

RAIN SENSOR AWAKENING

During our first year of living in Verona Cindy & I saw water bills ranging from \$227 on our very first bill to a low of \$77 in July 2017 when Hillsborough County water restrictions dictated that lawns can only be watered once a week. On average we have paid \$117 a week over the past year and considered that to be the norm for our new house on one of the 60-foot single-family home lots.

Then on March 20th of this year we got over 2 inches of rain. By chance I happened to notice that we were water during the night, so the next morning I got out my ladder and climbed up to see what my rain sensor looked like. And this is what I saw:



Clearly the little tab on the lower section is designed to be set into one of the 4 available slots in the cap marked 1/8", 1/4", 1/2" and 3/4" and yet there it was, not in any one of them. Being the curious person that I am, I removed the cap to see how this thing works and found a stack of cork disks on a shaft with a plunger at the bottom that presses down on the electrical switch below.



03/21/2018



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So, I put it back together and rotated the cap into the 1/2" slot. My rain gauge was now set for the first time. I went over and looked at my neighbor's rain gauge and it was already set. So, I incorrectly assumed I was the only one with this rare problem.



Once it was properly set, I noticed how the end of the plunger shaft sticks out of the cap at the top, so I gently pressed down and could feel a click coming from the electrical micro-switch inside the rain gauge. When this shaft is pressed down, a rain sensor icon flashed on and off in the bottom left hand corner of the control box screen, indicating the irrigation system is disabled because the cork disks are wet, swelled up, and thus pushing down on the electrical switch.

I also noticed that there was a white plastic ring around the main body that could be rotated to close off much of the open window in the main body to slow down the cork drying process. You can see above how I positioned the ring this first time around.

So now I am excited to see how well my rain sensor is going to work and how much it's going to save me on my watering bills. Unfortunately, we didn't see any significant rain again for the next 3 weeks (not until April 10th), but since that was a Tuesday and one of my watering days, I did see my April 19th bill come down to \$106 ... a \$9 savings!

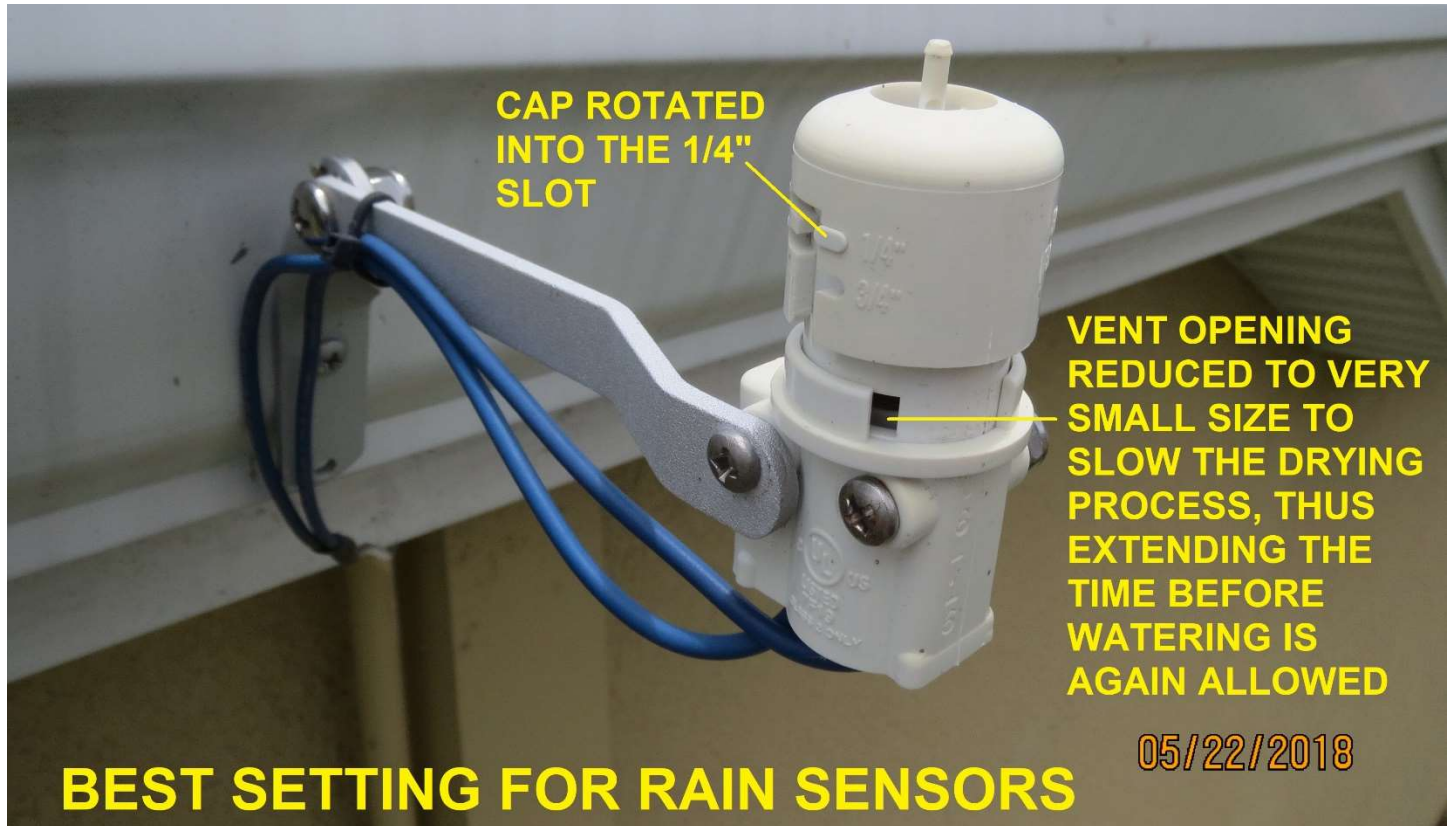
As April progressed, we had one more day with some significant rain, 0.88" on Sunday the 15th of April. Since my watering day is on Tuesday, my rain sensor didn't help for this one. Since we were still in the dry season, I just chalked it up as an extra watering day to help give my lawn a boost as it heads into the growing season.

