

Examination of SWAT Protocol Utilizing a Performance Analysis of Weather-based Irrigation Controllers

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Final Report

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Table of Contents

EXECUTIVE SUMMARY 3

INTRODUCTION..... 5

MATERIALS AND METHODS 5

SWAT PROTOCOL..... 5

FLORIDA TEST SETUP 9

RESULTS AND DISCUSSION 10

REPRODUCIBILITY 10

Order of Calculations for Moisture Balance..... 10

Controller Test Setup..... 11

Additional Sensors..... 12

Weather Stations..... 12

Protocol Documentation..... 13

TRANSFERABILITY 14

TEST REQUIREMENTS 16

ET_o and Rainfall..... 16

Test Length 16

IMPACTS OF RAINFALL 18

ADDITIONAL ANALYSES..... 18

CONCLUSIONS 20

REFERENCES..... 22

ACKNOWLEDGEMENTS 22

APPENDIX A: ET-A WORS FLORIDA SWAT TESTING RESULTS..... 47

APPENDIX B: ET-A WRS FLORIDA SWAT TESTING RESULTS 60

APPENDIX C: ET-B WORS FLORIDA SWAT TESTING RESULTS..... 73

APPENDIX D: ET-B WRS FLORIDA SWAT TESTING RESULTS 86

APPENDIX E: ET-C FLORIDA SWAT TESTING RESULTS 99

Executive Summary

Water resources are limited in many areas of the United States. The increased demand for conservative irrigation practices has created a market for irrigation technologies that control water application based on feedback from the irrigated area. One such technology, an evapotranspiration (ET) irrigation controller, is defined as a controller that estimates depletion of available plant soil moisture to schedule irrigation as needed while minimizing excess water use. The Irrigation Association has developed a smart water application technologies (SWAT) testing protocol for ET controllers that describes a procedure for testing the efficacy of ET controllers. It is anticipated that the SWAT testing protocol will be adopted by WaterSense and implemented by independent testing labs. The objectives of this study were to: A) determine the reproducibility and B) transferability of the SWAT climatologically-based controller testing protocol; C) analyze the test requirements such as rainfall, ET_0 , and test length minimums; and D) determine the significance of the penalty for rainfall and irrigation occurring on the same day. Transferability is an assessment of the SWAT test in different climates. Ideally the test could be conducted in a range of climates with identical results. Reproducibility refers to identifying any deficiencies in the protocol in terms of adoption by an independent lab.

Three brands of ET controllers previously tested under the SWAT protocol by the Center for Irrigation Technology (CIT) in Fresno, California, were installed at the Agricultural and Biological Engineering turfgrass research facility in Gainesville, FL. Two brands of selected controllers were classified as signal-based and one brand was classified as a standalone controller. There were a total of five controllers installed. Duplicates of the signal-based controllers consisted of a controller with an additional Mini-clik rain sensor (Hunter Industries, Inc., San Marcos, CA) set at a 0.25 inch threshold. Controller brands were anonymously identified as ET-A, ET-B, and ET-C, while duplicate controllers were denoted with a rain sensor (WRS) or without a rain sensor (WORS).

Weather data were collected from two weather stations for this test. The first weather station was located on-site and reference evapotranspiration was calculated using the ASCE standardized reference evapotranspiration equation as specified in the SWAT protocol and used for the soil water balance model in association with the on-site controller. The second weather station is part of the Florida Automated Weather Network (FAWN) located in Citra, FL, approximately 20 miles from the study location. These station weather data were available via the internet by direct download and were used directly by the signal-based controllers. The ET_0 was calculated by FAWN using the IFAS Penman method.

The SWAT protocol specifies that testing should occur over a minimum of 30 consecutive days (IA 2008). This test was performed for each ET controller for a minimum of 88 days to obtain multiple 30 day periods of results per controller. Thirty day results were reported only if they met the minimum requirements of 2.50 inches of reference ET (ET_0) and 0.40 inches of rainfall (IA 2008). Final results from the entire testing period were also calculated for each controller by averaging results from each zone.

The study period for each controller began in the fall and continued through winter months. Cumulative ET_0 for each controller was less than historical ET_0 for time periods respective to each controller testing period by: 30% for the ET-A, 38% for the ET-B, and 8% for the ET-C. Rainfall was also less than historical totals by: 56% for the ET-A, 59% for the ET-B,

and 58% less than the ET-C. There were only five events with rainfall greater than the rain sensor threshold (0.25 inches) for the ET-B and ET-C controllers and eleven events for the ET-A controllers.

Results were quantified using irrigation adequacy and scheduling efficiency as measures for under and over irrigation, respectively. Both ET-A controllers and the ET-C controller always kept the moisture balance above zero for all zones, resulting in 100% average, maximum, and minimum irrigation adequacy scores. This result occurred because irrigation was scheduled so that the soil water level remained well above maximum allowable depletion (i.e. zero root zone working water storage, RZWWS) at all times. These results are consistent with the published CIT SWAT testing results for these controllers. The ET-B controllers both resulted in average of 98% for both the WORS and WRS treatments, only slightly lower than the published SWAT testing results of 100% for all zones. The ET-A WORS had scheduling efficiency results ranging from 80% to 100% with an average of 94% for the six zones contrasting published SWAT scores with an average score of 98.5%. The ET-A WRS scheduling efficiency was similar to the published SWAT results with scores ranging from 92% to 100% with an average of 98%. The ET-B WORS and ET-B WRS resulted in 87% and 85% averages for scheduling efficiency, respectively. The ET-B results were lower than the SWAT published results since the controllers were supplied with ET signal data manually by the signal provider. This added an element of human error to irrigation scheduling for these controllers that allowed for an erroneous duplicate irrigation event to occur for two zones. The ET-C scheduling efficiency averaged 95% from the six zones (92-100% range), slightly lower than published CIT SWAT testing results of 99.6%. It is likely that scheduling efficiency results were lower due to increased rainfall compared to the official SWAT test rainfall depths; however, this relationship was difficult to substantiate due to limited rainfall during testing.

During implementation of the SWAT protocol, it was found that the documentation is sometimes unclear. The vague nature of many details will make the protocol very difficult to implement by independent testing labs. The CIT personnel were very helpful in clearing up these details; however, the protocol documentation should be clearer for WaterSense adoption to ensure uniform implementation and results across different labs. It is advisable to create a step-by-step guide for the protocol calculations. As written, all of the calculations need to be pieced together from the summary table of equations and the written description. In addition, it is advisable to provide the calculation mechanism such as a spreadsheet as created in this project or a computer program so that labs implementing the protocol will uniformly perform the calculations. This calculation mechanism should have a step-by-step user manual.

Unfortunately, the Florida testing conditions were unusually dry. Thus, the test results do not fully show the effect of controller performance in a rainy climate despite satisfying the minimum testing requirements of ET_0 and rainfall. Increasing the length of the test and increasing the ET_0 and rainfall thresholds would better define controller performance under changing conditions. For example, partial growing season ET_0 might range from 15-20 inches for a minimum 90 day period and rainfall of 5 inches in a minimum of 10 events would be reasonable limits for the eastern U.S.

Controller programming is important for receiving good SWAT results. Controllers for the Florida test were programmed with settings that do not necessarily describe the landscape specified in the protocol to create a smaller RZWWS than specified for the zone. As a result unrealistic irrigation runtimes of just a few minutes per cycle were common. Minimum runtimes for each irrigation zone chosen based on more realistic irrigation system hydraulics may alleviate

this problem. The program settings used by the controller to achieve the published scores should also be included in the published report as they would be helpful in applying the results to different landscapes when using the controllers in the field.

Introduction

Water resources are limited in many areas of the United States. More specifically, it has been reported that 64% of residential water use was used for irrigation in Central Florida and that irrigation was 2-3 times more than needed for plant consumptive use (Haley et al. 2007).

The increased demand for conservative irrigation practices has resulted in a market for technologies to aid in scheduling irrigation for the homeowner. One such technology, a smart controller, is defined by the Irrigation Association ([IA] 2008) as "...controllers [that] estimate or measure depletion of available plant soil moisture in order to operate an irrigation system, replenishing water as needed while minimizing excess water use...requires initial site specific set-up and will make irrigation schedule adjustments, including run times and required cycles throughout the irrigation season without human intervention." Smart controllers can come in many forms; one such controller is a climatologically-based controller, also known as an evapotranspiration (ET) controller.

The Irrigation Association has developed a smart water application technologies (SWAT) testing protocol for ET controllers (IA 2008). This testing protocol, currently under its 8th draft, describes a procedure for testing the efficacy of ET controllers and is performed solely by the Center for Irrigation Technology (CIT) at California State University (Fresno, CA). The test requirements include a minimum of 30 consecutive days with 2.5 inches of reference evapotranspiration (ET_0) and 0.4 inches of rainfall. Many of the tests performed to date required longer than 30 days to achieve 0.4 inches of rain over a 30 day period. It is questionable whether these test limits are appropriate for all regions of the country. For example, in humid climates the 0.4 inch rainfall limit is only a fraction of what might occur in a given growing season where amounts of 20 inches or more are common. Also, 30 days is a relatively short time period when testing an ET controller's ability to adjust irrigation over changing climate conditions.

It is anticipated that the SWAT testing protocol will be adopted by WaterSense and implemented by independent testing labs. The objectives of this study were to: A) determine the reproducibility and B) transferability of the SWAT climatologically-based controller testing protocol; C) analyze the test requirements such as rainfall, ET_0 , and test length minimums; and D) determine the significance of the penalty for rainfall and irrigation occurring on the same day. Transferability is an assessment of the SWAT test in different climates. Reproducibility refers to identifying any deficiencies in the protocol in terms of adoption by an independent lab.

Materials and Methods

SWAT Protocol

The SWAT test, as defined in the SWAT Climatologically Based Controllers 8th Testing Protocol (September 2008) (IA 2008), uses a daily moisture balance to simulate the soil water dynamics of a landscape plant system. Six landscape scenarios are specified so that the

controllers can be evaluated on their ability to schedule irrigation under different environmental conditions (Tables 1-6). These landscape scenarios or “virtual irrigation zones” range from turfgrass to trees, drip to spray head irrigation, shady to sunny areas, loamy sand to clay soils, and 2% to 20% slopes. The daily soil water balance is calculated by the following equation:

$$MB_i = MB_{i-1} - ET_C + R_E + I_E \quad [1]$$

where MB is the soil water content (inches) on day i or i-1, ET_C is the plant specific ET (inches) on day i, R_E is effective rainfall (inches) on day i, and I_E is effective irrigation (inches) on day i.

MB represents the water storage level in the soil profile on any given day. This level fluctuates from zero, to a maximum value specified by the protocol for each zone termed root zone working water storage (RZWWS). The RZWWS is equivalent to readily available water in conventional irrigation terminology. A moisture balance level of zero does not equate to the absence of water in the soil column. Therefore, MB does not represent the actual water level in the soil profile, but the level under which the plant material will no longer be considered well-watered.

Plant-specific evapotranspiration (ET_C) is calculated for any given plant material by applying a crop coefficient (K_C) using the following equation (Allen et al. 1998):

$$ET_C = K_C * ET_O \quad [2]$$

K_C values are specified by plant type and exposure expressed in the SWAT protocol (IA 2008).

Net rainfall is defined as the depth of total rainfall that enters the soil profile and is considered available for plant use. The protocol specifies that daily net rainfall is 80% of total daily rainfall. Effective rainfall is calculated from net rainfall and is the depth that causes the MB to reach RZWWS after ET_C has been lost for the day. Excess rainfall (that which exceeds soil storage capacity) is lost due to surface runoff or deep percolation.

ET controllers schedule irrigation by calculating the depth of irrigation required to reach RZWWS as net irrigation (I_{NET}). These controllers apply more irrigation than is scheduled to take into account system application inefficiencies. The depth actually applied by the controllers, including efficiency adjustments, is considered gross irrigation. Effective irrigation is the portion of net irrigation that can be used by the plant. Effective irrigation can be less than net irrigation due to any combination of surplus and direct runoff. Surplus (S) is the depth of daily net irrigation exceeding RZWWS and is calculated as:

$$S = MB_{i-1} - ET_C + R_E + I_{NET} - RO_{DIR} - RO_{SOAK} - RZWWS \quad [3]$$

where RO_{DIR} is direct runoff (inches) for day i and RO_{SOAK} is soak runoff (inches) for day i. If the value of S is calculated as a negative value, then surplus is zero. Direct runoff is the depth of any one irrigation event exceeding the maximum runtime. It is calculated as:

$$RO_{DIR} = (R_{t_{EVENT}} - R_{t_{MAX}}) * E_{APP} * PR / 60 \quad [4]$$

where $R_{t_{EVENT}}$ (min) is the irrigation occurring per event cycle, $R_{t_{MAX}}$ (min) is the maximum runtime before runoff occurs, E_{APP} is the application efficiency, and PR (in/hr) is the precipitation rate (i.e. application rate) of the irrigation system. Direct runoff is calculated for

each event cycle and summed for a daily total. If Rt_{EVENT} does not exceed Rt_{MAX} , then RO_{DIR} is zero. Rt_{MAX} is calculated according to allowable surface accumulation and infiltration rate restrictions using the following equation:

$$Rt_{MAX} = \frac{ASA * 60}{PR - IR} \quad [5]$$

where ASA is allowable surface accumulation (inches) and IR is the infiltration rate (in/hr). Allowable surface accumulation is defined as the depth of water applied that can exceed the infiltration rate, but will not run off due to plant material restraints such as crop canopy or thatch (IA 2008). The infiltration rate, though not directly defined in the protocol, is the maximum depth of water that can be applied per a specified time period that will enter the soil column without accumulation or direct runoff. Allowable surface accumulation and infiltration rates are listed in the protocol (IA 2008) based on soil type and slope.

