

UC Landscape Plant Irrigation Trials Final Report 2014-2016

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Overview

These are results from 2-year perennial plant trials conducted from 2014-16 at the UC Landscape Plant Irrigation Trials (UCLPIT) field on the UC Davis campus in USDA climate hardiness zone 9b, Sunset climate zone 14. The field soil is a Yolo silty clay-loam whose water holding capacity has been measured at 0.32 g/cm³, 14.3 gallons (2.7") in the root zone. Irrigation is applied to target a root zone volume equal to a 1m-wide circle ½m deep. The field is maintained free of weeds manually in sensitive areas and by herbicide applications where there is no risk of damage from drift. Pre-emergent herbicides are not used so that we may evaluate the potential for re-seeding. We apply no insecticides, miticides, fungicides, or fertilizers.

Research Methods

Twenty-four plants of each cultivar or species (Table 1) were placed 2 meters apart in rows 2 meters apart. The rows were covered 1m wide with 3 inches of chipped-wood mulch, and a ring of inline drip tubing was laid beneath the mulch in the root zone of each plant. Each drip tubing ring had 4 emitters, 6" apart, each rated at 0.8gph, for a total of 3.2gph per plant. Plants were placed according to a randomized complete block pattern in two blocks to provide 6 of each species on each of 4 irrigation treatments. All plants except roses were planted in October 2014. All roses were installed in February 2015 from bareroot stock provided by cooperators, except 'Harlow Carr', which was planted in spring from pots. The four species under 50% shade cloth were in one randomized complete block.

Irrigation treatments were based on percentages of reference evapotranspiration, or ET₀, as described in Water Use Classification of Landscape Species IV (<http://ucanr.edu/sites/WUCOLS>). Immediately following planting and during the first irrigated growing season (from the cessation of rain in spring to recurrence in fall) all plants were irrigated at 100% of ET₀ when 25% of available soil moisture was depleted; this encourages establishment of a deep, healthy root system without imposing stress. During the subsequent irrigated growing season, rain dried up by the end of March with only ¼" total for April. All plants were fully watered April 6, and the deficit schedule was begun. From May through October 2016, all the plants received the same amount of water when irrigated to replace 43% of the soil's water holding capacity (the approximate percentage of plant available water in a silty clay loam at field capacity), but how often they received it was determined by their designated water-use percentage of ET₀. The hypothesis is that plants using water at a lower rate than the reference plant will take longer to use up the plant available water in the soil, provided water loss to evaporation is minimized with mulch. Data from the local UC Davis California Irrigation

Management System station (CIMIS) was used in a water budget to determine the irrigation timing for each treatment (<http://www.cimis.water.ca.gov/>). The budget in shade is adjusted for lower solar radiation. The percentages of ET₀ used in this trial were 20% (low), 40% and 60% (moderate), and 80% (high). The frequency of irrigation for 2016 is shown in Table 2.

Plant width, length, and height measurements were taken monthly during treatments. A plant growth index (PGI) was calculated to quantify the growth of plants using the formula $[(l + w)/2 + h]/2$, where l, w, and h represent length, width, and height of the plant. To account for differences in initial plant size a relative PGI was calculated for each plant each month during the deficit irrigation treatments using the formula PGI_m/PGI_i , where PGI_i stands for the initial PGI, and PGI_m stands for the specific monthly PGI. Qualitative performance ratings (on a scale of 1-5) were taken monthly in the following categories: foliage appearance, flowering abundance, pest tolerance, disease resistance, vigor, and overall appearance (the “WOW” factor). A description of the ratings criteria is shown in Table 3.

Since mortality led to uneven “n” values for some species, weighted means were used in data analysis across and between treatments using ANOVA and Tukey’s HSD, respectively at $p \leq 0.05$ and $p \leq 0.01$.

Table 1. Average annual overall quality ratings from May to October 2016 for 17 perennial landscape species on 4 ET₀-based irrigation treatments. Superscripts represent significant differences at $p \leq 0.5$. Ratings without superscripts are not significantly different.

PLANT NAME	Overall Rating on each ET ₀ % Scale is 1-5 (1 is low, 5 high)				Recommended rate/range (ET ₀ %)
	80	60	40	20	
SUN					
<i>Bouteloua gracilis</i> 'Blonde Ambition'	3.9	4.3	3.6	4.2	20-60
<i>Eucomis</i> 'Leia'	3.1	3.4	2.8	3.2	20-60 ¹
<i>Ozothamnus</i> 'Silver Cape'	4.0	3.7	3.8	3.9	20-40
<i>Rosa</i> 'Aushouse' 'Harlow Carr'	3.0	3.2	3.0	3.1	20-80 ¹
<i>Rosa</i> 'KORelamba' 'Bordeaux'	3.8	3.5	3.9	3.7	40
<i>Rosa</i> 'KORsteimm' 'Lone Star'	3.5	3.6	3.7	3.4	40-60
<i>Rosa</i> 'Meidrifora' Coral Drift	3.9	4.0	4.0	3.8	20-80
<i>Rosa</i> 'Meigalpio' Red Drift	4.0	3.8	3.9	3.5	40-80
<i>Rosa</i> 'Meijocos' Pink Drift	4.0	3.9	3.9	3.9	20-80
<i>Ruellia</i> 'Mayan Pink'	3.3	3.6	3.2	3.4	20-60
<i>Ruellia</i> 'Mayan Purple'	3.3	3.7	4.1	3.9	20-40
<i>Ruellia</i> 'Mayan White'	3.6	3.1	3.3	3.4	20-80
<i>Sambucus</i> 'Black Tower'	3.4	3.5	3.7	3.6	20-40
SHADE					
Encore Azalea 'Autumn Embers'	2.7	2.5	2.3	2.3	60-80
Encore Azalea 'Autumn Royalty'	3.5	3.4	3.0	2.7	60-80
<i>Mahonia</i> 'Soft Caress'	3.4	3.9	3.5	3.6	60

¹Not recommended in this soil or full sun in this climate zone. See individual species notes.

Table 2. 2015 Deficit Irrigation Frequency Details – April 6 to October 10, 2016

Irrigation % of ET ₀	# of Irrigations	Avg. Interval (days)	Dates of Irrigation	Total water applied (in.)
SUN				
80	12	15	4/29, 5/15, 6/1, 6/16, 6/27, 7/10, 7/22, 8/3, 8/17, 9/1, 9/19, 10/10	32.8
60	9	22	5/3, 5/29, 6/16, 7/1, 7/18, 8/3, 8/22, 9/13, 10/10	24.6
40	5	29	5/17, 6/17, 7/11, 8/5, 9/4	13.7
20	2	66	6/26, 8/15	5.5
SHADE				
80	4	39	5/18, 6/22, 7/24, 9/10	11
60	3	58	6/8, 7/20, 9/29	8.2
40	1	91	7/6	2.7
20	0			0

Discussion

It should be noted that the above trials protocol is *not* how most people apply irrigation. We have chosen to investigate the hypothesis that some plants will be able to maintain health as soil moisture deficit approaches the permanent wilting point, because they are adapted to using water at a lower rate during the hot summer months. This produces a remarkably long irrigation interval and small amounts of applied water at the lower end of the treatment spectrum. We hope this will inform the way water is used in landscapes, resulting in even greater conservation of this precious resource.

Three species (not listed in Table 1) were also evaluated, but did not survive in large enough numbers to collect meaningful data: *Acacia* 'Cousin Itt' and *Agonis* 'Burgundy' (in full sun) both froze in overwhelming numbers the first winter; *Loropetalum* 'Purple Pixie' (in shade) failed steadily through the first year possibly due to sensitivity to boron in the irrigation water or the heavy soil.

Recommendations for rate or range of irrigation are based on a combination of best overall appearance ratings and growth data, as well as other factors such as flowering and pest and disease resistance. Where a range is given, there were no significant differences between treatments. These plants may be used in hydrozones irrigated at any of the indicated rates without adverse effects on health or appearance. For the purposes of water conservation, ***the lowest possible ET% should be used whenever possible.***

Over the years it has become increasingly evident that very few species show significant differences in growth on the various irrigation levels their second year in the trials. This seems to indicate that, given equal chance to develop well the first year, the plants evaluated may be genetically delimited in annual summer growth when grown without artificial fertilizers. This maximum annual growth would appear to occur on a very minimal amount of water. Since we have evaluated plants believed to be water-conserving, this may not be surprising. These constrictions may be removed during the long-night cool season when water would naturally be available, but we have not evaluated this hypothesis since growing outdoors does not allow for applying different amounts of water during the cooler rainy season.

Detailed discussion of each species' performance follows in the Results section. Individual species ratings tables, growth charts, and photos of interest are found in the Appendix. Since September is the month with the most accumulated drought stress, we have chosen to display comparative photos of all treatments in this month for most species as well as peak bloom times. This is also the month with the most significant differences in ratings, a difference which often disappears in October as weather cools and a final irrigation may be applied.

Table 3. Description of quality ratings

RATING	5	4	3	2	1
Foliage	perfect to excellent; plant is in full leaf with no signs of leaf burn, disease or insect damage, and has an appealing shape and uniformity	same as 5 except for minor tip burn, edge damage, or minor damage to only a few leaves that does not much affect the overall appearance	acceptable but not its best; non-uniform; minor damage to all leaves that is less evident from a distance, or severe damage to no more than 25% of plant	unacceptable; moderate damage to most of the plant or major damage to more than 25%; plant is declining and may not recover; may be extremely non-uniform	unacceptable; close to dead
Flowering	full bloom; the height of bloom for the species	61-80% of plant in bloom	41-60% of plant in bloom	21-40% of plant in bloom	1 bloom open to 20% in bloom
Pest Tolerance/ Disease Resistance	no visible damage	minor to moderate damage to one or two leaves or stems, or only very minor damage to a few leaves (<25%)	minor damage to many of the leaves or flowers; appearance still acceptable from a distance (25-50%)	major damage; appearance unacceptable (51-75%)	severely damaged and probably dying (>75% affected)
Vigor	pushing out a lot of new growth from every growing point	pushing out new growth from many growing points (50-75%)	Plant is surviving and healthy, but not pushing out much new growth, if any (<50%)	Plant is very small for the species or unhealthy, and declining	Plant is barely alive; close to death
Overall Appearance	An impressive plant; everything works together: flowers (if present), leaves, the shape and condition of the plant are all very appealing. It has the WOW factor that makes it an attractive garden plant, even if each individual factor isn't perfect.	a very attractive plant; may be a 5 when in bloom, or just a very nice plant that lacks the WOW factor, or is not quite at its prime	Acceptable; may be past or not quite to its prime; might be better if more uniform; may be described as an 'okay' plant.	unacceptable for any of the above reasons	completely unacceptable and not likely to improve

Results

SUN

Bouteloua gracilis 'Blonde Ambition'

This lovely cultivar of blue grama grass showed no significant differences in relative growth or quality between treatments (Figures 1c-1f; Table 4). Its performance on the lowest irrigation treatment is testament to its ability to shine in a true low-water landscape (Figures 1a-1b.). The bigger surprise with this native prairie grass cultivar is that it can also behave well in a high-water situation without becoming rangy or rotting out. Two weak points were lateness to re-sprout in spring, and a tendency to develop bare spots. By July most plants had filled in. This one was a consistent favorite at our Open House Ratings field days because of the dramatic contrast between seed heads and foliage. At the end of the second year the average plant width and height were 30" (76.4cm) and 19.5" (49.4cm), respectively.

Eucomis 'Leia'

This flowering bulb showed excellent pest and disease resistance at all irrigation levels (Table 5). At 40% of ET_0 , Leia began blooming on 1 of 6 plants in June, right after foliage began to appear in late May, but most plants bloomed in August. For all treatments, at least one plant did not bloom the second year, with the best bloom on the two highest treatments, 80% and 60%, though the difference was not statistically significant. The best average overall appearance was between July and September; though foliage already started to decline in August while they were still blooming (Figures 2a-2d). The average width and height at the end of the two-year trial were 13.4" (34cm) and 10" (25.5 cm), respectively, with no significant differences between treatments (Figure 2h). From our observations of this plant in our trials and in other landscape placements we have observed, we think it would perform better with morning sun and some afternoon shade. Like many bulbs, it might also prefer a soil that drains more quickly after irrigation.

Ozothamnus 'Silver Cape'

Silver Cape is a densely foliated plant that performed solidly on all irrigation levels with an average overall appearance rating at or approaching 4 for all treatments (Table 6). Its main feature is its beautiful silvery color in a nicely shaped dense mound (Figures 3a-3b). There were no pest or disease issues. Flowering for all treatments was in June, and although the yellow flowers were attractive to people and pollinators, they fade into the foliage when flowering is finished. Although at least one plant was lost on each treatment the first winter, it is our opinion that this was not a cold issue as much as a wet soil issue. Even so, we would recommend this as a good performing foliage plant to use as an accent or contrast in many low or moderate-water garden situations. At the end of two years it reached an average width and height of 30" (76.5cm) and 28" (71.6cm) respectively with no significant differences between treatments (Figure 3h).

Rosa 'Harlow Carr'

This is a fragrant, pink David Austin shrub rose. Like so many English roses, it attained greater height and width in our region than advertised by the breeder. In our trial it had a very open, lax growth habit with long arching canes that flowered near the ends, sometimes bare of leaves on the lower half (Figure 4b). This is unlike the catalog descriptions we have read which describe it as "bushy and sturdy" or "densely shrubby" or "rounded". At the end of the second year it averaged 56" wide (142.6cm) and 49.5" high (126cm), with no significant differences between treatments (Figure 4d). All plants leafed out well in spring with a strong flush of flowers in April, modest reblooms in June and September, and a few blooms the rest of the growing season. However, the overall appearance of the plant declined to just acceptable by May and below acceptable for most treatments for the rest of the growing season (Table 7). Even on the highest treatment some leaves showed signs of sunburn or fading, and plants on all treatments wilted in midday sun throughout the summer.

Flowering was significantly better on the highest irrigation treatment only in October, which was the only significant irrigation treatment effect observed. Our analysis is that 'Harlow Carr' is just not heat tolerant in full summer sun in our climate region. Our recommendation for possible success with this rose would be to grow it in cooler, coastal areas, or site it where it receives afternoon shade inland.

Rosa KORelamba 'Bordeaux'[™] Cityscape®

This shrub rose was a good performer overall, with no significant differences in growth between treatments (Figure 5i). There were blooms from April through October with the largest flush of flowers in April, followed by smaller flushes in June and August (Table 8). Pest and disease tolerance were good with some thrips damage showing late in summer followed by a late appearance of aphids that left the leaves shiny with honeydew. Foliage appearance generally declined starting in September. Best average annual quality rating in every category was achieved on 40% of ET₀ irrigation treatment. Average width and height at the end of two years were 58" (147.6cm) and 41.4" (105.1cm) respectively.

Rosa KORsteimm 'Lone Star'®

Lone Star is a yellow-flowered shrub rose that started its second year strong, but had foliar issues throughout the growing season. It tended to throw out long lateral canes from the rootstock that were very different than the rest of the plant, and in general had a habit of being non-uniform in shape and flowering. Some of the plants had issues with powdery mildew, and all were damaged by thrips and aphids. The foliage also became pale and sunburned in appearance by the end of August, causing the foliage ratings to drop below the acceptable level by September (Table 9). While this might be acceptable in regions with short summers, we would expect a rose in California to perform well into the fall. Another disappointing characteristic of this rose was the formation of brown hips in June, rather than self-cleaning for another flush of bloom. This habit often detracted from the overall appearance of the shrub. The average width and height at the end of the trial was 58.6" (149cm) and 49.8" (126.5cm) respectively. There were no significant differences in growth or quality between treatments (Figures 6c-6f), though marginally better quality was achieved on 40% of ET₀.

Rosa 'Meidrifora' 'Coral Drift'®

One of three Drift roses in the trials this year, this one had perhaps the splashiest floral display but combined with the greatest susceptibility to powdery mildew. For the most part, they outgrew the powdery mildew damage by July, although some plants retained disfigured foliage. When weather cooled in October, the disease began showing signs again on a few plants. The floral display was significant from April through October with peaks in April, June, and August (Table 10). The color of this cultivar is eye-catching, especially when juxtaposed with other plants with gray foliage or purple flowers (Figure 7a). The individual blooms have multiple petals that do not always open completely to expose the stamens or nectar, so if pollinator resources are desired, one of the other cultivars is recommended. The best foliage appearance was on 40% of ET₀. These groundcover roses reached an average height of 23.4" (59.5cm) with a spread of 55" (140cm), with no significant differences between treatments (Figure 7e).

Rosa 'Meigalpio' 'Red Drift'®

Red Drift showed good disease resistance and good tolerance of the thrips damage common to all the roses grown in our field, flowering on and off from April to October (Table 11; Figures 8a-8f). Some powdery mildew was present in spring, but plants outgrew it by midsummer. It performed well for most of the season on any irrigation level until September, when the three lowest irrigation levels produced unacceptable foliage quality. At the lowest irrigation level, 20% of ET₀, flowering wasn't enough to overcome this deficit, and the overall appearance of the plants dropped to an

unacceptable level, while the two highest irrigation treatments rebounded in October as weather cooled. For this reason, we recommend growing this irrigated at 40% ET₀ or above. This was the smallest of the three Drift cultivars we evaluated with an average height of 19.7" (50cm) and a spread of 46.3" (117.6cm). There were no significant differences in growth between treatments (Figure 8h).

Rosa 'Meijocos' 'Pink Drift'®

Pink Drift was the top performer we evaluated in this series, showing excellent disease resistance, good pest tolerance, strong vigor, and very good foliage and overall appearance on all irrigation levels (Table 12). As with the other Drifts, it had some bloom from April to October with the biggest flush in April, followed by July and September (Figures 9a-9f). The flowers of this cultivar have a very open habit with many stamens which were frequently visited by pollinators. With no significant differences in growth between treatments, this cultivar had an average width of 58.3" (148.1cm) and a height of just 17.6" (44.7cm), making it the lowest and widest of these 3 cultivars (Figure 9h).

Ruellia simplex 'Mayan'™ Series

This series of Mexican petunia was bred at the University of Florida at Gainesville with the goal of producing sterile cultivars that would not pose a threat of invasiveness by seed dispersal, and would be smaller overall than the species. The appearance and performance of the three cultivars evaluated were quite distinct. All of them were winter deciduous, pushing up new growth in March.

Ruellia 'Mayan Pink' 'R10-105-Q54' averaged good to very good foliage with excellent disease resistance and pest tolerance. It was modestly vigorous, putting on most of its growth late in the season. It was a very disappointing bloomer that never really put on a flower show (Figures 10a-10b). Flowering was very low from May through October, although quite a few flower buds were visible when the plant was removed, so it may have been a later fall bloomer. For this reason, overall appearance was acceptable, but not great, with no differences between treatments (Table 13). Growth was not significantly different between treatments and final average plant height and width were 16.4" (41.7cm) and 18.5" (46.9cm), respectively (Figure 10d). This was by far the smallest of the three cultivars evaluated, and formed a very compact clump of deep green foliage, rather than spreading by underground structures.

Ruellia 'Mayan Purple' 'R10-102' had the habit of spreading by underground runners, and tended to leave a bare middle while creating a non-uniform ring of stems further out (Figure 11b). It showed no significant differences between treatments in its ultimate height and width of 30.5" (77.7cm) and 59" (149.7cm) respectively (Figure 11e). Overall appearance was best at 40% of ET₀ and was still very good at 20% of ET₀. Flowering was also significantly better on the 40% treatment than on the higher levels of irrigation (Table 14). This cultivar showed a definite preference for low water, and would have scored higher overall were it not for its unfortunate growth habit of sending up stems too far from the original plant to create a solid, unified plant appearance.

Ruellia 'Mayan White' 'R10-108' had an even worse spreading habit than the purple cultivar. In some cases, the original plant did not resprout and only remote stems emerged in spring (Figure 12a). Its leaves also had the most issues early on: they were pale, sometimes splotched, and tended to yellow or scorch at the tip beginning in May and through June. Much of this damage was outgrown in July, but foliage appearance started to decline again by September (Table 15). Plants had no disease problems and only minor foliar damage from leafhoppers and thrips in September and October. The apparent significant differences in ratings between treatments are more attributable to damage from turkeys roaming through the fields, breaking off stem tops. If anything, this cultivar showed slightly better appearance, pest tolerance and flowering on the highest irrigation treatment.

