



## St. Augustine Orchid Society

[www.staugorchidsociety.org](http://www.staugorchidsociety.org)

### Rainwater Collection - A Solution for Poor Well Water Quality

by Linda Stewart, lindstew@hotmail.com

My orchids and I moved late last summer, from living in the country with a small greenhouse to a home in town. Upon examining the City's most recent water quality report, it became clear that the local city water, was no better than what I had experienced with well water impacted by salt water intrusion in an agricultural area. Since a rainwater collection system was the answer for my orchid collection there, the decision to duplicate it on a smaller scale here in town was an easy one.



1. Rainwater collection tank ties into roof downspout.

**Collection System.** There was a gutter system in place across the back of the house. The back yard is quite small and there was just no place to hide or disguise the rainwater collection tank, so it was placed at the far end of the gutter. I obtained a 330-gallon rectangular high density polyethylene container, also known as an IBC tank, that had previously been used for rain water collection. It was so full of algae that it had to be thoroughly cleaned and disinfected prior to being put into service. A strong pool algaecide was used, and once it was mounted on a cinder block platform, the container was filled and left to soak for about a week, after which it was drained and pressure washed on the

inside. Once dry, it was painted to blend in with the house, using a paint that adheres to plastic. Painting not only helps to blend into the landscape, it will keep out sunlight and prevent algae buildup in the tank. Then the tank was connected to the downspout, using flexible downspout tubing and a debris catcher to prevent debris and oak leaves from entering the tank. A piece from a roll of downspout filter was placed in both ends of the gutter, right over the downspout connection to further inhibit the intrusion of debris and leaf litter.



2. Flexible downspout tubing from gutter to tank



3. Downspout filter placed in both ends of gutter to catch debris



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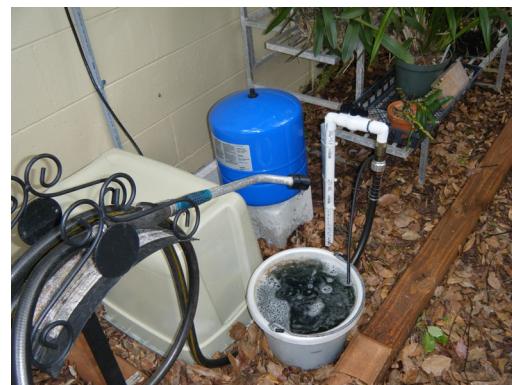
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If the water container is left unpainted and/or is not completely enclosed, you may experience problems with algae, particularly during the hot summer months. This can be prevented by the addition of an algaecide such as GreenShield, Physan 20, or pool algaecide, all of which contain quaternary ammonium compounds. The Physan label recommends 1 teaspoon per 52 gallons of water for controlling algae in birdbaths, fountains, etc. Since the container is enclosed, algae issues are minimal, so I tend to use less and then only once or twice per year. Please bear in mind that this algaecide is not recommended to be used on food crops or with fish.



4. Pump to move water from storage with a bladder tank to help prevent pump from cycling.



5. Siphonex bucket is full of concentrate ready to fertilize the orchids..

**Delivery System.** The next step was to get the rainwater to the orchids with enough water pressure to utilize a Hozon siphon system to automatically add fertilizer when watering. The IBC tank comes equipped with a gate valve at the bottom, so with the use of PVC reduction couplings, a PVC line was installed from the IBC tank, first to a filter to trap any sediment and then on to the pump. To prevent the pump from cycling too frequently, a 2 gallon pressure tank was added between the pump and the homemade faucet. Because the small filter and the connection at the pump are both 1/2" in diameter, 1/2" PVC was used from the tank to the pump inlet valve. After the pump, the PVC diameter was increased to 3/4" for better water pressure and Siphonex function. The Shurflo pump is a 3.0 gpm, 45 psi, 1/2 npsm, 115 vac with electrical cord. The pump was mounted on a piece of wood to minimize vibration when the pump is running, and attached to the PVC with flexible connectors. The pump is housed under a large plastic bin with an opening cut into the side for ventilation. Please note that hose length for best utilization of the Siphonex system should not exceed 35 ft.



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I also have a 55 gallon rain barrel to use for hand watering that was brought from the old house. It was repainted to blend in with the house, and placed on a cinder block platform at the opposite end of the gutter system. Although there are a number of brands and types of downspout converters available on the market today, a *DIY Downspout Diverter* was selected. The kit comes complete with a spigot, rubber grommets, hole saws, diverter, connection hose and a downspout cover for freezing weather. The diverter is inserted into a small hole drilled into the side of the downspout. Completed, the system is very unobtrusive and only requires 1/2" of rain to fill the drum. Once full, the rain diverts back to the downspout so the rain barrel never overflows.

6. Rain barrel used for hand watering orchids.



7. Orchids on benches and hanging on rack by fence.



8. Orchids on benches under the eaves enjoying their new home. .



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9. Miniatures on wire rack  
do well with rainwater.

10. Pergola is home to many orchids,  
covered with a retractable clear tarp during  
the winter months.

Although my orchids are still adjusting to their new home, they have successfully survived their first winter. The addition of a rainwater collection and watering system has definitely minimized the impact of the environment change from a semi-automated greenhouse to backyard growing.