Soak runoff is the depth of the next irrigation event during a cycle/soak irrigation schedule that occurs before the minimum soak time is complete. This type of runoff can only occur when there are multiple irrigation cycles occurring in one day. The minimum soak time between two irrigation events labeled as Rt_{EVENTa} and Rt_{EVENTb} (St_{a-b}) is calculated as:

$$St_{a-b} = \frac{Rt_{EVENTa} * E_{APP} * PR}{IR} \quad [6]$$

where Rt_{EVENTa} (min) is the event cycle runtime prior to the soak cycle. The soak runoff is quantified by the difference in the minimum soak time (Equation 6) and the actual soak time (min) between event cycles for a cycle/soak scheduled by the controller (Rt_{SOAK}) converted into depth using the precipitation rate, PR.

$$RO_{SOAK} = \left[St_{a-b} - Rt_{SOAK} \right] * \frac{PR}{60} \quad [7]$$

The RO_{SOAK} calculation is valid assuming $0 < St_{a-b} - Rt_{SOAK} < Rt_{EVENTb}$, where Rt_{EVENTb} (min) is the next event cycle runtime following the soak time. When $St_{a-b} - Rt_{SOAK}$ is calculated to be greater than Rt_{EVENTb} , then $St_{a-b} - Rt_{SOAK}$ equals Rt_{EVENTb} . Also, RO_{SOAK} is a positive value and is zero if found to be negative. The following example illustrates a soak runoff calculation:

An ET controller is scheduling irrigation for a landscape identical to zone 2. On a single day, this zone irrigates twice for ten minutes per irrigation event with a soak runtime of thirty minutes.

$$\begin{aligned}
 R_{t_{EVENTa}} &= 10 \text{ min} \\
 R_{t_{SOAK}} &= 30 \text{ min} \\
 R_{t_{EVENTb}} &= 10 \text{ min} \\
 E_{APP} &= 60\% \\
 IR &= 0.15 \text{ in/hr for silty clay} \\
 PR &= 1.60 \text{ in/hr}
 \end{aligned}$$

The soak runoff would be calculated as:

$$\begin{aligned}
 RO_{SOAK} &= \left[St_{a-b} - R_{t_{SOAK}} \right] * \frac{PR}{60} \\
 RO_{SOAK} &= \left[\frac{R_{t_{EVENTa}} * E_{APP} * PR}{IR} - R_{t_{SOAK}} \right] * \frac{PR}{60} \\
 RO_{SOAK} &= \left[\frac{10 \text{ min} * 0.60 * 1.60 \text{ in/hr}}{0.15 \text{ in/hr}} - 30 \text{ min} \right] * \frac{1.60 \text{ in/hr}}{60} \\
 RO_{SOAK} &= [64 \text{ min} - 30 \text{ min}] * \frac{1.60 \text{ in/hr}}{60} \\
 RO_{SOAK} &= [34 \text{ min}] * \frac{1.60 \text{ in/hr}}{60}
 \end{aligned}$$

Since $St_{a-b} - R_{t_{SOAK}}$ is greater than $R_{t_{EVENTb}}$, $St_{a-b} - R_{t_{SOAK}} = R_{t_{EVENTb}} = 10 \text{ min}$

$$\begin{aligned}
 RO_{SOAK} &= [10 \text{ min}] * \frac{1.60 \text{ in/hr}}{60} \\
 RO_{SOAK} &= 0.27 \text{ inches}
 \end{aligned}$$

The SWAT protocol process “scores” the performance of the irrigation controllers with respect to over-irrigation and under-irrigation. As a result, scores of scheduling efficiency and irrigation adequacy are computed to represent measures of over-irrigation and under-irrigation, respectively. Scheduling efficiency is defined as the ability of a controller to schedule irrigation without applying excess irrigation that results in drainage or runoff (IA 2008). It is calculated in 30 day running totals or greater depending on the length of the test for any given controller with the following equation:

$$E = \frac{(I_{NET} - SL)}{I_{NET}} * 100 \tag{8}$$

where I_{NET} refers to the sum of net irrigation applied and SL refers to the scheduling losses summed over the time period. Scheduling losses are calculated using the following equation:

$$SL = S + RO_{DIR} + RO_{SOAK} \tag{9}$$

Individual losses are calculated for each instance of a cycle/soak schedule using equations 3, 4, and 7. Individual losses are summed into daily values of surplus, RO_{DIR} , and RO_{SOAK} to use in equation 9. Irrigation adequacy quantifies the ability of the controller to supply sufficient irrigation to meet the plant water demand (IA 2008). It is also calculated in 30 day running totals using the following equation:

$$A = \frac{(ET_C - D)}{ET_C} * 100 \quad [10]$$

where D represents the deficit or the sum of the depth of water below the RZWWS (i.e. below maximum allowable depletion). Because the testing occurs for a virtual landscape, it is assumed that high irrigation adequacy results translate to acceptable landscape quality. Acceptable levels of irrigation adequacy and scheduling efficiency have not been specified by the protocol.

Florida Test Setup

Three brands of ET controllers previously tested under the SWAT protocol by the Center for Irrigation Technology (CIT) in Fresno, California, were installed at the Agricultural and Biological Engineering campus research facility in Gainesville, FL. Two brands of the selected controllers were classified as signal-based, randomly coded as ET-A and ET-B, and one brand was classified as a standalone controller, coded as ET-C. There were a total of five controllers installed. Duplicates of the signal-based controllers included an additional Mini-клик rain sensor (Hunter Industries, Inc., San Marcos, CA) set at a 0.25 inch threshold. Duplicate controllers were denoted with a rain sensor (WRS) or without a rain sensor (WORS). The ET-C controller has an expanding disk rain sensor integrated into the associated weather monitor that is similar to the rain sensors used by the WRS controllers.

Each controller was connected to a CR-10X datalogger (Campbell Scientific, Logan, UT) via a set of relays to record time and date at the beginning and end of each irrigation event for all active zones. Each controller was programmed by the manufacturer, or with the manufacturer's supervision. It was intended that the settings would duplicate the original SWAT test performed by CIT. However, since controller settings are not reported in the current SWAT protocol, we are unable to verify identical settings to the original SWAT test for the controllers. The official test began when the manufacturer determined that the controller(s) were programmed correctly.

Weather data were collected from two weather stations for this test. The first weather station was located on-site and managed by research personnel. Values for reference evapotranspiration were calculated using the ASCE standardized reference evapotranspiration equation (ASCE-EWRI 2005) as specified in the SWAT protocol (IA 2008) and used for the soil water balance model in association with the on-site controller. The second weather station was part of the Florida Automated Weather Network (FAWN) located in Citra, FL, approximately 20 miles from the study location. These station weather data were available via the internet. The ET_0 and rainfall data were downloaded directly from the FAWN website and ET_0 was calculated by FAWN using the IFAS Penman method. These weather data were used in the soil water balance model for the signal-based ET controllers performing the Florida SWAT test. These controllers also utilized the same FAWN data for scheduling irrigation.

Installation occurred on 12 September for the ET-A controllers, 21 September for the ET-B controllers, and 23 September for the ET-C controller. Manufacturer representatives were

asked to program the controllers with the same settings used in the original test performed by CIT. All questions posed by the representatives were answered based on the working knowledge of the SWAT test at the time.

The ET-A controllers were programmed with manufacturer assistance on 13 September and the Florida SWAT test began on 14 September. Similarly, the ET-C was installed and programmed by a manufacturer representative on 23 September and testing began the following day. An ET-B representative programmed the ET-B controllers based on the landscape descriptions listed in the SWAT protocol on 21 September. However, there was a delay in determining whether the settings were the same as were originally programmed in the SWAT test performed at CIT. Original settings were officially programmed and testing began on 23 October, approximately one month after installation.

The Florida SWAT test was performed using a newly created soil water balance spreadsheet. The original SWAT test, as created by CIT, performs the moisture balance calculations using a Visual Basic (VB, Microsoft Corporation, Redmond, WA) program which CIT provided for verification of the spreadsheet calculations developed in this project. Communication between the University of Florida and CIT occurred to ensure proper use of the VB program provided by CIT and was used to verify that the duplicated Florida SWAT test calculations were accurate.

The SWAT protocol specified that testing should occur over 30 consecutive days (IA 2008). This test was performed for each ET controller for a minimum of eighty-eight days to obtain multiple 30 day periods of results per controller. Thirty-day results were reported only if they met the minimum requirements of 2.5 inches of ET_O and 0.4 inches of rainfall (IA 2008). Final results from the entire testing period were also calculated for each controller by averaging results from each zone.

Results and Discussion

Reproducibility

In this task, the SWAT protocol was implemented in Florida without any detailed prior knowledge other than the published protocol. The SWAT protocol document does not appear to be organized with the intent for implementation by labs other than CIT. The vague nature of many details will make the protocol very difficult to implement by independent testing labs. The CIT personnel were very helpful in clearing up these details; however, the protocol documentation should be clearer for WaterSense adoption to ensure uniform implementation and results across different labs. This section was designed to identify any deficiencies in the protocol in terms of adoption by an independent lab.

Order of Calculations for Moisture Balance

Priority of inputs and outputs to the daily moisture balance level were not specified prior to the current version (draft 8) of the protocol. It was unknown during the original SWAT testing performed by CIT if effective rainfall was calculated before or after irrigation. It was determined after working with the SWAT program that ET is removed prior to the calculation of effective rainfall and irrigation is applied after the effective rainfall calculation. By putting inputs and outputs in this arbitrary order, it assumes that rainfall occurs later in the day after most of the ET has left the soil profile. This allows for more rainfall, and consequently less irrigation,

to be considered effective. This order of calculations could have been selected so that the controllers would have the opportunity to account for same day rainfall and ET before irrigation is scheduled at the end of the day. It would be more logical to use ET and rainfall data from the previous day to compute irrigation requirements for the current day. This process would infer early morning irrigation and allow weather networks to update values, many of which do so in the early morning hours. Despite the order selected, the order of the calculations should be clearly specified and all assumptions clearly stated.

Irrigation scheduling by ET controllers is based on weather information in the immediate past. Therefore, the ET controllers schedule irrigation on the current day based on information from the previous day. Since it is not addressed in the testing protocol, it would be appropriate to assume that the SWAT program would also calculate the moisture balance in this way if the goal of the test is to verify the controller's ability to schedule irrigation. However, the SWAT program uses ET_0 , rainfall, and irrigation on the same day to calculate the moisture balance. For optimum results, the ET controllers should be programmed to apply irrigation late in the day when running the SWAT test so that the controllers have the opportunity to gather weather information about the current day prior to the first irrigation cycle. However, in the field, typically irrigation is scheduled early in the day. In addition, signal based controllers may not be able to use the "same day" weather data due to many weather networks updating data from the previous day in the early morning hours of the current day. Thus, it is likely that the ET and rainfall data are not available for controllers to schedule irrigation on the same day as must be done in the current protocol version. This order of operations is likely why controllers must be programmed with unrealistic irrigation schedules (described in the next section) to score well.

Controller Test Setup

Controller programming is important for receiving good SWAT results. Controllers for the Florida test were programmed with settings that do not necessarily describe the landscape specified in the protocol (Tables 1-6). Typically, the difference in program settings creates a smaller RZWWS than specified for the zone. This can be done by using a small root zone depth, increasing slopes, and using seasonal adjustments. Most settings were similar to the protocol for the ET-A controller with only minor adjustments. The ET-B controllers were generally programmed with denser soil types, larger slopes, and smaller root zone depths than default values. The ET-C root zone depth is not adjustable. As a result, precipitation rates were lowered to get the same effect. Also, denser soil types, larger slopes, and different landscape coefficients were sometimes used.

Inputting slightly different program settings can significantly impact SWAT scores. For example, the difference of a minute in gross irrigation per irrigation event can affect the scores by 5 to 10 percentile points. Events are scheduled so that they are short and frequent to ensure the soil profile receives enough water, but will not create direct or soak runoff. Short and frequent irrigation events will also minimize the potential rainfall penalty of rain and irrigation on the same day.

Current testing procedures allow signal-based controllers performing the SWAT test to be fed the same ET_0 and rainfall data used in the soil water balance model. However, this type of data acquisition is arguably not part of the functioning of many controllers under typical field conditions, thus making the test results artificial. This type of test set up results in the absolute best scenario of results for signal based controller performance.

The protocol should include variables for the virtual landscapes that reflect typical field situations. As discussed in the Additional Analysis section, minimum run times reported in this test are as low as 1.3 to 3.9 minutes (0.03 to 0.09 inches of irrigation). These run times are not hydraulically realistic in actual irrigation systems. This type of programming could be avoided with minimum required run times for each zone to reflect those found in typical field situations. Test reports should include tables describing controller programming and summaries of weekly irrigation amounts, number of irrigation days per week, and number of irrigation events per day.

