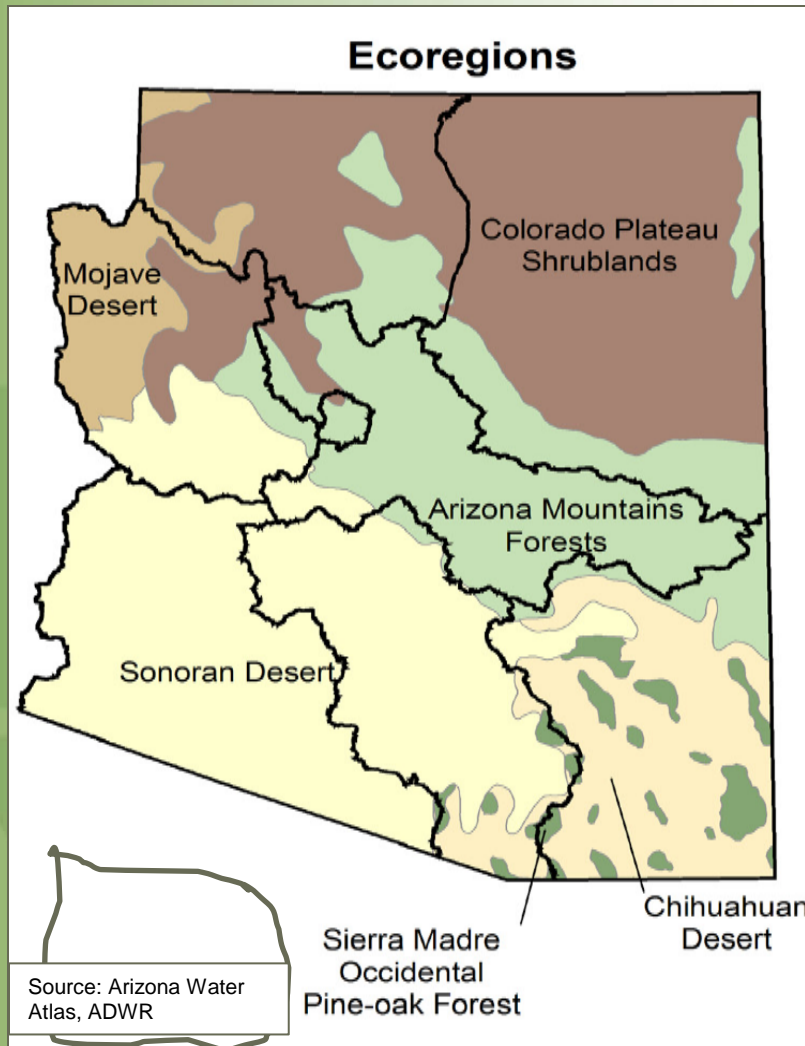


## Data Classes

Persons/Sq Mile



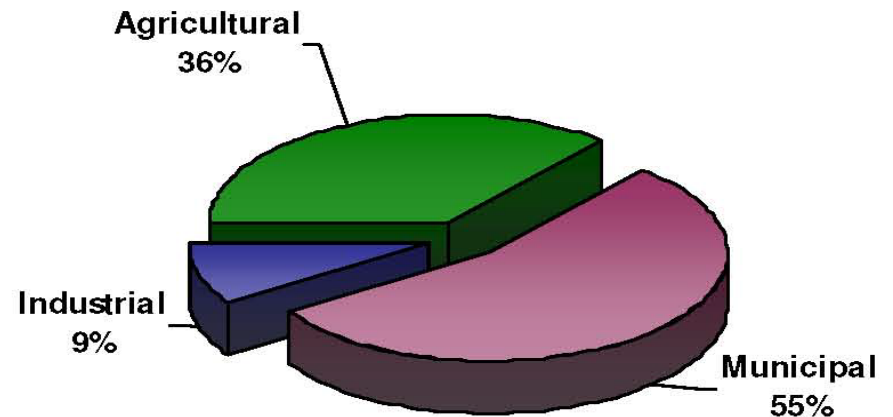
# Natural Characteristics



# Maricopa County



## Phoenix Area Water Demand



ADWR, 2006

# Course Overview



## Smartscape 101

### Design, Install, Maintain Desert-Adapted Landscapes

- 4 week training
- 2 days per week-afternoon/evening
- Take-home test
- Outdoor component and test review on last day
- Certificate of Completion once attendance requirements are met
- Class size around 60 people

