Fairchild Tropical Botanic garden
Solar Energy, Miami Palmetto Senior High School

Plants and Water Challenge Review

What is the main source of drinking water for South Florida?

This question revealed the presence of a significant age gap in regards to people who were able to provide full, correct answers to the question, a trend that would become apparent throughout the interview. The younger members of the interview pool, including three high school students, gave the correct answer more frequently than did any other generation that was poled. The Biscayne Aquifer extends more than four thousand square miles, and in evaluating the answers we received, an evident trend was exposed, and as many of the high school students questioned admitted to having taken AP Environmental Science in the past, we were able to pinpoint with accuracy the source of their knowledge. Another one of the interviewees was Miami Palmetto's AP Environmental Science Teacher, an expert in the field who is known to have repeated this information multiple times in her class.

A common misconception came among many adult South Floridian residents, who believed that the region received its freshwater from reservoirs. When they weren't able to provide specific names or locations of any of these reservoirs, it was later revealed to them that the region lacks a presence of such functional, permanent reservoirs. A University of Miami student proposed that purified saltwater was the area's primary source of water, clearly unaware of the high costs and inefficiency of desalinization. While the Everglades do play a major role in regulating South Florida's water shed, Palmetto's assistant principle was incorrect in stating that the wetlands were important for their role in potable water provision.

Electronic applications, whether they are on mobile devices or computers, have become a staple of American society. It was decided that developing a universal "app," possibly with the help of the USGS or USDA, would be one of the most efficient ways of correcting nationwide water supply misconceptions. Determining one's location, the app could relay immediate water facts to users based on where they are.

What percentage of water in the United States is used on agriculture, and what techniques can be used to reduce this amount?

Roughly a little less than a third of the water used in the United States can be traced back to agriculture. Many of those interviewed had estimates well within this range. Once again, the younger generation had a great deal of success in answering correctly, with both a college student and former APES student giving appropriate estimates. Similar ranges were suggested by the APES teacher, as well as by a local resident. Others had numbers just a bit above the acceptable margins, with many estimates coming in between 40%-50%, an error that can possibly be attributed to unreliable sources. However, many had estimates well outside of the suitable range, with many proposing percentages stretching from 60% to as high as 75%, leading us to believe that these locals were not fully aware of society's various uses of water.

The main problem with this question for some came in discussing how to reduce this number. Two of those interviewed had absolutely no clue how to cut down on this amount, having been unable to provide an answer. However, a majority of those surveyed were able to provide viable solutions to dealing with this water problem. While some touched on the need for more efficient growing practices, the most popular answer given was through employing innovative irrigation techniques, particularly drip irrigation. Half of those interviewed mentioned drip irrigation, having at least a familiarity with the concept, but those with the most sophisticated, extensive knowledge were those with the most

familiarity in operating the system, including the APES teacher, as well as a local farmer who actually revealed that she utilizes this micro jet technique. As the APES teacher helped disclose, other efficient irrigation processes, including central pivot sprinkler systems, exist, and more are being developed for various crops.

One of the best ways to clear up any misunderstandings would be through contacting a local news company about orchestrating and broadcasting a case study that would dig deep into the use of water in agriculture, as well as cover novel techniques that could be used to reduce water usage in irrigation. Demonstrations of these new techniques can be aired, and interviews can be conducted with farmers who currently exploit these methods. Different local news station can cover irrigation methods that would be best suited to the crops grown in their respective zones.

How can you conserve water in and around your house?

This was definitely the most engaging of our questions, and interviewees used the opportunity to fully demonstrate their knowledge of both plants and water. There were no true misconceptions exposed with this question, as all who were interviewed has a general idea of how they could make an immediate impact. Most people, regardless of age, recognized how water could be saved through either shutting off the faucet when it is not directly being used (such as when one is brushing their teeth) or through taking shorter showers, both basic solutions. Others proposed ways to save water when it comes to using toilets.

With respect to saving water when it comes to maintaining lawn, some of those interviewed touched on the concept of Florida Friendly Landscaping, although most who did not have access to previous education were not familiar with the issue. In this process, activists can cultivate native plants that are naturally suited to the Floridian environment, as well as reduce the amount of water that they

use in up keeping their yards, as well as decreasing the amount of water-polluting pesticides that they use. This strategy should be introduced to vast audiences at community-wide programs.

Such water-saving techniques originate in school, but can be introduced to the community in other ways. Members of our class have already taken this initiative, having gone out and posted flyers in English and Spanish, as well as having developed a series of public service announcements and a website detailing water conservation techniques.

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