The final height and width were 28.3" (71.8cm) and 48.3" (122.6cm), respectively, with no significant differences between treatments (Figure 12e).

Sambucus nigra 'Eiffel 1' 'Black Tower'

This is a striking, columnar form of elderberry with very dark foliage. Although it bloomed in May, this was not a main feature of the plant in our trials. Irrigation treatments had no significant effect on performance of this plant; plants irrigated only twice all summer performed as well as those on the most frequent treatment (Table 16). There were also no significant differences in growth between treatments (Figure 13e). All plants were cut down low to buds in early March, beginning the growing season around 1 foot high and attaining an average height of 65.8" (167.2cm) and average width of 47.2" (120cm). This is the recommended maintenance practice for this plant to rejuvenate dense leaf growth and prevent a straggly habit from developing. By September, all treatments' foliage showed lacewing damage and edge burn, especially on lower leaves, causing appearance to decline below acceptable levels (Figure 13c). This might be tolerable at the back of a mixed perennial border, but was unattractive at close range.

SHADE (Note: the lowest irrigation treatment- 20% of ET₀- received *no* summer irrigation.)

Encore® Azalea 'Autumn Embers'™

Mortality for this azalea on the two lowest irrigation treatments was 33% for 20% of ET₀ and 17% for 40% ET₀. For this reason, we would not recommend irrigating at less than 60% of ET₀, the high end of moderate irrigation. Best overall foliage appearance was on the highest irrigation treatment of 80% of ET₀. This was the only irrigation treatment which produced acceptable foliage health throughout the summer, except for August, when even this treatment fell below a 3 (Table 17). Leaves on all levels showed tip burn most likely due to the boron in the irrigation water, though it could also have just been water stress. Late in the summer, plants on less than 80% ET₀ irrigation showed signs of heat stress such as wilting and browning. The plants bloomed from December to March with brilliant burnt orange flowers, but did not show the promised autumn re-bloom (except for one plant on 80% of ET₀ in October) in our trials protocol, though more blooms may have appeared later in the month had the plants not been removed. There were also signs of chlorosis in some plants early on; our soil is a neutral 7 pH, and these might benefit from slightly more acidic soil. The average width at the end of two years was 17" (43.5cm) and average height was 13.7" (34.7cm); there were no significant differences in average overall growth between treatments except in September between the 80% and 40% treatments (Figure 14h).

Encore® Azalea 'Autumn Royalty'

This cultivar of Encore® Azalea was slightly hardier than the orange one and grew larger to an average width of 20" (50.9cm) and average height of 16" (40.8cm). Only one plant was lost on the lowest irrigation treatment, and there were no significant differences in average growth between treatments (Figure 15g). As with the other cultivar, acceptable appearance was not achieved on the lowest irrigation treatment, and was incrementally better with each increase in irrigation (Table 18). As early as July, the lowest treatment performed significantly poorer than the highest treatment. Wilting, poor color, and tip browning became an issue on the two lowest treatments as the season progressed. Flowering during the pre-treatment winter months was not as abundant on the purple 'Autumn Royalty' as it was on 'Autumn Embers'. Plants did not rebloom by the October date that marked the end of our trial, but since a replacement species was not available until spring, this cultivar was left in the ground. A few of the plants that were left did rebloom later in the fall.

Mahonia eurybracteata 'Soft Caress'

'Soft Caress' is a long, thin-leaved form of this *Mahonia* species. Heading it after blooming can help it acquire a dense, lush form, rather than becoming leggy, leaning, and non-uniform as it did in some cases in the trial. This is a fall to winter bloomer, and the plants had just begun to show flowers at the end of the trial in October. This gave us insufficient data to assess the effect of irrigation on bloom. Plants performed acceptably on all irrigation treatments, with the highest ratings for foliage, flowering, vigor, and overall appearance at 60% of ET_0 (Table 19). There were significant differences in vigor in July and October, where the 60% treatment outperformed the 20% treatment. In September overall appearance on the highest irrigation level (80% of ET_0) dropped to barely acceptable, showing a preference for more moderate irrigation. Plants irrigated at 60% of ET_0 were significantly better than 80% at $p \leq 0.01$, and better than 40% at $p \leq 0.05$. Although 60% was not significantly better than 20%, we still find the best overall performance on this level. There were no significant differences in growth between treatments (Figure 16g). The average final width at the end of two years was 29" (73.9cm); the average height was 27.4" (69.8cm).

Appendix



All photos: Karrie Reid; may be used by permission with photo credit: skreid@ucanr.edu.



Figure 1a. *Bouteloua gracilis* 'Blonde Ambition' on 20% ET₀ in April 2016.



Figure 1b. *Bouteloua gracilis* 'Blonde Ambition' on 20% ET₀ in July 2016.



Figure 1c. *Bouteloua gracilis* 'Blonde Ambition' on 20% ET₀ in Sept. 2016.



Figure 1d. *Bouteloua gracilis* 'Blonde Ambition' on 40% ET₀ in Sept. 2016.



Figure 1e. *Bouteloua gracilis* 'Blonde Ambition' on 60% ET₀ in Sept. 2016.



Figure 1f. *Bouteloua gracilis* 'Blonde Ambition' on 80% ET₀ in Sept. 2016.



Figure 2a. *Eucomis* 'Leia' on 20% ET_0 in August 2016.



Figure 2b. *Eucomis* 'Leia' on 40% ET_0 in August 2016.



Figure 2c. *Eucomis* 'Leia' on 60% ET_0 in August 2016.



Figure 2e. *Eucomis* 'Leia' on 80% ET_0 in August 2016.



Figure 3a. *Ozothamnus* 'Silver Cape' in April 2016 contrasting well with roses in the background. (Before treatments began; this plant on 20% ET₀.)



Figure 3b. *Ozothamnus* 'Silver Cape' in July 2016 on 20% ET₀ (on the left) and 40% ET₀ (at right).



Figure 3c. *Ozothamnus* 'Silver Cape' on 20% ET_0 in September 2016.



Figure 3d. *Ozothamnus* 'Silver Cape' on 40% ET_0 in September 2016.



Figure 3d. *Ozothamnus* 'Silver Cape' on 60% ET_0 in September 2016.



Figure 3f. *Ozothamnus* 'Silver Cape' on 80% ET_0 in September 2016.



Figure 4a. *Rosa* 'Harlow Carr' at first bloom in April 2016. (Before treatments began; 20% ET₀.)



Figure 4b. *Rosa* 'Harlow Carr' on 20% ET₀ in July 2016, showing the characteristic form.



Figure 4c. *Rosa* 'Harlow Carr' in September 2016 on 80% ET_0 showing wilting, browning lower leaves, bare stems, sprawling habit, lack of self-cleaning.



Figure 5a. *Rosa* 'Bordeaux' in April 2016 with brilliant red blooms and dark glossy foliage.



Figure 5b. *Rosa* 'Bordeaux' on 40% ET₀ in July 2016; foliage is clean and dark green.



Figure 5c. *Rosa* 'Bordeaux' on 40% ET₀ in October 2016 showing only small decline in foliage.



Figure 5d. *Rosa* 'Bordeaux' on 20% ET_0 in September 2016.



Figure 5e. *Rosa* 'Bordeaux' on 40% ET_0 in September 2016.



Figure 5f. *Rosa* 'Bordeaux' on 60% ET_0 in September 2016.



Figure 5g. *Rosa* 'Bordeaux' on 80% ET_0 in September 2016.



Figure 6a. *Rosa* 'Lone Star' in April 2016 full of blooms and buds.



Figure 6b. *Rosa* 'Lone Star' in May 2016 on 60% ET_0 holding onto the brown hips.



Figure 6c. *Rosa* 'Lone Star' on 20% ET_0 in September 2016.



Figure 6d. *Rosa* 'Lone Star' on 40% ET_0 in September 2016.



Figure 6e. *Rosa* 'Lone Star' on 60% ET_0 in September 2016.



Figure 6f. *Rosa* 'Lone Star' on 80% ET_0 in September 2016



Figure 6c. *Rosa* 'Lone Star' on 40% ET₀ in October 2016 with very shiny foliage from honeydew.



Figure 7a. *Rosa* 'Drift Coral' in April with heavy show of blooms.



Figure 7b. *Rosa* 'Drift Coral' on 40% ET_0 in July 2016.



Figure 7c. *Rosa* 'Drift Coral' on 40% ET_0 still blooming heavily in September 2016.



Figure 8a. *Rosa* 'Drift Red' in April 2016 in full bloom.



Figure 8b. *Rosa* 'Red Drift' in August 2016 on 60% ET_0 , holding some hips, blooming unevenly.



Figure 8c. *Rosa* 'Red Drift' in September 2016 on 20% ET₀.



Figure 8d. *Rosa* 'Red Drift' in September 2016 on 40% ET₀.



Figure 8e. *Rosa* 'Red Drift' in September 2016 on 60% ET₀.



Figure 8f. *Rosa* 'Red Drift' in September 2016 on 80% ET₀.



Figure 9a. *Rosa* 'Pink Drift' in full bloom in April 2016. Showy stamens are popular with bees.



Figure 9b. *Rosa* 'Pink Drift' still blooming steadily in July 2016 on 40% ET₀.



Figure 9c. *Rosa* 'Pink Drift' on 20% ET_0 in September 2016.



Figure 9d. *Rosa* 'Pink Drift' on 40% ET_0 in September 2016.



Figure 9e. *Rosa* 'Pink Drift' on 60% ET_0 in September 2016.



Figure 9f. *Rosa* 'Pink Drift' on 80% ET_0 in September 2016.



Figure 10a. *Ruellia* 'Mayan Pink' on 40% ET_0 in May 2016, barely making a show.



Figure 10b. *Ruellia* 'Mayan Pink' typical appearance in Oct. 2016; here on 60% of ET_0 .



Figure 11a. *Ruellia* 'Mayan Purple' in May 2016 on 40% ET₀, blooming quickly after emergence.



Figure 11b. Shown from above this 'Mayan Purple' displays the common spreading habit.



Figure 11c. *Ruellia* 'Mayan Purple' on the preferred treatment of 40% ET₀ in Oct. 2016.



Figure 12a. *Ruellia* 'Mayan White' emerging in April 2016 displaying pale leaves and scattered growth quite remote from parent plant.



Figure 12b. *Ruellia* 'Mayan White' at peak of bloom in July on 20% ET₀. Pale leaves mostly gone.



Figure 12c. *Ruellia* 'Mayan White' still blooming well in September on 20% ET₀.



Figure 13a. Emerging foliage of *Sambucus* 'Black Tower' in April 2016 after March pruning.



Figure 13b. *Sambucus* 'Black Tower' in May 2016 showing blooms on the left (80% ET₀), and buds on the right (40% ET₀).



Figure 13c. *Sambucus* 'Black Tower' in September on 20% ET₀ (at left) and 80% ET₀ (at right).



Figure 14a. Azalea 'Autumn Embers' in December 2015, at the end of its first year in the ground.



Figure 14b. Azalea 'Autumn Embers' in April 2016 before irrigation treatments; bloom is finished.



Figure 14c. Azalea 'Autumn Embers' on 20% ET_0 in Sept. 2016.



Figure 14d. Azalea 'Autumn Embers' on 40% ET_0 in Sept. 2016.



Figure 14e. Azalea 'Autumn Embers' on 60% ET_0 in Sept. 2016.



Figure 14f. Azalea 'Autumn Embers' on 80% ET_0 in Sept. 2016.



Figure 15a. Azalea 'Autumn Royalty' blooming in April 2016, before irrigation treatments began.



Figure 15b. Azalea 'Autumn Royalty' on 80% ET_0 in July 2016.



Figure 15c. Azalea 'Autumn Royalty' on 20% ET_0 in Sept. 2016.



Figure 15d. Azalea 'Autumn Royalty' on 40% ET_0 in Sept. 2016.



Figure 15e. Azalea 'Autumn Royalty' on 60% ET_0 in Sept. 2016.



Figure 15e. Azalea 'Autumn Royalty' on 80% ET_0 in Sept. 2016.



Figure 16a. *Mahonia* 'Soft Caress' in April 2016.



Figure 16b. *Mahonia* 'Soft Caress' on 80% ET_0 in October 2016, showing leaf death on lower stems



Figure 16c. *Mahonia* 'Soft Caress' on 20% ET_0 in Sept. 2016.



Figure 16d. *Mahonia* 'Soft Caress' on 40% ET_0 in Sept. 2016.



Figure 16e. *Mahonia* 'Soft Caress' on 60% ET_0 in Sept. 2016.



Figure 16f. *Mahonia* 'Soft Caress' on 80% ET_0 in Sept. 2016.

Table 4. *Bouteloua gracilis* 'Blonde Ambition' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation levels during 2016. There were no significant differences between treatments.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	4.3	3.8	3.7	4.3	3.8	4.8	4.7	4.2
60%	4.7	4.8	3.5	4.5	4.0	4.7	5.0	4.4
40%	4.0	3.7	3.3	3.7	4.0	4.4	4.6	4.0
20%	4.7	4.7	4.0	4.7	4.3	4.7	4.8	4.5
Flowering								
80%		2.0	2.5	4.3	4.8	5.0	4.8	3.9
60%		2.0	2.7	4.7	4.8	5.0	5.0	4.0
40%		1.5	2.8	4.4	4.8	5.0	5.0	3.9
20%		2.3	3.7	4.8	4.7	5.0	5.0	4.3
Pest								
Tolerance								
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	4.7	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	4.7	5.0	5.0	5.0	5.0	5.0	5.0
Disease								
Resistance								
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	4.6	4.5	5.0	5.0	5.0	5.0	4.9
40%	5.0	4.5	5.0	5.0	5.0	5.0	5.0	4.9
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vigor								
80%	4.2	3.2	3.3	4.2	4.2	4.3	4.3	4.1
60%	4.5	4.6	3.8	4.5	4.2	4.7	4.7	4.4
40%	3.5	4.0	2.7	3.7	4.2	4.4	4.0	3.8
20%	4.3	3.8	3.3	4.5	4.5	4.7	4.8	4.3
Overall								
Appearance								
80%	3.2	2.8	3.2	4.2	4.5	4.7	4.7	3.9
60%	3.7	3.6	3.7	4.5	4.5	4.8	5.0	4.2
40%	3.0	2.8	2.2	3.7	4.0	4.6	4.6	3.6
20%	3.5	3.5	3.5	4.5	4.5	4.8	5.0	4.2

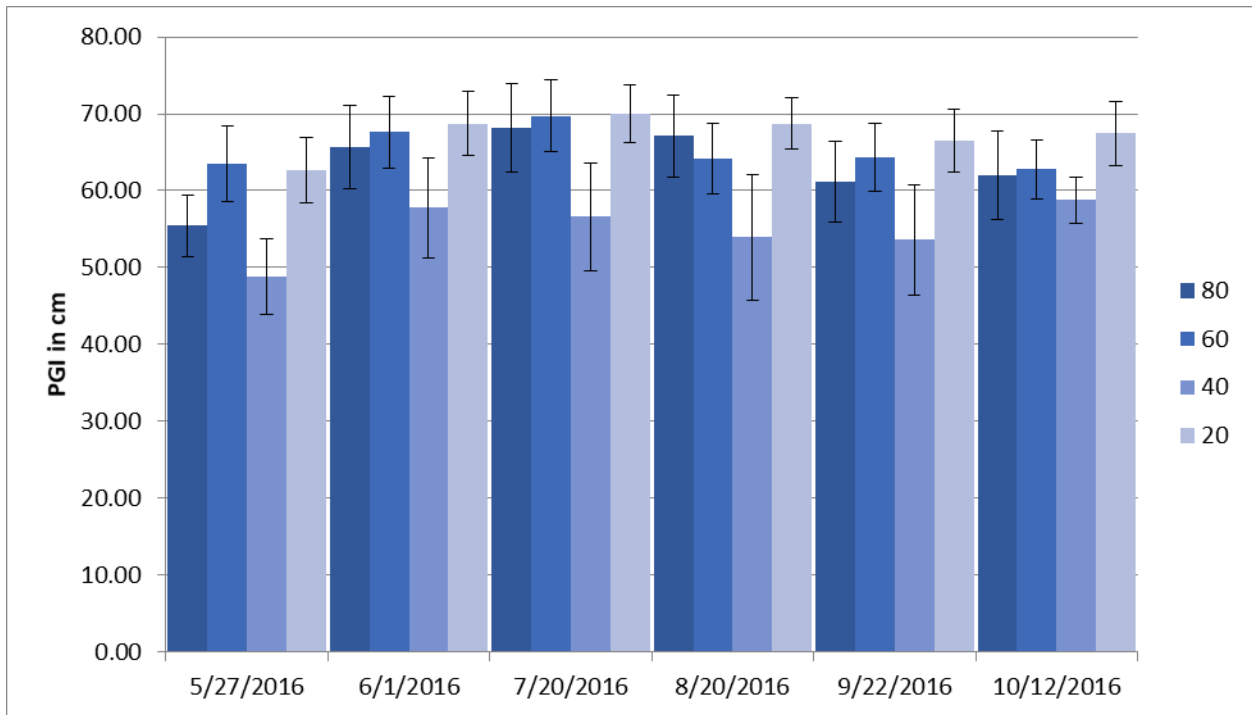


Figure 1g. *Bouteloua gracilis* 'Blonde Ambition' average monthly plant growth index on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments. Bars represent ±1 SE.

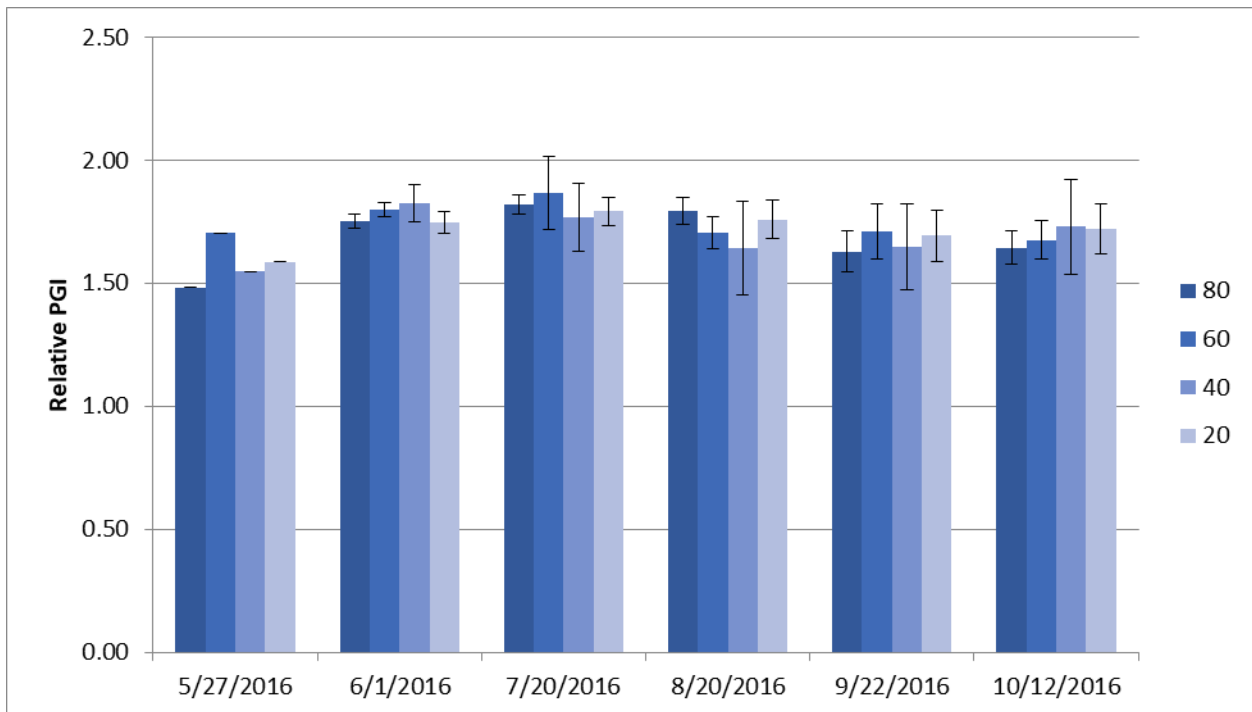


Figure 1h. *Bouteloua gracilis* 'Blonde Ambition' average monthly relative plant growth index on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments. Bars represent ±1 SE.