# Topics



## Core Topics

1. Soil, Plants and Water
2. Landscape Water Management
3. Drip Irrigation Design and Installation
4. Solutions to Plant Problems
5. Desert Adapted Plants
6. Plant Selection and Installation
7. Maintaining Desert Adapted Plants
8. Design and Renovating Landscapes

## Optional/Additional Topics

Pest and Disease Management  
Marketing Smartscape Businesses  
Worker Safety



## Hands-on Learning Experiences



# But Wait, There's More....



## Short Topics

- Laws and Regulations
- Rebates and Incentives
- Rainwater Harvesting
- Trade Organizations and Continuing Education

## Extras

- Water bottles
- Rain gauges
- Refrigerator magnets
- Tote bags
- Chip clips



A TRAINING PROGRAM FOR  
LANDSCAPE PROFESSIONALS

# Additional Education



Continuing education is encouraged

Some options include:

- Advanced Smartscape (U of A)
- Desert Turf grass School (U of A)
- Arizona Certified Landscape Professional (ALCA)
- Irrigation Association (IA) training
- Arizona Certified Nursery Professional (ANA)



# Promoting the Course

- Press release
- Notice to water providers
- Newspapers- local and regional
- Industry publications
- Email to listservs
- Flyers at office and partnering organizations
- Mail flyers to local businesses
- Referrals from other clients
- Booth at Home & Garden shows



# Smartscape certification growing in popularity, new classes starting Feb. 28

By KIMBERLY HAUG  
SPECIAL TO AFN

Smartscape, a training and certification program originally created for nursery and landscape professionals in Arizona, is now reaching out to local residents.

The statewide program, founded in 1994 by Tucson Water, Arizona Municipal Water Associations and University Cooperative Extension, is offering classes to area residents who want to learn more about such things as low-water use landscaping.

"Smartscape tries to attack it from both ends, integrating the perspectives of the consumers and the producers," said Haley Paul, program coordinator at the University of Arizona Cooperative Extension, Maricopa County, and a graduate of Desert Vista High School in Ahwatukee Foothills.

Building a strong program from the bottom up has benefited Smartscape by showing that with effort and a positive mindset the organization can create change. This change has already been in

progress for 14 years with classes reaching their full capacity of 60 applicants.

"We like to think of ourselves as the basic class," said Paul, adding that the program provides students a broad overview and points them in the right direction for more details.

Smartscape is offered in both the Phoenix and Tucson areas. Classes are in the fall and the spring and are presented as a series of eight 2 ½-hour workshops. The various workshops are intended to offer education on a broad assortment of subject matters in the landscape industry. In addition, this May Smartscape is offering advanced landscape classes that will focus on irrigation.

Workshop classes offered are: Landscape Design and Renovation, Soils, Plants and Water, Desert Adapted Plants, Solutions to Plant Problems, Drip Irrigation Design and Installation, Maintaining Desert Adapted Plants, Landscape Water Management and Irrigation



Photo courtesy of Summer Waters/UA Cooperative Extension  
**Haley Paul, program coordinator for Smartscape, a training program for landscape professionals, distributes water conservation information to attendees at the Maricopa County Home and Garden Show in January.**

Controllers, and Plant Selection and Installation and Test Review.

Students have instructors who are acknowledged experts in the subject matter they are teaching, officials said, and each has educational and professional experience.

"Low-water-use landscapes is

a heavy topic, but the more you are around it the more you learn about it," said Rick Templeton, a water resource specialist who has been part of Smartscape for five years.