In addition to realistic programming for the irrigation zones in the test, the protocol testing should ensure that the weather data sent to signal based controllers is representative of the methods intended for those controllers in commercial installations. For example, manual signals sent to the controller (as was done for the ET-B controller) must be prohibited.

Additional Sensors

As will be discussed in a following section, the addition of a rain sensor in the Florida SWAT test could help or hinder the results of the test depending on how the controller handles the rain sensor. It is not mentioned by the SWAT protocol whether additional sensors not directly contributing to the irrigation scheduling functionality of the controller are appropriate additions for the SWAT test. Sensors added to the SWAT testing should be specified in the published results.

Weather Stations

The ET-C performed the SWAT test for fewer days than the ET-A controllers; however, the cumulative ET_0 for the ET-C test exceeded cumulative ET_0 of the ET-A tests (Table 7). Upon further investigation into ET_0 for this time period, the ET_0 collected directly from the FAWN weather network that was calculated by the IFAS Penman method was significantly lower than the other ET_0 methods (Figure 1). Weather data in fifteen minute intervals was collected from the same FAWN weather station and used to calculate ET_0 by the ASCE method independently of the IFAS Penman method. The daily ET_0 calculated using historical weather data, ET_0 calculated from the on-site weather data, and ET_0 calculated from FAWN data using the ASCE method exhibited the same trends over the time period. This indicates that the low ET_0 obtained from the FAWN weather station is a product of the IFAS Penman method and does not reflect a lack of quality in the data collected.

The SWAT protocol specifies that ET_0 be calculated via the ASCE-EWRI methodology; however, ET-A and ET-B manufacturers chose to use the ET_0 directly from the FAWN network. According to the results of this test, FAWN daily ET_0 values calculated using the IFAS Penman equation were underestimated. The Florida SWAT test used the same FAWN data set in the scoring thus not affecting the testing results. However, it should be noted that the mistake of using ET_0 calculated using methods other than the ASCE-EWRI methodology could occur in the testing with other labs if weather data from a network are used directly. This issue did not occur in the CIT SWAT testing since the CIMIS weather data source in that testing provides ASCE-EWRI ET_0 values.

Many weather networks do not yet use the ASCE-EWRI ET_0 calculation methodology. When this occurs, ET_0 must be manually calculated from the weather station data rather than using ET_0 provided by the weather network. Thus, independent testing labs and manufacturers may need to make allowances to compute ET_0 in this manner rather than using an ET_0 signal directly.

The signal-based controllers were also compared to the on-site weather station data to determine the significance of weather station location to the testing results. It was found that irrigation adequacy decreased by 7-9 percentile points on average with a maximum decrease of 14 percentile points for a single zone compared to results described in the Transferability section below (Table 8). This was mostly due to higher ET_0 calculated for the on-site weather station, and consequently more water loss per day, compared to the FAWN ET_0 data that the controllers used to schedule irrigation. It was also found that scheduling efficiency improved by 1-4 percentile points on average except for the ET-B WORS that decreased by 8 percentile points. The increase in scheduling efficiency was also due to the higher ET_0 calculated for the on-site weather station. Scheduling by the signal-based controllers was based on lower water demand (ET_0) from the FAWN data resulting in smaller irrigation events which were less likely to produce scheduling losses.

The SWAT protocol specifies in the newest version that a weather station must be on-site to perform the SWAT evaluation for on-site (i.e. non-signal based) controllers. However, errors in weather data acquisition can occur at any time. In this project, weather data from the FAWN system was missing from 26 September 2008 to 28 September 2008. When using the collected data from the Florida SWAT test in the SWAT Visual Basic program provided by CIT, the missing data were replaced with zeros. However, the ET controllers would likely use the last ET_0 value calculated or received by the controller until a signal was reestablished; this is what was done for the Florida test. It is likely that an official SWAT test would be restarted when this happens; however, the protocol does not specify a course of action.

Protocol Documentation

The unconventional naming system used in the SWAT protocol may be acceptable for an isolated protocol, but it is desirable to promote scientifically and/or industry accepted terminology. At the very least, it is logical to maintain consistent terminology with other IA published documents. An example of an unconventional name would be RZWWS when referring to readily available water (RAW).

In addition to scientifically-sound naming conventions, assumptions made by the protocol for performing the soil water balance should also be justified. For example, the assumption that 80% of rain is usable has no citation for the scientific basis and is specifically labeled as an arbitrary value in Section 5.2 (IA 2008). A scientifically accepted approach is neglecting small amounts of initial rainfall due to canopy interception.

Instructions are lacking on how to handle testing calculations when weather data is irretrievable. It would be appropriate to substitute backup ET_0 values used by a particular manufacturer into the protocol soil water balance.

Clarity should be provided on the signal used by the signal-based controllers. The signal should be sent to the controller as would happen in a commercial/residential installation. The manual signaling of the controller does not seem to be specifically outside of the protocol methods; however, it goes beyond the spirit of testing a commercially available controller when the commercial device is intended to receive a signal from an automated system. Therefore, manual data retrieval and signaling should not be permitted.

Currently in the protocol, the 30 day period meeting the minimum requirements with the best score can be selected for reporting. A report showing ranges of the scores would show a more accurate picture of controller performance over time. Ideally, the testing period should include a range of climatic conditions to assess the controller's performance over time.

The following is a list of specifics in the SWAT protocol that should also be addressed:

- The term “application rate” instead of precipitation rate is preferred for irrigation device rate of water application (inches/hr) to differentiate from rainfall intensity.
- Terms are mismatched throughout the document and not clearly defined:
 - Net irrigation and effective irrigation – Section 3.16
 - Net rainfall and effective rainfall – Section 3.21
 - Net irrigation and design application – Sections 4.3, 5.2
 - Surplus and scheduling losses – Sections 1.0, 4.3, 4.5
- The formula list is incomplete and should be expanded to include:
 - Soak Runoff
 - Direct Runoff
 - Scheduling losses
 - Irrigation adequacy
 - Scheduling efficiency
 - Rainfall efficiency
 - $R_t(\max)$

It is advisable to create a step by step guide for the protocol calculations. As written, all of the calculations need to be pieced together from the summary table of equations and the written description. In addition, it is advisable to provide the calculation mechanism such as a spreadsheet as created in this project or a computer program so that labs implementing the protocol will uniformly perform the calculations. This calculation mechanism should have a step by step user manual.

Water levels are not allowed to fall below well-watered conditions once the RZWWS is depleted unlike typical field conditions. The water balance will be incorrect if a controller should allow the moisture level to fall below the maximum deficit as occurred once in this test. If the protocol were adopted for evaluation of deficit irrigation practices, the water content would need to fall below the maximum allowable depletion (below RZWWS = 0).

Transferability

The SWAT test has been performed in California under generally semi-arid conditions. It is unknown if results reported from California are transferable to different climates such as

Florida that is typically humid with unpredictable rainfall patterns during the rainy season. This section was designed to assess the SWAT test results in a humid climate.

Irrigation adequacy quantifies water deficit due to under-irrigation. Both ET-A controllers and the ET-C controller always kept the moisture balance above zero for all zones, resulting in 100% average, maximum, and minimum irrigation adequacy scores (Table 9). These results are consistent with the published CIT SWAT testing results for these controllers. The ET-B controllers resulted in average adequacy scores of 98% for both the WORS and WRS treatments, not substantially lower than the 100% score published in the official SWAT test. Minimum scores for these controllers were 94% and some zones resulted in no under-irrigation as indicated by the maximum irrigation adequacy result being 100%.

Scheduling efficiency is used to quantify over-irrigation. The ET-A WORS had results ranging from 80% to 100% across all zones for the entire testing period with an average of 94% for the six zones (Table 9). In contrast, SWAT scores from the published CIT test resulted in a smaller range of only 6.3 percentile points across all zones with an average score of 98.5%. The ET-A WRS performed similarly to the published SWAT results with scores ranging from 92% to 100% with an average of 98%. Thus, the addition of a rain sensor on this controller improved scheduling efficiency scores by accounting for rainfall.

The ET-B WORS and ET-B WRS resulted in 87% and 85% averages for scheduling efficiency, respectively (Table 9). These controllers had some zones that did not perform as well, with minimum scores reaching 67% and 62%, respectively, dropping the average results below previously published SWAT results. Average scheduling efficiency results were lowered for both ET-B controllers due to one additional irrigation day for the first and third zones. According to the signal provider, these controllers were managed manually during the Florida SWAT test unlike the automated commercial service. The communication to the controllers was duplicated erroneously on consecutive days causing a majority of the second irrigation day to become scheduling losses. If these erroneous events would not have occurred, scheduling efficiency would have been 100% for all zones. The ET-B controller received scores of 100% for scheduling efficiency according to the published CIT test. The apparent manual signaling of the controller does not seem to be specifically outside of the protocol methods; however, it goes beyond the spirit of testing a commercially available controller when the commercial device is intended to receive a signal from an automated system.

The ET-C controller had scheduling efficiency ranging from 92% to 100% and averaging 95% from the six zones. These results were only slightly lower than published CIT SWAT testing results where the ET-C averaged 99.6% with a range of 2.7 percentile points.

The study period for each controller began in the fall season and continued through winter months. Historical ET_0 and rainfall were reported from data collected at the Gainesville Regional Airport weather station operated by the National Oceanic and Atmospheric Administration using 30 years of data (Table 7). Cumulative ET_0 for each controller was less than historical ET_0 totaled for time periods respective to each controller testing period by: 30% for the ET-A, 38% for the ET-B, and 8% less for the ET-C. Rainfall was also less than historical totals by: 56% for the ET-A, 59% for the ET-B, and 58% less than the ET-C. These weather conditions resulted in only small differences between the CIT SWAT testing conditions and the conditions in Florida during this test, making conclusions concerning transferability difficult.

The results during the Florida SWAT test showed that the ET controllers generally scored well in SWAT performance scores of scheduling efficiency and irrigation adequacy. Average scheduling efficiency results were lower than the original published results by 2.5 percentile

points for the ET-A controllers, 14 percentile points by the ET-B controllers (0 percentile points if irrigation events applied due to human error are removed), and 4.6 percentile points by the ET-C. More importantly, minimum adequacy and scheduling efficiency values for a 30 day period were as low as 94% and 62%, respectively. Maximum values on the other hand were for the most part in the ranges of the published SWAT test scores. This result is not surprising since the Florida testing conditions were similar to SWAT controller testing conditions (Table 10).

Test Requirements

This section addresses the minimum test requirements of 2.50 inches of ET_0 , 0.40 inches of rainfall, and 30 day test periods. The ET_0 and rainfall minimums were originally selected based on arid climate conditions and to expedite testing. As a result, these minimums were appropriate as it would be difficult to achieve these minimums during some parts of the year. However, these minimums are considerably low for humid climates such as Florida where 0.40 inches of rainfall can be achieved in one to two days during the rainy season. The current SWAT minimum ET_0 and rainfall thresholds may not adequately show the ability of controllers to adjust over time to changing climatic conditions unless that test period includes a climatic transition period, for example spring to summer or similar. A higher ET_0 limit of 15-20 inches and rainfall of 5 inches in at least 10 events would ensure that the testing conditions vary over range expected during periods when irrigation is needed or that when the controller must respond to unpredictable rainfall.

ET_0 and Rainfall

Weather is the most important parameter when interpreting test results but is difficult to predict, especially rainfall in a humid climate. The Florida SWAT test occurred during a very dry period where measured ET_0 and rainfall were less than half of historical totals. Despite dry conditions, 30 day periods over the entire testing period where minimum ET_0 and rainfall requirements were met averaged 3.12 inches of ET_0 and 1.54 inches of rainfall (Table 10). The amount of ET_0 that each controller experienced during the Florida SWAT test periods is approximately equivalent to ET_0 experienced by each controller during their original SWAT test performed by CIT; however, the ET-B and ET-C were both reported as having less rainfall during the original testing as compared to the Florida SWAT test. These controllers also had slightly lower scores than the original published results for scheduling efficiency. It is likely that there was a relationship between increasing rainfall and decreasing scheduling efficiency results. Dukes (2008) showed that simulating the elimination of rainfall in Florida's climate resulted in 100% scheduling efficiency over every 30 day period meeting the minimum ET_0 and rainfall requirements for 1961-1990.

Test Length

ET-A

The ET-A controllers, both with and without a rain sensor, began the SWAT test on 14 September 2008 with manufacturer permission and testing ended on 18 January 2009. Running totals for 30, 45, and 60 day periods from the start date were calculated when totals for ET_0 and rainfall were above the minimums specified by the protocol. The ET-A WORS and ET-A WRS

consistently resulted in 100% irrigation adequacy for all 30, 45, and 60 day periods (Figures 2 & 3).

