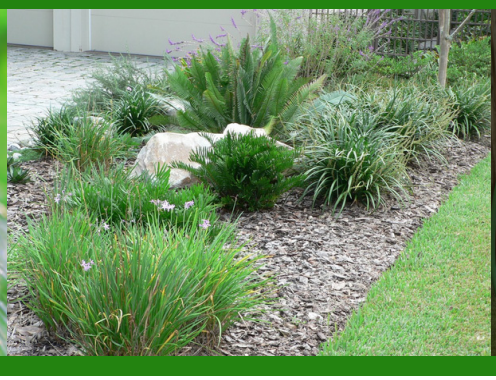
Southwest Florida Water Management District


Focus Groups for Northern Counties Water Conservation

January10, 2012|Final Report

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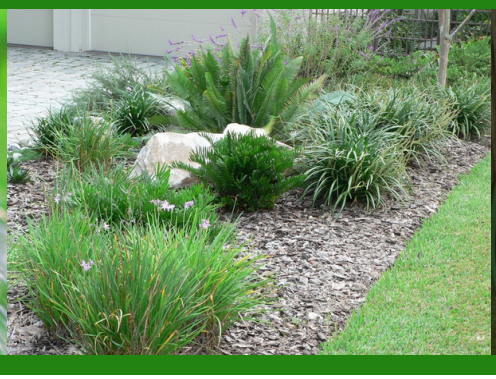


Focus Groups for Northern Counties Water Conservation
January 10, 2012|Final Report

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Table of Contents

Study Objective

The objective of the study is to determine the best way to reduce potable water use in the Sugarmill Woods community. This community is located in the coastal and recharge area of Central Florida in Citrus County, approximately seventy to eighty miles north of the city of Tampa, Florida. Goals within the study objective are itemized in the list below.

1. Assess residents' perceptions of how they rank in comparison to others in the county in terms of water use.
2. Explore residents' reactions to the following desired water-related behaviors:
    a. Turn off the automatic irrigation system if ¾ of an inch of rain has fallen.
    b. Skip a week of irrigation in cooler months, i.e., turn the system off every other week.
    c. Rely on rain sensor to override the automatic irrigation system.
    d. Cap irrigation heads in mature plant beds so they don't get water.
    e. Reduce how long the irrigation system runs if grass is healthy.
    f. Check monthly for broken or misaligned sprinkler heads.
    g. Ask a neighbor to check for broken or misaligned sprinkler heads if gone for extended periods.
3. Determine what residents believe will happen to lawns and plants if desired water-related behaviors are followed.
4. Determine if residents believe desired water-related behaviors will make a difference.
5. Explore how residents will feel if they follow the desired behaviors.
6. Determine if residents see any advantages to following the desired water-related behaviors.
7. Identify the perceived obstacles for following the desired water-related behaviors.
8. Identify the best approach to motivate residents to follow best practices.
9. Itemize residents' perceptions of Florida-Friendly Landscaping™.
10. Identify the best way to reach residents with messages about water conservation.

Methodology

Focus groups were conducted on the following dates and locations:

October 10, 2011—Homosassa Springs State Park

- Sugarmill Woods—Low water users (6 participants)
- Sugarmill Woods—High water users (8 participants)

October 11, 2011—Homosassa Springs State Park

- Sugarmill Woods—High water users (8 participants)

October 18, 2011—Homosassa Springs State Park

- Sugarmill Woods—Low water users (7 participants)
- Sugarmill Woods—Low water users (8 participants)

October 19, 2011—Homosassa Springs State Park

- Sugarmill Woods—High water users (9 participants)

October 19, 2011—Sandy Oaks RV Resort

- Citrus Springs /Pine Ridge—Low water users (6 participants)
- Citrus Springs /Pine Ridge—High water users (8 participants)

October 20, 2011—Sandy Oaks RV Resort

- Citrus Springs/Pine Ridge—High water users (7 participants)

October 27, 2011—Sandy Oaks RV Resort

- Citrus Springs/Pine Ridge—Low water users (8 participants)
- Citrus Springs/Pine Ridge—Low water users (6 participants)

October 28, 2011—Sandy Oaks RV Resort

- Citrus Springs/Pine Ridge—High water users (7 participants)

Of the twelve focus groups, six were held with homeowners who used less than 11,000 gallons of water per month (termed "Low water users") and six were held with homeowners who used between 25,000 and 75,000 gallons of water per month (termed "High water users"). Homeowners with wells were excluded from the study. Groups had between six and eight homeowners as participants who were paid $50 for their participation.

The moderator for all groups was Phillip Downs, Ph.D., Senior Partner of Kerr & Downs Research. A similar focus group script was used for all groups. A copy of the script and the exercises used to elicit independent thinking during the discussions are contained in Appendix A.

Format of Report

Major findings and recommendations are presented in the first section. The second section highlights the differences and similarities between high water users and low water users. The appendix contains the focus group scripts and exercises used to solicit opinions. Edited transcripts from all groups are presented under separate cover.

Summary & Recommendations

Southwest Florida Water Management District should focus on just a few water saving techniques rather than focusing on many techniques in implementing an outdoor water saving promotional campaign. Reasons for focusing on just a few techniques are:

- Only a few techniques are likely to be implemented given residents' attitudes and capabilities.
- Educational messages with only a few water saving techniques will be more easily assimilated and remembered by residents – as in war or promotion, concentrating one's weaponry and manpower is more effective than spreading out one's resources over broader terrain.

Residents in Sugarmill Woods, Citrus Springs and Pine Ridge areas are most likely to adopt the following water saving techniques:

- Reduce their irrigation system run times by a few minutes.
- Skip a week of irrigation in cooler months.
- Check for misaligned or broken sprinkler heads.

Techniques for saving water that are less likely to be adopted by residents and thus should not be a central focus of the District's education efforts are included in the following list, which also itemizes residents' reasons for identifying these techniques as ones they would be unlikely to use:

- Relying on neighbors to check for misaligned or broken sprinkler heads when residents leave for vacation or for the season.
    - Many residents are reluctant to call on neighbors because they think it would be asking too much.
    - Many residents have older neighbors who are not physically able to perform these activities.
    - Many residents do not know their neighbors that well.
    - Some residents live a considerable distance from their neighbors.
- Relying on rain sensors in automatic irrigation systems.
    - About half of the residents do not trust rain sensors.
- Capping irrigation heads in mature plant beds.
    - Many residents have irrigation systems in which zones water both the lawn and plant beds.
    - Many residents believe mature plants will die if not watered regularly.
    - Many residents cannot perform this function themselves.
- Turning off irrigation systems if it has rained hard (approximately ¾ of an inch).
    - Many residents think it is a gamble to do this because to do so risks missing one's designated watering day.

The most effective approaches to persuade residents in Sugarmill Woods, Pine Ridge and Citrus Springs to conserve outdoor water use and to adopt Florida-Friendly Landscaping™ techniques are listed below:

- Create demonstration lawns to help convince residents that Florida-Friendly Landscaping™ and water saving techniques not only are successful in creating and sustaining lawns, but that they also create aesthetically appealing lawns.
- Educate residents by utilizing clubs, associations, and extension offices as "distribution" systems for education materials.
    - Educate about appropriate water saving techniques.
    - Educate newer residents from northern climates that it is practically impossible to replicate northern lawns in Central Florida.
- Work with nurseries to increase the supply and access to most appropriate plants and grass.