But now I'm watching things very carefully, monitoring my water meter every day:

415 Castle Pines Lane Irrigation Water Monitoring

| Date Read | Meter Reading | Water Units | Day of Week | Days Elapsed | Usage Per Day | Daily Cost | Zone | Time | Nozzles |
|-----------|---------------|-------------|-------------|--------------|---------------|------------|---------------------|------|---------|
| 04/11/18 | 2,905 | n/a | Wed | n/a | n/a | n/a | 1 | 40 | 3 |
| 04/12/18 | 2,905 | 0 | Thu | 1 | 0.00 | \$0.00 | 2 | 40 | 4 |
| 04/13/18 | 2,905 | 0 | Fri | 1 | 0.00 | \$0.00 | 3 | 20 | 11 |
| 04/14/18 | 2,922 | 17 | Sat | 1 | 17.00 | \$9.31 | 4 | 30 | 1 |
| 04/15/18 | 2,922 | 0 | Sun | 1 | 0.00 | \$0.00 | 5 | 20 | 13 |
| 04/16/18 | 2,922 | 0 | Mon | 1 | 0.00 | \$0.00 | Minimum 150 Current | | |
| 04/17/18 | 2,922 | 0 | Tue | 1 | 0.00 | \$0.00 | Ave/watering \$8.82 | | |
| 04/18/18 | 2,938 | 16 | Wed | 1 | 16.00 | \$8.76 | Ave/unit \$0.5474 | | |
| 04/19/18 | 2,938 | 0 | Thu | 1 | 0.00 | \$0.00 | Ave/min \$0.059 | | |
| 04/20/18 | 2,938 | 0 | Fri | 1 | 0.00 | \$0.00 | Zone | Time | Nozzles |
| 04/21/18 | 2,954 | 16 | Sat | 1 | 16.00 | \$8.76 | 1 | 45 | 3 |
| 04/22/18 | 2,954 | 0 | Sun | 1 | 0.00 | \$0.00 | 2 | 45 | 4 |
| 04/23/18 | 2,954 | 0 | Mon | 1 | 0.00 | \$0.00 | 3 | 25 | 11 |
| 04/24/18 | 2,954 | 0 | Tue | 1 | 0.00 | \$0.00 | 4 | 30 | 1 |
| 04/25/18 | 2,970 | 16 | Wed | 1 | 16.00 | \$8.76 | 5 | 25 | 13 |
| 04/26/18 | 2,970 | 0 | Thu | 1 | 0.00 | \$0.00 | Maximum 170 | | |
| 04/27/18 | 2,970 | 0 | Fri | 1 | 0.00 | \$0.00 | Fertilized | | |
| 04/28/18 | 2,986 | 16 | Sat | 1 | 16.00 | \$8.76 | | | |
| 04/29/18 | 2,986 | 0 | Sun | 1 | 0.00 | \$0.00 | | | |
| 04/30/18 | 2,986 | 0 | Mon | 1 | 0.00 | \$0.00 | | | |
| 05/01/18 | 2,988 | 2 | Tue | 1 | 2.00 | \$1.09 | | | |
| 05/02/18 | 3,004 | 16 | Wed | 1 | 16.00 | \$8.76 | | | |
| 05/03/18 | 3,004 | 0 | Thu | 1 | 0.00 | \$0.00 | | | |
| 05/04/18 | 3,004 | 0 | Fri | 1 | 0.00 | \$0.00 | | | |
| 05/05/18 | 3,019 | 15 | Sat | 1 | 15.00 | \$8.21 | | | |
| 05/06/18 | 3,019 | 0 | Sun | 1 | 0.00 | \$0.00 | | | |
| 05/07/18 | 3,019 | 0 | Mon | 1 | 0.00 | \$0.00 | | | |
| 05/08/18 | 3,019 | 0 | Tue | 1 | 0.00 | \$0.00 | | | |
| 05/09/18 | 3,035 | 16 | Wed | 1 | 16.00 | \$8.76 | | | |
| 05/10/18 | 3,035 | 0 | Thu | 1 | 0.00 | \$0.00 | | | |
| 05/11/18 | 3,035 | 0 | Fri | 1 | 0.00 | \$0.00 | | | |