Classes primarily focus around design, installation and maintenance of low-water

landscape, teaching fundamental techniques to plan, create and care for low-water-use plants.

Energy and water efficient landscaping, also known as xeriscape, is quickly becoming widespread.

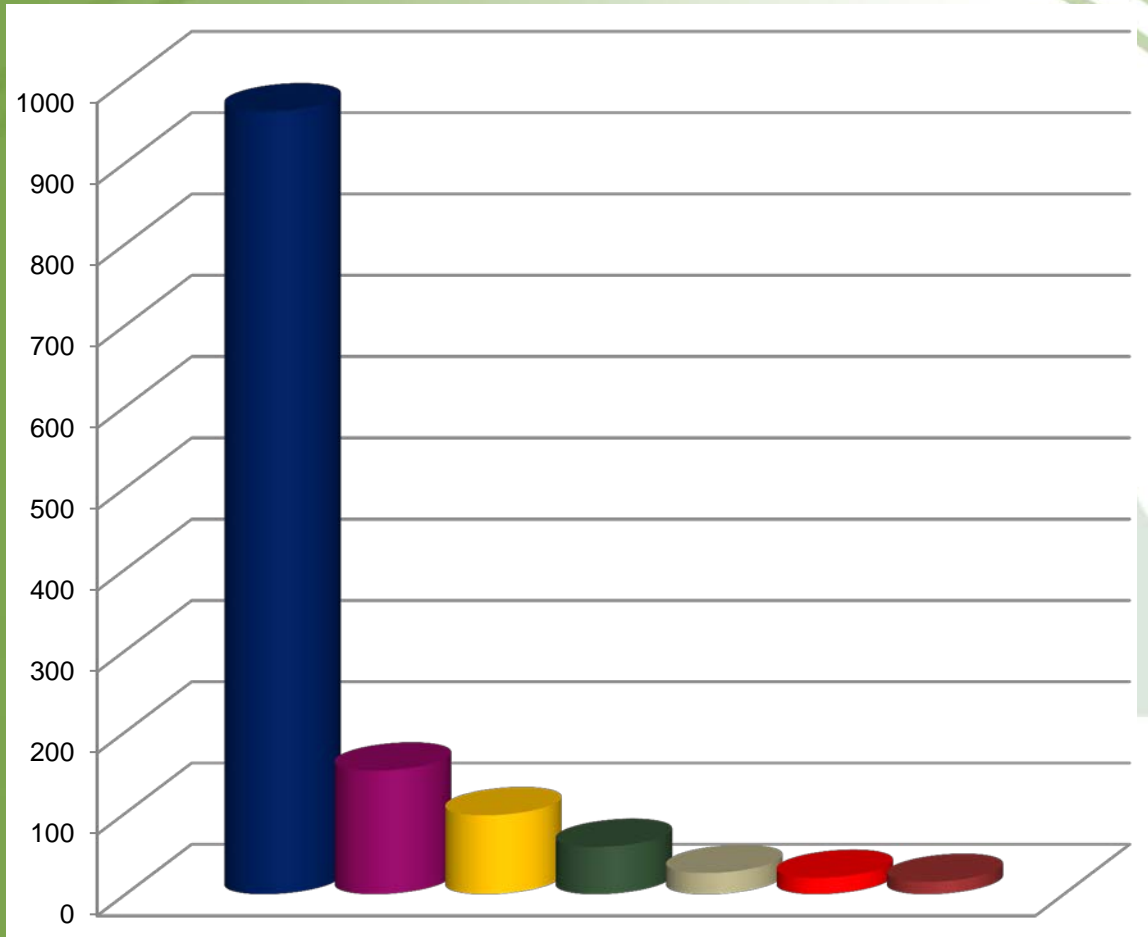
The Smartscape program is \$60, which includes 20 hours of expert instruction. All participants who successfully complete the workshops receive a certificate proving that they have completed the training.

"Ideally, we hope to keep expanding and promoting how beneficial low-water landscape is to our lives and our environment," Paul said.