Low outdoor water consumption households already practice most, if not all, of the water saving techniques examined in the study. Most low outdoor water consumption households are active managers of their automatic irrigation systems, as they turn the systems off during the winter.

Barriers to getting high water users households to conserve water are categorized in the list which follows:

- Attitudes.
    - "I have earned the right to water my lawn as I wish."
    - "Golf courses, leaks in water pipes, and other people are wasting much more water than I am."
    - "My yard will suffer if I cut back on watering."
- Knowledge (lack of).
    - Appropriate run times for automatic irrigation systems.
        - Watering beyond a certain number of minutes does not help one's lawn.
        - Proper amount of water to put on one's lawn at any given time.
    - Central Florida lawns cannot look like lawns in northern climates.
    - Skipping a week in cooler months will not adversely affect lawns.
    - Mature plants can survive without direct benefit of an irrigation system.
    - Importance of testing the output of one's automatic irrigation system to determine how long to run each zone of the automatic irrigation system.

Outdoor Water Saving Techniques that Have Greater Chance for Success

Reducing irrigation run times

Most residents are willing to adjust their irrigation run times in an effort to conserve water. Most residents have an idea of how long their systems run. Many of these individuals made their decisions about run times either because "experts" told them to do so or they made adjustments in run times over the years and they believe the current run times are necessary to preserve their lawns. Despite these two main reasons for setting run times, most residents were open to making downward adjustments.

Run times varied significantly from 5 minutes to an hour. Creating an educational campaign designed to encourage residents to reduce their run times would need to be couched in percentages to allow for vastly different run times. For example, the District could encourage high water users to reduce their run times by 25% and give some specific examples.

Skip a week in cooler months

Nearly all low outdoor water consumption households already turn their automatic irrigation systems off in the winter. A District-sponsored campaign about "skipping a week in cooler months" would not require changes for these households.

There was minor resistance among high outdoor water consumption households to skipping a week in cooler months. There is a minority of high outdoor water consumption households who will resist because they believe their lawns will suffer, and there is a minority of high outdoor water consumption households that feel entitled to use as much water as they wish. Yet, focus group results suggest that a majority of high outdoor water consumption households are willing to try skipping a week of irrigation in the cooler months.

Check for misaligned or broken sprinkler heads

Most residents believe they already check their lawns regularly for misaligned or broken sprinkler heads. Most people run their irrigation systems at night, but most residents claim they manually run their systems for a few minutes on each zone to check for misaligned and broken sprinkler heads. While there appears to be over reporting of how often and how many people actually check for misaligned and broken sprinkler heads, the practice of doing so is acceptable to a majority of homeowners.

The District's challenge with regard to ensuring that people actually check regularly for broken and misaligned sprinkler heads can be addressed with the following:

- Set a date or time of the month for checking (e.g., every month on the first day one is permitted to water, s/he should manually run the irrigation system to check for misaligned and broken sprinkler heads).

- Encourage people to inform neighbors when they notice that their sprinkler systems are watering the driveway or shooting up into the air like a geyser. The District can give away small brochures or handouts that state “A concerned neighbor noticed that your sprinkler heads were misaligned or broken.” These handouts can be placed in the newspaper slot in mailboxes.

Outdoor Water Saving Techniques that Have Less Chance for Success

Asking neighbors to check for misaligned or broken sprinkler heads when you leave for a period of time

Some residents, especially low outdoor water consumption residents, already practice this technique for reducing outdoor water consumption, and some other residents appear willing to try this technique. However, a majority of residents find this approach either too invasive or not feasible based on the geographic distance between neighbors or the perceived inability of neighbors to do so.

While Citrus Springs, Pine Ridge, and Sugarmill Woods are more closely knit perhaps than typical communities are in 21st century America, asking one's neighbor to rigorously check for misaligned or broken sprinkler heads is beyond what many residents are willing to request. A minority of residents in the affected neighborhoods indicate that their neighbors are old and incapable of checking and certainly incapable of fixing broken or misaligned sprinkler heads.

A more feasible alternative for the District is to encourage residents to turn off their automatic irrigation systems when they leave for vacation or for the season and to rely on rainfall to keep their lawns healthy (if not award winning). In another section of this report, we recommend using demonstration lawns to convince residents that Florida-Friendly Landscaping™ can be attractive and survive low rain/limited irrigation regimens. As part of these demonstrations, automatic irrigation systems can be shut off for prescribed weeks or months to simulate vacations and seasonal absences.

Capping irrigation heads in mature plant beds

This technique for saving water allocated for outdoor use is problematic because:

- Some (perhaps most) people have irrigation systems in which a given zone waters both the lawn and plant beds.
- Some people believe mature plants will die if not watered regularly.
- Some people cannot perform this function themselves.

A precise percentage of people whose irrigation zones include both plants and grass could not be determined in the focus groups. Nonetheless, this percentage seemed to be high enough to create one obstacle to getting a high number of residents to adopt this technique for reducing outdoor water consumption.

Perhaps even more problematic is that many people believe that mature plants will die if left to the whims of rainfall. Of course a demonstration lawn can help convert skeptics. Part of the problem is that there is no common perception regarding what is and what is not a mature plant. Residents rightly comment that plant maturity is based on several factors, and most residents are also afraid to take risks

with mature plants. Losing mature plants not only costs money, but it also represents the loss of an emotional investment that provides aesthetic pleasure.

A third issue affects the widespread adoption of capping irrigation heads in mature plant beds, namely: focus group participants pointed out that they and some of their neighbors were not physically capable of capping irrigation heads.

Relying on rain sensors in automatic irrigation systems

Minorities of residents either do not have rain sensors on their automatic irrigation systems or are not aware of whether or not they have them. Minorities of residents have rain sensors and believe they work properly in modifying the operation of their automatic irrigation systems in the event of rain. A majority of residents have rain sensors but do not trust them to work properly. Hence, the District will face a significant obstacle that it can do nothing about if it chooses to encourage residents to rely on their rain sensors.

Turning your irrigation system off if it has rained hard (approximately ¾ of an inch)

Either because of a commitment to doing the right thing or out of fear of getting caught, most residents water on their designated watering days. Adherence to watering days countermands the success of encouraging residents to turn off their automatic irrigation systems in the event of significant rainfall (approximately ¾ of an inch). To miss one's designated watering day because of rain a day or two prior is too big a risk for most residents to take. Beyond the risk involved, many residents feel cheated out of their designated watering day if it rains a day or two prior, thus eliminating their regularly scheduled watering day.