Table 5. *Eucomis* 'Leia' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation levels during 2016. Different superscripts denote significant differences at $p \leq 0.05$ using ANOVA and Tukey's HSD. **Red superscripts denote a significant difference at $p \leq 0.01$.**

Foliage	May	June	July	Aug	Sept	Oct	AVG
80%		4.0	4.0	3.3	2.8	2.2 ^a	3.3
60%	4.0	4.0	4.0	3.6	3.2	3.0 ^{ab}	3.6
40%		3.8	3.8	3.2	2.3	2.2 ^a	3.1
20%	4.3	4.2	4.0	3.2	3.2	3.3 ^b	3.7
Flowering							
80%				3.4			3.4
60%				4.0			4.0
40%		1.0	1.0	2.8			1.6
20%	1.7			3.0			2.3
Pest Tolerance							
80%		5.0	5.0	5.0	5.0	5.0	5.0
60%	4.0	5.0	5.0	5.0	5.0	5.0	4.8
40%		5.0	5.0	5.0	5.0	4.4	4.9
20%	4.3	5.0	5.0	5.0	5.0	5.0	4.9
Disease Resistance							
80%		5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%		5.0	5.0	5.0	5.0	5.0	5.0
20%	4.3	5.0	5.0	5.0	5.0	5.0	4.9
Vigor							
80%		3.2	4.0	4.0	3.5	3.5	3.6
60%	5.0	3.2	3.8	4.8	5.0	4.6	4.4
40%		2.8	4.2	4.0	3.2	4.2	3.7
20%	4.3	2.7	4.2	3.7	4.0	4.5	3.9
Overall Appearance							
80%		2.8	3.8	3.5	2.7	2.7 ^{ab}	3.1
60%	3.0	3.4	3.6	3.6	3.6	3.0 ^{ab}	3.4
40%		2.7	3.8	3.0	2.5	2.2 ^a	2.8
20%	3.7	3.0	3.7	2.8	3.2	3.3 ^b	3.3

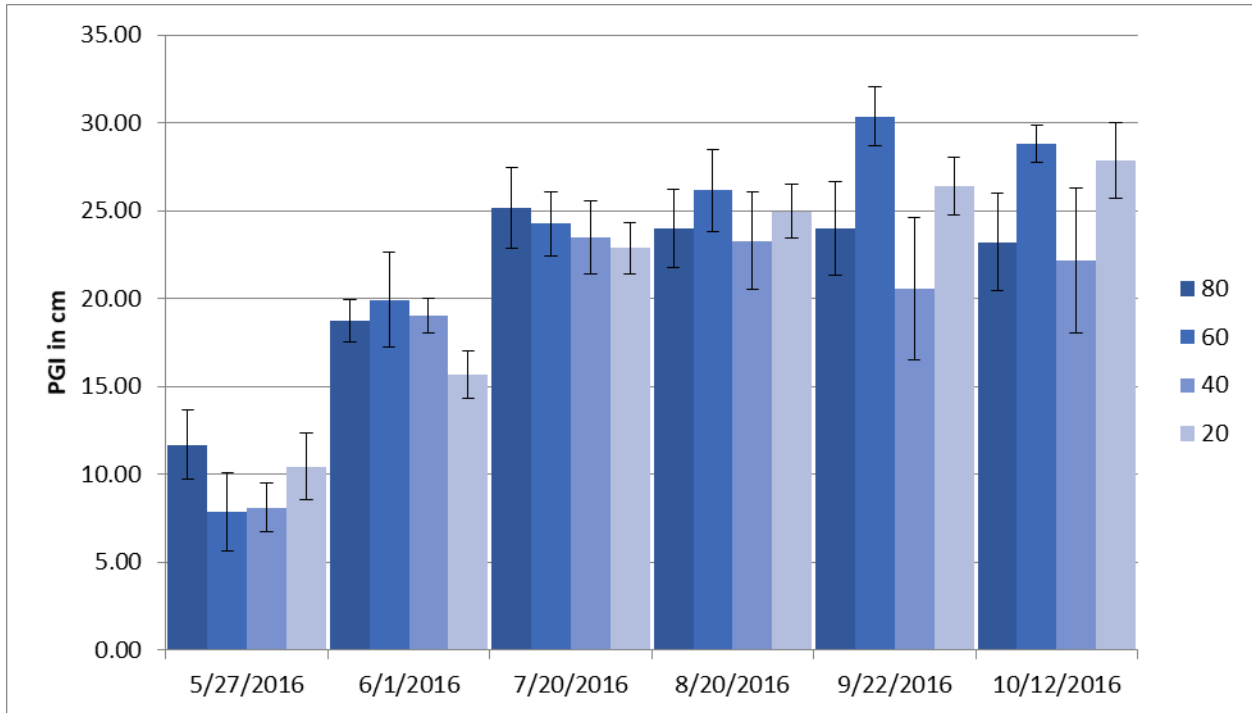


Figure 2g. *Eucomis* 'Leia' average monthly plant growth index on 4 ET₀-based irrigation levels during 2016. Bars represent ±1 SE.

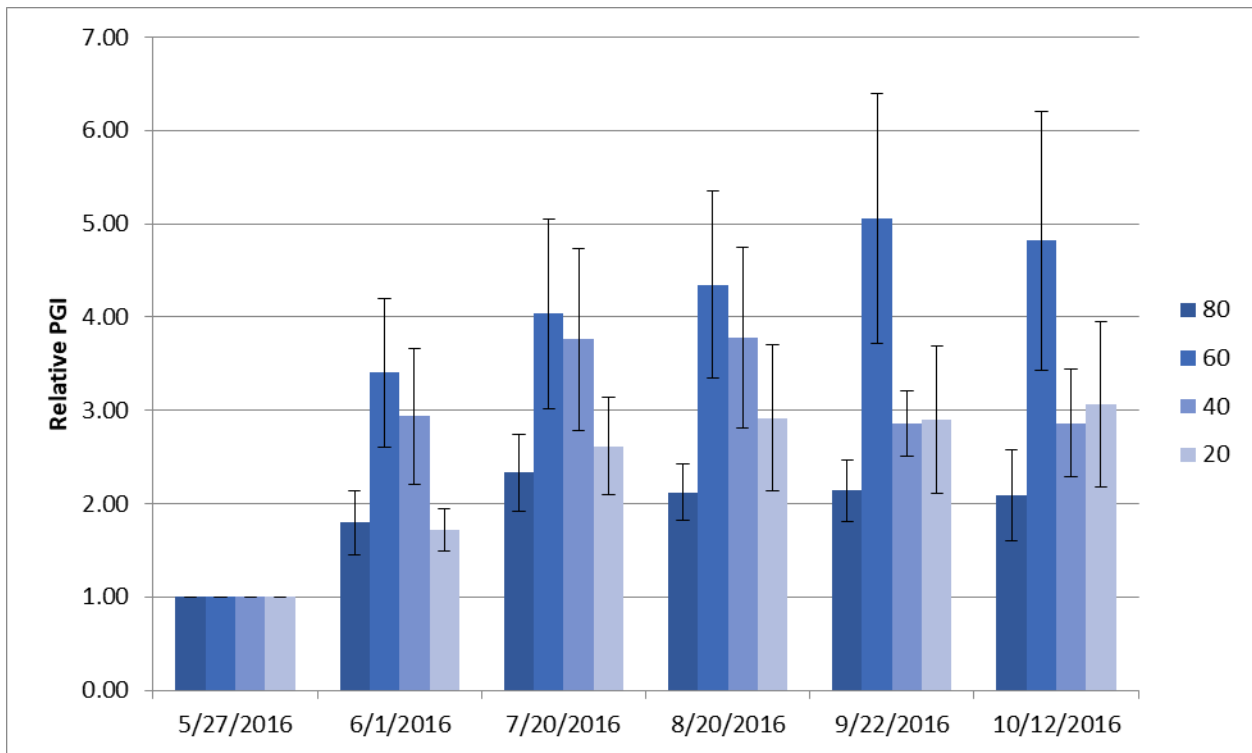


Figure 2h. *Eucomis* 'Leia' average relative monthly plant growth index on 4 ET₀-based irrigation levels during 2016. Bars represent ±1 SE. There were no significant differences between treatments.

Table 6. *Ozothamnus* 'Silver Cape' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	4.6	4.8	4.8	4.4	4.6	4.8	4.6	4.7
60%	4.8	4.7	4.3	4.5	4.5	4.8	4.5	4.6
40%	4.0	4.8	4.8	4.5	4.0	4.0	3.8	4.3
20%	4.8	4.5	5.0	5.0	4.8	4.6	4.4	4.7
Flowering								
80%		2.5	4.3					3.4
60%			3.5					3.5
40%			4.0					4.0
20%			4.0					4.0
Pest Tolerance								
80%	5.0	5.0	5.0	5.0	5.0	5.0	4.6	4.9
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	4.8	5.0	5.0	5.0	5.0	5.0	5.0
Disease Resistance								
80%	5.0	4.8	5.0	4.6	5.0	5.0	5.0	4.9
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vigor								
80%	4.6	4.5	3.8	4.6	4.6	4.8	4.6	4.5
60%	4.3	4.0	3.8	4.3	4.3	4.5	4.3	4.2
40%	4.5	4.8	3.5	4.3	4.5	4.5	4.5	4.4
20%	4.6	4.0	3.6	4.6	4.4	4.8	4.8	4.4
Overall Appearance								
80%	4.0	4.3	3.7	3.8	4.0	4.4	3.8	4.0
60%	3.5	3.3	3.5	3.5	3.8	4.0	4.0	3.7
40%	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
20%	3.8	3.8	3.8	4.0	3.8	3.8	4.0	3.9

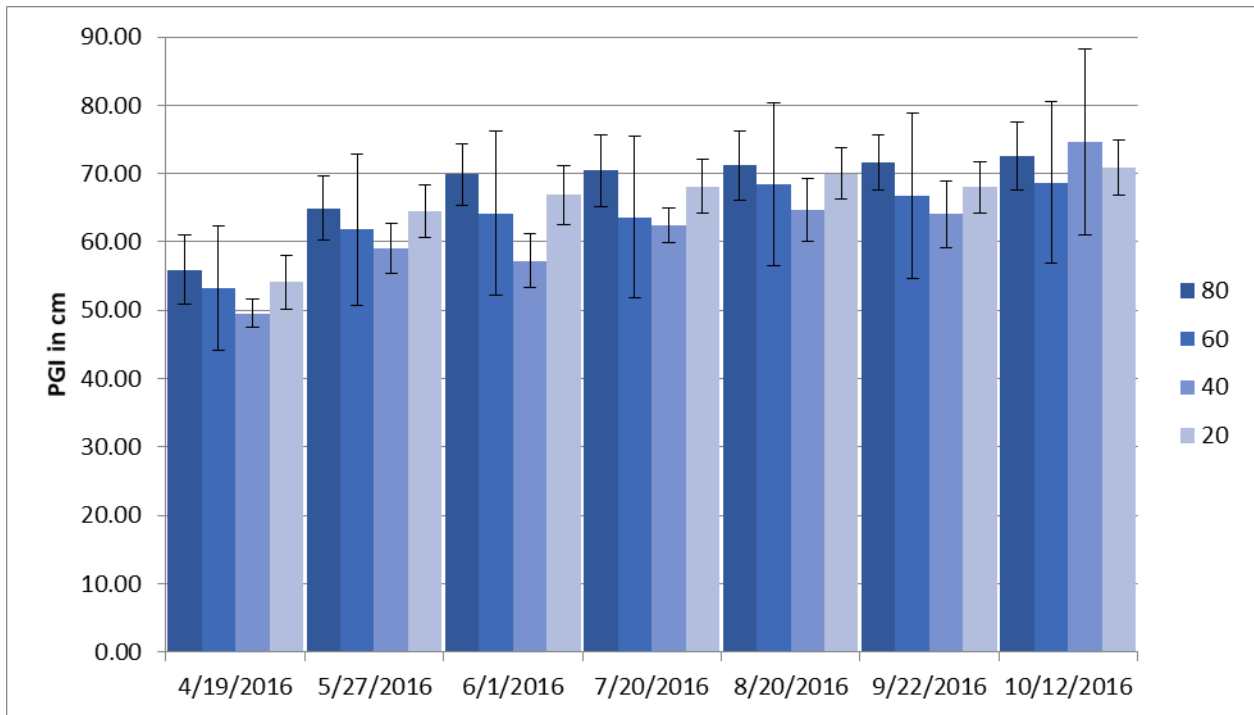


Figure 3g. *Ozothamnus* 'Silver Cape' average plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE.

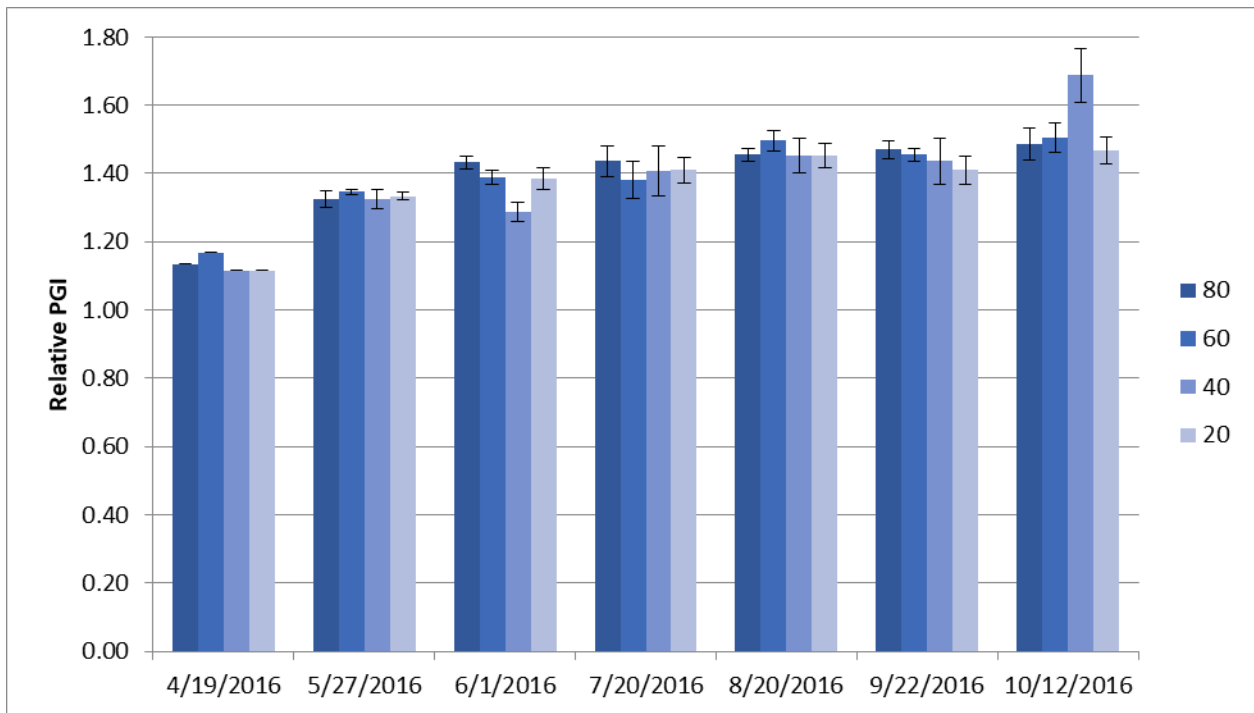


Figure 3h. *Ozothamnus* 'Silver Cape' average relative plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE. There were no significant differences between treatments.

Table 7. *Rosa* 'Harlow Carr' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. Different superscripts denote significant differences at $p \leq 0.05$ using ANOVA and Tukey's HSD.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	3.5	3.0	3.2	3.0	2.7	2.7	2.5	2.9
60%	3.8	3.8	3.2	3.2	3.2	3.7	3.0	3.4
40%	3.8	3.0	3.5	3.0	2.7	3.0	2.3	3.0
20%	3.7	4.0	3.3	3.2	2.5	3.0	2.5	3.2
Flowering								
80%	5.0		2.5	2.0	2.7	3.0	2.5 ^a	2.9
60%	4.8	3.0	2.7	2.2	1.8	2.8	1.3 ^b	2.7
40%	5.0	1.0	2.5	1.6	1.8	2.3	1.2 ^b	2.2
20%	5.0	2.0	2.7	1.3	1.0	2.8	1.3 ^b	2.3
Pest Tolerance								
80%	4.2	3.4	5.0	3.2	2.7	3.3	3.2	3.6
60%	4.2	4.0	5.0	3.2	3.3	3.8	3.2	3.8
40%	4.0	3.7	5.0	3.0	2.7	3.3	2.7	3.5
20%	4.2	4.3	5.0	3.2	2.5	3.3	3.0	3.6
Disease Resistance								
80%	3.7	3.0	5.0	3.5	4.0	3.7	3.8	3.8
60%	3.8	4.2	5.0	3.8	4.2	4.2	4.3	4.2
40%	4.0	4.0	4.7	3.5	4.0	4.0	4.0	4.0
20%	3.8	4.0	5.0	3.8	4.0	3.7	4.3	4.1
Vigor								
80%	4.5	3.8	3.3	4.7	4.0	3.8	3.5	3.9
60%	4.3	4.2	3.0	4.7	4.7	4.3	4.5	4.2
40%	4.7	4.2	3.3	4.5	4.2	4.0	4.0	4.1
20%	4.3	4.0	3.3	4.5	3.8	3.8	4.0	4.0
Overall Appearance								
80%	4.3	2.8	2.8	2.8	2.7	2.5	2.2	2.9
60%	4.5	3.4	2.5	3.2	3.1	2.8	2.5	3.1
40%	4.5	3.0	2.8	2.7	2.7	2.5	2.2	2.9
20%	4.5	3.5	2.8	3.2	2.3	2.5	2.3	3.0

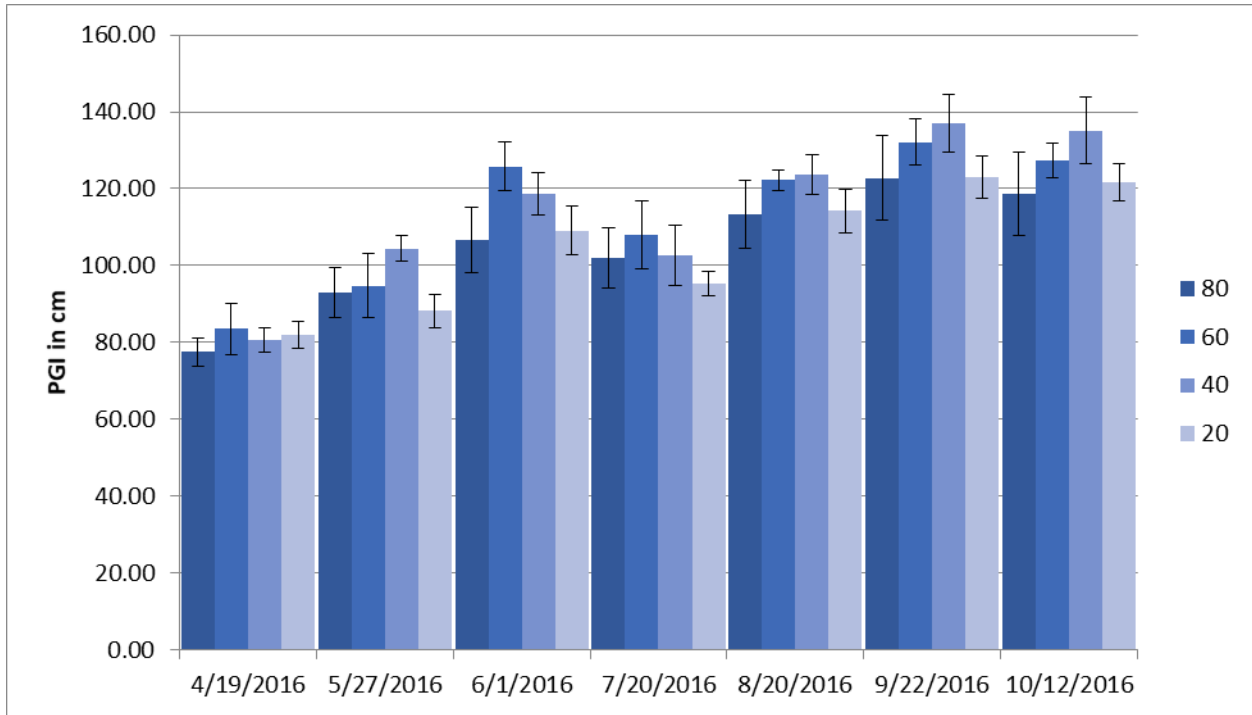


Figure 4d. *Rosa* 'Harlow Carr' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE.