Classes beginning Feb. 28 at Maricopa County Cooperative Extension, 4341 E. Broadway Road, are filling up. For more information, contact Paul at (602) 827-8200, ext 395, or at [hepaul@cals.arizona.edu](mailto:hepaul@cals.arizona.edu).

*Kimberly Haug is interning this semester for the Ahwatukee Foothills News. She is a senior at Arizona State University.*

# Enrollment Since 1994



- Landscape Companies/Professionals
- City Parks and Recreation
- other
- Nursery Professionals
- Other government (flood control district, ADOT, etc.)
- HOAs
- City Water Conservation Staff

# Program Evaluation



- Helps gauge success of course
- Evaluation forms completed by all students after each class
- Overall evaluation form completed at the end of the course session
- 6-month follow up survey online- sent via email to past graduates but response is anonymous

# Course Evaluation

- Likert Scale (1-5) used to gauge the students feelings about courses

| Number | Meaning                             |
|--------|-------------------------------------|
| 1      | Strongly disagree                   |
| 2      | Disagree                            |
| 3      | Neutral/ neither agree nor disagree |
| 4      | Agree                               |
| 5      | Strongly agree                      |

- Students respond to a series of statements about quality of presentations, usefulness of course materials, relevance of topics covered
- One question for self evaluation/change in knowledge
- Comment section



# Overall Course Evaluations



- My expectations for this class were met.
- On the whole, the quality of the presentations throughout the course was high.
- Overall, the speakers were knowledgeable and informative.
- The topics covered by Smartscape are useful in my line of work.
- Overall, the two-and-a-half hours provided for class was sufficient for the information presented.
- The test reflected the notebook and the speaker presentations throughout the course.
- I would be interested in learning more on the topics covered in Smartscape.

# Evaluation Results



| Smartscape series/ course   | Average score                         | Important comments  |
|-----------------------------|---------------------------------------|---|
| <b>Smartscape Fall 2010</b> | <b>4.54</b><br><b>90%</b><br><b>A</b> | <ul style="list-style-type: none"><li>• Keep doing the class, good job!</li><li>• I really enjoyed the classes and all the materials.</li><li>• I am encouraged to gain further insight about Xeriscape methods.</li><li>• Would have liked more on actual irrigation design.</li></ul> |

| Smartscape series/ course     | Average score                          | Important comments   |
|-------------------------------|--|--|
| <b>Smartscape Spring 2011</b> | <b>4.46</b><br><b>89%</b><br><b>B+</b> | <ul style="list-style-type: none"><li>• Excellent selection of speakers, nice notebook, helpful staff.</li><li>• Overall quality of program is good.</li><li>• Very basic.</li></ul> |

# Follow-up Survey



- Do you or your company use Smartscape certification to promote business?

