

PRIVATE WELL WATER PROGRAM TO EDUCATE UGA EXTENSION AGENTS AND HOMEOWNERS

Gary L. Hawkins¹, Beth Lunsford², Uttam Saha³, C. Monte Stephens⁴, Stephanie Butcher⁵,
Dana Lynch⁶, Patricia West⁷, Phillip Edwards⁸, Amelia Hawkins⁹

AFFILIATIONS: ¹ Department of Crop and Soil Sciences, UGA, CAES, 1420 Experiment Station Road, Watkinsville, GA 30677; ² Emory University Rollins School of Public Health; ³ Agricultural and Environmental Services Laboratory, UGA, CAES; ⁴ UGA Oconee County Extension; ⁵ UGA Coweta County Extension; ⁶ UGA Monroe County Extension; ⁷ UGA Bryan County Extension; ⁸ UGA Irwin County Extension; ⁹ North Oconee High School

REFERENCE: *Proceedings of the 2019 Georgia Water Resources Conference*, held April 16-17, 2019, at the University of Georgia

Abstract. Private water wells are the source of water for over 65,000 homeowners in Georgia alone. This water is used for drinking, bathing, food preparation, and other uses. If the water source is contaminated with bacteria or other contaminants in the aquifer or soil above the aquifer, this could lead to health problems for the homeowner or animals that consume the water. Therefore, the Well Water Team in the College of Agricultural and Environmental Sciences (CAES) at UGA has developed a private well water program that is being used to educate homeowners with private wells on the importance of protecting their well and how to test their water. The program has two parts. The first is designed to provide UGA Extension Agents information on aquifers, well construction, water testing, and geology. This six-hour part of the program is a powerpoint presentation, hands-on scenario analysis of private well water samples processed through the UGA Agricultural and Environmental Services Laboratories, and a demonstration of the downwell camera. The second part provides the agents with a copy of the same presentation they were trained with and they develop and host a workshop in their county(ies) to provide education on well water to homeowners with private wells. This part of the program is usually one-hour and includes a set of bottles provided by the agent to allow the homeowners to collect and sample their well water for contaminants, including bacteria, minerals, and pH. The program has trained over 75 of our agents, and a few members of partner organizations. There have also been a few county-based programs developed and delivered. The Private Well Water program in CAES is designed to provide in-depth training and education for our UGA Extension agents so they are better prepared to answer questions for private well owners in their county(ies).

WELL WATER PROGRAM

The University of Georgia College of Agricultural and Environmental Sciences (UGA-CAES) is one of the Land Grant Universities in the U.S.A. established under the Morrill Acts of 1862, 1890, and 1994. (Encyclopedia Britannica, 2019). The original mission of the first Morrill Act was to teach agriculture, military tactics, and the

mechanic arts. In 1887, the Hatch Act established the agricultural experiment station program. In 1914, the Smith-Lever Act created the Cooperative Extension Service. The Extension Service is the connection of the UGA-CAES and the citizens of Georgia. There are extension agents in all 159 counties of Georgia who represent the three program areas of Agriculture and Natural Resources, 4-H, and Family and Consumer Sciences.

To better provide extension agents with information to assist Georgia citizens, the UGA-CAES Well Water Team developed a program where agents can be trained on different aspects of well water from the aquifer to the well water testing. The program is set-up where the agents can then take the same presentation they were trained with out to their county(ies) to provide information to citizens in their county(ies) on well water and how water from rainfall gets into the aquifers and then into their private or public drinking water wells.

During the training, the Well Water Team discusses:

- Water Resources
- Aquifers
- Hydrology
- Wells and well construction
- Water testing
- Water test result interpretation

The presentation prepared for the extension agent training and then used by the agents in their county(ies) is 40 slides and could be completed in less than 45 minutes. The idea would be for the agents to offer a “Lunch and Learn” type program on well water. Even though the presentation is 40 slides and should take no more than 45 minutes, during the extension agent training, the instructors (Drs. Hawkins and Saha) provide extended detail on most slides which causes the 40 slide presentation to last at least 4 hours. The main idea behind this is to provide the agents with more information than they would provide to the citizens, but information they could use if they are asked questions about any of the slides.

The presentation is laid out to provide information on aquifers of the southeast and Georgia specifically. The agents are provided information on consolidated and unconsolidated aquifers, what a water table is, and how it is defined or determined. What a well is and how they are constructed. The agents learn what an artesian well is and the difference between an artesian and flowing artesian well. The agents then are reminded how to test well water and what is the procedure to follow to sample a well and send the samples to the UGA-CAES Agricultural and Environmental Services Lab (AESL). The instructors also help the agents identify what questions should be asked to start determining what could be causing wells to have abnormal test results for those that have such. Finally, the presentation concludes with ways to filter or treat water to protect the homeowner.

One part of the presentation covers the process of water test result interpretation. In this portion of the training only, agents are provided a well water test result that has some abnormal results. This portion of the training is designed to allow the agents to think about what could be the reason(s) for the abnormal results. When there is an abnormal result in the well water, the AESL test result sheet prints out a set of possible reasons and ways to treat the water. In some cases, the agents will call the AESL or Dr. Hawkins to ask how or what is the next step to take to assist the homeowner. To aid in the agents being better prepared for this, the agents are given a well water test result that has test results outside the range of the EPA Standard. The instructors then ask the agents to study the results and determine what questions maybe asked of the homeowners to start diagnosing what could be causing the abnormal readings in the well water test results.

This exercise is designed to better prepare the agents to call the AESL or Dr. Hawkins and reduce the potential back and forth from the homeowner to the agents and then onto the AESL or Dr. Hawkins and back to the homeowner. The agents have indicated that this helps them better think about what could be causing the abnormal readings on the well water test results.

For the agents who take the presentation to their county(ies), it is recommended that they provide bottles for the homeowners to test their wells. They also recommend that homeowners test their water annually to provide a record of what the well water quality is in case there is an issue down the road. Knowing when the problem started can potentially help diagnose the problem better.

Overall, the program is designed to provide a single presentation to train agents, with additional information and explanation of each slide. This same presentation can then be used by extension agents in their county(ies) to educate homeowners on well water and how water gets from the rainfall we see to the well water they drink. Over the past few years, there have been over 75 agents attend the training and then take the program out into their county(ies) to better educate private well owners of Georgia.

LITERATURE CITED

Encyclopedia Britannica. 2019. Land-Grant College Act of 1862. Viewed on April 1, 2019.