

# This presentation premiered at WaterSmart Innovations

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



# Rainwater Harvesting Education in Texas

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- The mission of **Texas AgriLife Extension Service** as part of the A&M University and the Land Grant College System is *“to provide quality, relevant outreach and continuing education programs and services to the people of Texas.”*





<http://rainwaterharvesting.tamu.edu/>



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# Educational Programming

- **Demonstration Sites**
- **Master Gardener “Rainwater Specialist”**
- **Master Naturalist “Rain Steward”**
- **In-Home Rainwater Workshops**
- **Website and Publications**
- **Special Programming**

# Demonstration Sites – Hands-On









# Master Gardener “Rainwater Specialist”

- June 2006 – September 2008
  - 8 Workshops -- 265 volunteers
  - 15-20 hours of training
  - 15 hours of volunteer service required in Rainwater Education



# **\$200 Registration Fee Limited to 30 People**

- Master Gardener Rainwater Manual
- Power Point hard copy
- Construct rain barrel
- Build wildlife watering device
- CD of all Power Points
- Meals and refreshments
- Hands-On Installation

- Overall program evaluation results
- (1=poor and 5= excellent).
- Overall Evaluation      Average Response 4.9
- Evaluation results of knowledge  
before the program Average Response 2.9
- Evaluation results of knowledge  
after the program Average Response 4.6
- Retrospective Pre-Post Test Percent Knowledge Gained- 58%
- Evaluation results of the ability to educate others      Average Response 4.7

# Education Team

- **Billy Kniffen – TCE Extension Agent – Ag/NR**
- **Dr. Monty Dozier – TCE Water Quality Specialist**
- **Dr. Bruce Lesikar – TCE Storm Water Engineer**
- **Dr. Jim Cathey – TCE Wildlife Specialist**
- **Justin Mechell – TCE Engineer, TCE Assistant**
- **John Smith – TCE Soils/Crop Sciences Dept. TCE Assistant**
- **Molly Griffin – TCE Engineering Dept., TCE Assistant**
- **Bryan Davis – TCE Extension Agent – Ag/NR**
- **Mike Mecke – TWRI Water Management Specialist**
- **Local Extension Agents and Master Gardeners**

# Classroom Training



# Demonstrations



# Dip Irrigation Using A Rain barrel



# Construction and Installation





# Hands-On



# Why and How



# Displays & Supplies

## Abstract

This project is the result of research to determine if rainwater harvesting is a good way to supply water to a household. The idea was to determine if collecting rainwater would be a possible way to supply water rather than using a well. Rainwater harvesting is being used around the world where there is no ground water or where it is hard to run pipes to the house.

The procedure used to verify gallons of water that can be collected per square foot of roof space is as follows: foot catchment roof.

The water was measured and calculations performed to determine gallons per square foot. The roof space of an average house was used to multiply the gallons per square foot to find out if enough water could be collected to supply a family of three.

Research was done to determine if the water could be filtered and purified for safe use.

- Determined average monthly rainfall for the research area.
- Determined how much water would have to be stored in order to supply a family of three for a month.

It was concluded that 60% of a gallon of rainwater could be collected per inch of rain per square foot of roof. The roof area of an average house could collect enough rainwater to supply a family of three for a month given average monthly rainfall for the research area and sufficient storage. The water collected can be used for irrigation or other uses. The conclusion of the project is rainwater collection can be used as a way to provide water to a household.

## Question

In rainwater collection a good way to provide water to your household?

## Hypothesis

Enough rainwater can be collected from the roof of your house to supply water for your household.

## Rainwater Harvesting

## Experiment





## Results

A family of three would need a 3 bedroom home. An average 3 bedroom home is approximately 2,000 square feet. A 2,000 square foot home will have around 1,000 square feet of roof area. 5,000 square feet of roof area will collect 1,000 gallons of rainwater per inch of rain. Using the monthly rainfall chart below, the amount of September the average rain fall is 3.4 inches. The amount of water that would be collected from the roof would be approximately 3,400 gallons. To store the amount of water a person would need four 3,000 gallon storage tanks. A roof large enough to hold 4 areas to catch rain. This would be an additional 2,000 gallons for the month of September. The total amount of water you would collect would be 10,000 gallons which is more than your tanks will hold. Four full tanks are about a 2 months supply of water for a family of 3 people. If the family is conservative it could be as much as a three months supply according to the monthly rainfall chart and calculations from the area about say fall winter.