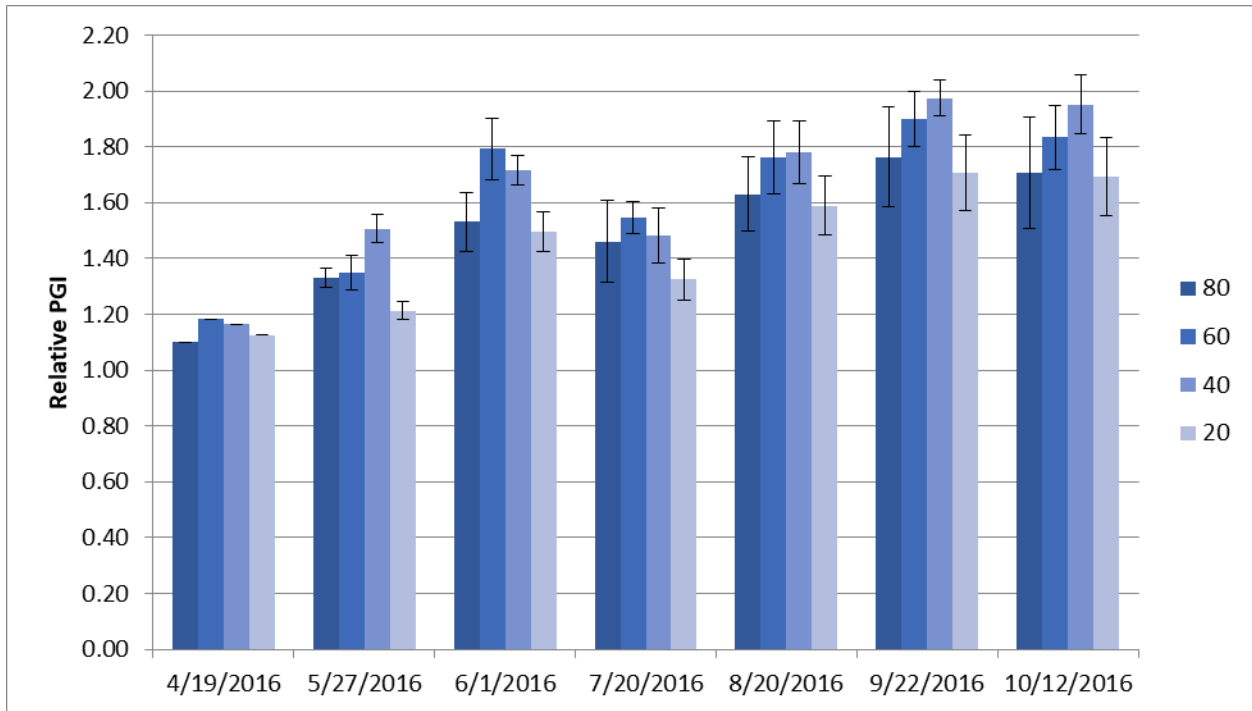


Figure 4d. *Rosa* 'Harlow Carr' average monthly relative plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE. There were no significant differences between treatments.

Table 8. *Rosa* 'Bordeaux' average monthly quality ratings on (scale of 1-5) 4 ET₀-based irrigation treatments in 2016. Different superscripts denote significant difference at p≤0.05 using ANOVA and Tukey's HSD. **Red superscripts denote significant difference at p≤0.01.**

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	4.8	4.4	4.2	4.2	3.8	3.0	3.2	3.9
60%	4.6	4.4	4.0	4.0	3.2	2.8	2.8	3.7
40%	4.8	4.3	4.2	4.5	4.0	3.5	3.3	4.1
20%	4.8	5.0	4.0	4.5	3.5	2.7	2.8	3.9
Flowering								
80%	5.0	1.7	2.6	1.8	1.8	1.2 ^{ab}	1.6	2.2
60%	4.8	1.0	1.6	1.7	2.2	1.0 ^b	1.4	2.0
40%	5.0	1.8	2.5	2.8	1.5	2.3 ^a	1.3	2.4
20%	5.0	1.6	2.0	1.7	2.0	1.4 ^{ab}	1.4	2.2
Pest Tolerance								
80%	4.8	4.2	5.0	4.2	3.8	3.2	3.4	4.1
60%	4.6	4.4	5.0	4.0	3.4	3.4	3.2	4.0
40%	4.8	4.3	5.0	4.5	4.2	3.5	3.3	4.2
20%	4.8	4.8	5.0	4.5	3.5	3.2	3.0	4.1
Disease Resistance								
80%	5.0	4.6	5.0	5.0	4.8	3.8 ^{ab}	4.0	4.6
60%	5.0	5.0	5.0	5.0	4.6	3.6 ^b	4.4	4.7
40%	5.0	4.7	5.0	4.8	4.8	4.7 ^a	4.5	4.8
20%	4.8	5.0	5.0	5.0	4.8	3.7 ^{ab}	4.5	4.7
Vigor								
80%	5.0	4.6	4.2	5.0	5.0	3.2	4.8	4.5
60%	4.4	4.0	3.6	4.4	4.4	3.2	4.4	4.1
40%	5.0	4.7	3.8	5.0	5.0	4.3	4.8	4.7
20%	4.7	4.4	3.3	4.5	4.5	3.5	4.2	4.2
Overall Appearance								
80%	5.0	3.8	3.5	4.1	3.8	3.0 ^{ab}	3.6	3.8
60%	4.8	3.5	3.0	4.0	3.6	2.4 ^b	3.2	3.5
40%	5.0	3.8	3.1	4.3	4.0	3.8 ^a	3.3	3.9
20%	5.0	4.2	3.3	4.2	3.8	2.3 ^b	2.8	3.7

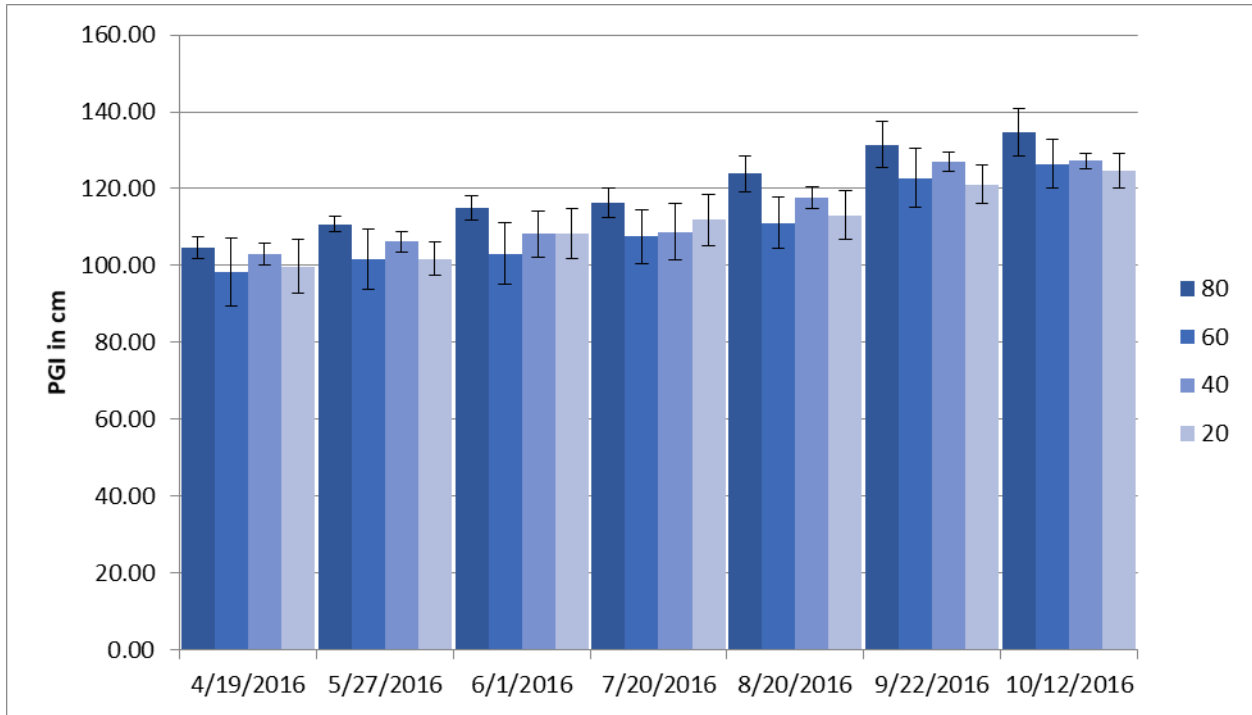


Figure 5h. *Rosa* 'Bordeaux' average monthly plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE.

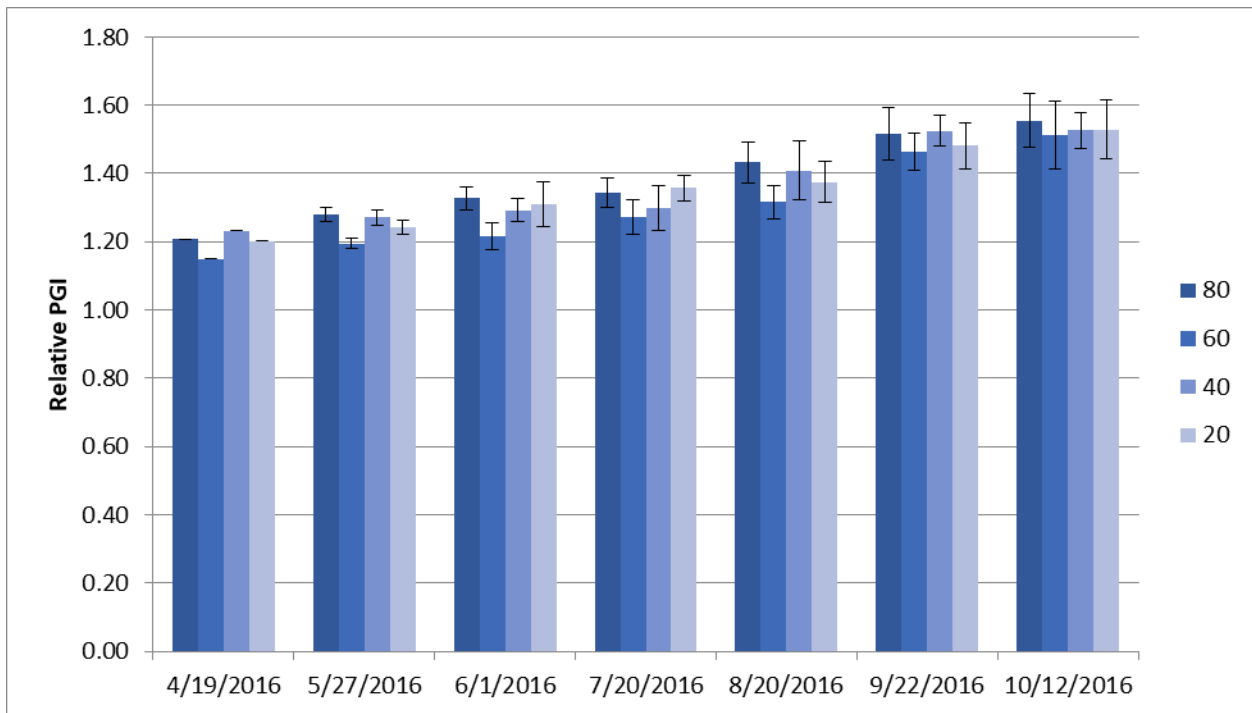


Figure 5i. *Rosa* 'Bordeaux' average monthly relative plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE. There were no significant differences between treatments.

Table 9. *Rosa* 'Lone Star' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. Different superscripts denote significant difference at p≤0.05 using ANOVA and Tukey's HSD.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	4.0	3.8	3.4	3.6	3.2	2.8 ^a	2.8	3.4
60%	3.8	3.4	3.2	3.5	3.7	2.7 ^{ab}	2.8	3.3
40%	4.0	4.0	3.5	3.7	3.7	2.7 ^{ab}	3.0	3.5
20%	4.0	4.0	3.4	3.6	3.2	2.0 ^b	2.2	3.2
Flowering								
80%	2.0	4.0	1.8	2.8	3.4	1.2	1.0	2.3
60%	1.7	3.0	1.7	2.7	3.7	1.8	1.2	2.2
40%	2.8	2.2	1.7	2.3	3.5	2.0	1.3	2.3
20%	2.8	3.8	1.6	2.2	2.8	1.8	1.0	2.3
Pest Tolerance								
80%	4.8	4.0	5.0	3.6	3.4	2.8	2.8	3.8
60%	4.5	4.0	5.0	3.5	3.7	2.7	2.8	3.7
40%	4.3	4.5	5.0	3.7	3.7	2.5	3.0	3.8
20%	4.2	4.3	5.0	3.6	3.2	2.6	2.6	3.6
Disease Resistance								
80%	4.0	4.3	4.8	5.0	5.0	5.0	5.0	4.7
60%	3.8	3.6	5.0	4.8	5.0	5.0	4.7	4.6
40%	4.0	4.0	5.0	4.8	5.0	5.0	4.8	4.7
20%	4.0	4.3	5.0	5.0	4.8	4.6	5.0	4.7
Vigor								
80%	4.6	5.0	3.8	4.6	4.8	4.6	4.8	4.6
60%	5.0	4.8	4.2	5.0	5.0	4.8	5.0	4.8
40%	4.8	4.8	3.8	4.8	5.0	4.5	4.6	4.6
20%	5.0	4.5	3.8	4.8	4.2	4.2	3.8	4.3
Overall Appearance								
80%	4.0	3.8	3.1	3.6	4.0	3.2 ^{ab}	3.0	3.5
60%	4.0	3.8	3.0	4.2	4.2	3.0 ^{ab}	3.2	3.6
40%	4.3	4.0	3.2	4.2	4.0	3.3 ^a	3.2	3.7
20%	4.2	4.1	3.0	4.0	3.7	2.4 ^b	2.4	3.4

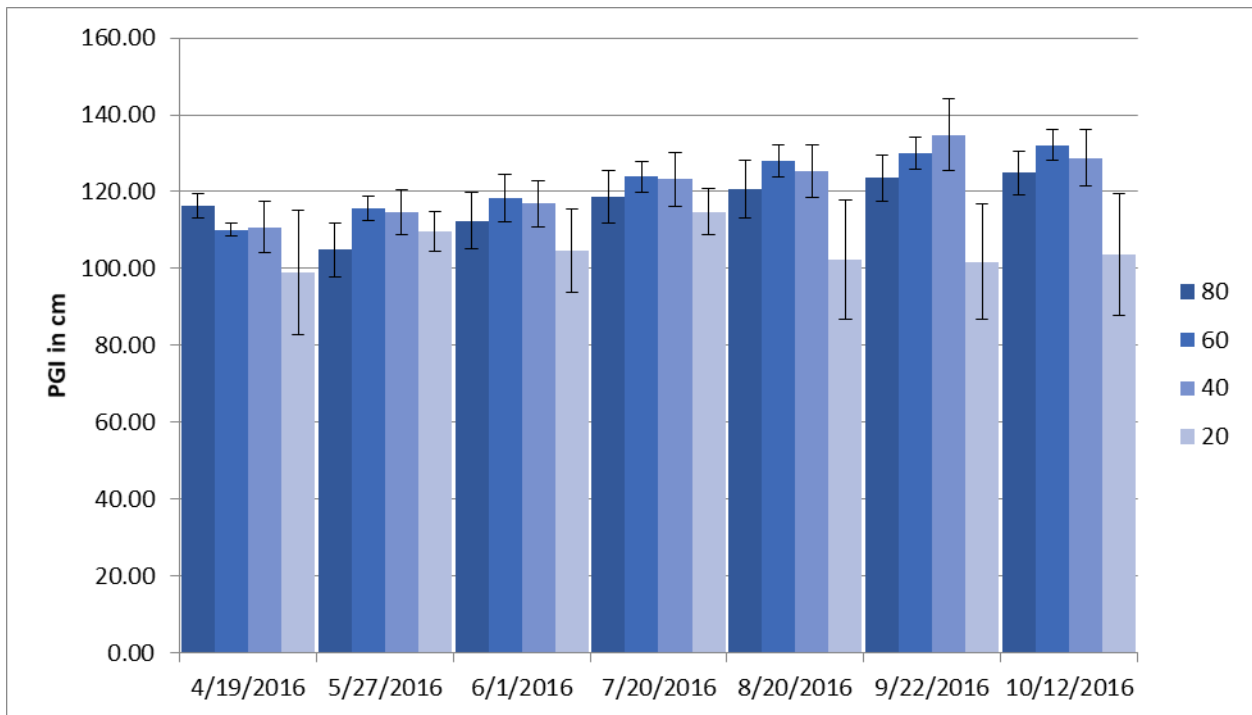


Figure 6g. *Rosa* 'Lone Star' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE.

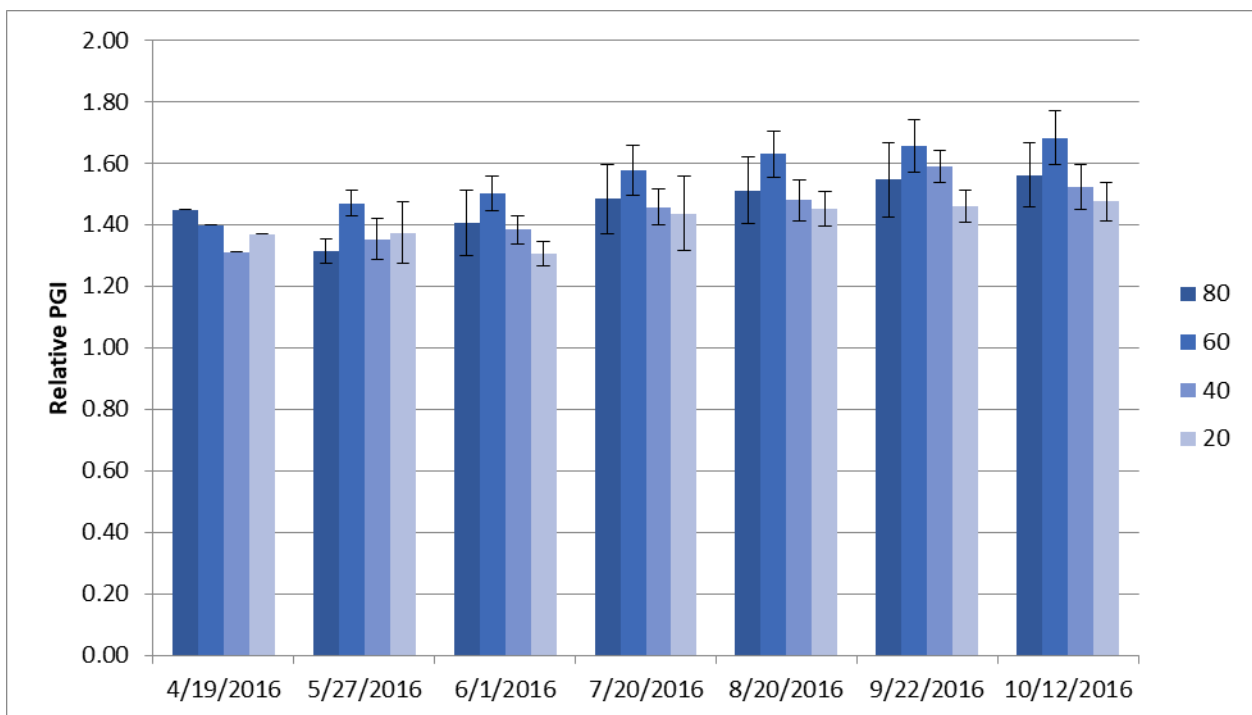


Figure 6h. Figure 6g. *Rosa* 'Lone Star' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE. There were no significant differences between treatments.

