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## Tuskegee turf farm Battles drought With More Efficient Irrigation

*By Fay Garner*



Wayne Bassett, co-owner of Beck's Turf, Inc., is pleased with their new irrigation system that was installed using cost-share assistance through the EQIP-Ground and Surface Water Conservation program.

The headlines are screaming – "Drought conditions are continuing to intensify across the entire state of Alabama — Drought emergency conditions have now been declared for 53 Alabama counties." Twelve major rivers flow through Alabama. A water quantity problem is usually not a concern in the state. However, in the recent drought conditions, the increased demand for water has revealed there is, indeed, some limitations to Alabama's water resources.

Wayne and Jimmy Bassett, brothers and co-owners of Beck's Turf, Inc. in Tuskegee, continued to run a successful turf grass business throughout the drought. Wayne generally takes care of the day-to-day operations, while Jimmy handles the financial side of the business. They have five turf farm locations ranging from 125 acres up to 500 acres, with a total of about 950 irrigated acres.

Turf growers are considered to be large water users, and as with most successful farms, the brothers irrigate most of their acreage to assure consistent growth and a good quality product. Their irrigation systems had been in operation for a long time and were not as efficient as they could be. In 2007, Alabama USDA-Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) received funds to offer the Ground and Surface Water Conservation (GSWC) initiative.

Through this initiative, producers are given incentive payments to plan water conservation practices to improve groundwater and surface water conservation by improving existing irrigation systems and installing new systems.

Ken Aycok, Hydraulic Engineer in the NRCS state office in Auburn, had a casual conversation with Wayne Bassett about conservation practices that would improve their irrigation system. Ken suggested the solution to improved irrigation could be as simple as converting high pressure nozzles to low pressure drop nozzles.

Wayne knew a win-win situation when we saw one. He recognized the GSWC initiative could be beneficial to



The Bassetts installed this center pivot system that gently sprays water onto the crop using small drop nozzles, causing much less water loss to evaporation and better uptake by the turf grasses.

their turf operation. He contacted NRCS District Conservationist Gwen Lewis, in the Tuskegee Field Office, and signed-up for the cost-share program.

The Bassetts' new center pivot irrigation system does not spraywater from the top of the system onto crops. Instead of high-power spray units, this system has small water sprayers suspended from a large water-carrying pipe. At the bottom of each pipe, near the ground, a nozzle gently sprays water onto the crop. Since the nozzles are close to the ground, water loss to evaporation is much less than with a high pressure center pivot system. These type systems allow more than 90% of the water pumped out to be used by the crop!



Water puddles in the fields on Beck's Turf farm after a needed rain on October 23. A newly installed irrigation system on Field 5 made it possible to harvest turf throughout the dry summer.

Another benefit of this new irrigation system is in the savings in electricity. It takes less electricity to operate these lower pressure systems. The amount of kilowatt hours it takes to apply 0.5 inch of water is a lot less with the new systems. The new system used a 20 hp motor; the old system required a 60 hp motor.

Lewis said the Bassetts have done a remarkable job with the water resources they have. Wayne backed this up when he said, "If we did not have irrigation and a good water reserve, we probably would not be in business today."

The Bassetts learned during a drought in 2000 they did not have enough water in reserve. They increased their reservoir space about 200 percent which helped tremendously during the 2007 drought. Wayne stated, "We get water from wells, creeks and reservoirs. We have not had to tap into reserves or emergency water until this year. This dry year has put a definite strain on our reservoirs, taking them down to low levels, but our new irrigation systems have helped us continue to irrigate with less water. For the last month or so we have conserved further by irrigating just what we are harvesting. We are just trying to maintain a marketable product with good color and harvestability."

Wayne could not say exactly what percentage of water has been conserved due to the improvements in their irrigation system, but said the efficiency of watering each converted acre has been significant. He estimates they used 25-30% less water when they took out the cable tow on Farm 5 and replaced it with a center pivot.