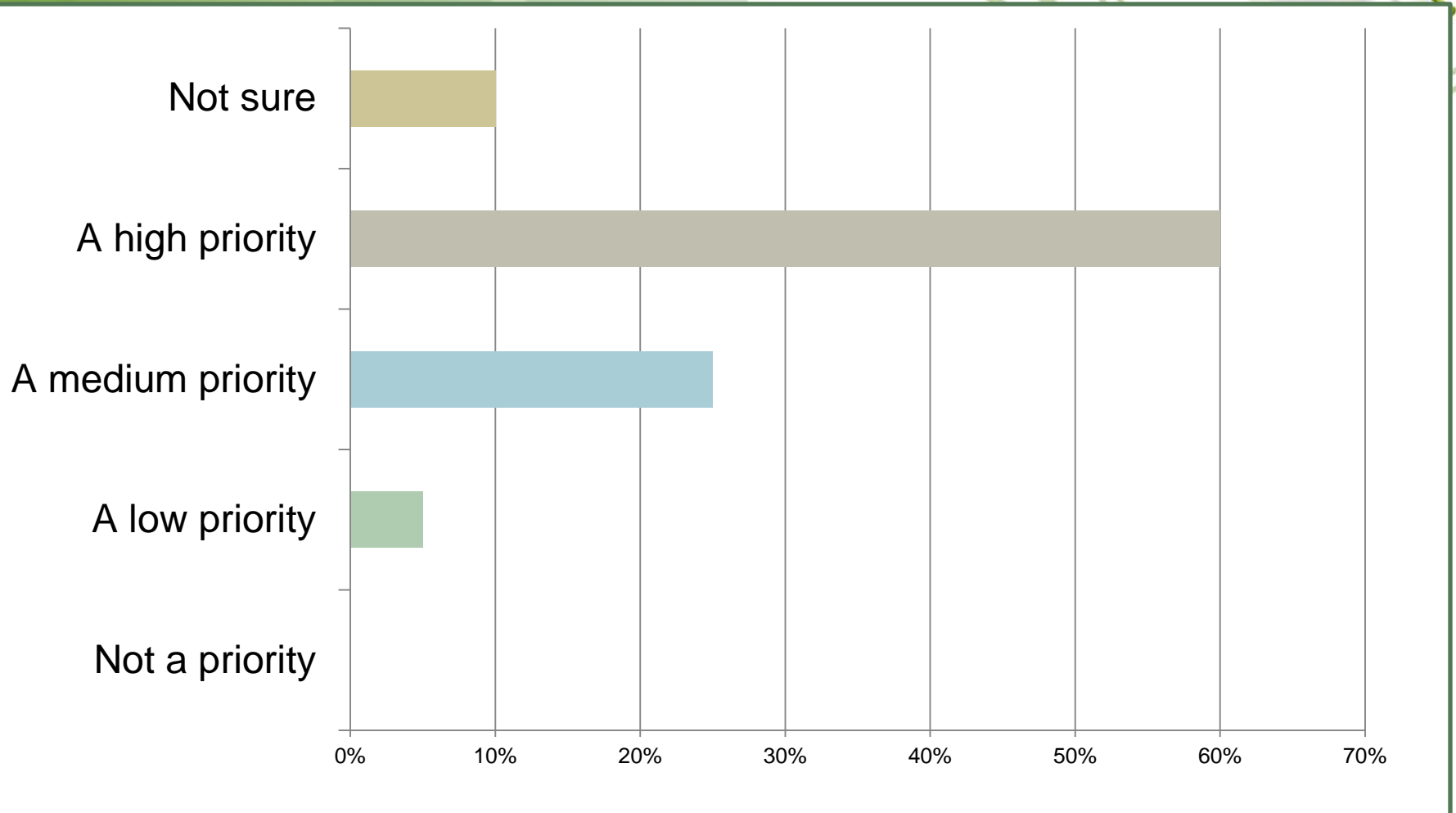
**50% No    50% Yes**

- Do you think there is a need in the landscaping industry for more classes on irrigation efficiency and low-water-use landscapes?