The ET-A WORS controller began all three periods with scheduling efficiency results lower than 95% (Figure 2). This was a result of irrigation occurring during the second week of testing before sufficient soil water had depleted for multiple zones causing a surplus. Results rebounded to higher levels for all three time periods once the irrigation event causing a significant portion of surplus was no longer a part of the moving total. However, results trended lower over time as was seen in all three periods, but the trend is most apparent when analyzing the 60 day time period. Also, there were more opportunities for score results to be reported by using a 60 day time period for testing as compared to the 30 and 45 day periods due to meeting the minimum ET_0 and rainfall requirements more often. The lowest scheduling efficiency score was reported as the last data point for the 45 day period, falling below 90% for the controller without a rain sensor.

At the beginning of the test when ET-A WORS over-irrigated causing surplus, ET-A WRS did not irrigate (Figure 3), presumably bypassing the unnecessary irrigation event based on the rain sensor. All three time periods began with high irrigation adequacy and irrigation scheduling, with the 30 day period having the best results. All time periods also showed a decreasing trend in scheduling efficiency over time; however, this controller did not have any scheduling efficiency results below 95%.

The ET-B WORS and ET-B WRS controllers began testing on 23 October 2008. By this time period, cool temperatures had set in over the region and ET_0 values were depressed below historical values as discussed earlier. The minimum requirements set by the SWAT testing protocol for ET_0 were not met for any 30 day testing periods; therefore, results cannot be reported for 30 day running totals. Also, only a portion of the results from the 45 day running totals could be reported due to low ET_0 and rainfall. Results from 45 and 60 day time periods indicate that both irrigation adequacy and scheduling efficiency were affected by length of time period (Figures 4 & 5). Using a 45 day period, scheduling efficiency remained constant at 100% and irrigation adequacy decreased only slightly. However, the 60 day period indicated that irrigation adequacy continues to decrease over time and scheduling efficiency decreased significantly by the end of the test. Irrigation adequacy decreased over time due to long periods between irrigation days for shallow root zones in irrigation zones 2 and 6 that accumulated deficit as well as zone 5, a deep root zone. Scheduling efficiency decreased over time due to surplus from erroneous duplicate irrigation days caused by the manual signaling of this controller described earlier.

ET-C

The ET-C controller began the SWAT test on 23 September 2008. This controller consistently averaged 100% in irrigation adequacy for all zones and over all time periods (Figure 6). However, scheduling efficiency decreased through the testing period indicating that lower averages occurred over time due to cumulative over-irrigation by individual zones. The results from the 30 day periods showed consistent 100% scheduling efficiency scores for approximately a month. However, there was a period where minimum ET_0 requirements were not met and results could not be reported. When minimum requirements were met again, the controller results were much lower with a maximum score of 95% for scheduling efficiency. The lower trend in the scheduling efficiency scores occurred due to small rainfall events that did not trigger the rain sensor (the only way the ET-C includes rainfall in irrigation scheduling), but were

considered effective in the soil water balance. The 45 and 60 day periods also began the testing with high scheduling efficiency results that decreased over time resulting in a majority of the scores below 95%. The results presented for different time period lengths were averages of multiple periods within the study period. However, only one 30 day time period, or one data point for irrigation adequacy and one data point for scheduling efficiency, is reported using the SWAT protocol. The manufacturer can continue to test their product until they decide to publish their scores. It should be recognized that a controller that achieves high scores during a short testing period may not perform as well as a controller that achieves high scores over extended testing. A report showing ranges of the scores would show a better picture of controller performance over time. It is imperative to observe the controller's ability to schedule irrigation over a longer period of time to determine if the controller can actually respond to changes in weather conditions.

Impacts of Rainfall

The efficient use of rainfall as the primary water source for plant material is important as a water conservation tool. However, rainfall in humid climates can be unpredictable and localized making it difficult to schedule irrigation as a supplement to rainfall. The ET controllers are penalized by irrigation occurring on the same day as rainfall according to the protocol despite occurring before the rainfall event takes place. For example, if irrigation occurs in the early morning hours and rainfall occurs later in the afternoon, irrigation would be considered a part of scheduling losses when considering a daily soil water balance. Rain sensors are typically used in Florida as the primary way for accounting for rainfall due to its on-site location and instant reaction to rainfall. However, it is unknown how rain sensors will affect the SWAT test.

Though there were some regional differences in rainfall observed over the study period, rainfall generally occurred at both weather station locations on the same days. The depth of a rainfall event at each weather station on a single day could have varied significantly, but most rain events were not over the 0.25 inch set point of the rain sensors. There were only five events with rainfall greater than the set point for the ET-B and ET-C controllers and eleven events for the ET-A controllers (Table 7). The study period was unusually dry with rainfall depths less than half of historical rainfall totaled for the same time period.

It was found that the addition of a rain sensor did not result in differences of irrigation adequacy for any controllers undergoing the Florida SWAT test due to only five rainfall events over the rain sensor threshold of 0.25 inches. The addition of a rain sensor to the ET-A controller caused irrigation scheduling to be more efficient. Thus, based on the limited results with the ET-A controller, it would appear that a rain sensor would improve scores if rainfall occurred frequently during the test.

Controllers installed with rain sensors never irrigated on days when rainfall occurred over the testing period and were not subject to the rainfall penalty. Both the ET-A WORS and ET-B WORS irrigated at least one zone when rainfall occurred on the same day. These days resulted in scheduling losses, however, other days when irrigation occurred and no rainfall also had scheduling losses. Therefore, there were not enough opportunities for the rainfall penalty to be examined during the Florida SWAT test.

Additional Analyses

The soil water balance is the running calculation that is ultimately used to determine the SWAT scores of irrigation adequacy and scheduling efficiency. The soil water balance details were examined for selected irrigation zones on each irrigation controller to assess performance with respect to rain events and over changing climatic conditions. As described in the protocol, zone 2 is a warm season turfgrass with a shallow root zone working water storage that has a high irrigation demand (Table 2). Conversely, zone 4 is described as woody shrubs that have a comparatively deep root zone water working storage and a potentially lower irrigation demand due to the low landscape coefficient and deep root zone (Table 4). These zones were chosen for additional analysis due to their extreme differences.

ET-A

The ET-A WORS irrigated 11 times over the 127 day period for zone 2 (Figure 7). This controller irrigated the same depth every day, but increased the time between irrigation days as ET_0 decreased throughout the season. This controller also responded to rainfall by pausing irrigation multiple times based on the data collected and broadcasted to the controller. One irrigation event occurred immediately after rainfall at the beginning of the test, resulting in the majority of scheduling losses. This occurrence is an example of the rainfall penalty resulting from failing to predict rainfall on the same day as a scheduled irrigation event. Irrigation adequacy results never dropped below 100% because the controller maintained a water level well above the maximum allowable depletion, described in the protocol as when the root zone working water storage is zero. The ET-A WRS irrigated 10 times over 127 days for zone 2 (Figure 8); irrigation was similar to zone 2 for ET-A WORS except for the irrigation event that occurred at the beginning of the test that resulted in mostly scheduling losses.

The ET-A WORS only irrigated once over the same time period for zone 4 (Figure 9). Irrigation scheduling for this zone resulted in 100% for irrigation adequacy and scheduling efficiency. The water level remained above the maximum allowable depletion for the entire period, indicating no under-irrigation, and only exceeded field capacity due to rainfall, indicating no over-irrigation. Due to the low ET_0 of the time period, irrigation was not necessary for this type of plant material and such a deep root zone working water storage. The soil water balance for the ET-A WRS was identical to the ET-A WORS for zone 4 (Figure 10).

ET-B

Zone 2 for the ET-B WORS irrigated five times over an 88 day period (Figure 11). This controller began the Florida SWAT test after ET_0 had decreased due to cool temperatures causing the virtual landscape to require less irrigation. A deficit accrued at the end of November 2008 causing the water level to fall below the maximum allowable depletion. However, the SWAT test does not allow this to occur mathematically and is not depicted in the soil water level. The ET-B WRS irrigated only four times for zone 2 due to a bypassed irrigation event during rainfall signaled by the rain sensor (Figure 12). This brand of ET controller may not accept rainfall shut off as part of the water balance.

Due to the shorter test period of the ET-B controllers and the performance of this test over winter months, irrigation was not necessary for zone 4 for both controllers (Figures 13 & 14). Rainfall was frequent for the large RZWWS, allowing a significant portion of the rainfall to be effective.

ET-C

The ET-C controller irrigated everyday for zone 2 except for periods of irrigation bypass due to significant rainfall events (Figure 15). This controller does not utilize a root zone for irrigation scheduling; it replaces ET_C loss since the last allowable irrigation day. Also, a rain sensor is solely used as the detection mechanism for rain causing the controller to reset the accumulated water loss to zero when the rain sensor bypasses irrigation. This zone was allowed to irrigate everyday due to the small RZWWS. As a result, the water level was maintained above the maximum allowable depletion for the entire time period (117 days). Most scheduling losses occurred due to small rainfall events considered effective in the SWAT test, but that were not detected by the rain sensor (set at 0.25 inches). Due to the short, frequent irrigation scheduling, each irrigation event lasted for two minutes, on average.

Zone 4 for the ET-C controller was programmed by the manufacturer to limit irrigation to three days per week due to the large RZWWS. This zone was programmed with an irrigation schedule that caused the water level to maintain field capacity without taking into account the small rain events considered effective in the SWAT test (Figure 16). As a result, there were several periods of scheduling losses toward the latter half of the test.

The controllers performing the SWAT test were programmed with settings that would cause irrigation to be short and frequent, especially for zones with small RZWWS. When reviewing zone 2, the ET-B and ET-A controllers irrigated less than once per week, but applied irrigation 4-5 times per irrigation day (Table 11). The ET-B controllers irrigated less per week than the ET-A controllers, respectively averaging 0.37 inches compared to 0.59 inches. Thus, an individual irrigation cycle might apply 0.03 to 0.09 inches. This difference in application depth between the controllers occurred due to the later test start date for the ET-B controllers where ET_O had already decreased for the winter season. The ET-C controller scheduled irrigation differently compared to the other controllers where it irrigated almost every day, averaging 5.44 days per week, but only applied irrigation twice per day (Table 11). However, average weekly water application by the ET-C was 0.55 inches (0.05 inches/cycle), similar to the ET-A controllers.

In any case, irrigation cycles of 0.03 to 0.09 inches are not realistic in typical irrigation systems found in the field with relatively high application rates. As an example, zones 3 and 4 in the protocol specify an application rate of 1.4 inches/hr. The cycle depths resulting in the Florida test due to specific programming require cycle times of 1.3 to 3.9 minutes, respectively. Zones 1 and 2 would result in even lower cycle times due to the higher application rate specified. Thus a minimum realistic cycle time would be appropriate to account for reasonable irrigation system hydraulics.

Conclusions

To date, the SWAT test has been performed in California under generally semi-arid conditions. It was unknown previously if the results reported from California were transferable to different climates such as Florida that is typically humid with unpredictable rainfall patterns during the rainy season. Unfortunately, cumulative totals for rainfall and ET_O over the study period in Florida were lower than historic levels, averaging 56% and 40% less, respectively.

The results found during the Florida SWAT test showed that the ET controllers generally scored well in SWAT performance scores of scheduling efficiency and irrigation adequacy with only slightly lower scores than published from the original SWAT test, mainly on scheduling

efficiency. Scheduling efficiency results were lower than the original published results by 2.5 percentile points for the ET-A controllers, 14 percentile points by the ET-B controllers (0 percentile points if irrigation events applied due to human error are removed), and 4.6 percentile points by the ET-C. Given the uncharacteristically dry conditions similar to California weather, it is possible that the Florida SWAT test scores were generally higher than would occur in a rainy time period.

The SWAT testing protocol should be clearly outlined and include detailed instructions if the goal is that any laboratory in the country can implement the protocol and generate reproducible results. Currently, the testing procedures are difficult to reproduce based on the existing protocol document. The CIT personnel were very helpful in clearing up these details; however, the protocol documentation should be clearer for WaterSense adoption to ensure uniform implementation and results across different labs. It is advisable to create a step-by-step guide for the protocol calculations. As written, all of the calculations need to be pieced together from the summary table of equations and the written description. In addition, it is advisable to provide the calculation mechanism such as a spreadsheet as created in this project or a computer program so that labs implementing the protocol will uniformly perform the calculations. This calculation mechanism should have a step-by-step user manual.

The ET_0 , rainfall, and test length minimum requirements of 2.50 inches, 0.40 inches, and 30 days, respectively, were originally selected based on California's arid climate. However, these minimums are considerably low for humid climates such as Florida where 0.40 inches of rainfall can be achieved in one to two days during the rainy season. Despite the current SWAT minimum ET_0 and rainfall thresholds, these limits may not adequately show the ability of controllers to adjust over time to changing climatic conditions unless that test period includes a climatic transition period, for example spring to summer or similar. Each controller having met the minimum requirements for ET_0 and rainfall had at least one 30 day period where both irrigation adequacy and scheduling efficiency were above 95%. As a result, moving 30 day total results over a lengthier time period would provide more reflective results of controller performance over time. WaterSense should consider requiring testing during conditions representative of the growing season. Partial growing season ET_0 might range from 15-20 inches for a minimum 90 day period and rainfall of 5 inches in a minimum of 10 events would be reasonable limits for the eastern U.S.