Critical Differences and Similarities Between High and Low Outdoor Water Users

Actively manage irrigation systems

Low water users of outside water actively manage their irrigation system by turning it off after rain, turning it off in the winter and leaving it off until they think their lawns need watering. Low water users do not let their irrigation systems run on any type of automatic schedule. High water users of outside water do not think about managing their outside irrigation systems; rather, they think about preserving a well-kept lawn. They realize how difficult, if not impossible, it is to make their lawns look great (most are from northern climates and attempt to replicate lawns they had in those locations), yet they are determined to make efforts to have a nice looking lawn. Below are selected quotes:

Low water users

- I'm not watering the lawn. I hit the bushes in the wintertime to keep them green. But otherwise my water is used elsewhere.
- I generally use the more manual approach. I'm mostly worried about the bushes in the winter time; they don't get enough water. I water them once a month for maybe 45 minutes.
- I run my irrigation system; it doesn't run me. I don't really trust it.
- I aggressively manage it. It's easy to do; it takes 10 seconds to flip it on or flip it off.
- Well, if it doesn't rain in between about December 1st and about February, then I know the grass has gone dormant, so I hardly ever water at all except maybe once a month or once every three weeks, and I just water ¾ of an inch. I just went to a friendly Florida garden seminar this afternoon.

High water users

- We put it on every night. If we're going to water, we're going to water. We put it on automatic. And even when we go away for three weeks, we have someone come over and do it.
- I've tracked [the total percentage of outside water usage]. I've gone to the detail where it was a mechanical meter and I replaced it with a brand new meter because they said I used 65,000 gallons of water in one month. So I gathered up. I know I have eight zones, and on certain zones, I know I have three or four gallons per minute sprinkler heads, so I tried using all, cutting down, even changing out the sprinkler head itself, but then the lawn suffered. So I let it run on automatic.
- I think it depends on the length of time you set them for, too. I have mine set for 45 minutes and come December it will come down to 20 minutes once a week.
- I use 20 minutes in the winter and about 30 minutes in the summer.
- They tell me if you don't water long enough or deep enough it doesn't do your grass any good, so it's better to run your water quite a bit and only once a week instead of twice a week. You have to get through your grass, otherwise you're just watering the top of your grass and it's drying out.

- Because all plants need water. You can't just forget about watering them. Even mature ones.

Live environmentally friendly lifestyles

Nearly all homeowners, whether they are high or low water users, believe they live an environmentally friendly lifestyle, yet low water users take significantly more tangible actions to live an environmentally friendly lifestyle (including how they water their lawns). High water users make comments similar to comments from low water users (see below) about living an environmentally friendly lifestyle, yet their water usage belies their words. Verbatim comments follow:

Low water users

- I'm extremely energy efficient. I've been in the building business for a number of years. I use solar heating for the pool. I want to build a house with tinted windows, a three-zone heating air conditioning system and use solar landscape lighting. I do have a watering system for the yard, but I maybe use it four times a year. I was taught to put Bahia grass in rather than the St. Augustine.
- We recycle—I use rain water. I want to get a rain barrel soon if I can find one that matches my house.
- I set out buckets underneath my pool screen and let it drip into my buckets. We also try to use environmentally friendly products. Things that don't have a lot of crap in them. We try to use the heater and air conditioner as sparingly as we can. We try to open windows and doors—that sort of thing.
- I don't believe in littering. I don't throw trash on the highway. I like to keep the use of water limited. Use what's necessary to use and don't waste it, and I only water my lawn on the day that I'm supposed to, if that.

High water users

- Well, we have quite a bit of lawn in the back. Over the years, we replaced a few patches here and there because our grass dies out or we have bugs—things happen. So eventually, we've replaced it with a garden, which will eliminate the water usage and is also easier to control for bugs and pets.
- I am just now putting in flower beds so I can water by hand.
- I watch the weather a lot to see if it's going to rain. If it does, I don't water the next time.
- I conform to recycling, even though I think some of those things go too far.

Ask neighbors to check for broken/misaligned sprinkler heads during absences

Low water users are slightly more likely to be willing to ask neighbors to check for broken or misaligned sprinkler heads or to have already established contacts with neighbors. Yet reluctance to asking one's neighbors for this type of assistance appears to be correlated more with one's personality and propensity for establishing neighborly relationships than with outside water usage. Verbatim comments follow:

High water users

- I have one neighbor who is an airhead, another one who is handicapped and then the other one down the street turns me in if I water on the wrong day.
- Certain neighbors you could do this with, but some of my neighbors, I'm not so sure.
- I would do it for my neighbor, but I don't think my other neighbor would. She has three kids and a full time job.
- It's not practical. I have an undeveloped street.
- It's not that I wouldn't trust them; I don't expect them to water my lawn at night, which is when I water it.
- Nobody's coming over to my house at 3 AM to get soaking wet to see if a sprinkler head is misaligned. If it were a more convenient time like 7AM, then I would be more inclined to ask.

Low water users

- It's not an imposition. We're all retired. What else are we going to do?
- I have an arrangement with my next door neighbor where we watch each other's house while the other is gone. If there were a problem we would turn the main valve off.
- We shut off the water line when we leave for extended periods, so I don't have to have anybody check it.
- Yeah, both of my neighbors agree that if we see a problem with the sprinklers, we tell each other—for instance, if one of them is broken or spraying out in the middle of the road.
- What else are you going to do? You have to remember that everyone there is retired. They have time.

Check monthly for broken or misaligned sprinkler heads

Most homeowners, regardless of water usage, were favorably predisposed to check for broken or misaligned sprinkler heads. A significant portion of homeowners already check their sprinkler heads at least monthly – some check almost daily. Other homeowners check less frequently, and some simply monitor for broken sprinkler heads by comparing their water bills from month-to-month.

High water users

- If you see brown areas, you know you're not getting coverage over there. I just check them whenever I'm walking around. I found two the other day.
- Yeah, I don't check them personally, but I have people that come in and check each head to make sure it's clear.
- I have a guy I hired from the local nursery who comes and resets them if they're not lined up right, but I also do it myself.
- I just run each station, and if there's a sprinkler head that's bad I call my husband.
- I do it, but I don't do it every month. I probably do it every two months.
- I'm not sure I could remember to do it once a month. I monitor my bill and, if my bill goes up, then I would go outside to find out what's going on.
- I do it yearly.

Low water users

- I circled a happy face because I love to check them.
- It's only common sense to do that.
- I'm indifferent. I don't typically use the system—therefore there is no need to check for misaligned or broken sprinkler heads—unless we have a dry run and then, when we use it, and it doesn't work, we have to scramble and get it fixed.
- It's a homeowner's responsibility to do that.

Rely on rain sensors to override irrigation systems

Over half of homeowners do not trust their rain sensors. Low water users are more likely to have their irrigation systems turned off, so they are less likely to rely on the sensor. Nonetheless, reactions to using rain sensors were not that disparate between high and low water users of outside water. Comments from each group are shown below:

High water users

- I turn my sprinklers off when it's raining. Those things don't always work.
- I have one, it just doesn't work.
- The best rain sensor is yourself. If it's raining, you walk to the garage and turn it off.

- They're mechanical. I don't know. They just don't work for some reason.
- I don't rely on the rain sensors anymore. If you look at the rain sensors, I know I need to replace mine. It's just that I use mine manually. The sun eats it up and oxidizes the tubing. Humidity builds up inside.