Table 10. *Rosa* 'Coral Drift' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	3.5	3.3	3.7	3.3	3.7	3.2	3.2	3.4
60%	3.7	3.2	3.7	3.7	3.7	3.3	3.0	3.5
40%	4.0	3.8	3.7	3.3	4.0	3.0	3.5	3.6
20%	3.2	2.8	3.7	3.7	3.5	3.0	3.7	3.4
Flowering								
80%	4.7	3.3	4.0	3.2	4.0	2.0	2.8	3.4
60%	4.7	2.8	3.0	3.7	2.3	3.3	3.2	3.3
40%	5.0	2.5	3.0	2.8	2.8	2.3	1.8	2.9
20%	4.8	2.8	3.0	3.2	3.3	1.8	3.2	3.2
Pest Tolerance								
80%	4.0	3.5	5.0	4.0	3.7	3.2	3.3	3.8
60%	4.5	4.0	5.0	4.0	3.7	3.3	3.3	4.0
40%	4.5	4.0	5.0	3.8	4.0	2.8	4.0	4.0
20%	4.0	3.7	5.0	3.8	3.5	3.2	3.8	3.9
Disease Resistance								
80%	3.3	3.3	3.8	3.3	4.8	5.0	4.5	4.0
60%	3.3	3.5	4.3	3.5	5.0	5.0	4.2	4.1
40%	3.8	3.6	3.7	3.3	5.0	5.0	4.3	4.1
20%	3.3	3.3	3.8	3.7	4.8	5.0	4.7	4.1
Vigor								
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	4.5	3.8	5.0	5.0	5.0	5.0	4.8
40%	5.0	4.4	3.7	5.0	5.0	4.8	4.5	4.6
20%	4.5	4.5	4.0	4.8	4.8	4.5	5.0	4.6
Overall Appearance								
80%	3.5	3.5	3.7	3.7	4.8	3.8	4.0	3.9
60%	3.9	3.2	3.5	4.7	4.2	4.2	4.2	4.0
40%	4.3	3.4	3.8	3.8	4.3	4.0	4.3	4.0
20%	3.5	2.8	3.2	4.0	4.3	3.7	4.7	3.7

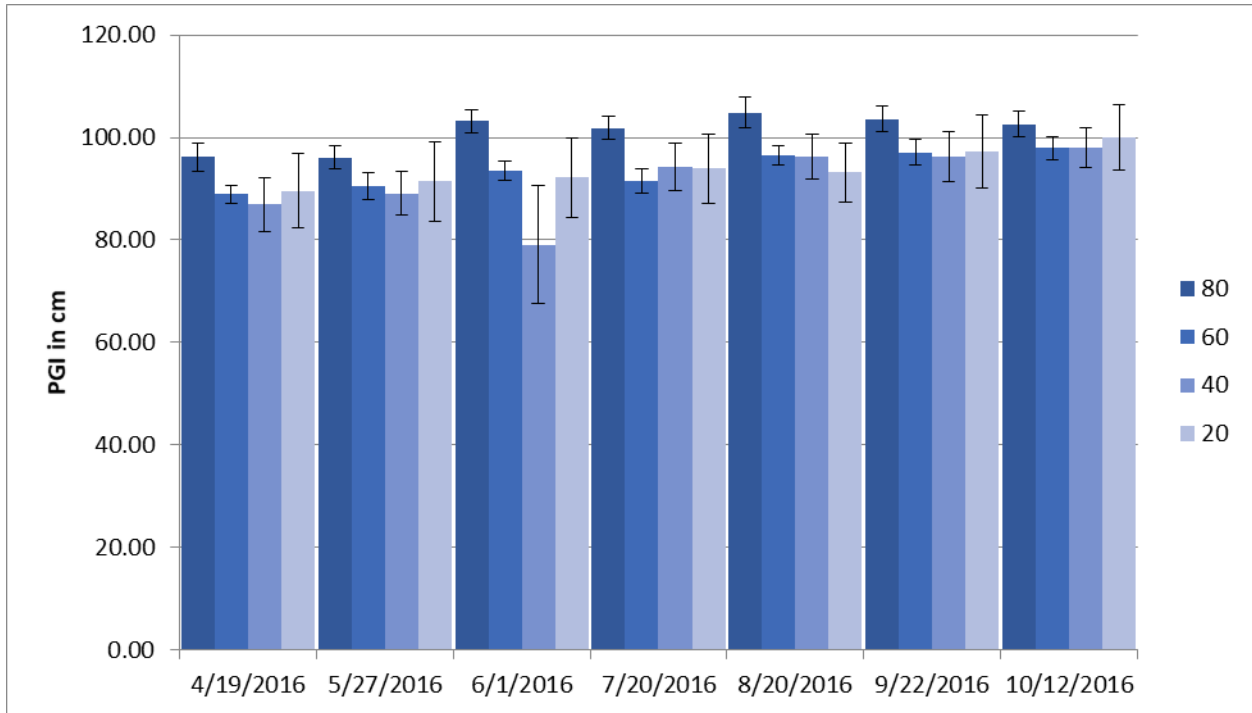


Figure 7d. *Rosa* 'Coral Drift' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE.

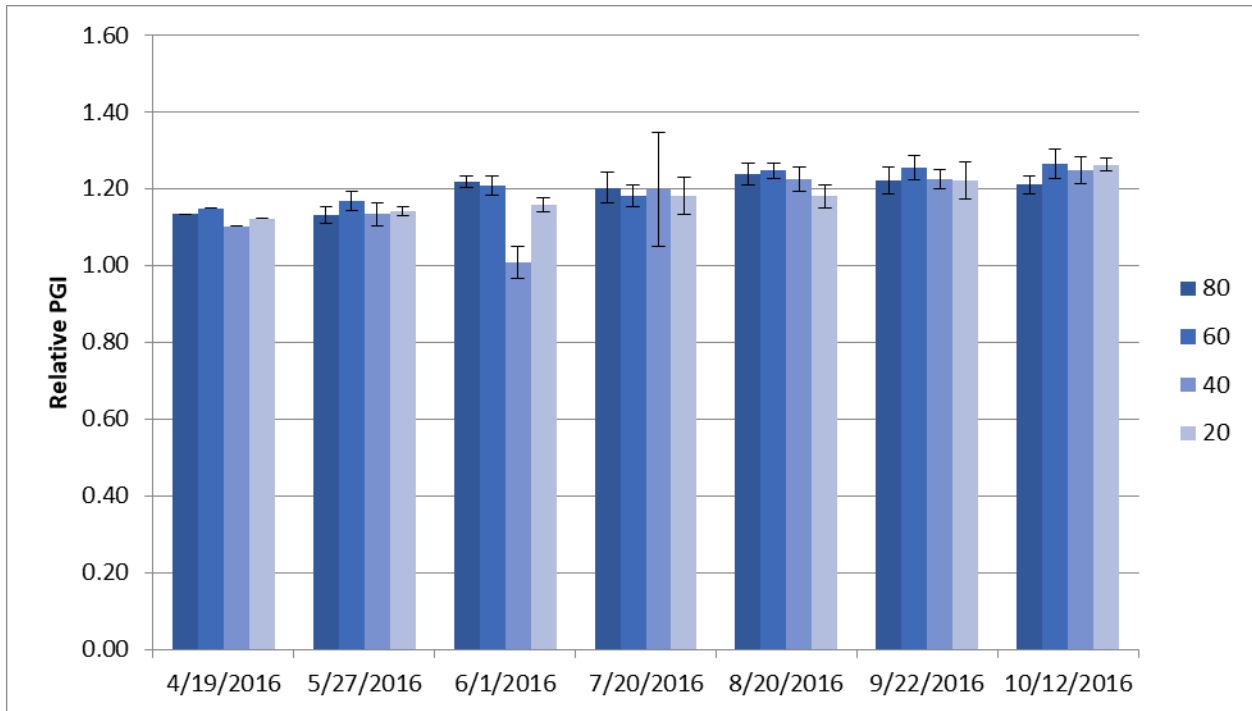


Figure 7e. *Rosa* 'Coral Drift' average monthly relative plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE. There were no significant differences between treatments.

Table 11. *Rosa* 'Red Drift' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	5.0	4.8	4.2	4.3	3.3	3.2	3.6	4.1
60%	5.0	4.7	4.2	3.7	3.5	2.7	3.2	3.8
40%	5.0	4.4	4.0	3.8	3.6	2.6	2.6	3.7
20%	4.8	4.3	4.0	4.0	3.0	2.7	2.8	3.7
Flowering								
80%	5.0	3.0	3.2	3.5	1.4	2.8	3.2	3.2
60%	4.8	3.2	2.5	2.7	2.5	2.3	3.2	3.0
40%	5.0	3.0	2.2	3.4	2.8	2.4	2.2	3.0
20%	5.0	3.5	1.7	2.5	1.7	2.2	2.3	2.7
Pest Tolerance								
80%	4.8	4.8	5.0	4.3	3.8	3.2	3.4	4.2
60%	5.0	4.8	5.0	3.7	3.5	2.7	3.3	4.0
40%	5.0	4.8	5.0	4.0	3.6	2.6	3.4	4.1
20%	4.8	4.5	5.0	4.0	3.2	2.7	3.2	3.9
Disease Resistance								
80%	4.7	4.7	5.0	4.8	5.0	5.0	5.0	4.9
60%	4.8	4.7	5.0	4.2	5.0	4.8	5.0	4.8
40%	5.0	4.6	5.0	4.6	4.8	5.0	4.6	4.8
20%	4.7	4.7	5.0	4.8	4.8	4.7	4.7	4.8
Vigor								
80%	4.8	4.8	3.8	4.8	4.2	4.4	4.2	4.4
60%	5.0	5.0	3.3	4.3	4.5	3.8	3.7	4.2
40%	5.0	5.0	3.6	4.8	5.0	4.2	4.2	4.5
20%	4.7	4.5	3.0	4.2	3.5	3.3	3.3	3.8
Overall Appearance								
80%	5.0	4.5	3.4	4.5	3.3	3.6	3.8	4.0
60%	5.0	4.3	3.3	4.0	3.8	3.2	3.3	3.8
40%	5.0	4.2	3.0	4.4	3.8	3.2	3.4	3.9
20%	4.8	4.3	3.0	3.5	3.0	3.0	2.8	3.5

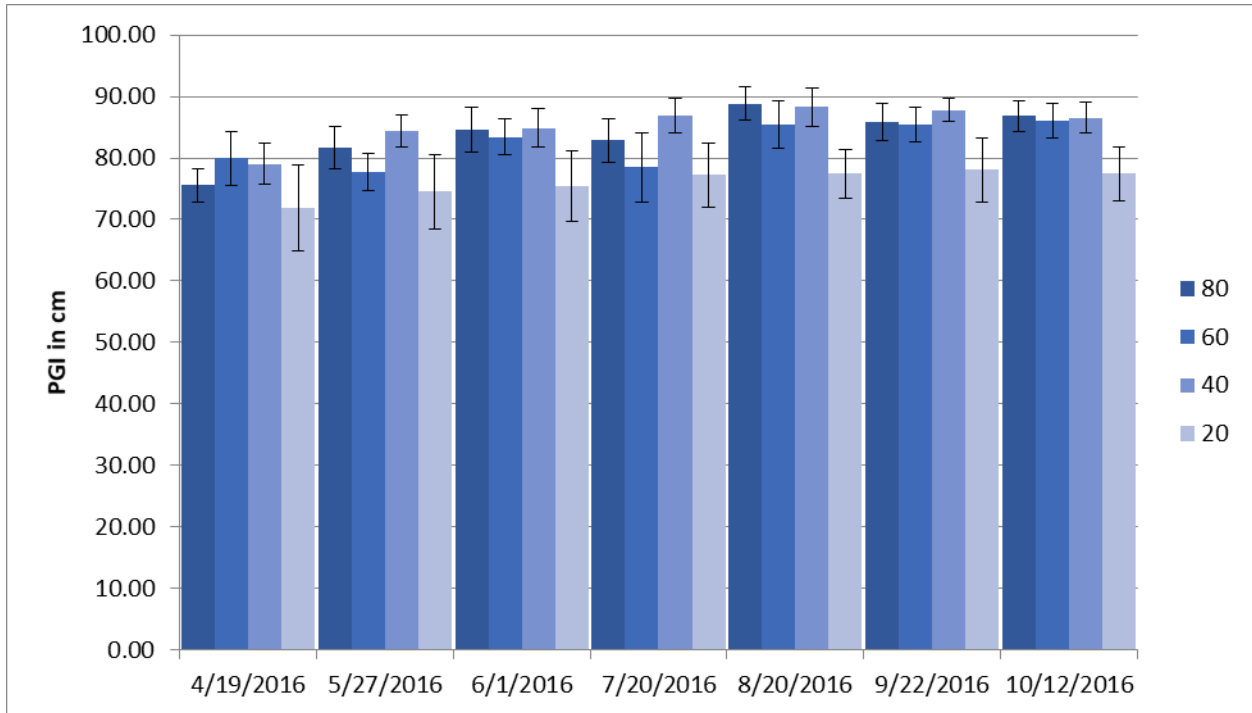


Figure 8g. *Rosa* 'Red Drift' average monthly plant growth index on 4₀-based irrigation treatments in 2016. Bars represent ± 1 SE.

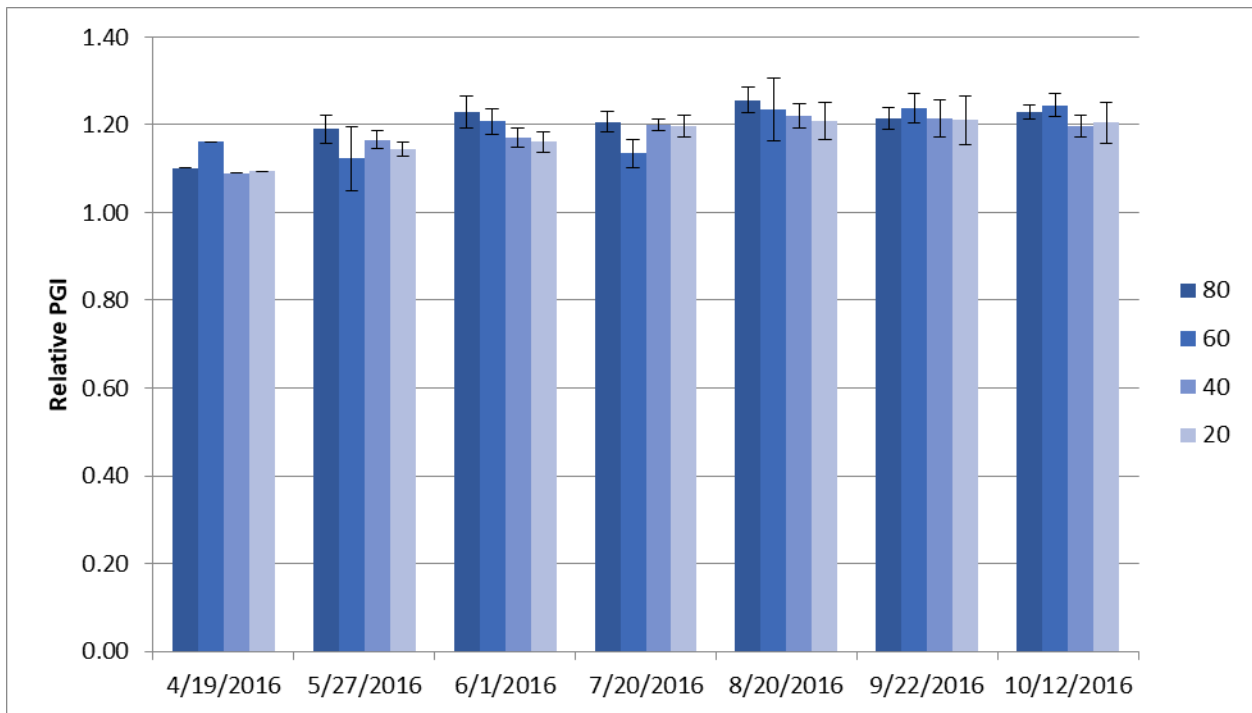


Figure 8h. *Rosa* 'Red Drift' average monthly relative plant growth index on 4₀-based irrigation treatments in 2016. Bars represent ± 1 SE. There were no significant differences between treatments.

Table 12. *Rosa* 'Pink Drift' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	4.8	4.3	4.0	4.0	3.7	3.5	3.7	4.0
60%	4.2	3.8	4.0	4.0	4.2	3.8	3.8	4.0
40%	4.7	4.3	3.7	3.8	3.8	3.8	3.7	4.0
20%	4.5	4.6	4.0	3.8	3.8	3.8	4.0	4.1
Flowering								
80%	5.0	2.6	1.8	3.2	1.5	3.7	2.3	2.9
60%	4.5	1.6	2.2	3.7	1.8	3.3	2.7	2.8
40%	5.0	2.0	2.3	3.3	2.2	3.3	3.2	3.0
20%	4.7	2.4	2.3	3.0	2.0	3.2	2.7	2.9
Pest Tolerance								
80%	4.8	4.3	5.0	4.0	3.7	3.7	3.7	4.2
60%	4.2	4.5	5.0	4.0	4.2	3.8	3.8	4.2
40%	4.6	4.7	5.0	4.0	3.7	3.8	3.8	4.2
20%	4.7	4.6	5.0	3.8	3.8	3.8	4.0	4.3
Disease Resistance								
80%	4.7	4.5	5.0	5.0	5.0	5.0	5.0	4.9
60%	4.2	4.2	5.0	5.0	5.0	4.8	4.8	4.7
40%	4.7	4.3	5.0	4.7	5.0	4.8	4.7	4.7
20%	4.7	4.2	5.0	4.8	5.0	4.8	5.0	4.8
Vigor								
80%	5.0	4.7	4.0	5.0	5.0	4.5	4.7	4.7
60%	5.0	4.3	4.2	5.0	5.0	5.0	4.8	4.8
40%	5.0	5.0	3.8	4.8	4.7	4.7	4.7	4.7
20%	4.7	4.6	3.8	4.7	4.5	4.5	4.7	4.5
Overall Appearance								
80%	5.0	4.0	3.0	4.0	4.0	4.2	4.0	4.0
60%	4.8	3.0	3.2	4.0	4.0	4.3	4.2	3.9
40%	5.0	3.5	3.0	4.0	3.8	4.2	4.0	3.9
20%	4.7	3.6	3.2	3.8	3.7	4.3	3.8	3.9

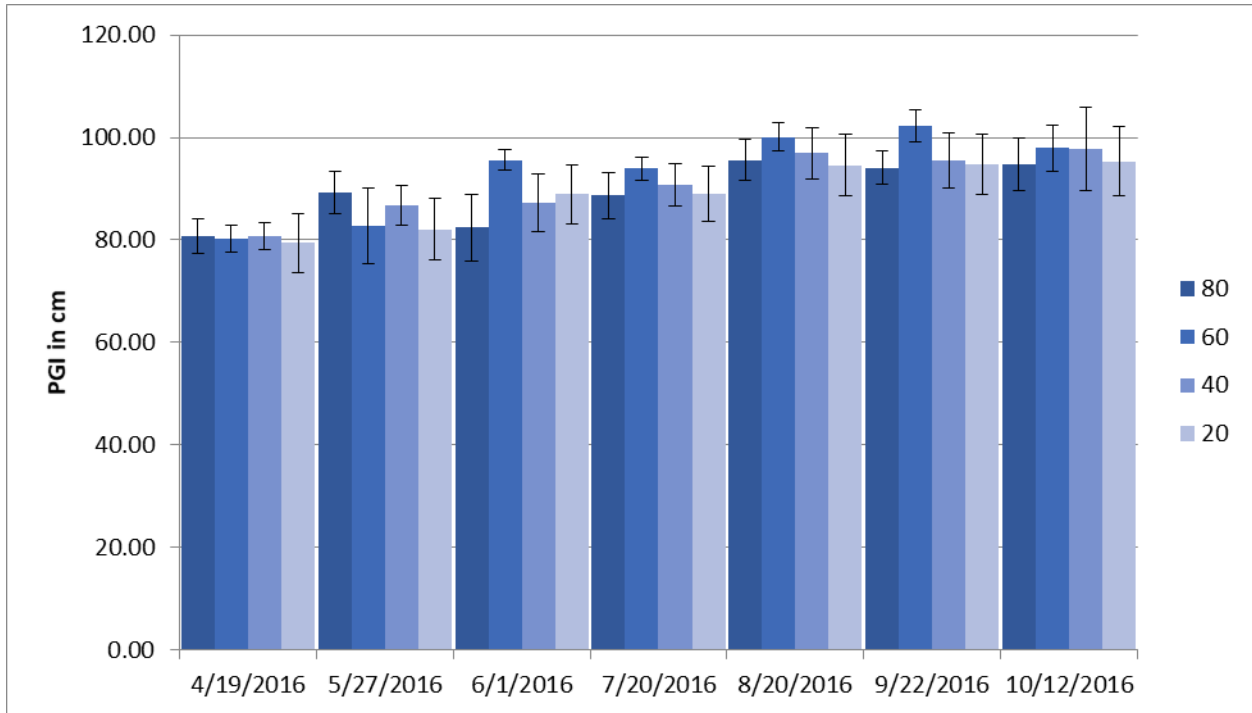


Figure 9g. *Rosa* 'Pink Drift' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE.