Rainfall in humid climates can be unpredictable and localized making it difficult to schedule irrigation as a supplement to rainfall. The ET controllers are penalized by irrigation occurring on the same day as rainfall according to the protocol despite occurring before the rainfall event takes place. Rain sensors are typically used in Florida as the primary way for accounting for rainfall due to its on-site location and instant reaction to rainfall. Test results showed that using a rain sensor did not affect irrigation adequacy results for any controller and increased scheduling efficiency results for one controller brand. However, the study period was unusually dry with rainfall depths less than half of historical rainfall totaled for the same time period. The ET-C controller had surplus irrigation due to small rain events that were not detected by the controller. This controller determined ET and rainfall from on-site measurements. Conducting the test under dry conditions and programming the controllers with small and frequent irrigation events virtually guarantees perfect SWAT scores of irrigation adequacy and scheduling efficiency for this type of controller and increases the likelihood of high scores for the signal-based controllers. However, all controllers were programmed with unrealistic programs not typically found in systems in the field.

Controller programming is important for receiving good SWAT results. Controllers for the Florida test were programmed with settings that do not necessarily describe the landscape specified in the protocol to create a smaller RZWWS than specified for the zone. As a result unrealistic irrigation runtimes of just a few minutes per cycle were common. Minimum runtimes for each irrigation zone chosen based on more realistic irrigation system hydraulics may alleviate this problem. The program settings used by the controller to achieve the published scores should also be included in the published report as they would be helpful in applying the results to different landscapes when using the controllers in the real world.

In addition to revising and clarifying the protocol document, recommendations include increasing the length of the test to allow the controllers to adjust over time, program settings disclosure with test results, and increasing the rainfall threshold. It is imperative to observe the controller's ability to handle rainfall over a longer period of time since it is more difficult to accurately schedule irrigation in rainy climates vs. arid climates.

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Table 1. Zone 1 landscape descriptions defined by the SWAT testing protocol used as guidelines to program each zone (IA 2008) and the actual program settings used by the controllers for the Florida test.

Description	Protocol	ET-A	ET-B	ET-C
Soil	Loam	Loam	Loam	Loam
Slope (%)	6	6-8	13-20	10 ^{o1}
Exposure	75% Shade	Shady All Day	Sunny All Day	NA ²
RZWWS ³ (in)	0.85	NA	NA	NA
Maximum Allowable Depletion (%)	50	50	50	NA
Vegetation	Tall Fescue	Cool Season Grass	Cool Turf	Custom Plant Type
Root Depth (in)	10.0	7	5	NA
Landscape Coefficient	Varies Monthly ⁴	Unknown	Varies Monthly	0.45
Precipitation Rate (in/hr)	1.60	1.60	1.60	0.9
Application Efficiency (%)	55	55	55	NA
Adjustments ⁵ (%)	NA	0	-10	1

¹The slope for the ET-C is programmed in degrees and not as a percentage.

²NA refers to program settings that are not available for selection during controller setup.

³RZWWS represents the root zone working water storage or the depth of water readily available to the plant material.

⁴Turfgrass crop coefficients varied monthly depending on type of turfgrass and exposure effects (IA 2008).

⁵Adjustments are percentage changes made to the runtime after it has been calculated by the controller and before it is applied to the virtual landscape.

Table 2. Zone 2 landscape descriptions defined by the SWAT testing protocol used as guidelines to program each zone (IA 2008) and the actual program settings used by the controllers for the Florida test.

Description	Protocol	ET-A	ET-B	ET-C
Soil	Silty Clay	Clay	Clay Loam	Clay
Slope (%)	10	6-8	>20	10 ^{o1}
Exposure	Full Sun	Sunny All Day	Sunny All Day	NA ²
RZWWS ³ (in)	0.55	NA	NA	NA
Maximum Allowable Depletion (%)	40	50	50	NA
Vegetation	Bermuda	Warm Season Grass	Custom Turf	Custom Plant Type
Root Depth (in)	8.1	4	3	NA
Landscape Coefficient	Varies Monthly ⁴	Unknown	Varies Monthly	0.57
Precipitation Rate (in/hr)	1.60	1.60	1.60	1.0
Application Efficiency (%)	60	60	60	NA
Adjustments ⁵ (%)	NA	0	0	0

¹The slope for the ET-C is programmed in degrees and not as a percentage.

²NA refers to program settings that are not available for selection during controller setup.

³RZWWS represents the root zone working water storage or the depth of water readily available to the plant material.

⁴Turfgrass crop coefficients varied monthly depending on type of turfgrass and exposure effects (IA 2008).

⁵Adjustments are percentage changes made to the runtime after it has been calculated by the controller and before it is applied to the virtual landscape.

Table 3. Zone 3 landscape descriptions defined by the SWAT testing protocol used as guidelines to program each zone (IA 2008) and the actual program settings used by the controllers for the Florida test.

Description	Protocol	ET-A	ET-B	ET-C
Soil	Loamy Sand	Sandy Loam	Sandy Loam	Loam
Slope (%)	8	6-8	>20	5 ^{o1}
Exposure	Full Sun	Shady Part of the Day	Sunny All Day	NA ²
RZWWS ³ (in)	0.90	NA	NA	NA
Maximum Allowable Depletion (%)	50	50	50	NA
Vegetation	Ground Cover	Ground Cover and Vines	Medium Water Shrubs	Custom Plant Type
Root Depth (in)	20.0	9	10	NA
Landscape Coefficient	0.55	Unknown	0.50	0.55
Precipitation Rate (in/hr)	1.40	1.4	1.40	1.0
Application Efficiency (%)	70	70	70	NA
Adjustments ⁴ (%)	NA	0	10	0

¹The slope for the ET-C is programmed in degrees and not as a percentage.

²NA refers to program settings that are not available for selection during controller setup.

³RZWWS represents the root zone working water storage or the depth of water readily available to the plant material.

⁴Adjustments are percentage changes made to the runtime after it has been calculated by the controller and before it is applied to the virtual landscape.

Table 4. Zone 4 landscape descriptions defined by the SWAT testing protocol used as guidelines to program each zone (IA 2008) and the actual program settings used by the controllers for the Florida test.

Description	Protocol	ET-A	ET-B	ET-C
Soil	Sandy Loam	Sandy Loam	Sandy Loam	Loam
Slope (%)	12	9-12	>20%	7° ¹
Exposure	50% Shade	Shady All Day	Sunny All Day	NA ²
RZWWS ³ (in)	2.0	NA	NA	NA
Maximum Allowable Depletion (%)	55	50	50	NA
Vegetation	Woody Shrubs	Native Shrubs	Custom Plant A	Custom Plant Type
Root Depth (in)	28.0	20	12	NA
Landscape Coefficient	0.40	Unknown	0.40	0.40
Precipitation Rate (in/hr)	1.40	1.4	1.40	1.1
Application Efficiency (%)	75	75	75	NA
Adjustments ⁴ (%)	NA	-20	0	0

¹The slope for the ET-C is programmed in degrees and not as a percentage.

²NA refers to program settings that are not available for selection during controller setup.

³RZWWS represents the root zone working water storage or the depth of water readily available to the plant material.

⁴Adjustments are percentage changes made to the runtime after it has been calculated by the controller and before it is applied to the virtual landscape.

Table 5. Zone 5 landscape descriptions defined by the SWAT testing protocol used as guidelines to program each zone (IA 2008) and the actual program settings used by the controllers for the Florida test.

Description	Protocol	ET-A	ET-B	ET-C
Soil	Clay Loam	Loamy Clay	Clay Loam	Clay
Slope (%)	2	0-5	0-5	20 ^{o1}
Exposure	Full Sun	Sunny All Day	Sunny All Day	NA ²
RZWWS ³ (in)	2.25	NA	NA	NA
Maximum Allowable Depletion (%)	50	50	50	NA
Vegetation	Trees and Ground Cover	Native Trees	Custom Plant B	Custom Plant Type
Root Depth (in)	25.0	14	12	NA
Landscape Coefficient	0.61	Unknown	0.60	0.61
Precipitation Rate (in/hr)	0.20	0.20	0.20	0.2
Application Efficiency (%)	80	80	80	NA
Adjustments ⁴ (%)	NA	-20	0	10

¹The slope for the ET-C is programmed in degrees and not as a percentage.

²NA refers to program settings that are not available for selection during controller setup.

³RZWWS represents the root zone working water storage or the depth of water readily available to the plant material.

⁴Adjustments are percentage changes made to the runtime after it has been calculated by the controller and before it is applied to the virtual landscape.

Table 6. Zone 6 landscape descriptions defined by the SWAT testing protocol used as guidelines to program each zone (IA 2008) and the actual program settings used by the controllers for the Florida test.

Description	Protocol	ET-A	ET-B	ET-C
Soil	Clay	Clay	Clay Loam	Clay
Slope (%)	20	13-20	>20	20 ⁰¹
Exposure	Full Sun	Sunny All Day	Sunny All Day	NA ²
RZWWS ³ (in)	0.55	NA	NA	NA
Maximum Allowable Depletion (%)	35	50	50	NA
Vegetation	Bermuda	Warm Season Grass	Custom Turf	Custom Plant Type
Root Depth (in)	9.2	4	3	NA
Landscape Coefficient	Varies Monthly ⁴	Varies Monthly	Varies Monthly	0.57
Precipitation Rate (in/hr)	0.35	0.35	0.35	0.2
Application Efficiency (%)	65	65	65	NA
Adjustments ⁵ (%)	NA	0	0	-12

¹The slope for the ET-C is programmed in degrees and not as a percentage.

²NA refers to program settings that are not available for selection during controller setup.

³RZWWS represents the root zone working water storage or the depth of water readily available to the plant material.

⁴Turfgrass crop coefficients varied monthly depending on type of turfgrass and exposure effects (IA 2008).

⁵Adjustments are percentage changes made to the runtime after it has been calculated by the controller and before it is applied to the virtual landscape.

Table 7. Measured and historical cumulative ET_O and rainfall over the study length for each controller.

Controller	Length (days)	ET _O		Rainfall			
		Measured (in)	Historical ¹ (in)	Measured (in)	Historical ¹ (in)	# Events ²	# Events > 0.25 inches ²
ET-A WORS	127	9.7 ³	13.9	5.5	12.6	31	11
ET-A WRS	127	9.7 ³	13.9	5.5	12.6	31	11
ET-B WORS	88	5.1 ³	8.2	3.4	8.2	19	5
ET-B WRS	88	5.1 ³	8.2	3.4	8.2	19	5
ET-C	117	11.5 ⁴	12.5	4.7	11.1	22	5

¹Data collected from the NOAA weather station located in Gainesville, FL using 30 years of data, 1970-2000. Data are average historical values for days of the year tested for each controller.

²Events were summed for the Florida SWAT test.

³Data collected from the FAWN weather station located in Citra, FL.

⁴Data collected from the on-site weather station located in Gainesville, FL.

Table 8. Irrigation adequacy and scheduling efficiency results for each controller over each respective testing period (see Table 7) during the 2008 SWAT test ending January 18, 2009 using the weather data collected on-site.

Controller	Irrigation Adequacy (%)			Scheduling Efficiency (%)		
	Avg ¹	Max ²	Min ³	Avg ¹	Max ²	Min ³
ET-A WORS	93	98	91	98	100	90
ET-A WRS	91	95	86	100	100	100
ET-B WORS	91	100	81	79 ⁴	85	71 ⁴
ET-B WRS	90	100	91	86 ⁴	100	70 ⁴

¹Denotes the average value across all zones.

²Denotes the maximum value across all zones.

³Denotes the minimum value across all zones.

⁴Average and minimum values were lower than expected due to erroneous irrigation events causing significant surplus. When erroneous events are removed, scheduling efficiency scores are 100% across all zones.

Table 9. Irrigation adequacy and scheduling efficiency results for each controller over each respective testing period (see Table 7) during the 2008 SWAT test ending January 18, 2009 using the weather data specific to the controller. Averages, maximum and minimum scores are across all zones and include all 30 day periods that meet minimum test requirements.

Controller	Irrigation Adequacy (%)			Scheduling Efficiency (%)		
	Avg ¹	Max ²	Min ³	Avg ¹	Max ²	Min ³
ET-A WORS ⁴	100	100	100	94	100	80
ET-A WRS ⁴	100	100	100	98	100	92
ET-B WORS ⁴	98	100	94	87 ⁶	100	67 ⁶
ET-B WRS ⁴	98	100	94	85 ⁶	100	62 ⁶
ET-C ⁵	100	100	100	95	100	92

¹Denotes the average value across all zones.

²Denotes the maximum value across all zones.

³Denotes the minimum value across all zones.

⁴Scores were calculated using data collected from the FAWN weather station located in Citra, FL.

⁵Scores were calculated using data collected from the on-site weather station located in Gainesville, FL.

⁶Average and minimum values were lower than expected due to one erroneous irrigation event causing significant surplus. When this event is removed, scheduling efficiency scores are 100% across all zones.

Table 10. Reported totals of reference evapotranspiration (ET_O) and rainfall from the published SWAT testing results and from the Florida SWAT test.