Low water users

- The first year or so, I noticed that after heavy rain my sprinkler system went on, so obviously the rain sensor didn't seem to work.
- They will malfunction. You have to check them, but they do work.
- I think they are useless.
- I don't trust it. I mean, and it's probably because I don't know how to use it. But I don't think it works properly. It's all digital.
- I think that rain sensors are okay, mine works fine. But I don't have my system on automatic, so I don't use it.

Cap irrigation heads in mature plant beds

While low water users were more positively disposed toward capping irrigation heads in mature plant beds than were high water users, this technique for saving water was not one to which most homeowners were willing to commit.

High water users

- No, I would never do that. After they (plants) spend all of their lives growing up, it would be like I was saying, "no, you're done."
- I do that. I can get better coverage because I get pressure. If you have eight heads in one zone and then cap them so there's only two, you get more pressure.
- Yes, I wrote down on here, "good idea," but like he mentioned, sometimes your sprinkler head also hits part of your grass, so if you cap that particular head then you might be depriving that part of your lawn.
- My shrubs and flowers need water too; they'll die out just as fast as the lawn.
- Even if it's a mature plant, it's still going to need water. I could always shut that zone off in my sprinkler section.

Low water users

- Plants need water whether they're mature or not. You can't just leave them without water whatsoever.
- I have one zone for my grass and 3 zones strictly for my plants. The plants don't need much because they've got roots.
- Most of mine are both grass and plants.
- I have never thought of that.
- That would be a good idea if I knew how to do it.

Turn off automatic irrigation systems if it rains[1]

Nearly all low water users already followed this tactic. In fact, many low water users turned their automatic irrigation systems off for long periods of time. High water users did not accept this tactic as enthusiastically as did low water users. High water users were more concerned about how their designated water day was aligned with rain days. High water users prized their water days and were reluctant to give them up even if it rained the day before.

High water users

- If my water day is Wednesday and we get a downpour on Wednesday, then on Saturday I might let the sprinkler system run.
- There were a couple weeks in August where it rained almost every week. I didn't have my water system on at all for about two to three weeks.
- If the weather man says it's going to rain in the next two days, I will leave it off.
- We put it on every night. If we're going to water, we're going to water. We put it on automatic. And even when we go away for three weeks, we have someone come over and do it.

Low water users

- That sounds like a no brainer.
- Well, I would hope that if I had my system on automatic the sensor would work and keep it shut off, which mine does, by the way. It works pretty well.
- All you have to do is push a button in the garage. Even I can do that.
- I have an automatic system, but I run it manually depending on the rain.
- Absolutely.

Skip a week of irrigation in cooler months

Low water users were more likely than high water users to skip a week in the cooler months, and more low water users turned their irrigation systems off for the entire winter. However, some high water users already skipped a week of irrigation during the winter, while others were willing to try this tactic for saving water.

High water users

- Maybe I would turn it down time-wise and only water once a week instead of twice a week, but you have to water it otherwise you're going to be buying yourself a new lawn.
- Only if it rains. If it rains, then I'll shut the system down every other week, but if it doesn't rain, I don't want to take a chance.

[1] At least three-fourths of an inch.

- I've always kept mine off and I only turn it on when I feel like it needs it.
- I only reduce the times, not the frequency.
- The water still needs to get to the roots.

Low water users

- I turn the whole thing off in the winter, so I guess I skip a week!
- When you have frost, the grass doesn't need water too. Come February, start watering.
- I didn't just turn it off every other week. I turned it off for all of January and February.
- I try to be conscious and am aware of it, but I also need to maintain neighborhood acceptable standards. I can't be wildly enthusiastic with the exclusion of everything else.
- Almost entirely in the winter and almost entirely in the summer. As I say, I don't use it very often.
- Winter time—I hardly ever water at all. I have nine zones, but some are behind the pool screen. That's where I have my pine straw, so there's no reason to water back there. I don't even turn that thing (irrigation system) on. The other zones are areas on the side of the house, and there's mostly sand, so there is no reason to water them either. The only ones I might use are the ones in front of the house.
- Yes, I do. I skip a week and water it only once every two weeks in the wintertime. But I do run my hoses on my bushes separate from the irrigation system.

Reduce length of irrigation system cycles

Low water users already run their sprinklers for less time per zone (15 to 20 minutes) than do high water users (20 to 30 minutes with some as high as 60 minutes). Despite significant differences in run times between high and low water users, most homeowners were willing to try reducing their run time per cycle.

High water users

- We're already at the minimum.
- I only had an irrigation system put in a couple of years ago, so the installer recommended the running time and my father, who also lives in Pine Ridge, told me that there is some tin-can trick where you take a tuna-fish can out on the lawn and you set the sprinkler system and you're supposed to let it run until you get somewhere between half an inch and an inch in the tin-can and that's supposed to be an appropriate amount of water.
- On the happier end. I'm in the process now of trying to reduce my water bill based on the information I got from this expert.
- If your lawn is healthy, you're running your system the proper amount of time. You're not under-watering your lawn, so you're just fine.

Low water users

- Mine is bare bones. I've already got it running as low as possible.
- Happy as long as it can maintain the neighborhood's standards. That's what it comes down to, and I think that's the consensus of us all.
- Sure, if it'll still be effective.
- I feel that less is more. I would like to go down to 20-30 minutes.

Summary of homeowners' rankings of water saving techniques

During focus groups participants were asked to indicate which of the seven water saving techniques they were most likely and least likely to adopt. Seven point "faces" scales (see Appendix) were used to give participants an opportunity to express their immediate reactions to each water saving technique.

It should be noted that quantitative results from focus groups should be interpreted with caution since quantitative results do not reflect the emotional content of behavior or attitudes expressed during focus group discussions. Faces scales were used as a starting point for an in-depth discussion, during which participants' emotional reactions sometimes contradicted their initial rating.

The table below shows the results. Differences in responses by high water users and low water users are also shown. Based strictly on responses to the faces scales, high and low water users say they are most likely to turn off their automatic irrigation systems if it rains and skip a week of irrigation in cooler months. For example, 29 high water users and 19 low water users selected turning off their automatic irrigation systems if it rained; 24 high water users and 19 low water users selected skipping a week of irrigation in cooler months as the best option. However, it should be noted that many high water users felt very strongly about not turning off their irrigation systems if it rained a few days prior to their watering

Water saving options	Most likely to do[1]		Least likely to do[2]	
	High[3]	Low[4]	High[3]	Low[4]
Turn off your automatic irrigation system if quite a lot of rain (approximately ¾ of an inch) has fallen.	**29**	19	**5**	1
Skip a week of irrigation in cooler months – turn it off every other week.	**24**	19	**3**	0
Rely on rain sensor to override your irrigation system.	**5**	8	**22**	16
Check monthly for broken or misaligned sprinkler heads.	**16**	11	**5**	4
Cap your irrigation heads in mature plant beds so they don't get water.	**14**	12	**14**	4
Reduce how long your irrigation system runs.	**16**	14	**8**	2
Ask a neighbor to check for broken or misaligned sprinkler heads if you leave for extended periods.	**8**	6	**15**	9

[1]Participants were likely to implement this water saving technique.
[2]Participants were unlikely to implement this water saving technique.
[3]High water users.
[4]Low water users.

days. Many high water users jealously guarded their watering days and were quite unlikely to forfeit their watering days no matter how often or how much it rained prior to their watering day. In the case of turning off one's irrigation system if it rained, the negative emotional reaction to this technique trumped participants' ratings on the faces scale.