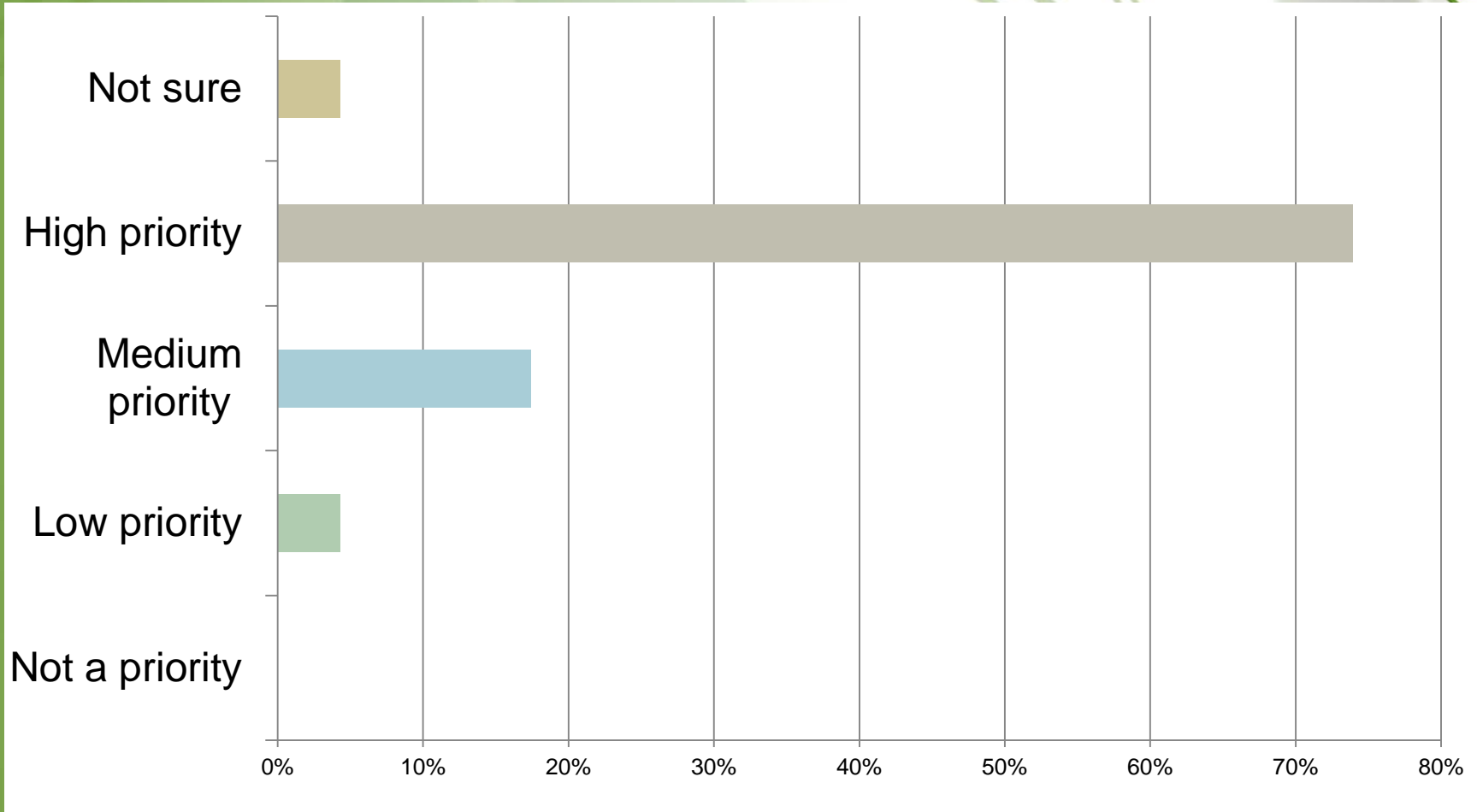
**5% No    95% Yes**



# Question: How much of a priority is irrigation efficiency to your clients?



Question: How much of a priority is irrigation efficiency to the **COMPANY** or **CITY** you work for?



If you have ever faced difficulties when trying to apply a technique recommended in Smartscape, why do you think you faced those difficulties?