| 05/12/18 | 3,052 | 17 | Sat | 1 | 17.00 | \$9.31 | | | |
| 05/13/18 | 3,052 | 0 | Sun | 1 | 0.00 | \$0.00 | | | |
| 05/14/18 | 3,052 | 0 | Mon | 1 | 0.00 | \$0.00 | | | |
| 05/15/18 | 3,052 | 0 | Tue | 1 | 0.00 | \$0.00 | | | |
| 05/16/18 | 3,052 | 0 | Wed | 1 | 0.00 | \$0.00 | | | |
| 05/17/18 | 3,052 | 0 | Thu | 1 | 0.00 | \$0.00 | | | |
| 05/18/18 | 3,052 | 0 | Fri | 1 | 0.00 | \$0.00 | | | |
| 05/19/18 | 3,052 | 0 | Sat | 1 | 0.00 | \$0.00 | | | |
| 05/20/18 | 3,052 | 0 | Sun | 1 | 0.00 | \$0.00 | | | |
| 05/21/18 | 3,052 | 0 | Mon | 1 | 0.00 | \$0.00 | | | |
| 05/22/18 | 3,052 | 0 | Tue | 1 | 0.00 | \$0.00 | | | |
| 05/23/18 | 3,052 | 0 | Wed | 1 | 0.00 | \$0.00 | | | |
| 05/24/18 | 3,052 | 0 | Thu | 1 | 0.00 | \$0.00 | | | |
| 05/25/18 | 3,052 | 0 | Fri | 1 | 0.00 | \$0.00 | | | |
| 05/26/18 | 3,052 | 0 | Sat | 1 | 0.00 | \$0.00 | | | |

Since we are now getting more rain, starting on 5/16/18 I began saving nearly \$9 on each of my watering days. That's roughly 6 cents a minute time the 150 minutes that my irrigation water runs. ($\$0.059 \times 150 = \8.85). Since my original rain sensor setting on 3/21/18 I have tweaked my setting philosophy to where I am now set at 1/4" instead of 1/2" and I rotated the plastic ring a little further to maximize the time that the cork disks remain moist:



On 5/19/18 I went to investigate a rain sensor reported not working and found the same problem that I had back in March, the cap was not rotated into one of the setting slots. Then I found another and another and on Monday morning after receiving 1.8 inches of rain the day before, Larry Smith rode around the neighborhood and made a list of homes that had watered overnight (as indicated by the round pattern in the street and on their front sidewalks). As the rain sensor was checked at each of those homes, it became evident that my "rare" problem in March was not rare at all, it is common. In fact, of the 45 homes checked as of 5/25/18, 23 of them had the same problem.

After the board of directors' meeting held on 5/24/18 where this problem was briefly discussed, Minto said they would have Mac Irrigation go around and check every single home. Since we are not sure exactly when this will happen, we continued checking and setting the homes we knew are bad and sent a list of the 45 homes checked by the end of the day Friday to Minto with the above "Best Setting" photo.