Perceptions of Florida-Friendly Landscaping™

Over half of the homeowners had some idea of what Florida-Friendly Landscaping™ meant, yet low water users tended to offer more expansive definitions and speak of it in more positive terms.

Low water users

- Using things that require minimal water and fertilizer.
- It means using plants that don't take a lot of water.
- Basically, St. Augustine grass isn't native to Florida, and the things not native use the most water. So, I think Florida-friendly is to grow plants that are indigenous to Florida so we can grow them here and use less water.
- Plants that are indigenous to Florida. Plants that love sand, sun, and heat.
- Just to conserve water use.

High water users

- They all want us to have concrete lots so they can just suck up all the water for themselves.
- I use water in the morning and then I decide when I want to turn my water on (instead of automatically turning it on daily). I turn the water on at 8 PM on days that it doesn't rain in the afternoon.
- My 'Florida-friendly' area consists of pieces of mulch, rocks, and plants that use little to no water.
- Using native plants.

Willingness to practice Florida-Friendly Landscaping™

Some of the low water users had already begun transitioning their lawns to Florida-Friendly Landscaping™. Two common complaints were the perceived cost of Florida-Friendly Landscaping™ and the difficulty in finding the most appropriate plants and grasses. Many homeowners perceived a high initial cost for transitioning to Florida-Friendly Landscaping™. Some homeowners mentioned the cost of buying rocks or other ground cover. There seemed to be a perception among some homeowners that one had to transition completely to Florida-Friendly Landscaping™ (thus incurring a significant initial expense) rather than gradually.

Low water users

- I wouldn't find that aesthetically pleasing. I moved to Pine Ridge because I like woods.
- When I buy plants, I look for heat tolerant ones.

- I just have a small area that I take care of. In the back is pine needles and stuff, and it doesn't need any water.
- The other thing is with the water bill we pay—water is so inexpensive that if we spent a grand on rock and saved three dollars on the water bill a month, well, you do the math.
- We do. We look for the drought resistant plants. I replant the babies from the plants that I have, so I'm recycling them again. You use your landscape fiber to hold the water in. Hopefully, we'll find grass that can live better off less water.

High water users

- It's good but it is very expensive. Doing all the rocks and things had to cost a fortune.
- I spoke to a gentleman in the Cooperative Extension Office one day and he said that Bahia grass is the grass to have up here. We switched to it and it was just great. He said that St. Augustine was never meant to be planted this far up north in Florida.

Concerns about how homeowner associations impact outdoor use of water

Most homeowners in all three neighborhoods were concerned about homeowner associations checking on the health and appearance of lawns. Fear of getting a nasty letter from a homeowner association motivated most homeowners to water their lawns. About half of the homeowners believed that associations were less stringent on water policies now compared to several years ago.

Low water users

- They were sending notices around the community for a while, citing people for using their sprinkler at the wrong time of the day. And also, they sent letters if your grass was not in the shape that they liked.
- (About HOA meetings) Here's the thing. When we send out our newsletter telling people who is coming to speak, I guarantee, if it is wildlife, if it's water, if it's something to that effect, everybody comes. They don't come to everything.
- When we have droughts, it usually results in a heavy hand with the Homeowners' Association because they are still fining the residents, but then it's the law enforcement coming in and fining people because they're watering. But they're only watering because the Homeowners' [Association] is going to fine them. So you've got this vicious cycle, and either law enforcement or code enforcement are the bad guys. And then you have some arrogant homeowners that are just like, "I don't care. I'm going to have a green lawn."
- Most of us live in this development (Sugarmill Woods), and the original restrictions drawn were more intense until enough homes were sold. It was really strict originally. You had to have a certain percent of your yard in grass.
- They (HOA) fine us if they're not happy.

High water users

- They mandate how the yard should look in the Homeowner association. They tell you that you have to have it like this.
- If the yard doesn't look good, they get on us.
- They came up and started writing things. I said, "what's going on?" And they said, "you're watering and it's not your day." I explained that I was growing this grass and I have a little sign. Then, I realized I was supposed to call in to get permission to water for a week or 30 days.
- I think when they put restrictions on it, people end up using more water because they're afraid if they don't water on that day, then they will be fined. Then, they can't water for a whole week, so they're watering to the hilt that one day they can.

Perceptions of why others will not reduce outdoor water use

Low water users

- I think some of them even know how much they're watering but don't care.
- Fining would work to a certain extent, but I think there's just a lot of ignorance about the requirement to conserve water. People just don't understand that we're running out of it.
- You're required to have an irrigation system.
- And since you paid to have it put there, you are going to naturally want to use it.
- Most of us live in this development and the original restrictions drawn were more intense until enough homes were sold. It was really strict originally. You had to have a certain percent of your yard in grass.

High water users

- I think sometimes they just don't care—like that one neighbor I told you about who has 12 zones and waters all of them every day. He's not watering for a few minutes; he's watering all night long.
- Well, part of the reason is with our community, and people are not living here year-round. So some of the elderly can't do all of the house care.
- More seniors and they can't attend to everything outside, so they just follow the regulation—whatever it said they can do. You know? So twice a week, they will do whatever is allowed and they don't take the trouble of thinking about "well, I have to conserve water in this way and that way." You know?
- I don't know, but they're still watering, so that big fine couldn't have come out. Maybe they didn't care.

- I think very few people don't care, but I think the majority of people who don't care, who aren't people like us, who are scraping to keep their lawn going, are the people on the corner lots that just let their water run all day long since they don't get the surcharge.

Motivations for using less water

Having demonstration lawns was more convincing to most homeowners than issuing fines. There was some distrust in having demonstration lawns tended by and placed on government properties. Common areas in neighborhoods or selecting a few (previously high consumption) homeowners was preferred over using government property.

Progressively higher rates for increased use was another popular motivation to use less water. Some homeowners preferred fines for excessive use, but many thought that was too punitive.

Low water users

- Double the rates again. Triple the rates again.
- The price was the incentive for me. You get a $500 water bill—I tell you what.
- I think a demonstration is worth a thousand words. You can talk to people but if you actually show them, that's more effective.
- If the person is in violation, make it public. Put it in the newspaper that they were fined. Let the public know.
- I think you need to convince the people to trust and listen to you. If I say, "I can help you save monthly on your water bill," who is going to say "no, I don't want to hear about that." We motivate people by doing something for them—helping them out—not by threatening them.