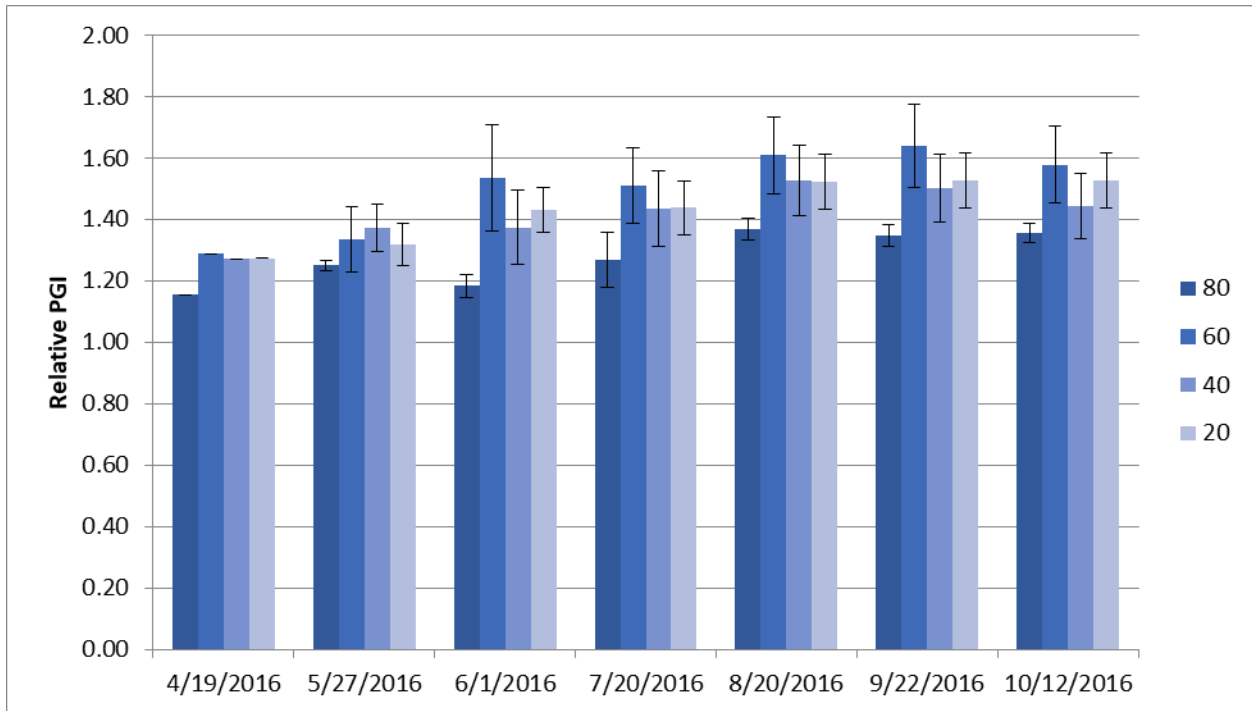


Figure 9h. *Rosa* 'Pink Drift' average monthly relative plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE. There were no significant differences between treatments.

Table 13. *Ruellia* 'Mayan Pink' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	3.7	4.5	4.3	5.0	5.0	3.8	3.8	4.3
60%	3.6	4.0	4.4	4.8	4.6	3.3	3.7	4.1
40%	3.7	4.8	4.3	5.0	4.5	3.3	3.7	4.2
20%	4.2	4.6	4.0	5.0	4.5	3.7	4.3	4.3
Flowering								
80%		2.5	1.5	1.3	1.0	1.7	1.3	1.5
60%			1.4	1.0	1.2	1.3	2.0	1.4
40%			1.6	1.2	1.5	1.7	1.5	1.5
20%		1.0	1.2	1.3	1.3	1.2	1.3	1.2
Pest Tolerance								
80%	4.0	4.8	5.0	5.0	5.0	3.8	3.6	4.5
60%	3.6	4.3	5.0	4.8	4.6	3.3	3.7	4.2
40%	3.8	4.8	5.0	5.0	4.5	3.3	3.7	4.3
20%	4.2	5.0	5.0	5.0	4.5	4.0	4.2	4.5
Disease Resistance								
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vigor								
80%	2.3	3.3	2.8	3.8	3.6	3.6	4.4	3.4
60%	2.8	3.0	3.0	3.8	3.8	3.7	4.0	3.4
40%	2.5	3.2	3.3	3.5	3.3	3.5	4.2	3.4
20%	2.7	3.8	3.5	3.7	3.5	4.0	4.5	3.7
Overall Appearance								
80%	2.7	3.5	2.8	3.7	3.6	3.2	3.6	3.3
60%	3.0	3.5	3.4	4.0	3.8	3.3	3.5	3.5
40%	2.7	3.4	3.0	3.7	3.3	3.2	3.2	3.2
20%	3.0	3.8	3.2	4.0	3.3	3.3	3.5	3.4

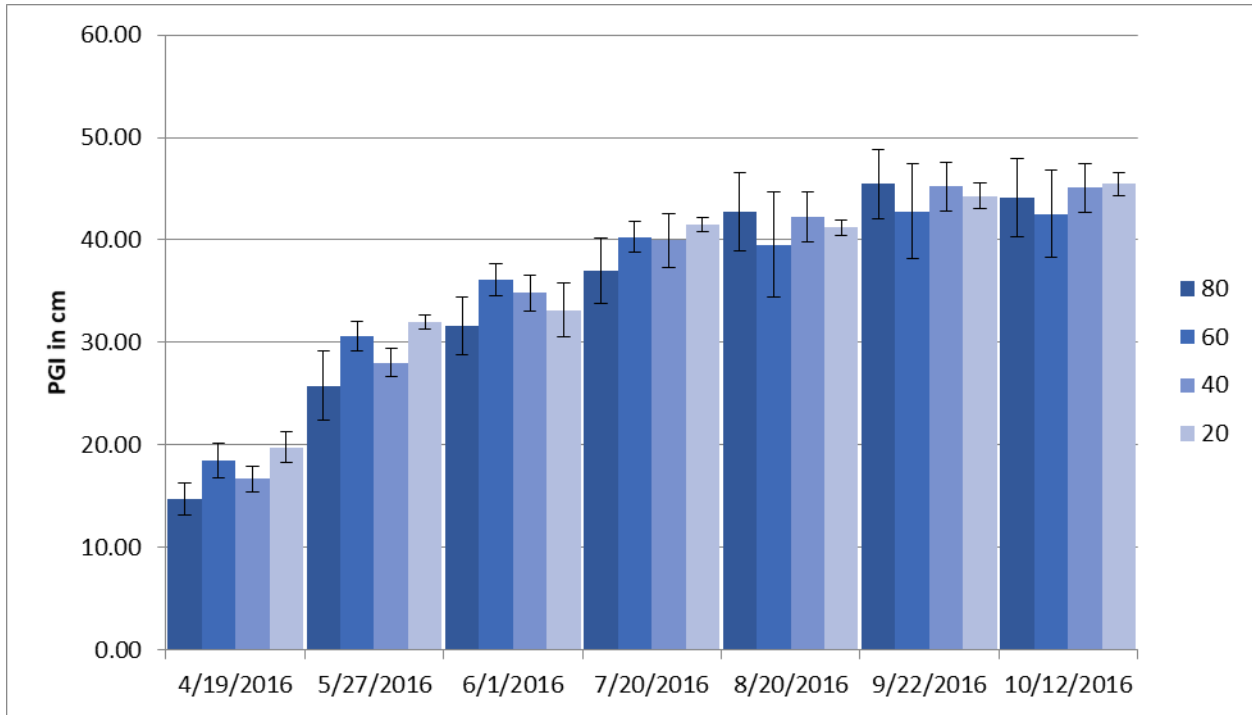


Figure 10c. *Ruellia* 'Mayan Pink' average monthly plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE.

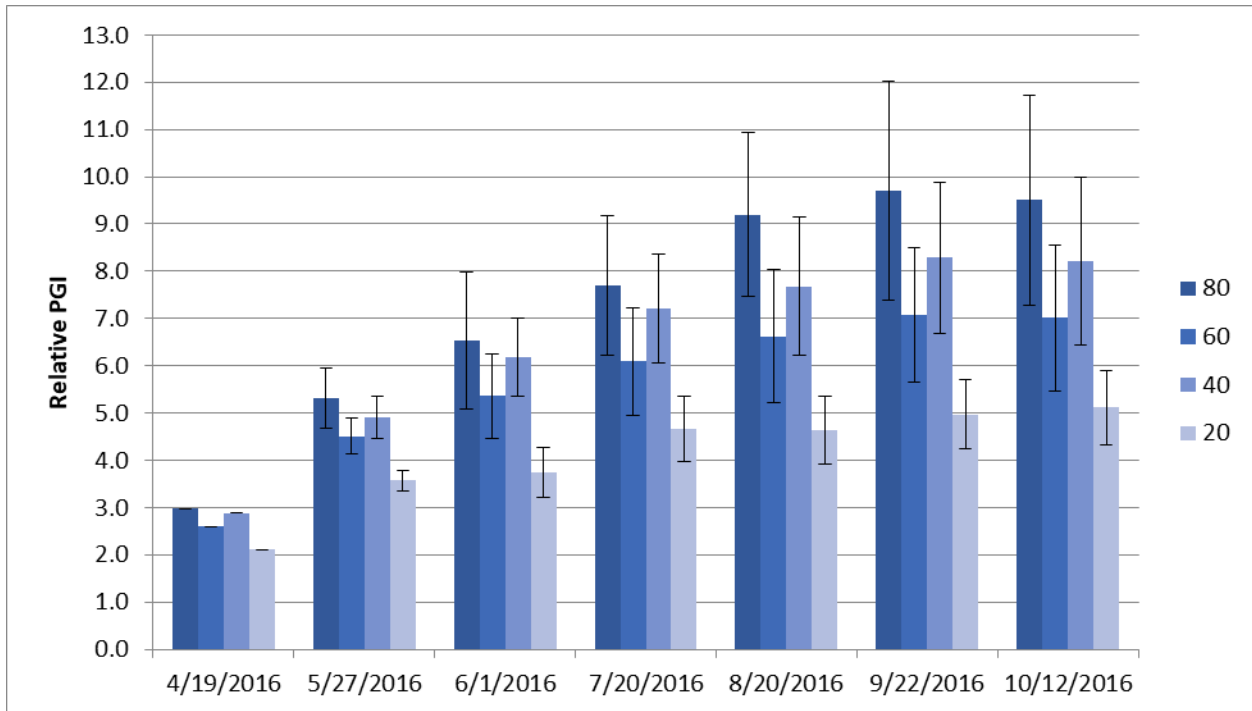


Figure 10d. *Ruellia* 'Mayan Pink' average monthly relative plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE. There were no significant differences between treatments.

Table 14. *Ruellia* 'Mayan Purple' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. There were no significant differences between treatments. Different superscripts denote significant difference at $p \leq 0.05$ using ANOVA and Tukey's HSD.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	3.4	4.2	4.0	4.8	4.6	3.4	3.4	4.0
60%	3.4	3.4	3.2	4.4	4.4	4.0	4.2	3.9
40%	3.5	4.0	3.7	4.7	5.0	4.2	4.2	4.2
20%	3.5	3.7	3.3	4.8	4.5	4.2	3.8	4.0
Flowering								
80%		2.0	2.2	2.8	3.0 ^{ab}	3.8	3.0	2.8
60%		1.5	2.2	3.2	1.6 ^a	4.0	4.5	2.8
40%		1.7	2.3	4.3	4.0 ^b	3.8	4.2	3.4
20%		2.0	2.0	3.5	2.8 ^{ab}	3.3	3.7	2.9
Pest Tolerance								
80%	3.6	4.6	5.0	5.0	4.8	3.4	3.4	4.3
60%	3.4	4.4	5.0	4.6	4.6	4.2	4.2	4.3
40%	4.2	4.8	5.0	4.8	5.0	4.2	4.0	4.6
20%	3.8	4.7	5.0	4.8	4.5	4.2	3.8	4.4
Disease Resistance								
80%	4.2	4.6	5.0	4.8	4.8	4.8	4.8	4.7
60%	4.4	3.6	5.0	4.6	4.8	5.0	5.0	4.6
40%	4.0	4.5	5.0	4.7	5.0	5.0	5.0	4.7
20%	3.7	3.7	5.0	5.0	5.0	5.0	5.0	4.6
Vigor								
80%	3.0	4.0	3.2 ^a	4.2	4.0	4.8	4.6	4.0
60%	4.6	4.6	3.8 ^{ab}	4.8	4.2	4.8	5.0	4.5
40%	4.8	4.5	4.7 ^b	5.0	5.0	4.7	4.8	4.8
20%	4.8	4.8	4.3 ^{ab}	4.8	4.3	5.0	4.7	4.7
Overall Appearance								
80%	2.6	3.4	2.6	4.2	3.4 ^a	3.6	3.4 ^a	3.3
60%	2.8	3.2	3.2	4.4	3.8 ^{ab}	4.4	4.2 ^{ab}	3.7
40%	3.0	3.3	3.8	4.8	4.7 ^b	4.5	4.7 ^b	4.1
20%	3.0	3.3	3.5	4.7	4.2 ^{ab}	4.3	4.2 ^{ab}	3.9

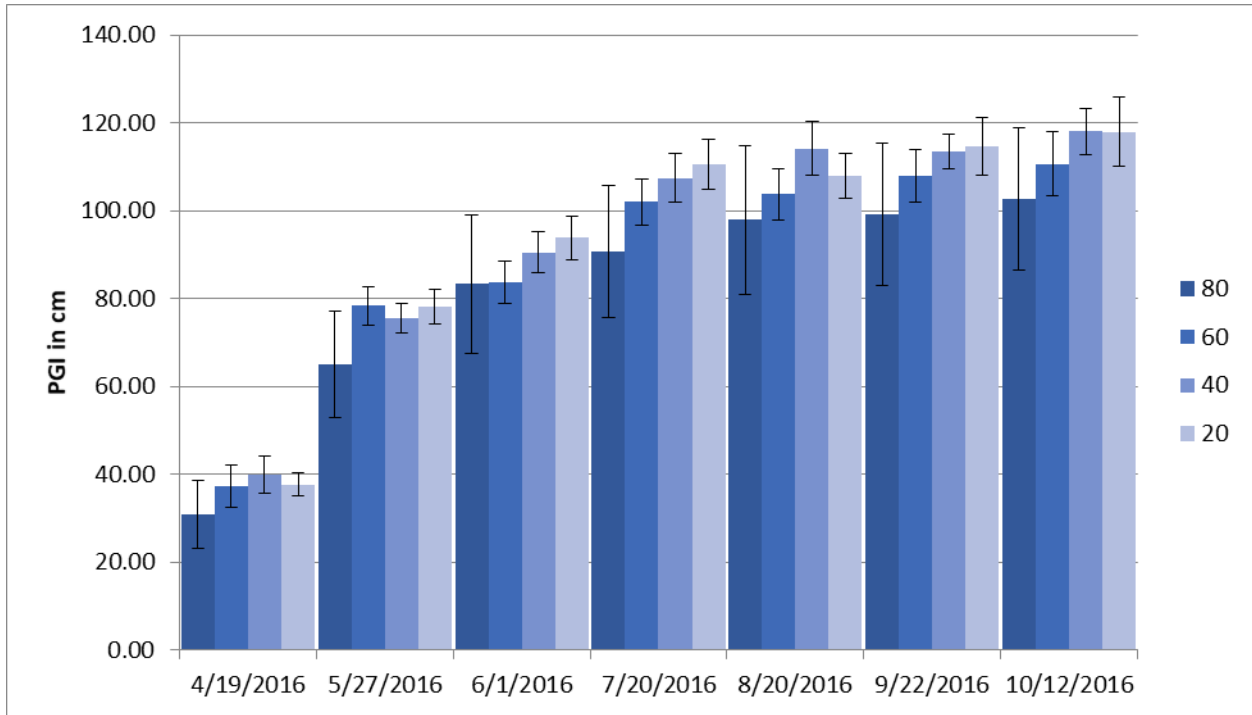


Figure 11d. *Ruellia* 'Mayan Purple' average monthly plant growth index on 4 ET_0 -based irrigation levels in 2016. Bars represent ± 1 SE.

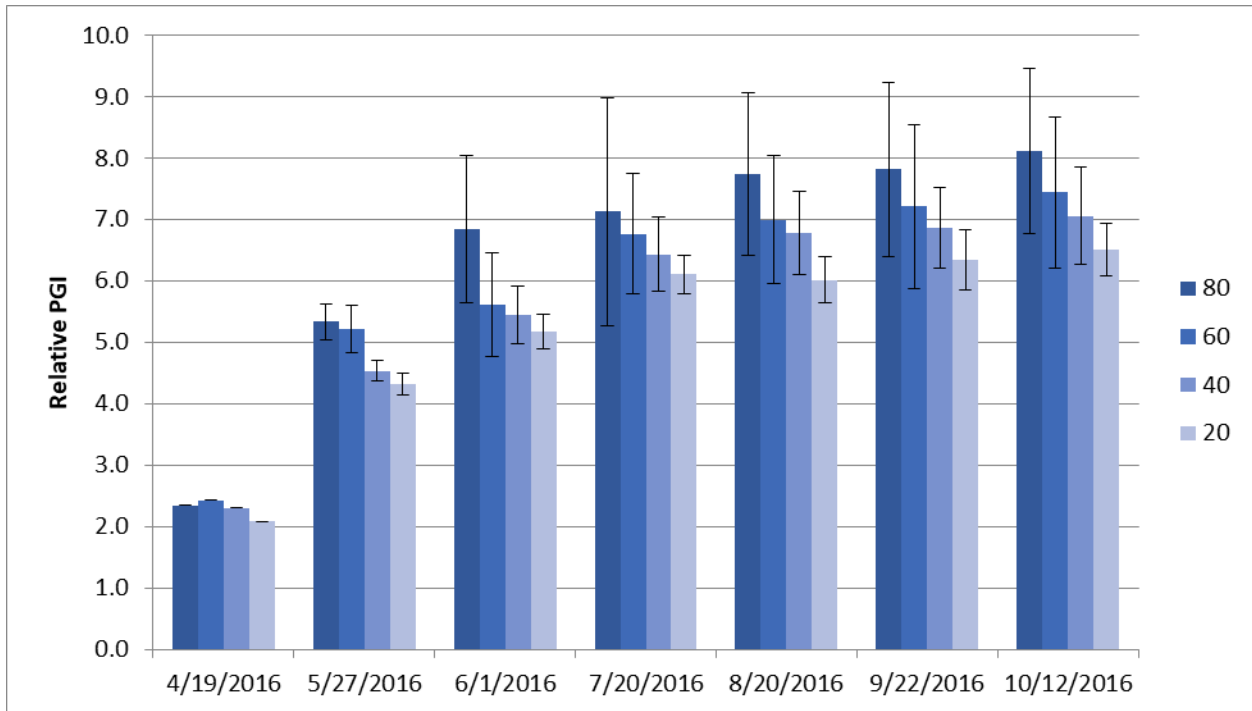


Figure 11e. *Ruellia* 'Mayan Purple' average monthly relative plant growth index on 4 ET_0 -based irrigation levels in 2016. Bars represent ± 1 SE. There were no significant differences between treatments.

