Responses to the Questions Received during Webinar

Rainwater Harvesting and Water Re-Use: State Specialists' and County Agents' Perspectives (March 1, 2011)

Note: This document includes the responses to the few questions that were not addressed during the webinar. To listen to the recording of the webinar Q&A session, go to http://www.fred.ifas.ufl.edu/conservation-webinars/Reuse.htm.

Rainwater Harvesting

The questions were addressed by Mr. John Hammerstrom, President, American Rainwater Catchment System Association (johnhammer@bellsouth.net)

What is a good size for a residential cistern in gallons?

There is no “good” size. One can calculate their water budget to determine the optimally sized cistern, which involves knowing what time of year the rain falls in your locale and what your expected uses are to be sure you have rainwater year round. On the other hand, I’ve never met anyone whose cistern was too large. Almost universally, overflow during times of rain abundance is lamented. The limiting factors to size of a cistern are usually budget and space. So, generally speaking, one should get the largest cistern that their size and budget will allow.

Are rain barrels the most cost efficient choice for residential rainwater harvesting?

They are the least expensive, but cost effectiveness involves knowing what your uses are and the value of that use. It is quite common that a residential rain barrel is just the beginning. When one realizes the large quantities of water that can be harvested from a roof, and how quickly a rain barrel will fill up, it is very common for people with one rain barrel to plan for more storage. For every 1,000 square feet of roof space being used to harvest rainwater, an inch of rain will deliver approximately 600 gallons. Put another way, harvesting from a 100 square foot roof area, an inch of rain will overflow a 55-gallon rain barrel.

Could you discuss a little further the IGCC and the RWH codes ready for jurisdictional adoption?

The International Green Construction Code (IGCC) includes Section 707 “Rainwater Collection and Distribution Systems” and the International Association of Plumbing and Mechanical Officials (IAPMO) Code Supplement includes sections for rainwater harvesting standards as well.

I had heard that rain barrels that collect off shingle roofs may have metal concern and Department of Health (DOH) discourages use of this water with edible gardens, is this true?

I am not aware of DOH recommendations about asphalt roofs and edible plants. One pretty good article I’ve found is from the NC extension service: http://www.bae.ncsu.edu/stormwater/PublicationFiles/RooftopRunoff2009.pdf
NC extension service has a whole list of resources on the topic of rainwater harvesting: http://www.bae.ncsu.edu/stormwater/pubs.htm
One authority has commented unequivocally that when a “roof washer” or “first flush device” is used, that discards the first portion of each rain event, the resulting quality of water even from asphalt shingle roofs is more than acceptable for garden uses, even edible plants.
Reclaimed Water

The questions were addressed by Dr. Hochmuth, Professor, Soil and Water Sciences Department, University of Florida (hoch@ufl.edu), and Ms. BJ Jarvis, Director and Horticulture Agent, Pasco County Cooperative Extension, Florida (bjjarvis@ufl.edu). A few suggestions are provided by Dr. Tatiana Borisova, webinar coordinator and Assistant Professor, Food and Resource Economics Department, University of Florida (tborisova@ufl.edu).

**What are some ways that you reach the adult population of your county with information? How do you put the information out there for the public?**

Ms. Jarvis: It is important to educate all stakeholders so that when tough decisions have to be made, a baseline has already been set. There are many ways to try to reach a diverse audience. Using simple cheap methods such as utility bill inserts are commonly used, but not especially effective. Extension classes that are either specifically target at this issue or woven into other program materials (for both adults and youth) can be quite effective. Programs or exhibits at fairs and festivals can help move the discussion forward, but often can be “preaching to the choir.” Focus groups and other various social media methods (such as Facebook, tweeting, etc) should be given greater exploration in order to be most effective.

**When fertilizing occurs 4 times a year do the utilities observe an increase in N as a result? How is this managed w/ respect to TMDLs?**

Dr. Hochmuth: Regarding the question about utilities observing an increase in the wastewater after fertilization; I have not heard anything like this. In fact the research shows negligible N losses from properly fertilizer lawns, that is if the applicator follows the correct rate and timing. Healthy turf is good at absorbing N, the problem comes with over use and misapplication onto impermeable surfaces. We have a new publication summarizing the nutrient use issue in the urban environment. It can be found on the University of Florida Electronic Data Information System (EDIS) site – search at http://edis.ifas.ufl.edu

Does anyone know of sensors that can be incorporated into irrigation systems that shut the system down (during on period) when it is raining.

Dr. Hochmuth: rain sensors, soil moisture sensors and ET sensors. Cork limit switches work well. Many publications on sensors are available on the University of Florida Electronic Data Information System (EDIS) site at http://edis.ifas.ufl.edu (search for “irrigation controllers” or “soil moisture sensors”).

Ms. Jarvis: rain sensors, soil moisture sensors and ET sensors... some are called “Smart Controllers”. In Florida, an automatic rain shut off device of some kind has been required to be installed at the time of irrigation system installation since the early 1990’s. As technology has improved, so has the effectiveness of these instruments. However, one fundamental problem seems to still exist and that is from improper installation and operation. Installers will frequently place such devices under down spouts where no rainfall can be reached, in the direct line of run off from roofs so too much water is recorded, or just not connected even if properly placed. Training for these installers might go a long way to improve the effectiveness and potential water savings found here.

Dr. Borisova: for additional information about water-efficient irrigation technology research and extension programs in Florida, North Carolina, and Oklahoma, see Irrigation Technologies webinar web-site at http://www.fred.ifas.ufl.edu/conservation-webinars/Irrigation.htm
Q: Is there a push to drought tolerant landscapes combined with water conservation?

Ms. Jarvis: Yes, this is part of the Florida Friendly Landscaping™ principles, “right plant in the right place.” There are various low-water requiring plants adapted to landscapes that will not be irrigated. More research is being done to breed turfgrass for lower water needs. Interested persons should contact their county agent for information on Florida Friendly Landscape.

Dr. Borisova: for additional information about outreach programs focused on environmentally-friendly landscaping in Florida, South Carolina, and Tennessee, including Florida Friendly Landscaping™, see Yards and Neighborhoods Programs webinar web-site at http://www.fred.ifas.ufl.edu/conservation-webinars/FFL.htm

Is it cheaper to recycle on a community level versus a home/business/industry level?

Ms. Jarvis: Whenever activities can be carried out on a larger basis you get the economy of scale, so a community scale might become more economical, if I understand the question. It also depends on what you are recycling and what processing is needed to do the recycling.

How much does the homeowner/user save on recycled water over traditional sources?

Dr. Hochmuth: reclaimed water is cheaper than potable by about half

Ms. Jarvis: yes, from a billing perspective. Of course from the real cost of water (developing new sources, potential environmental impacts, etc.) these are rarely accounted for in billing. Research has shown that employing conservation then maximizing existing resources is next best.