High water users

- My solution was to educate the people on the importance of saving water. Maybe they don't know how much or little they need to maintain their lawns.
- Convince people that if it could be done, it is in their own interest. If I think it is better for me to do these things, then I am going to do them.
- Start with friendly paper work explaining what we do to save water. Basically, go down to how you can save and what you need to do to do it. I basically Googled everything and had to figure things out my own way. So start out with the paperwork and then have someone monitor it.
- A lot of people aren't going to care. Flyers can be handed out though, and things can catch on.

Best way to communicate proper outdoor water use

Homeowners were asked to complete a brief questionnaire to indicate which methods would be most successful in communicating proper water use to others in the community. Results are show in the table below. Articles or advertisements in newspapers received more support from both low and high consumption homeowners. Local newspapers such as the *Chronicle* are widely read.

Low water users

- I listen to talk radio. I pay attention. And, that might be a good way in reaching a lot of people.
- Educating is a big thing they don't utilize.
- Have a conversation with them—tell them. You can't force them to do anything.
- I think most people are aware of the water in Florida.
- I just said raise the prices. I figure that's what they'll do. That was the big motivator for me.
- Direct mail. Not the most cost effective, but good.

High water users

- They need to write about it in the *Chronicle*. If it happens in Citrus County, it's in the *Chronicle*.
- Meetings, e-mail, letter, news magazines.
- Charts, statistics and bills. If you mention the money saving aspect, people will do it.
- Yes, with real pictures and really simple language.
- I would just talk to them as nicely as I possibly could. It's really not my nature to tell my neighbors and other people what to do. I would suggest it in a really nice way, and that would be it. With regard to contacting the state of Florida, what we need to do is remember that we're taking advice from the people who gave us love bugs.

Differences between Sugarmill Woods and Citrus Springs/Pine Ridge residents

Residents of Citrus Springs and Pine Ridge were grouped together during the discussions so it is possible to explore differences in responses between residents of Sugarmill Woods and Citrus Springs/Pine Ridge. There were significantly more similarities between residents of Sugarmill Woods and Citrus Springs/Pine Ridge than there were differences with regard to the issues being explored in the study. Differences between high water users and low water users overwhelmed differences between Sugarmill Woods and Citrus Springs/Pine Ridge residents. The following are the key differences between residents of Sugarmill Woods and Citrus Springs/Pine Ridge:

- Citrus Springs/Pine Ridge residents believed they used less water for outdoor use than Sugarmill Woods residents.
- Sugarmill Woods residents had skip a week as their top choice for saving outdoor water, while Citrus Springs/Pine Ridge residents had no outright top choice as their reactions were more mixed.
- Sugarmill Woods residents were more likely to not trust rain sensors, while Citrus Springs/Pine Ridge residents were less favorably disposed to having neighbors check their sprinklers when they were on vacation.
- Citrus Springs/Pine Ridge residents had a wide range of reactions to how all of the outdoor water saving efforts might affect their lawns, while Sugarmill Woods residents' reactions were more uniform and slightly more optimistic.

- Citrus Springs/Pine Ridge residents were mixed in their perceptions of Florida-Friendly Landscaping™ and some had extremely negative perceptions about how it looked, while Sugarmill Woods residents were more positive and receptive to Florida-Friendly Landscaping™.

Communication approaches that caught homeowners' attention in a previous public education campaign

Homeowners were asked to reflect on a previous public education campaign that attracted their attention and were asked to recall which communication approaches worked best.

	Low[1]	High[2]
PR – bus wraps, messages on shopping bags, public announcements at events	8[3]	8
Utility bill inserts	13	15
Articles/ads in local newspaper	21	20
Homeowner association meeting	7	5
Homeowner association newsletter	14	6
Talks at schools, clubs, work	10	9
Brochures in the mail	13	13
Web pages for County, Swiftmud, etc.	6	3
eNewsletters/email blasts	9	6
Facebook	4	1
YouTube videos	1	1
TV/radio ads	5	3

[1]Low water users.
[2]High water users.
[3]Eight low water users thought PR was the best educational approach.

Local newspaper articles and advertisements received the most support, while brochures and homeowner association meetings/newsletters were also ranked highly. Many homeowners selected utility bill inserts, but half of these homeowners could not recall any content in a previous utility bill insert.

Southwest Florida Water Management District

Most homeowners had some prior knowledge about Southwest Florida Water Management District, while a few did not. From a positive perspective, some homeowners praised the District and some wanted more communication from the District. There were concerns that the District might be sending water to South Florida. Some homeowners thought that the District was inconsistent in its water restrictions, while some were concerned about political influence on the District.

Low water users

- I just said more communication. I am not really up-to-speed on what the water issues are or how severe they are.
- You have a problem. You have sliced and diced the state through greedy development. You drained the swamp and now wonder where the water went. You say there is a shortage. You rely on inaccurate satellite renderings for run-off. Every big box store has a retention pond that distorts natural run-off.
- There should be more information from the engineers. I just think more information would be better.
- Why do I have a different sized water main than others? I'd like to know more about what they do and what their role is.
- You get the idea it's a government agency, and they're going to do whatever they want to do, and you have to deal with it.

High water users

- Stop penalizing rural communities with large yards that might use more gallons per customer but much less per square foot of land.
- Swiftmud knows who the violators are. All you have to do is look at your records and they know who they are. Yet Swiftmud refuses to go after the individual violators. I mean there are some families using something like 200,000 gallons a month.
- My biggest complaint is Swiftmud. Their advertising tells you to look at the blade of grass and see if it's folding. If you walk on it and it turns blue and doesn't come back up, then water only if you see that these things are happening. That's unrealistic because we can only water twice a week. If I find that on a Friday when my lawn should be watered Thursday of next week, what do I do? I can't water. So I can't water on the schedule that they would like us to use.
- I think you should have checks and balances. You shouldn't have Swiftmud handle both. The county should be somewhat involved by enforcing what Swiftmud is doing.
- Swiftmud controls a large part of the region. How are they supposed to be aware of how much each individual is using?

Appendix: Focus Group Script and Exercises

Sugarmill Woods & Citrus Springs/Pine Ridge focus group script

Hello – My name is Phillip Downs. We're going to be talking about water usage and conservation tonight. There are no right or wrong answers – just your thoughts and opinions. Everyone is right tonight!! We're paying you to be here because we know you'll have lots of valuable things to share with us. The only rule is everyone has to talk. Well, the other rule is you cannot talk too much! We're taping this. It will be used strictly for research purposes. This will not end up on YouTube – trust me. Please turn off your phones, and let's get going.

- Now, everyone here ***waters their lawns***, correct?
- Everyone has an ***irrigation system*** or automatic sprinkler, correct?
- You are the person who is ***responsible*** for setting the irrigation system or changing it, correct?
- You are ***financially responsible*** for your water bill – someone outside your household doesn't pay it, correct?
- And, none of you has put in ***new sod*** in the past 6 months, correct?
- Finally, you do NOT have a ***well,*** correct?