## Conclusion

The research shows that rainwater harvesting is a good way to provide water to a household. The amount of water that can be collected from the roof of a house can be used to supply a family of three for a month given average monthly rainfall for the research area and sufficient storage. The water collected can be used for irrigation or other uses. The conclusion of the project is rainwater collection can be used as a way to provide water to a household.

## Question

In rainwater collection a good way to provide water to your household?

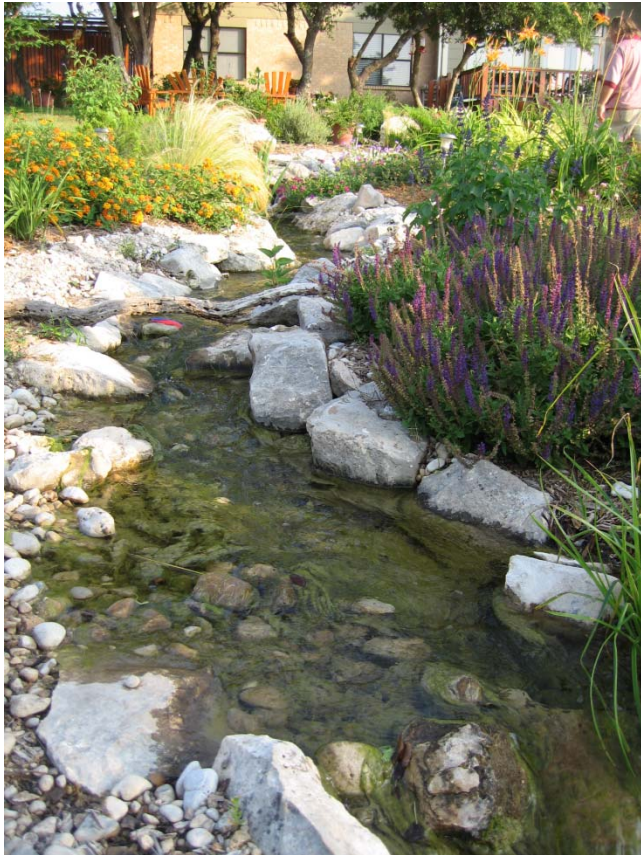
## Hypothesis

Enough rainwater can be collected from the roof of your house to supply water for your household.