Test	ET _O (in)	Rainfall (in)
ET-A official SWAT test	3.56	3.98
ET-B official SWAT test	2.55	0.39
ET-C official SWAT test	3.51	0.84
Florida ¹ SWAT test	3.12	1.54

¹The Florida test was averaged across all 30 day periods over the entire study where minimums of 2.50 inches and 0.40 inches for ET_O and rainfall were met.

Table 11. Zone 2 irrigation scheduling statistics for each controller over each respective testing period (see Table 7) during the 2008 SWAT test ending January 18, 2009.

Controller	Average Weekly Gross Irrigation (in)	Average Event Days per Week	Average Events Per Day
ET-A WORS	0.59	0.61	4
ET-A WRS	0.59	0.56	4
ET-B WORS	0.36	0.42	5
ET-B WRS	0.37	0.33	5
ET-C	0.56	5.44	2

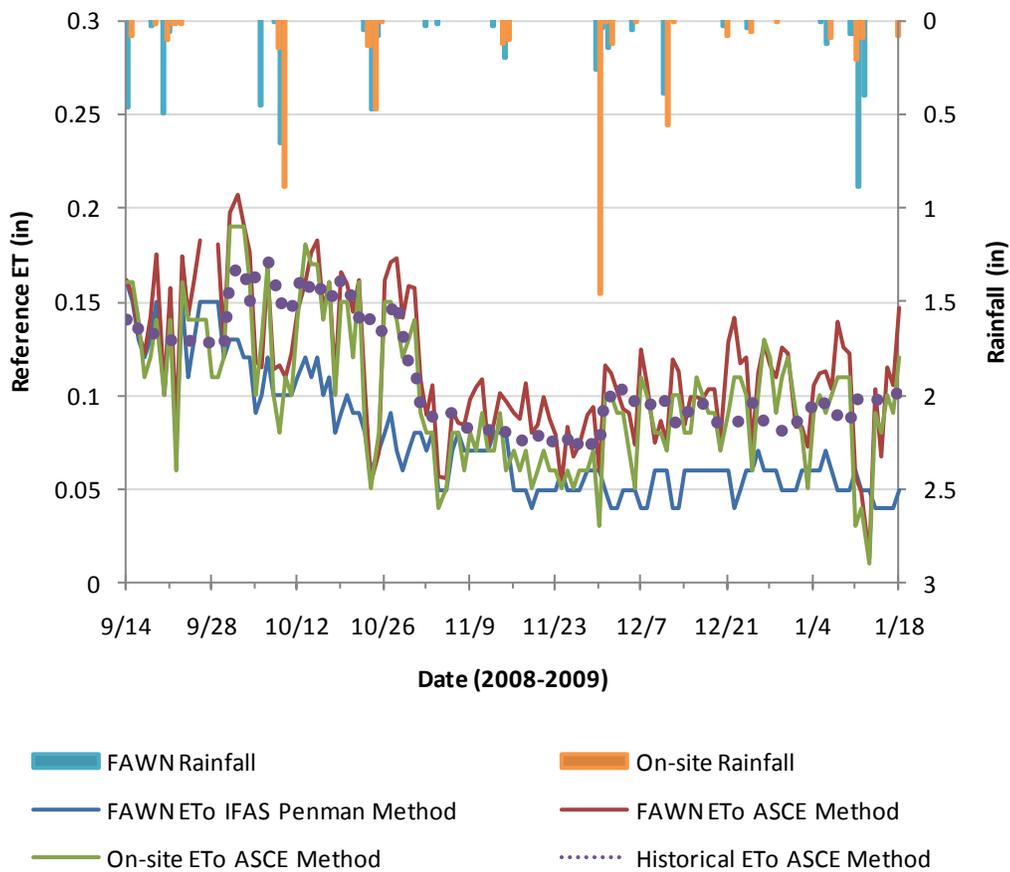


Figure 1. Daily reference evapotranspiration (ET₀) and rainfall for the duration of the Florida SWAT test.

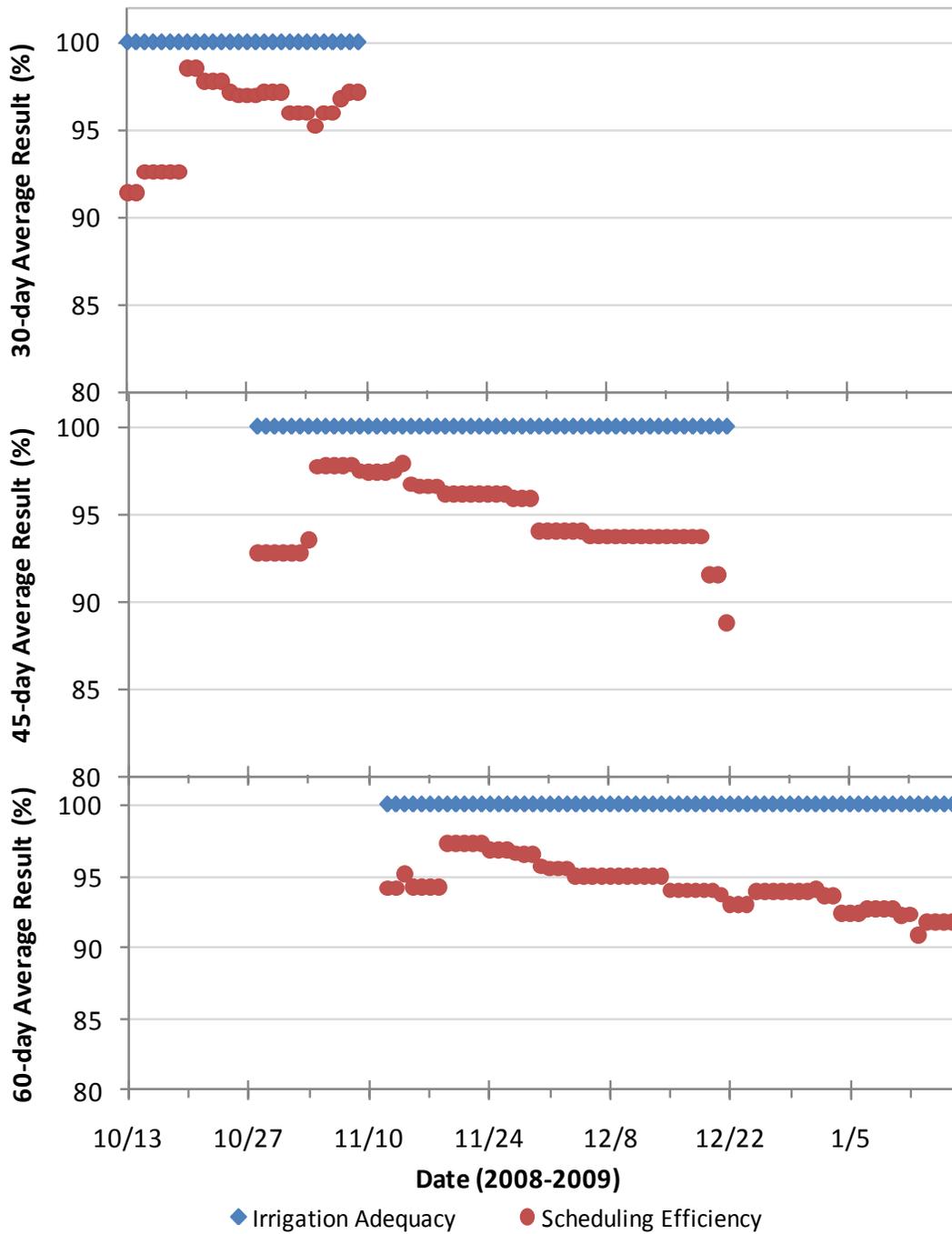


Figure 2. ET-A without an on-site rain sensor (WORS) moving averages for scheduling efficiency and irrigation adequacy for three different time periods of testing: 30, 45, and 60 days per data point where cumulative time periods meet the 2.5 inch ET_0 and 0.4 inch rainfall minimum.

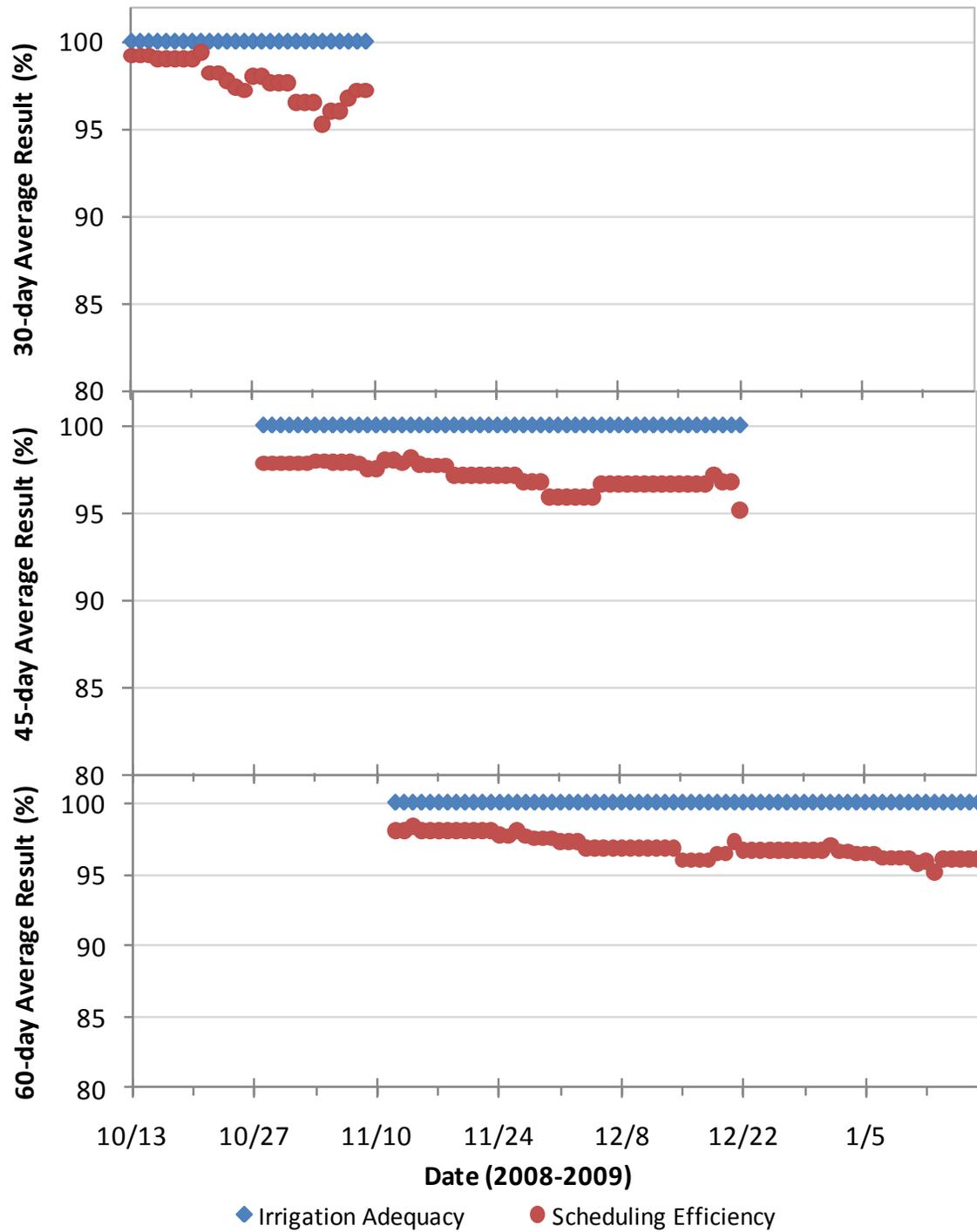


Figure 3. ET-A with an on-site rain sensor (WRS) moving averages for scheduling efficiency and irrigation adequacy for three different time periods of testing: 30, 45, and 60 days per data point where cumulative time periods meet the 2.5 inch ET_O and 0.4 inch rainfall minimum.