1. On a scale of 1 to 10, how important is it to you that you lead an ***environmentally friendly lifestyle***?
   PASS OUT - SHOW
2. What do you ***do day-to-day*** that makes your environmentally friendly lifestyle? EXPLORE BRIEFLY
3. How does your ***household rank*** in comparison to others in the county in terms of ***water use***? PASS OUT
   Use a lot more / use a little more / about the same / use a little less / use a lot less DISCUSS?
4. Please **write** down how would you **feel** if your outdoor water use is **twice** as high as your neighbors
   Write down what would you do about it. DISCUSS
5. What, if anything, do you ***do now*** to ***conserve water***? WRITE DOWN - DISCUSS
6. What, if anything do you do to ***conserve outdoor water*** usage? WRITE DOWN - DISCUSS
7. Please write down what ***percentage*** of your household's total water usage comes from ***outdoor use***? DISCUSS
8. Next, I'm going to pass out sheets of paper that have different things you could do to ***conserve water*** that you use outside on your lawn. Each one has ***five faces*** next to the action you could take. ***Circle the face*** that expresses your gut level reaction to the action. For example, if you think, wow that ***makes sense, I can do that***, and you might circle one of the happy faces. If the action is ***neither good nor bad*** from your perspective, maybe you circle the middle face. If you think the action is ***absurd*** – you would ***never want to do*** it, or perhaps you ***don't know how*** to do it, or if you think it is plain ***stupid***—you might circle one of the sad faces.

PASS OUT ONE AT A TIME

- Turn off your automatic irrigation system if quite a lot of rain , say ¾ of an inch, has fallen
- Skip a week of irrigation in cooler months – turn it off every other week
- Rely on rain sensor to override your irrigation system
- Cap your irrigation heads in mature plant beds so they don't get water
- Reduce how long your irrigation system runs if your grass is health
  - **PASS OUT** – How many zones do you have/how long do you run them?
  - How did you decide to run them that long?
  - What will happen to grass/plants if you run zones 10-15 minutes?
  - Have you tested how much water (inches) your irrigation system puts out in 15 minutes?
  - **Write down** – what are problems with over watering (cinch bugs, fungus, dollar weed)
- Check monthly for broken or misaligned sprinkler heads
- Ask a neighbor to check for broken or misaligned sprinkler heads if you leave for extended periods

7. What would ***happen to your lawn and your plants*** if you did the desired water-related behaviors?
Die & cost you money; retard lawn/plant growth & look bad; do just fine

8. Do you believe desired water-related behaviors will ***make a difference***? ***To whom***? (you/your lawn; society)

9. If you actually (***NAME A DESIRED BEHAVIOR and write on newsprint***) how would that ***make you feel***?

Doing the right thing; wasting my time; being smart; stupid, no one else is; saving the planet; doing my share; pain in the backside?

Will you remember? PROBE FOR IDEAS (sticky note on irrigation timer, email reminder to skip a week, etc.)

10. Do they see any ***advantages*** to doing the desired water-related behaviors?

Cover each behavior separately

Cost savings

Saving the environment

Being a green or good citizen

If no one mentions water use=water quality correlation – DISCUSS

11. What are the ***obstacles*** to doing the desired water-related behaviors?

Cover each separately – PROBE

Costs too much to do it right

Will ruin lawn, plants

HOA regulations

Attitudes – this is the way I like it – government should leave me alone – there is plenty of water

My lawn reflects on me

12. What's the ***best approach to motivate*** residents to follow best practices?

Recognition/Cost savings/Threats of fines, penalties/Increased rates for higher users

Cash incentives for retrofitting (micro-irrigation) or replacing grass with Bahia

13. Which one of these actions are you ***most likely*** to take? – WRITE NUMBER #1 & #2 ON TOP 2 DISCUSS

14. Which one of these actions are you ***least likely*** to take? – WRITE NUMBER # 6 & #7 ON BOTTOM 2 DISCUSS

Compliance issue

- Are you aware of the ***changes*** the County has made to the ***water restrictions*** and the ***increased enforcement efforts*** established to catch violators?
- Do you know the ***reason for changes***? (Water use has exceeded the amount that the water management district permitted for residents of the county.)
- Do you know that the ***county was fined $200,000*** for over use of water?
- ***You and your neighborhoods*** use 187 gallons per day; ***Tampa uses*** 77 gallons per day - **reactions**
- Does this ***motivate*** you to decrease water use?

15. What does Florida-Friendly Landscaping™ (FFL) mean to you?

16. What's the best way to reach them with messages about water conservation? **PASS OUT LIST**

PR	Read email from County/SWFWMD/eflyers/enewsletters
Youth education	YouTube tutorials/YouTube videos
Bill inserts	Facebook
Should District partner with anyone – who?	Twitter
Community papers	Brochures
Interactive CDs	Other public outreach
Web pages for County, District	

17. Reactions to/messages for District

Exercises

Live an environmentally friendly lifestyle

Not at all Extremely
Important ____ I ____ I ____ I ____ I ____ I ____ I ____ I ____ I ____ I ____ Important

How my household ranks compared to people in my community in terms of outdoor water use

____ My household uses **significantly more** than others in my community

____ My household uses a **lot more** than others in my community

____ My household uses **more** than others in my community

____ My household uses a **little more** than others in my community

____ My household uses **about the same** as others in my community

____ My household uses a **little less** than others in my community

____ My household uses **less** than others in my community

____ My household uses a **lot less** than others in my community

____ My household uses **significantly less** than others in my community

What's going to happen to your lawn if you:

*turn off your irrigation system if ¾ inch of rain falls and

*skip a week of irrigation in cooler months and

*rely on a rain censor to override your irrigation system and

*cap your irrigation heads in mature plant beds and

*reduce how long your irrigation system runs?

Write down how you would feel if your household uses more than twice as much water outdoors as the average home in your community

_____

_____

_____

_____

What percentage of your total household water usage comes from what you use to water your lawn?

__%

_____ Number of irrigation zones

_____ Minutes each zone runs

How I decided to run my zones this many minutes

What can you do to conserve outdoor water usage in your household?

_____

_____

_____

Which approaches have **caught your attention** in learning about some previous public issue? (CHECK ALL THAT APPLY)

____ PR – bus wraps, messages on shopping bags, public announcements at events
____ Utility bill inserts
____ Articles/ads in local newspaper
____ Homeowner association meeting
____ Homeowner association newsletter
____ Brochures at an event
____ Talks at school, work, clubs
____ Other – what?_____
____ Interactive CDs
____ Web pages for County, Swiftmud, etc.
____ newsletters
____ email blasts
____ Facebook
____ Twitter
____ Brochures in the mail
____ YouTube videos

On a 10-point scale, where
10 means others in the community will **DEFINITELY** put these behaviors into practice
1 means others in the community will definitely **NOT** put these behaviors into practice,
what score reflects the chances that your community will adopt these behaviors?