Table 15. *Ruellia* 'Mayan White' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. Different superscripts denote significant difference at $p \leq 0.05$ using ANOVA and Tukey's HSD.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	2.7	3.2	2.8	4.3	5.0	4.0	3.7	3.7
60%	2.8	3.0	3.8	4.4	4.0	3.0	3.3	3.5
40%	2.8	2.8	3.2	4.4	4.8	3.6	3.0	3.5
20%	2.5	3.2	3.0	4.3	4.2	3.7	3.7	3.5
Flowering								
80%	1.0	2.5	2.8	4.5	3.5	4.8	3.5	3.2
60%		1.0	2.3	3.3	1.7	4.5	3.0	2.6
40%		1.5	2.8	4.6	3.2	3.0	3.6	3.1
20%		2.2	2.4	4.0	3.0	3.3	4.0	3.2
Pest Tolerance								
80%	4.2	4.4	5.0	4.7	5.0	4.3	3.8	4.5
60%	3.8	3.8	5.0	4.8	4.2	3.6	3.3	4.1
40%	3.6	4.8	5.0	5.0	4.8	3.6	3.0	4.3
20%	3.5	4.7	5.0	4.5	4.3	4.0	3.8	4.3
Disease Resistance								
80%	2.7	3.4	5.0	4.5	5.0	5.0	5.0	4.4
60%	4.3	3.4	5.0	4.8	5.0	5.0	5.0	4.6
40%	3.0	3.0	5.0	4.6	5.0	5.0	5.0	4.4
20%	2.7	3.3	4.8	4.7	4.8	4.7	5.0	4.3
Vigor								
80%	4.5	4.6 ^{ab}	4.0	4.7	4.5	4.7	4.5	4.5
60%	3.5	3.4 ^b	3.2	4.0	3.4	3.8	4.3	3.7
40%	3.6	4.8 ^a	3.8	4.4	4.6	4.6	4.6	4.3
20%	4.3	5.0 ^a	3.7	4.7	4.7	4.5	4.7	4.5
Overall Appearance								
80%	2.3	3.2	2.7	4.7	4.5 ^a	4.0	3.5	3.6
60%	2.3	3.0	2.6	3.6	3.0 ^b	3.4	3.8	3.1
40%	2.6	2.8	3.2	4.4	3.5 ^{ab}	3.6	3.0	3.3
20%	2.5	3.4	2.3	4.3	3.8 ^{ab}	3.8	3.8	3.4

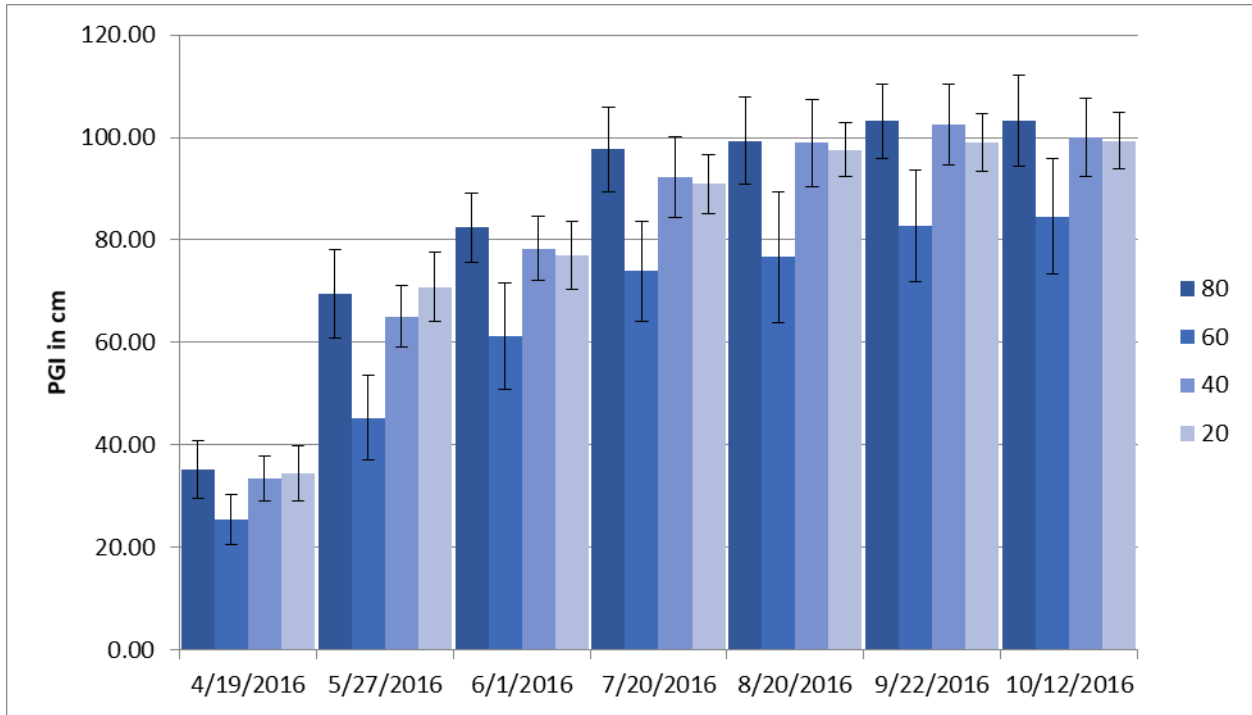


Figure 12d. *Ruellia* 'Mayan White' average monthly plant growth index on 4 ET₀-based irrigation levels in 2016. Bars represent ±1 SE.

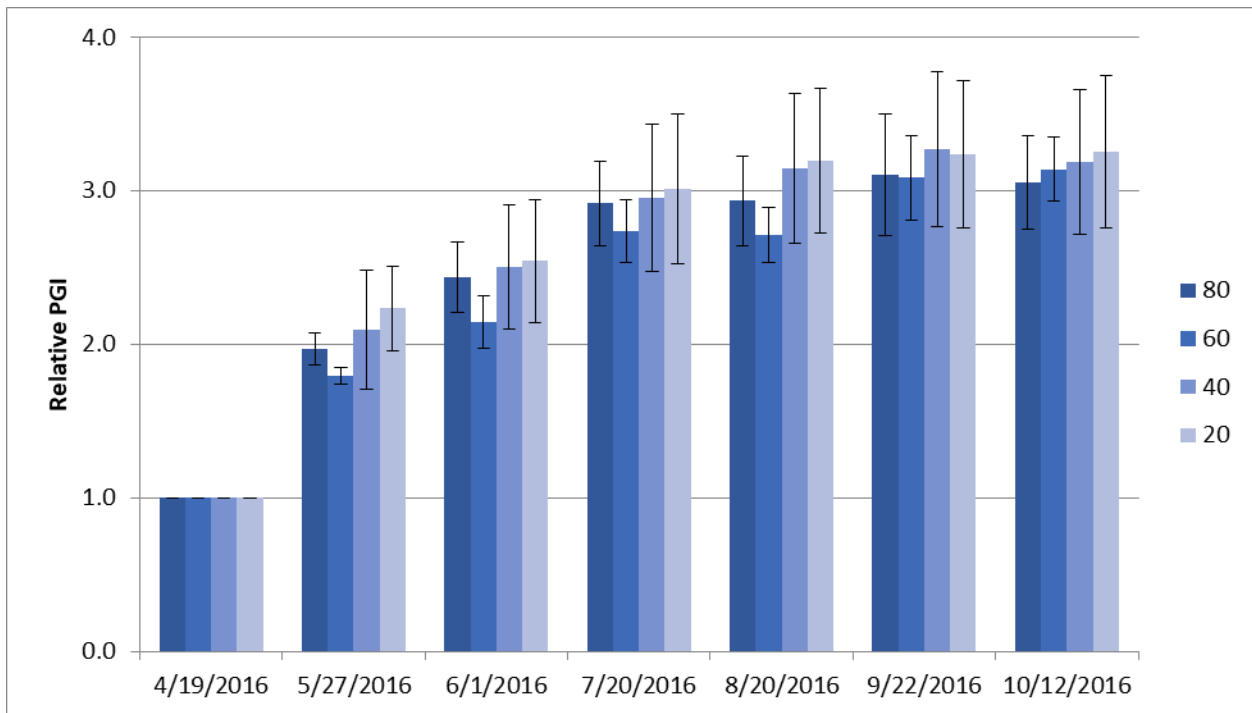


Figure 12e. *Ruellia* 'Mayan White' average monthly relative plant growth index on 4 ET₀-based irrigation levels in 2016. Bars represent ±1 SE. There were no significant differences between treatments.

Table 16. *Sambucus* 'Black Tower' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation levels in 2016. Different superscripts denote significant difference at $p \leq 0.05$ using ANOVA and Tukey's HSD.

Foliage	April	May	June	July	Aug	Sept	Oct	AVG
80%	5.0	4.8	5.0	4.5	3.3	2.3	2.3	3.9
60%	5.0	4.5	5.0	4.3	3.5	2.7	2.0	3.9
40%	5.0	5.0	4.8	4.8	3.4	2.4	2.0	3.9
20%	5.0	4.7	5.0	4.5	3.8	2.7	2.5	4.0
Flowering								
80%		1.0						1.0
60%		1.0						1.0
40%								
20%		1.7						1.7
Pest Tolerance								
80%	5.0	4.8	5.0	5.0	3.3	2.3	2.8 ^{ab}	4.0
60%	5.0	4.8	5.0	5.0	3.5	2.7	2.5 ^b	4.1
40%	5.0	5.0	5.0	5.0	3.4	2.4	2.6 ^b	4.1
20%	5.0	4.7	5.0	5.0	3.8	3.0	3.5 ^a	4.3
Disease Resistance								
80%	5.0	5.0	5.0	4.7	5.0	4.7	4.8	4.9
60%	5.0	4.8	5.0	4.5	5.0	4.7	5.0	4.9
40%	5.0	5.0	5.0	4.8	5.0	5.0	5.0	5.0
20%	5.0	4.8	5.0	4.7	5.0	4.5	4.8	4.8
Vigor								
80%	4.3	5.0	3.8	4.7	4.0	3.8	3.7	4.2
60%	4.8	4.2	4.2	4.8	4.7	3.3	3.5	4.2
40%	4.8	5.0	4.2	4.8	4.0	4.2	3.8	4.4
20%	4.5	4.5	3.8	4.7	4.3	4.0	3.8	4.2
Overall Appearance								
80%	3.4	4.2	3.8	4.2	3.3	2.8	2.3	3.4
60%	3.8	4.0	4.2	4.2	3.8	2.7	2.2	3.5
40%	3.6	4.2	4.2	4.8	3.6	2.8	2.4	3.7
20%	3.7	3.8	3.8	4.2	3.8	3.0	2.8	3.6

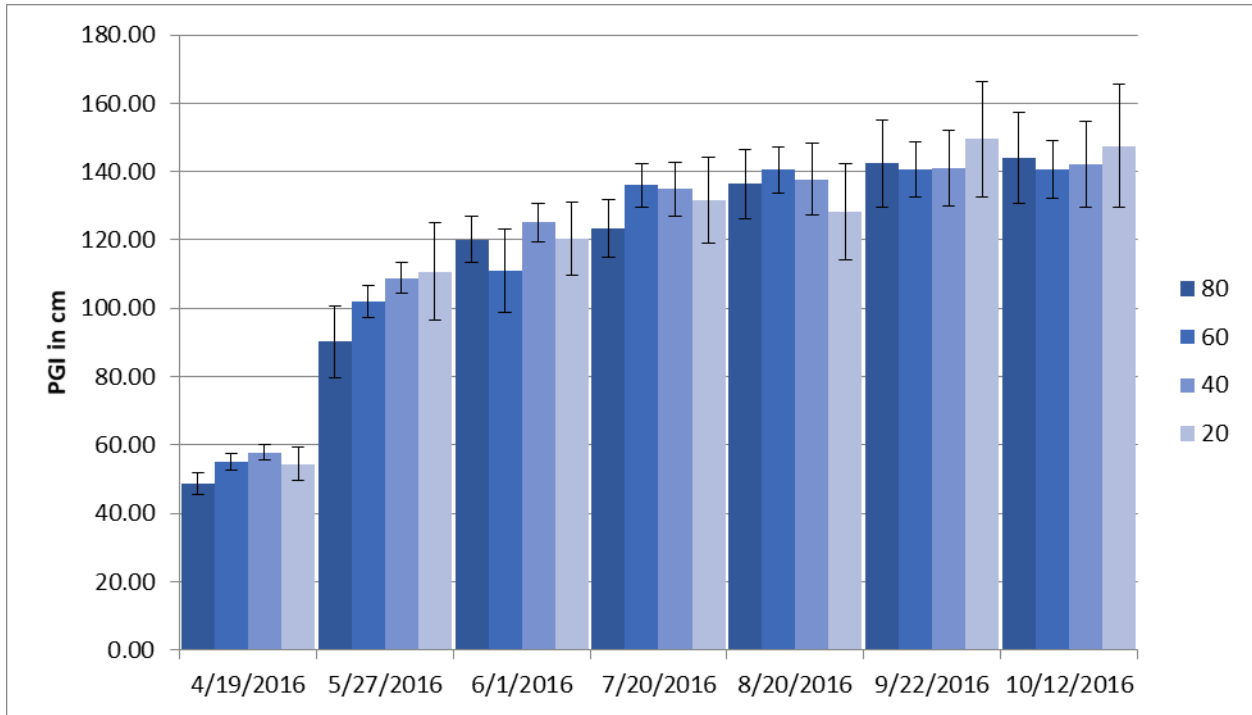


Figure 13d. *Sambucus* 'Black Tower' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE.

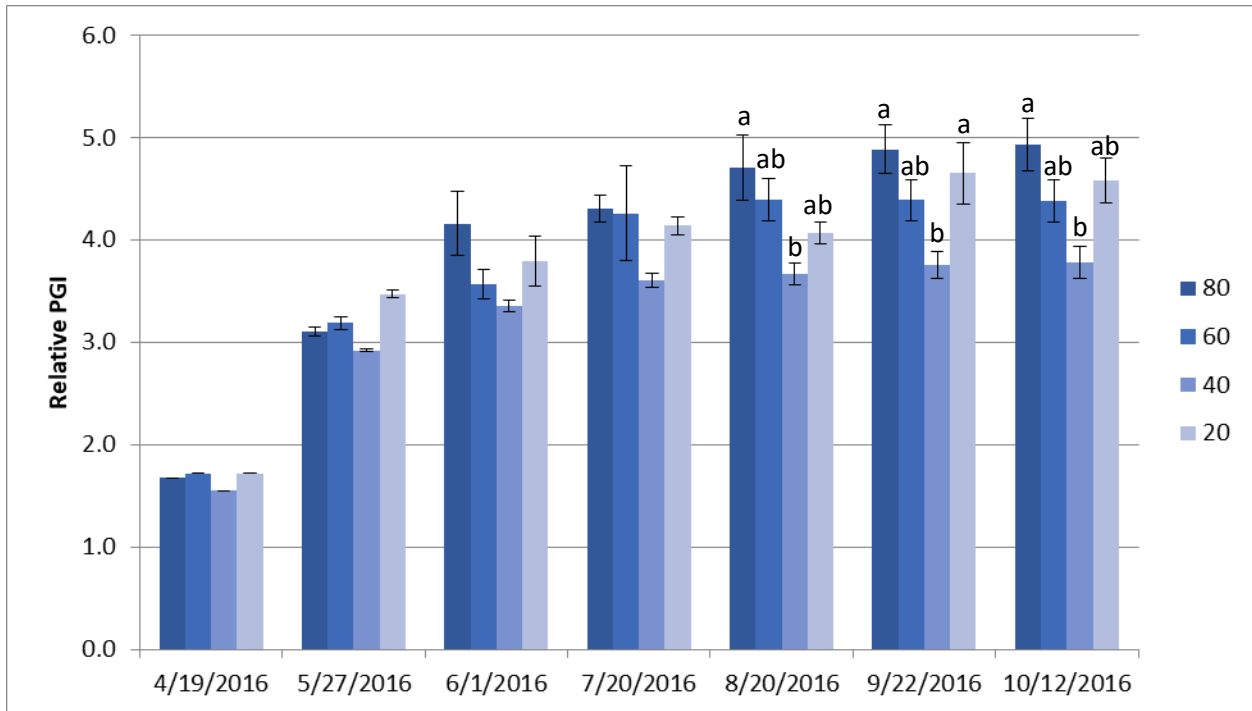


Figure 13e. *Sambucus* 'Black Tower' average monthly relative plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE. Different letters denote significant difference using ANOVA and Tukey's HSD at $p \leq 0.05$.

Table 17. Azalea 'Autumn Embers' average monthly quality ratings (scale of 1-5) on 4 ET₀-based irrigation treatments in 2016. (April data unavailable.) Different superscripts denote significant differences using ANOVA and Tukey's HSD at $p \leq 0.05$. Red superscripts denote significance at $p \leq 0.01$

Foliage	May	June	July	Aug	Sept	Oct	AVG
80%	3.0	3.7	3.8	2.8	4.5 ^a	4.0	3.6
60%	3.3	3.0	3.8	2.5	1.8 ^b	2.7	2.9
40%	3.5	3.4	3.0	2.7	1.6 ^b	2.2	2.7
20%	2.7	3.0	2.8	2.8	2.8 ^b	2.8	2.8
Flowering							
80%						0.3	0.3
60%							
40%							
20%							
Pest Tolerance							
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Disease Resistance							
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vigor							
80%	3.0	3.0	3.2 ^a	2.8	3.2 ^a	3.3	3.1
60%	3.0	3.0	3.0 ^{ab}	2.2	1.4 ^b	2.8	2.6
40%	3.0	2.8	2.7 ^{ab}	2.3	1.6 ^b	2.0	2.4
20%	2.7	2.3	2.2 ^b	2.8	2.3 ^{ab}	2.8	2.5
Overall Appearance							
80%	2.5	2.7	2.8	2.7	2.8 ^a	2.9	2.7
60%	2.7	2.8	3.0	2.2	1.8 ^{ab}	2.5	2.5
40%	2.8	2.4	2.7	2.2	1.7 ^a	2.2	2.3
20%	2.3	2.5	2.2	2.3	2.0 ^{ab}	2.3	2.3

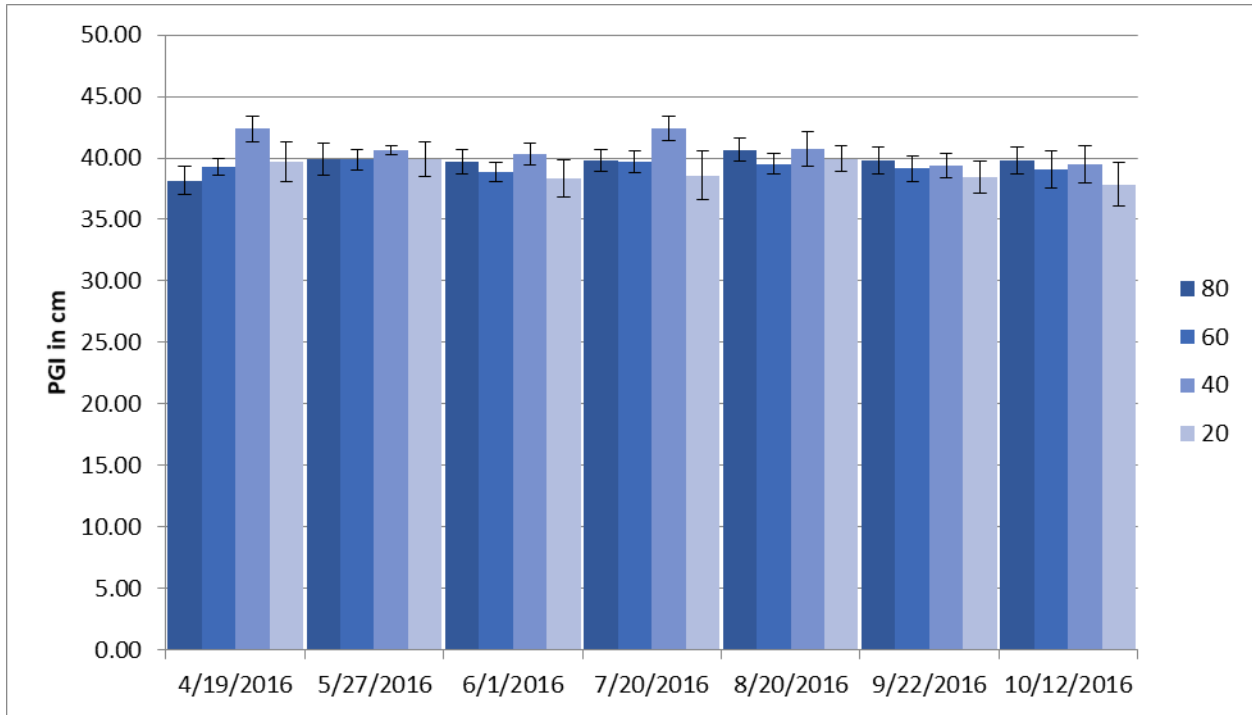


Figure 14g. Azalea 'Autumn Embers' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE.