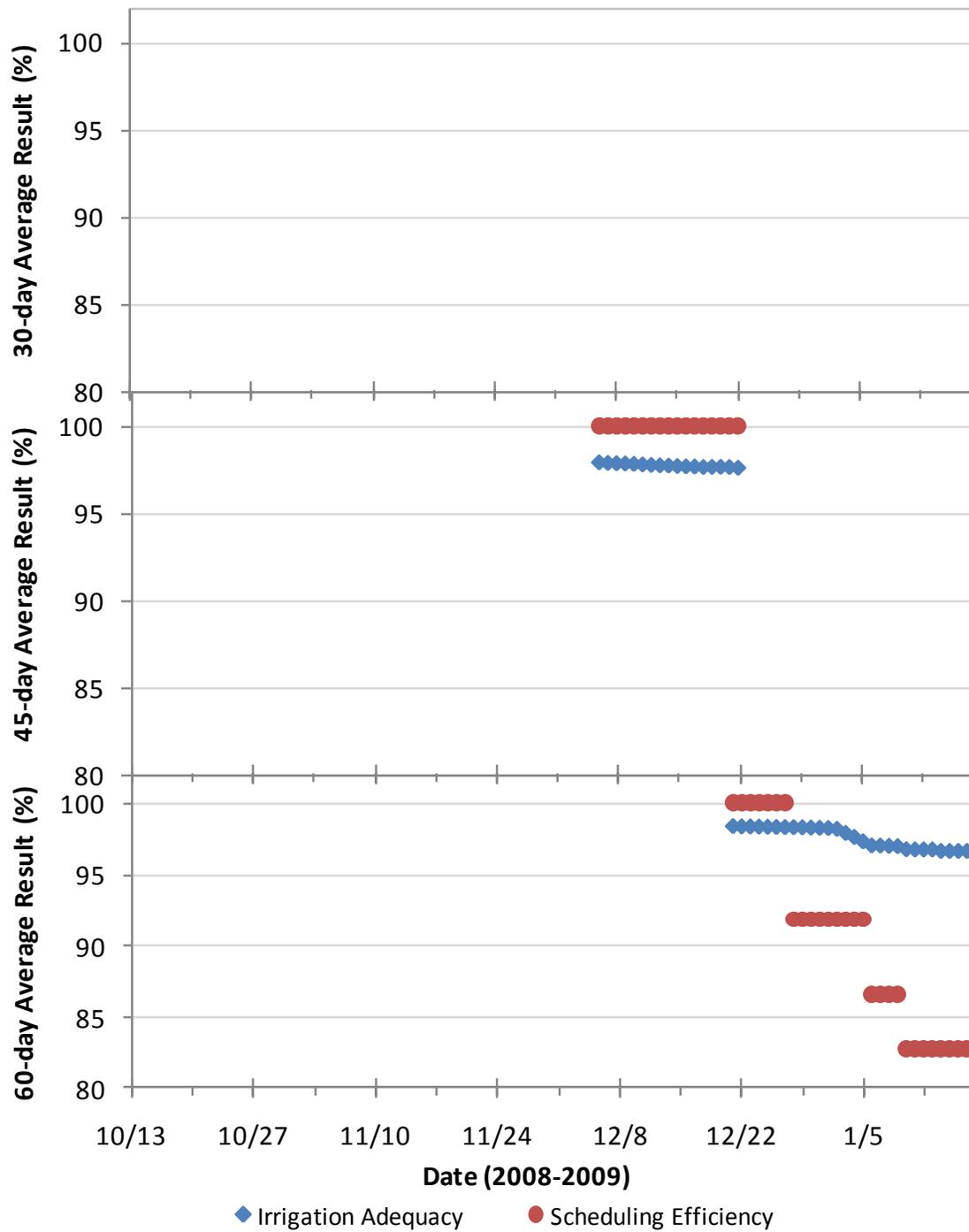
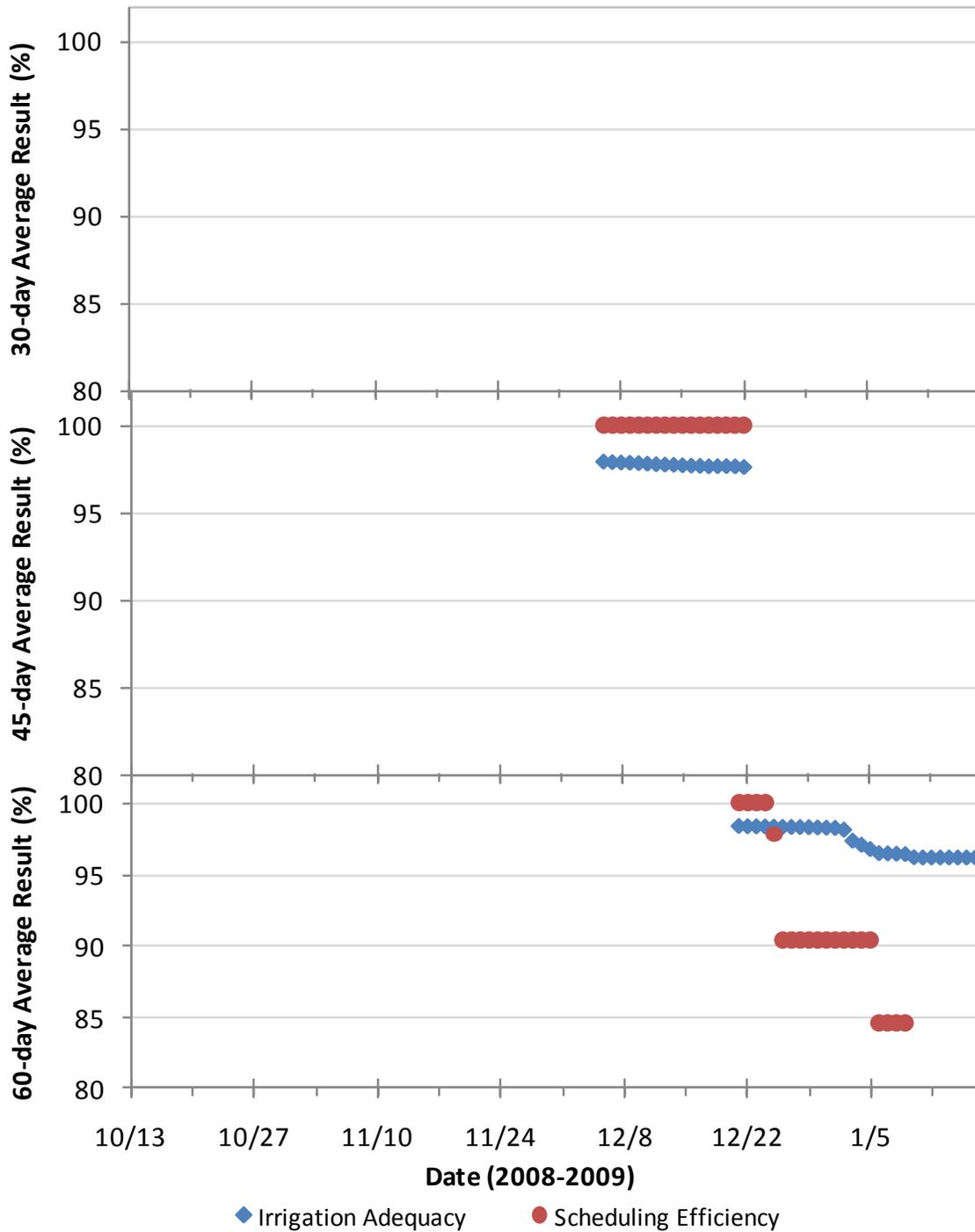


Figure 4. ET-B without an on-site rain sensor (WORS) moving averages for scheduling efficiency and irrigation adequacy for three different time periods of testing: 30, 45, and 60 days per data point where cumulative time periods meet the 2.5 inch ET_0 and 0.4 inch rainfall minimum.



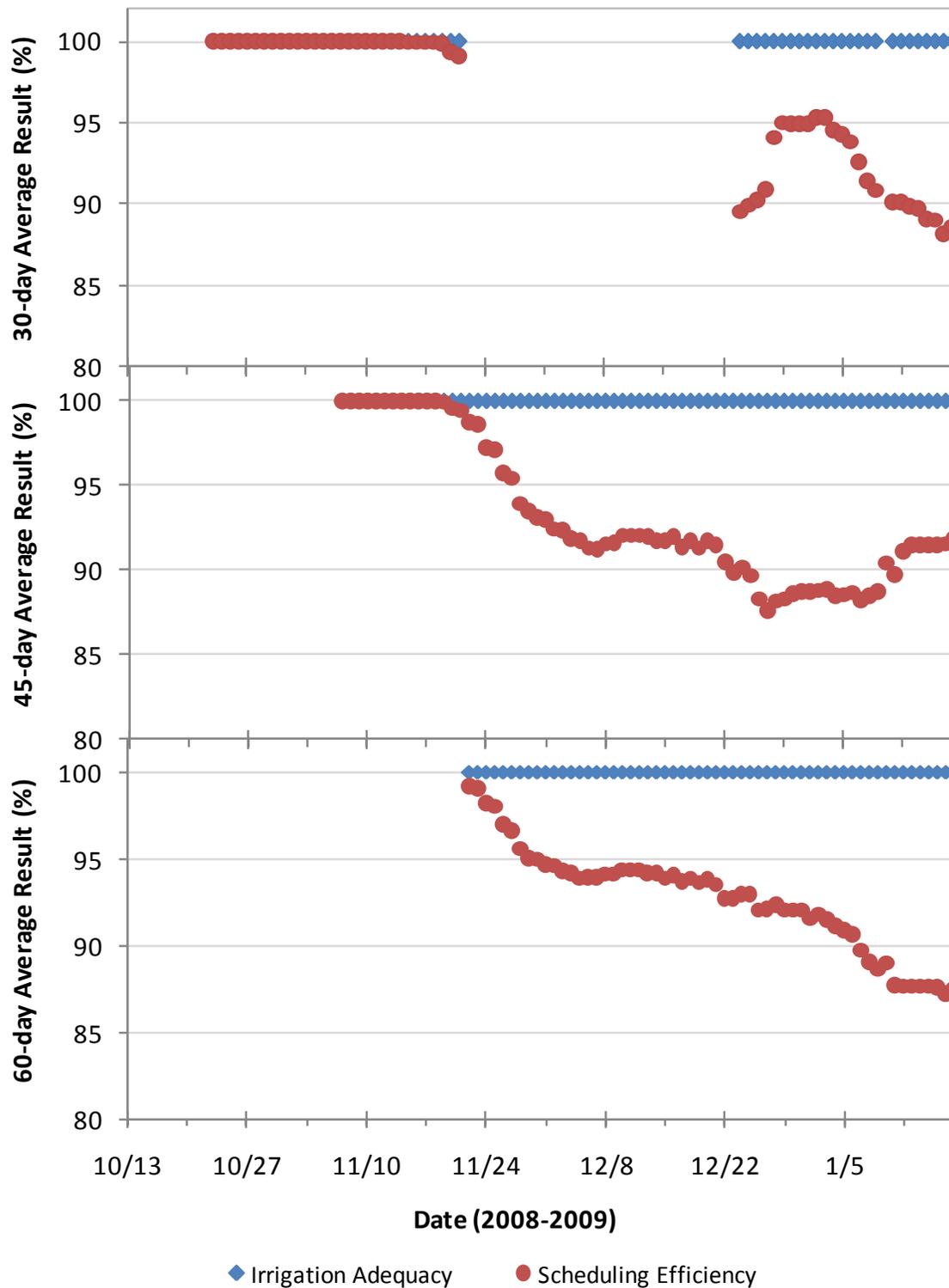


Figure 6. ET-C moving averages for scheduling efficiency and irrigation adequacy for three different time periods of testing: 30, 45, and 60 days per data point where cumulative time periods meet the 2.5 inch ET_0 and 0.4 inch rainfall minimum.

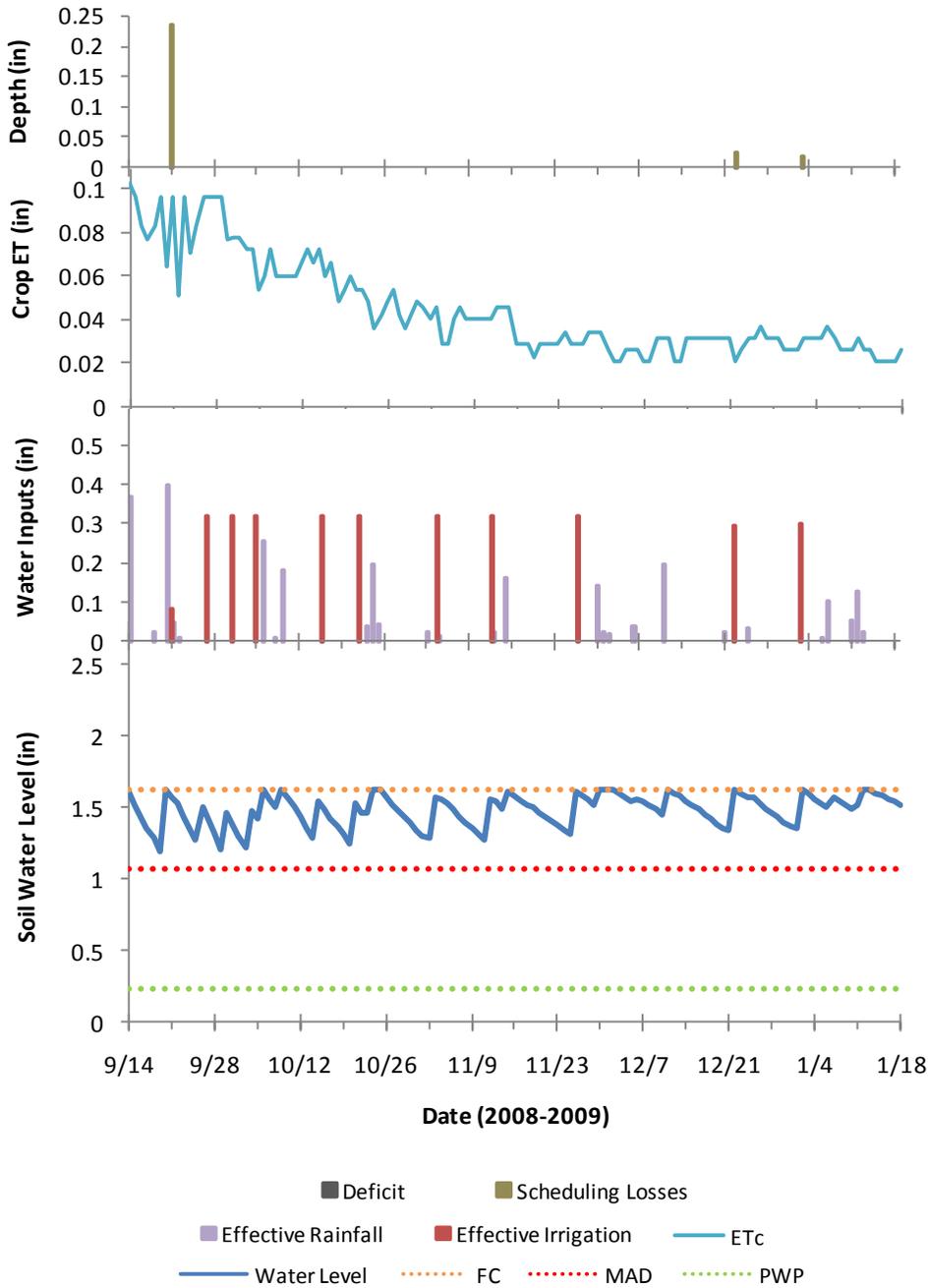


Figure 7. ET-A without an on-site rain sensor (WORS) soil water balance results for zone 2 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