_____ ___ Score

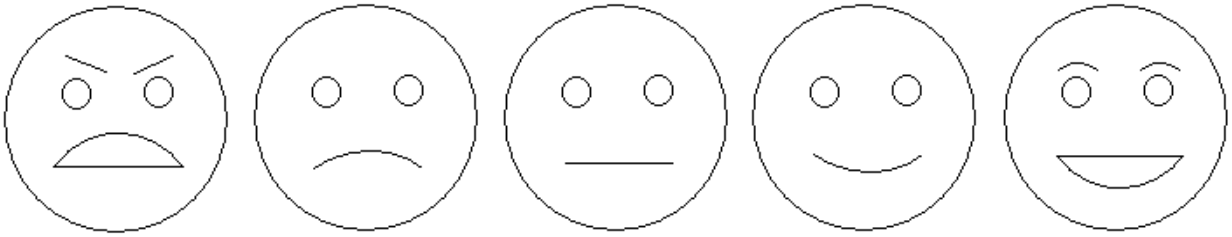
Based on what you know or have heard, what does Florida-Friendly Landscaping™ mean?

_____

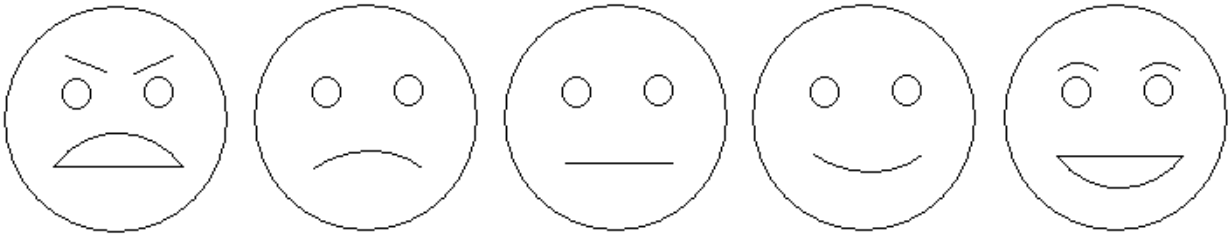
_____

_____

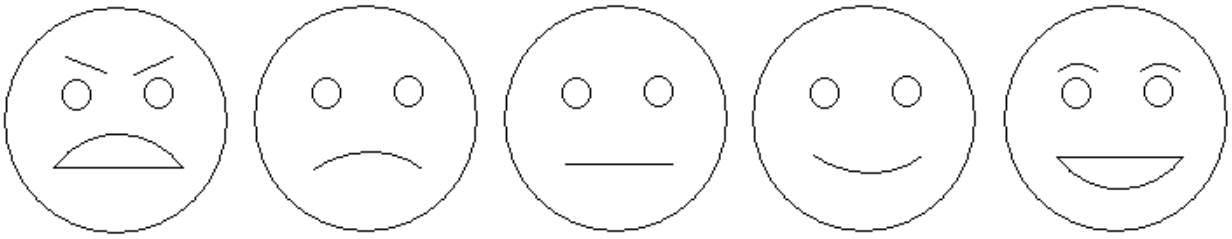
Turn off your automatic irrigation system if quite a lot of rain, say ¾ of an inch, has fallen.



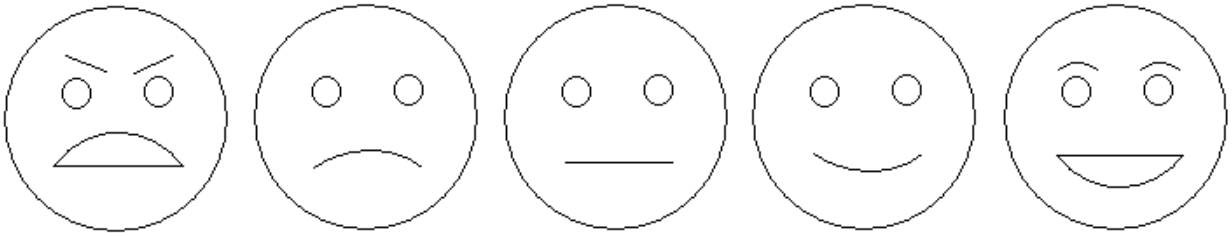
Skip a week of irrigation in cooler months – turn it off every other week.



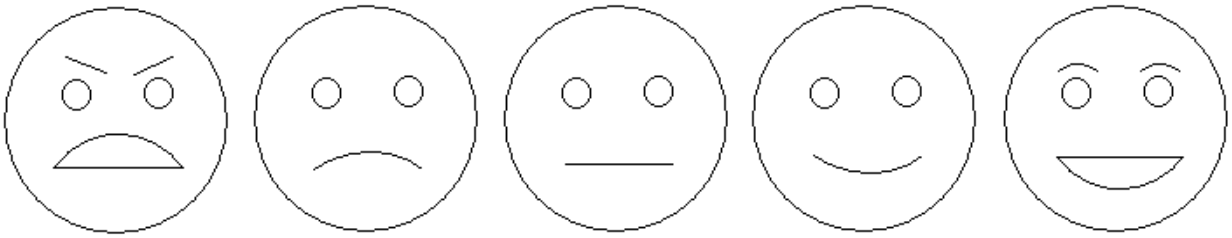
Rely on rain sensor to override your irrigation system



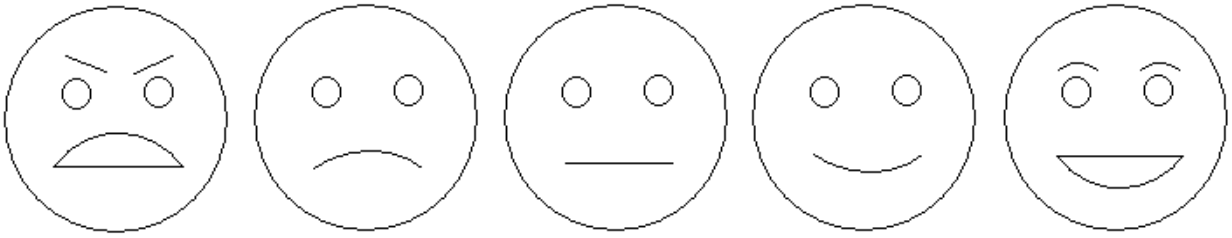
Cap your irrigation heads in mature plant beds so they don't get water.



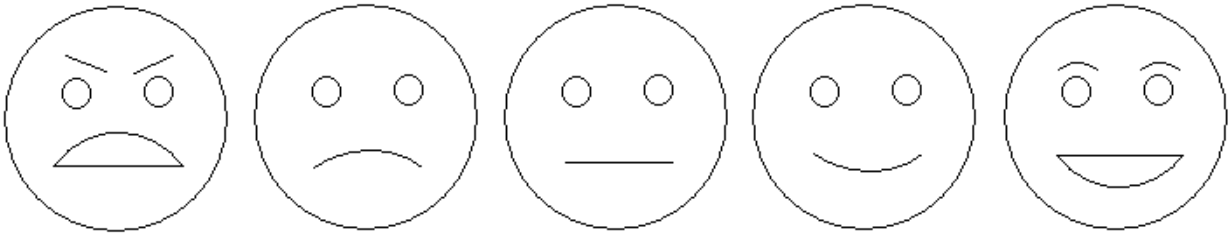
Reduce how long your irrigation system runs.



Check monthly for broken or misaligned sprinkler heads



Ask a neighbor to check for broken or misaligned sprinkler heads if you leave for extended periods



What message would you like to send to Swiftmud or what opinions do you have about Swiftmud?

_____

_____

_____