Have not faced any difficulties

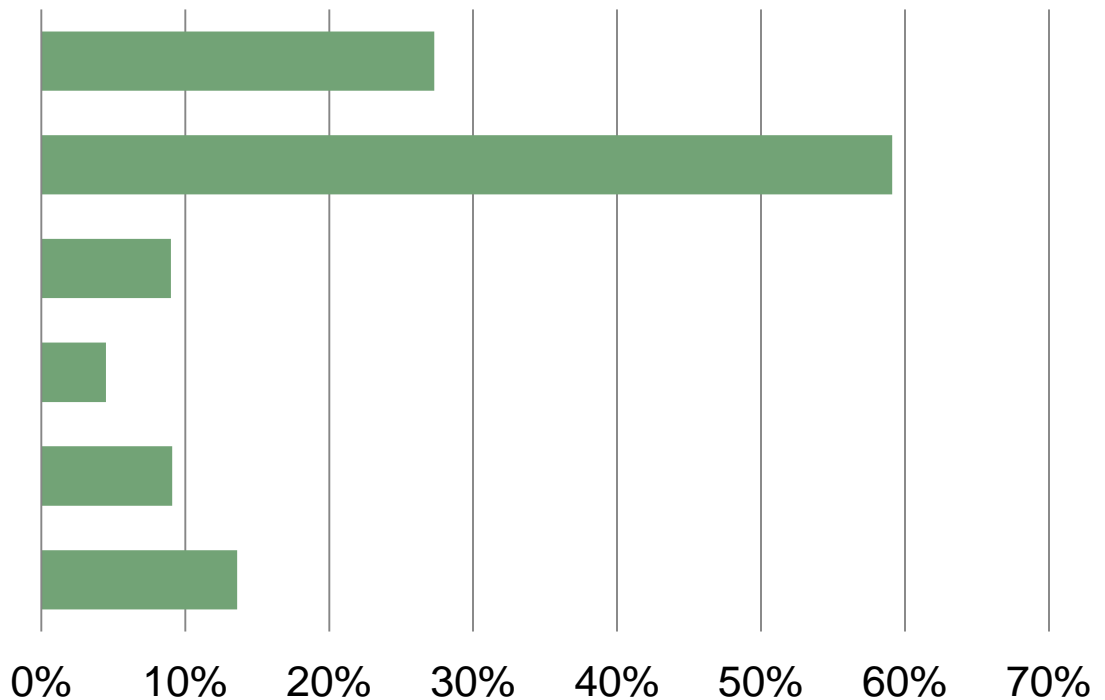
Poor initial landscape design

No customer demand

Company practice

High cost

Other (please describe)



# What Topic are Students Interested in Learning More About?

- Irrigation
- Trees
- Landscape business improvements and financial advice



# Advanced Smartscape



- Opportunity for more in-depth training
- Focus on particular topic
- Tailored to local needs



# Advanced Smartscape Pima County

Landscape Water Management  
Water Demand and ET  
Water Quality  
Smart Irrigation Control

Urban Landscape Management  
Succulents  
Plant Adaptations  
Desert-wise Landscapes

Water Conservation Ordinances  
Rainwater Harvesting and Gray Water  
Calculations & Resources  
Practical Considerations



# Maricopa County Advanced Smartscape: *Irrigation* Module



15-hr Training

3 Classes

- Irrigation Design
- Irrigation Installation
- Irrigation Maintenance

Pre and post tests implemented to accurately assess knowledge gain

# Key Concepts



## Design

- Efficiency
- Zoning
- Pressure
- Hydraulics
- Control Systems

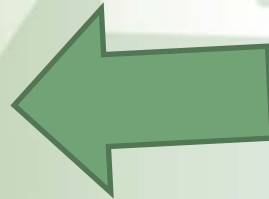


## Install

- Identify basic parts
- Reading plans, permitting, staking, trenching and piping
- Examples of different sprinkler heads and drip emitters other products

## Maintain

- System inspection & Observations- landscape, drip, bubbler, sprinklers
- Trouble shooting
- Water budgets
- Scheduling





# Results



- 48 students registered
- Likert scale (1-5) overall score = 4.29
- 85% positive responses
- B+ some improvements needed to course materials and class structure
- **Pre and post test scores indicate an average increase in knowledge = 20%**

## Comments:

- I think it would have been helpful for this class to be more interactive.
- It would be nice to have sample problems to work through.
- This class was perfect!

# Work In Progress



- State-wide Smartscape Coordinating Committee
- Standardized Extension curriculum
- Interactive assessment tools
- New topics for Advanced Smartscape or optional additions to Smartscape 101:
  - Rainwater harvesting
  - Reclaimed water

# What's Next?



- Additional collaboration to bring more courses to the Extension office
  - Additional one day seminars
  - Focus on renovation/maintenance
  - Hands-on workshops
  - CEUs
- Course for municipal employees- Parks & Recreation, Facilities Management
- GIS-based irrigation scheduling

# Questions?

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