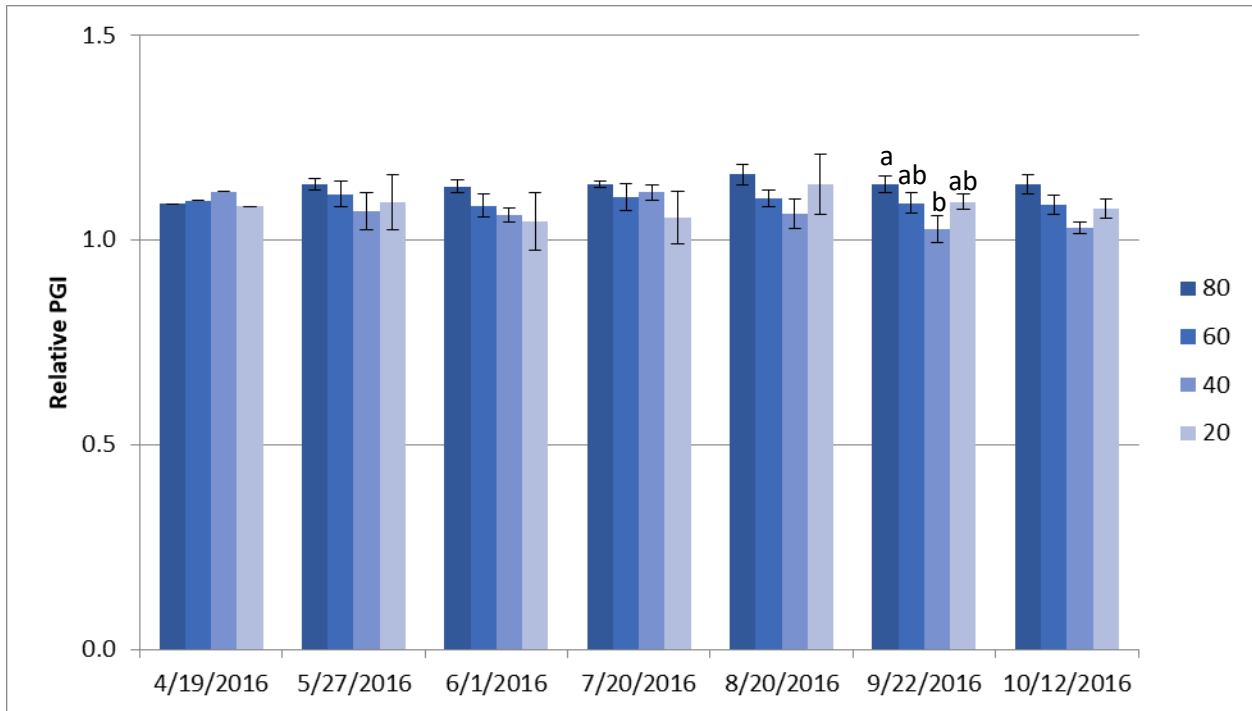


Figure 14h. Azalea 'Autumn Embers' average monthly relative plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE. Different letters denote significant difference using ANOVA and Tukey's HSD at $p \leq 0.05$.

Table 18. Azalea 'Autumn Royalty' average monthly quality ratings on 4 ET₀-based irrigation treatments in 2016. (April data unavailable.) Different superscripts denote significant differences using ANOVA and Tukey's HSD at $p \leq 0.05$. **Red superscripts denote significance at $p \leq 0.01$**

Foliage	May	June	July	Aug	Sept	Oct	AVG
80%	4.8	4.0	5.0	5.0 ^a	5.0 ^a	4.2	4.7
60%	4.3	4.7	5.0	4.5 ^{ab}	4.5 ^{ab}	4.5	4.6
40%	4.5	3.8	4.2	4.2 ^{ab}	4.0 ^{ab}	4.2	4.1
20%	4.8	3.8	4.5	3.0 ^a	2.6 ^b	3.0	3.6
Flowering							
80%							
60%							
40%							
20%							
Pest Tolerance							
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Disease Resistance							
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vigor							
80%	3.5	3.8	4.0	3.2	4.2 ^a	4.2 ^a	3.8
60%	3.2	3.3	4.2	3.2	3.3 ^{ab}	4.0 ^{ab}	3.5
40%	3.3	3.5	3.8	3.0	3.0 ^{ab}	3.3 ^{ab}	3.3
20%	3.3	3.5	3.2	2.8	2.2 ^b	2.8 ^b	3.0
Overall Appearance							
80%	3.0	3.5	3.8	3.2	3.8 ^a	3.6	3.5
60%	3.0	3.3	4.2	3.0	3.1 ^{ab}	3.7	3.4
40%	3.2	3.0	3.5	2.8	2.7 ^{ab}	3.0	3.0
20%	3.0	2.8	3.2	2.3	2.2 ^b	2.4	2.6

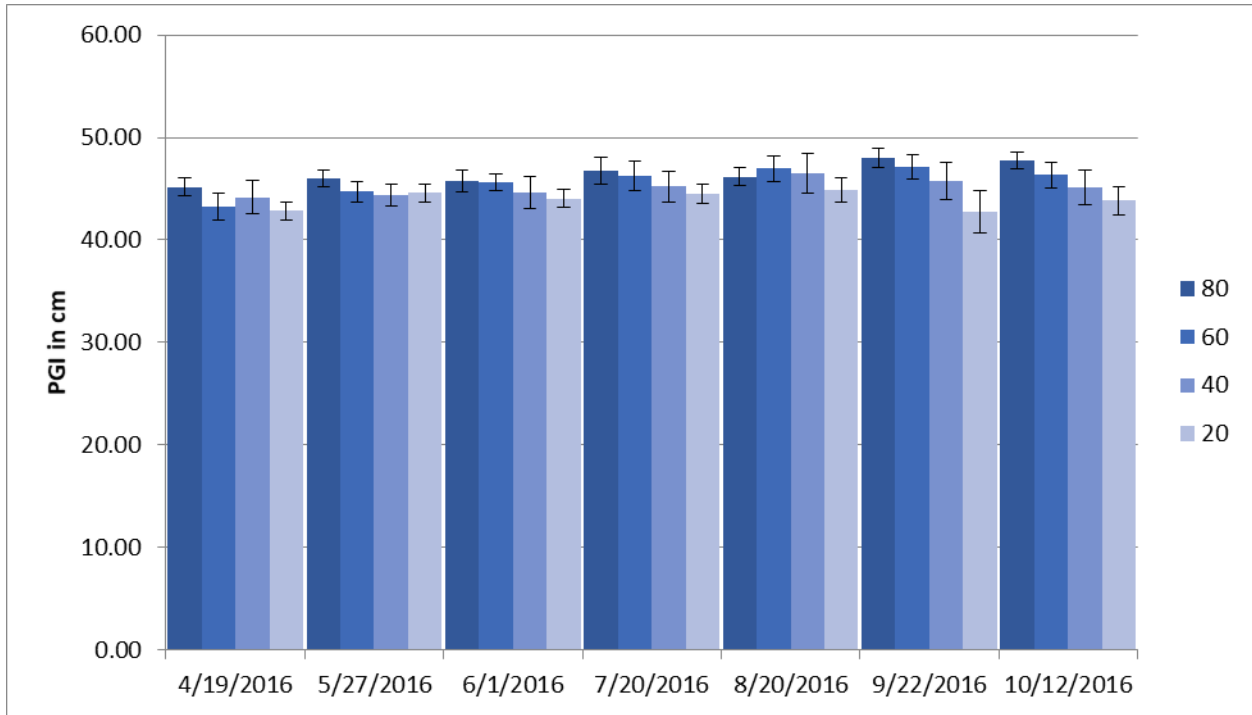


Figure 15f. Azalea 'Autumn Royalty' average monthly plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE.

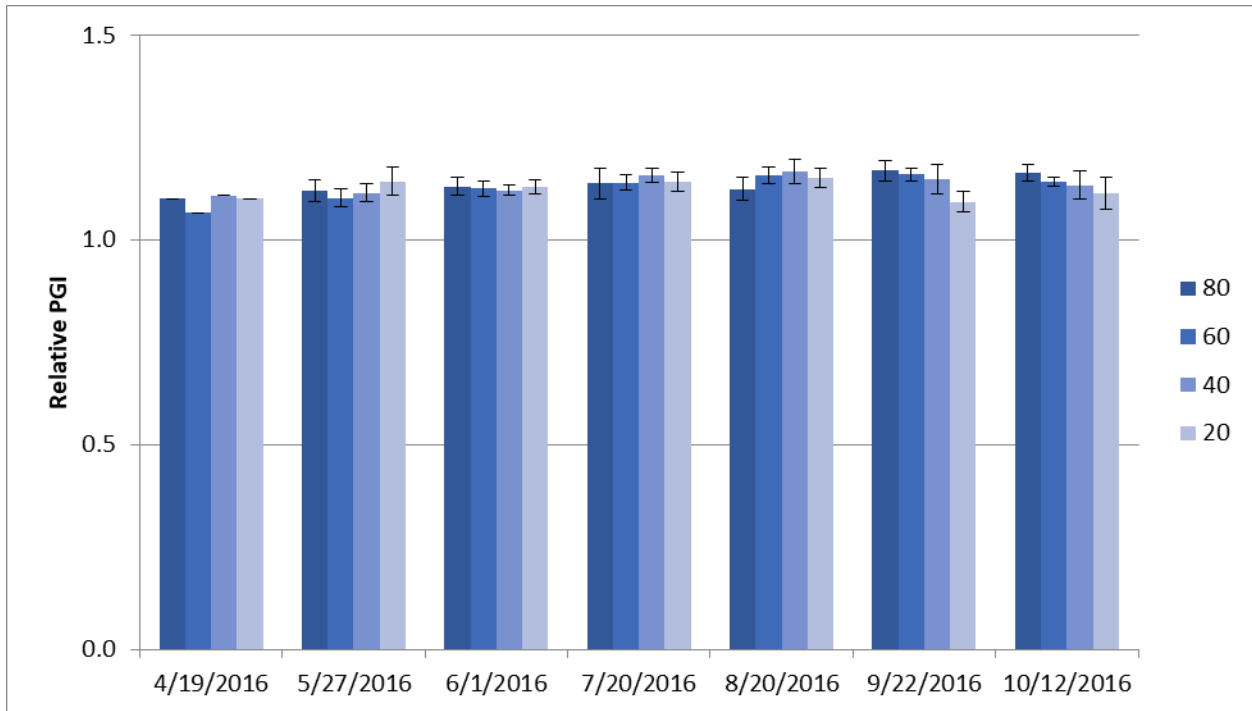


Figure 15g. Azalea 'Autumn Royalty' average monthly relative plant growth index on 4 ET_0 -based irrigation treatments in 2016. Bars represent ± 1 SE. There were no significant differences between treatments.

Table 19. *Mahonia* 'Soft Caress' average monthly quality ratings on 4 ET₀-based irrigation treatments in 2016. (April data unavailable.) Different superscripts denote significant differences using ANOVA and Tukey's HSD at $p \leq 0.05$. **Red superscripts denote significance at $p \leq 0.01$**

Foliage	May	June	July	Aug	Sept	Oct	AVG
80%	3.6	3.5	4.2	4.7	3.8	4.0	4.0
60%	3.7	4.2	4.0	4.8	4.7	4.2	4.3
40%	4.3	4.2	4.4	4.8	4.2	4.5	4.4
20%	3.9	3.8	4.3	4.3	4.3	3.8	4.1
Flowering							
80%		1.0				1.0	1.0
60%						1.5	1.5
40%						1.0	1.0
20%		1.0				1.0	1.0
Pest Tolerance							
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Disease Resistance							
80%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vigor							
80%	3.6	3.5	4.0 ^{ab}	3.7	3.8	3.4 ^b	3.7
60%	4.0	3.3	5.0 ^a	4.3	3.8	4.5 ^a	4.2
40%	3.7	3.7	4.0 ^{ab}	3.7	3.0	3.7 ^{ab}	3.6
20%	4.3	3.2	3.7 ^b	3.7	3.3	3.7 ^{ab}	3.6
Overall Appearance							
80%	3.2	3.2	3.5	3.7	3.0 ^b	3.8	3.4
60%	3.5	3.0	4.5	4.3	3.9 ^a	4.3	3.9
40%	3.5	3.5	3.8	3.7	3.1 ^b	3.3	3.5
20%	3.5	3.2	3.8	4.0	3.4 ^{ab}	3.5	3.6

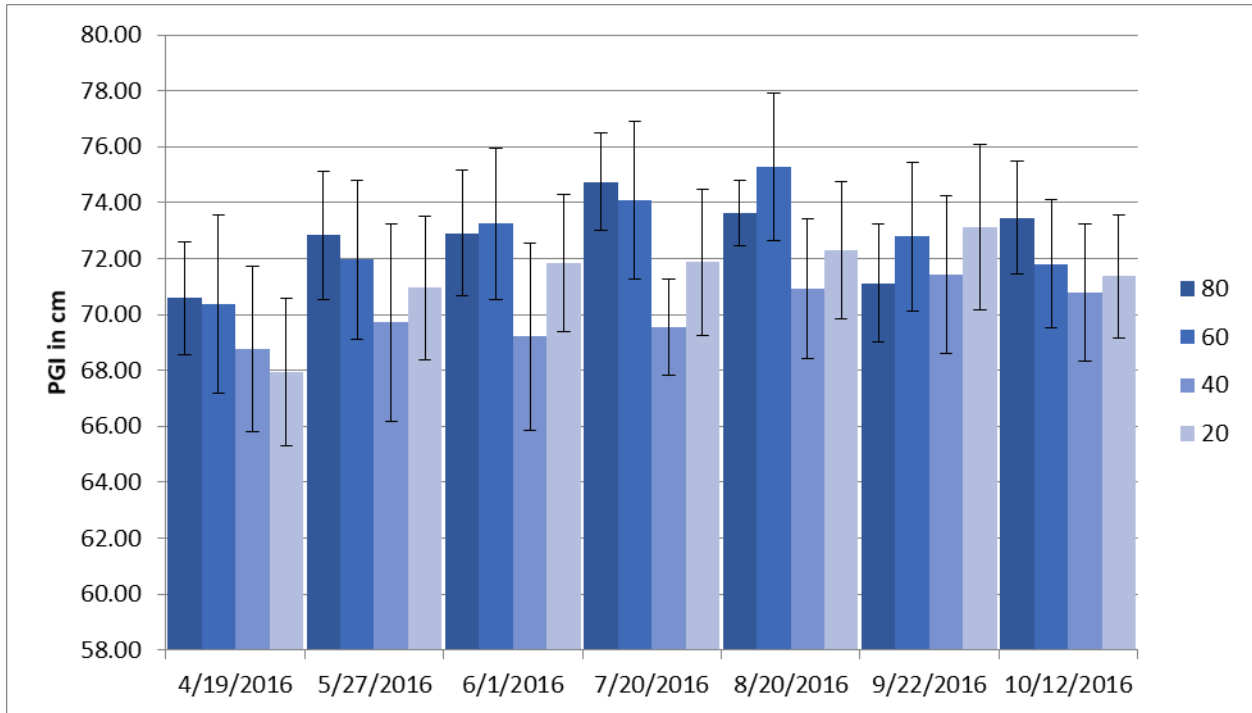


Figure 16g. *Mahonia* 'Soft Caress' average monthly plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE.

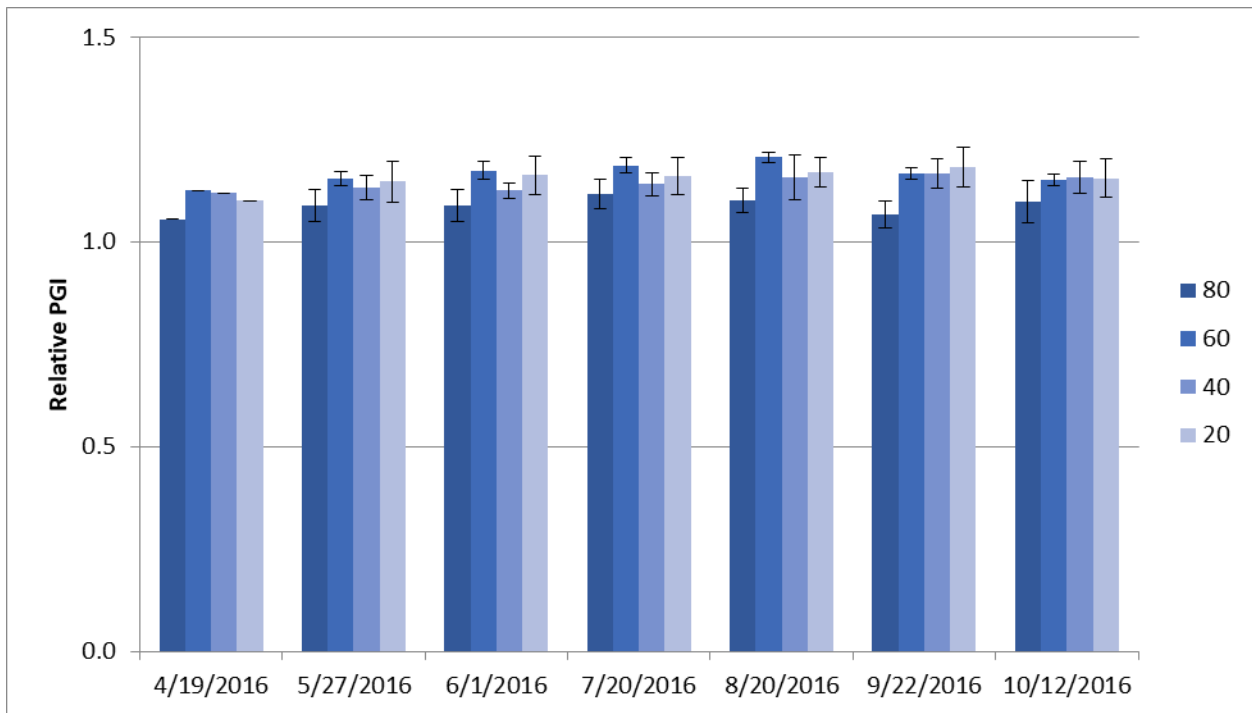


Figure 16g. *Mahonia* 'Soft Caress' average monthly plant growth index on 4 ET₀-based irrigation treatments in 2016. Bars represent ±1 SE. There were no significant differences between treatments.