# Tour Installations





# Rainwater For Greenhouse and Water garden



# Homes & Schools





# Kniffen's Home



# Stormwater Management





# Stormwater Management



# Rain Garden Construction





# Youth Education - Rainfall Off A Roof



# Clear Plastic Tarp - Watershed/Roof



# Raindrop Impact



# Recognition & Responsibility



# Everyone Constructs A Wildlife Waterer For Their Rain Barrel



# Everyone Gets A Rain Barrel





# Menard Class of 2007



# Texas Master Naturalists



# Master Naturalist 3 Day Advanced Training in “Rainwater Stewardship”



# Classroom and Field Work



# Paired Watershed Plots



# Where Does The Rainfall Go



# Youth Education and Wildlife Waterer

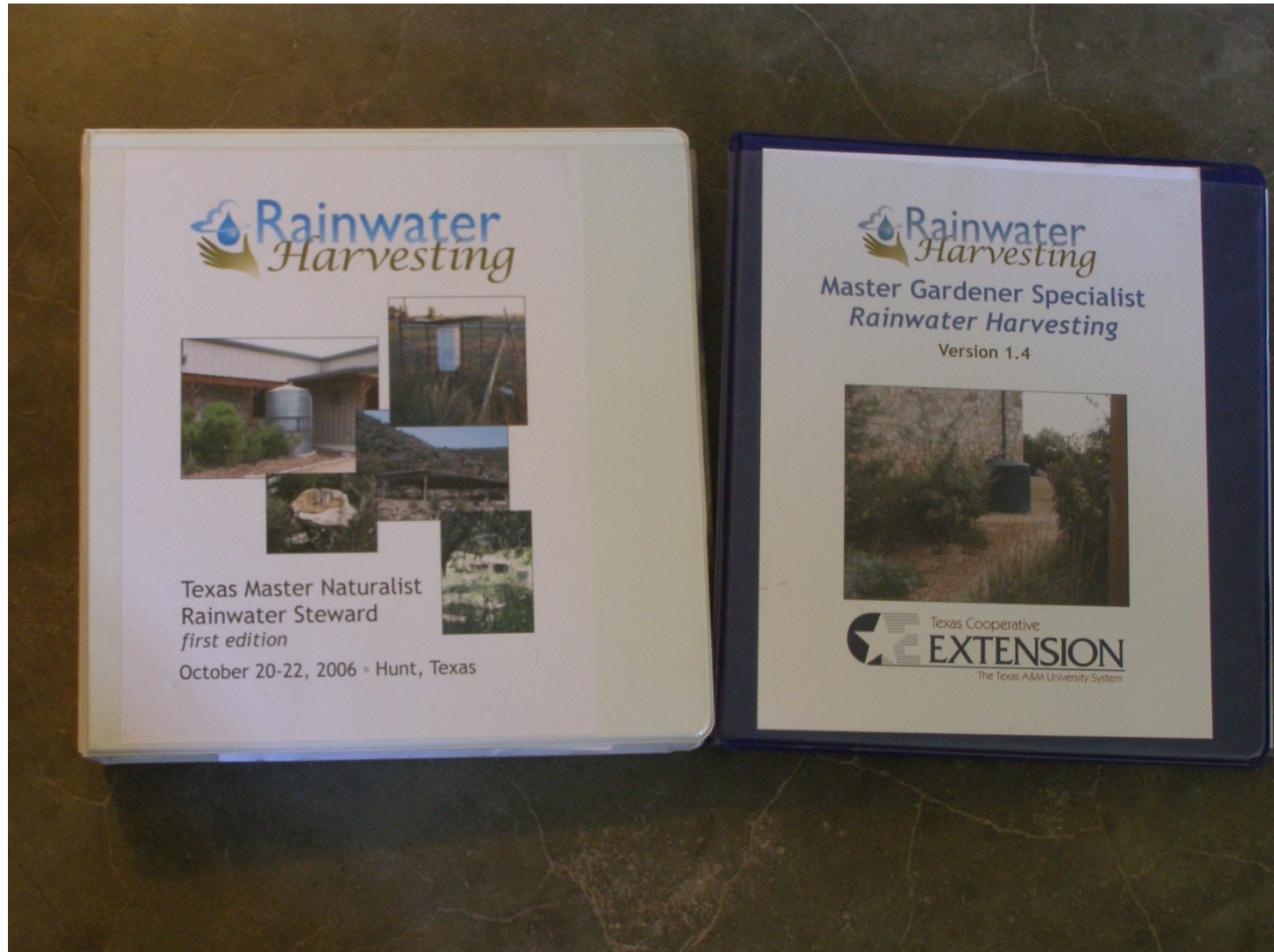


# Master Naturalist Class of 2006

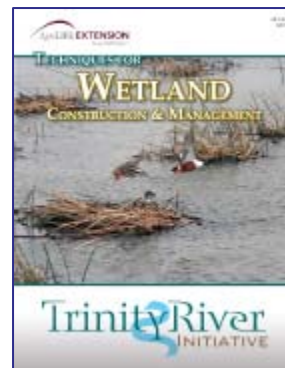
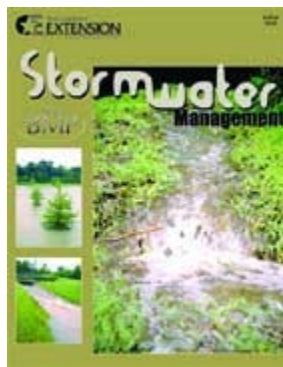
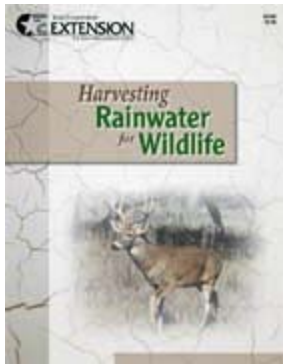




# Manuals



# Publications





**TRCA-*Texas Rainwater  
Catchment Association*  
State Conference –  
March 18-20, 2009**



**ARCSEA-  
*American Rainwater  
Catchment Systems Association*  
National Conference -2009  
Professionals Accreditation**

# Future Programming

- Master Gardener “Rainwater Specialist”
- Master Naturalist “Rain Steward”
- In-home Potable Rainwater Workshop
- Rain Barrel Construction Parties
- County & Multi-County Programs
- Demonstration Sites
- Texas Rainwater Catchment Association & Conference March 18-20, 2009
- American Rainwater Catchment Systems Association & “Professional Accreditation”



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