The Bassetts are looking into new technology to help them manage their irrigation systems. Wayne said they have incorporated a new controller into their management strategies. "We have one center pivot irrigation system that is 1,800 feet long, covering 270 acres with about four soil types in the 360 degree rotation. The terrain is also different in areas. To help put down the right amount of water for each soil type, we installed a new controller. Using the controller we can change the speed of the pivot and vary the amount of water applied to different areas. We input a range or degree heading and set it to distribute different water amounts for the different headings."

As an example, Wayne explained, "From 0-180 degrees, we can set it to run at 28% and put out 0.5 inch of water; from 180-260 degrees, we can set it for 60% and put out .25 inches. Then at 260 degrees, we can slow it down again because of the soil type or the grade of the land, and put out 0.4 inch."

Turf farms are considered large water users and Wayne said, "I know we need to conserve water and we need to take a leadership role in trying to get the general public to practice water conservation as much as we do. If we can do this, we will have more water to work with." He thinks one of the things turf farmers can get better at is how they monitor soil moisture and when to apply additional moisture.

The Bassetts use different techniques to measure the moisture level in each field. They have some soil moisture sensors buried in the soil, but like to check for moisture the old fashioned way, by manually digging down into the soil. Wayne said, "You can actually get a better feel and check for moisture under the different soil types. We can check on top of the hill and then at the bottom. We can go from the sandier side of the farm to some of the fields that are in heavier silts and clays."

Most agricultural crops are planted under a pivot irrigation system all on the same day, so they should be at the same maturity during the whole growth process. In turf grass, in one stretch, the grasses may be in three stages of growth. The water requirements and moisture levels are different on all three of those stages. The key to water management is not to put out any more water than the plant requires. "We have always liked to grow on the dryer side," Wayne laughed, "boy, that hadn't been any trouble this year."

The Bassetts feel they have an obligation to conserve the soil and water on their farms. Farm 1 is said to be the oldest commercial Zoysia farm operating in the Southeastern United States. The Beck family started planting turf on it

in the early 1940s and they ran the business for three generations until the Bassetts purchased it in 1994. They want to keep Farm 1 in good shape, from a historical standpoint. Wayne said they are still producing crops on that farm at an amazing rate and selling some of their prettiest turf from there.

Even though it has been determined watering at night can increase the risk for diseases and fungus, the Bassetts feel sometimes it is necessary to do so, rather than lose so much water to evaporation during the day. Wayne indicated they still have to water some during the day, especially when it takes 36-42 hours for a large pivot system to complete a round. Wayne said, "During those days when the temperature was 100-plus, we watered only at night because of the rapid evaporation during the blistering days. We only had one small area irrigated at night that developed leaf spot in a mature grass. The fungus was easy to treat and we think it was an acceptable tradeoff for the water savings."

Wayne Bassett is serious about his commitment to conserving the natural resources at Beck's Turf, Inc. He was the president of the Alabama Turf Grass Association for a couple of years and is currently the president of the Alabama Turf Grass Research Foundation, as well as being a member of the Alabama Golf Course Superintendent's Association and the Alabama Agribusiness Council. Jimmy serves on the Macon County Soil and Water Conservation District Board and is a member of Congressman Rogers' Ag Advisory Board. They are both involved in the local Alabama Farmer's Federation.

As a large consumer of water, the Bassetts believe it is part of the turf industry's responsibility to educate homeowners on the proper application of irrigation water for their lawns. Wayne said, "The turf grass industry should take the lead and share their proven conservation strategies with the general public." Through various organizations they are associated with, the Bassetts are trying to get water conservation on the forefront of meeting agendas to pose the question... "What can we do at local, state and national levels to become better stewards of our water resources?"

The Bassetts are pleased with the new water conserving systems they have installed at Beck's Turf, Inc. using cost-share funds through the USDA-NRCS EQIP Ground and Surface Water Conservation initiative. They had an opportunity this summer to see how much the new systems helped during the drought. Wayne said they are looking forward to getting the rest of the practices in their conservation plan implemented.

"The investment we are making," he said, "along with the cost-share funds, is a very good business move. Converting to the new system has been a blessing in conservation practices here on our farm."

*Fay Garner is the Public Affairs Assistant for NRCS in Auburn.*

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