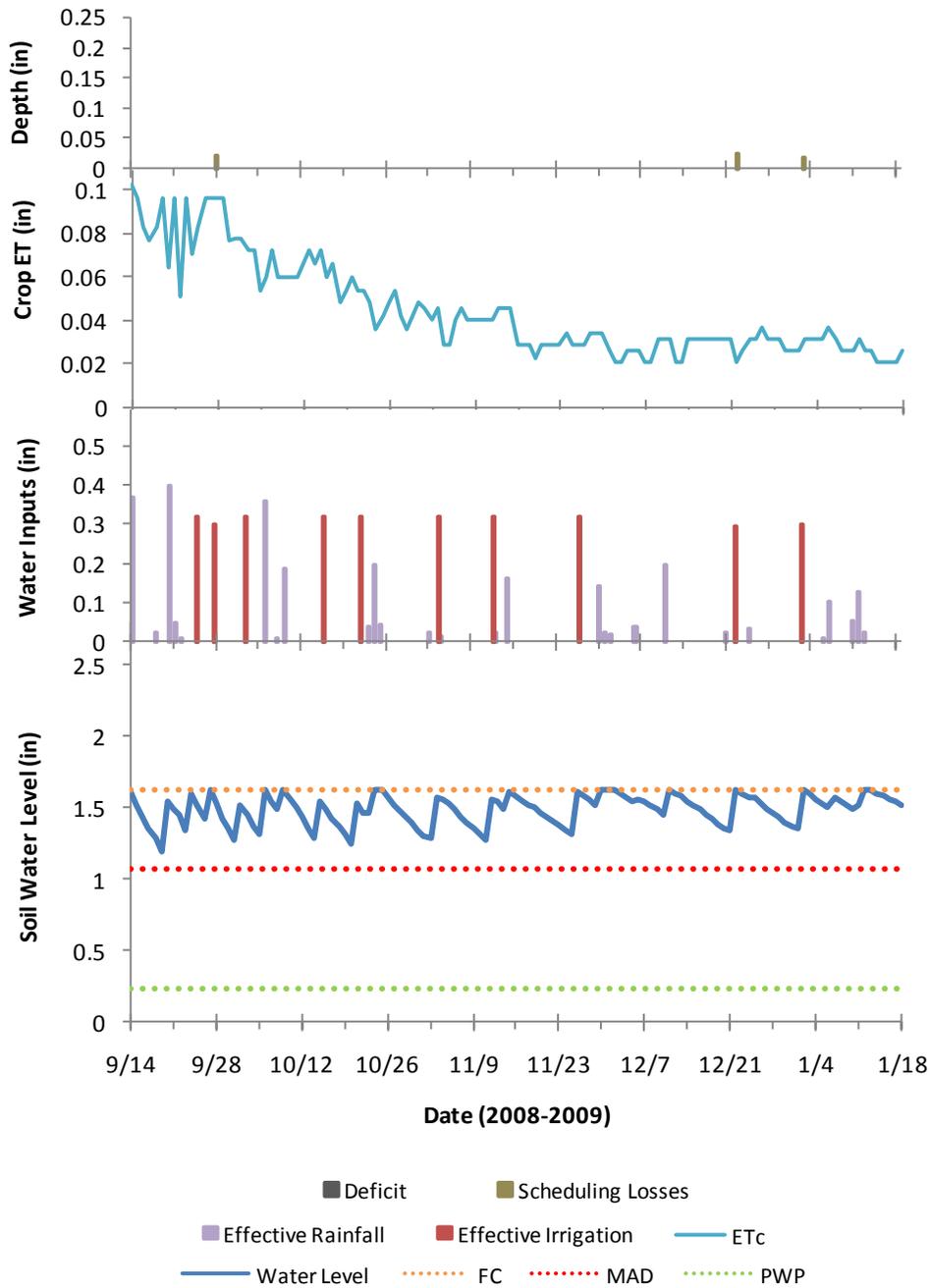


Figure 8. ET-A with an on-site rain sensor (WRS) soil water balance results for zone 2 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

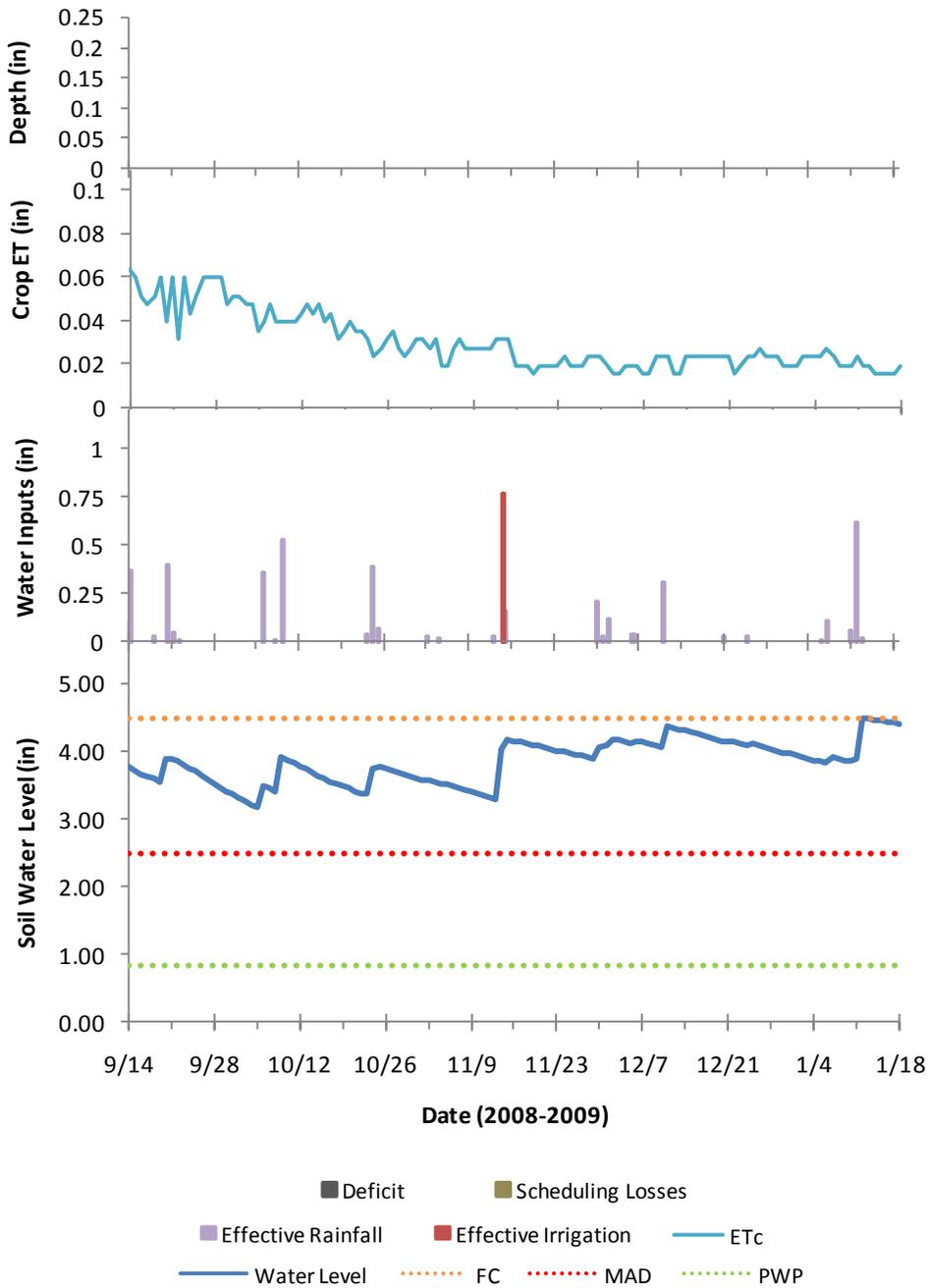


Figure 9. ET-A without an on-site rain sensor (WORS) soil water balance results for zone 4 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

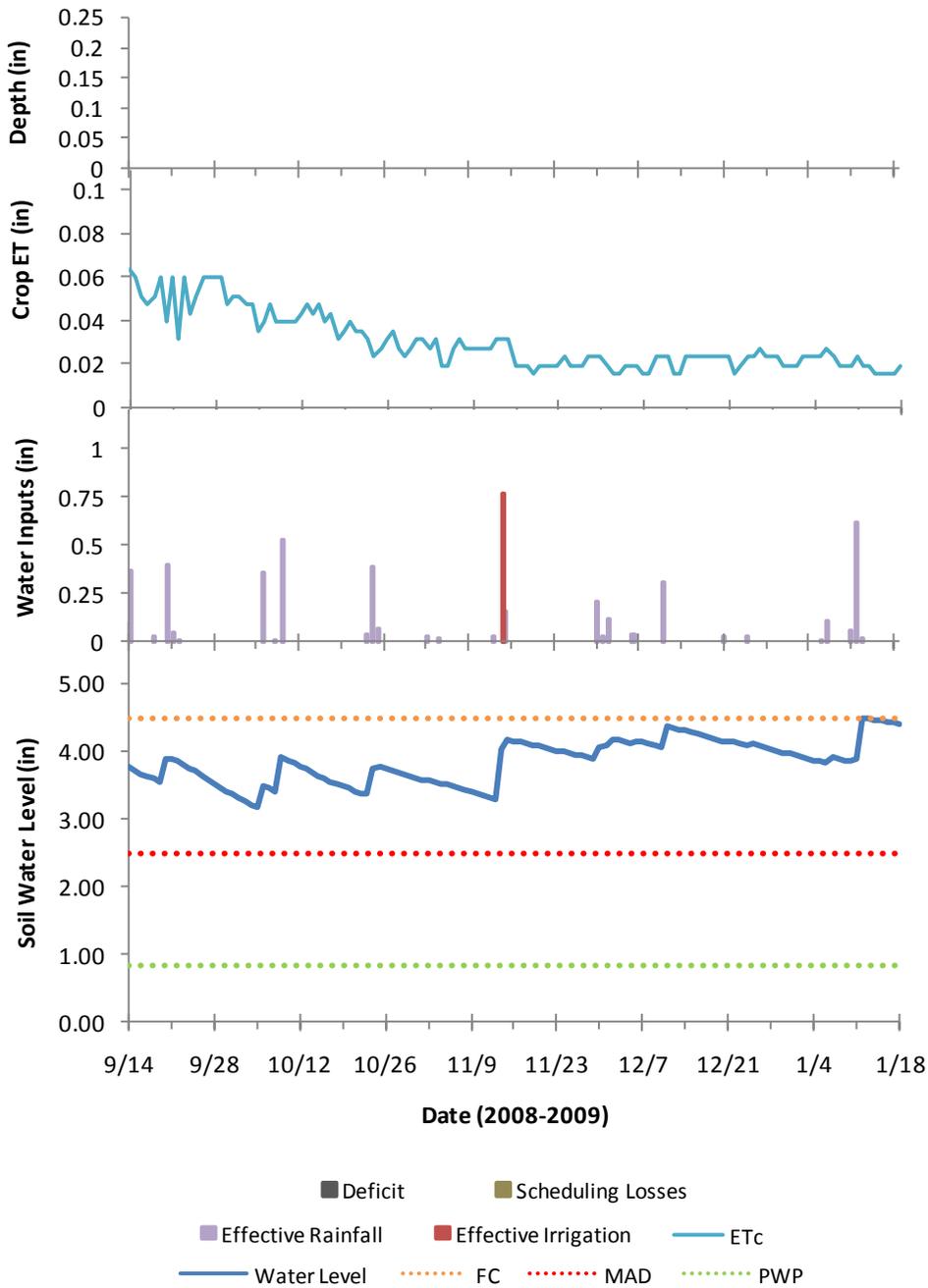


Figure 10. ET-A with an on-site rain sensor (WRS) soil water balance results for zone 4 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

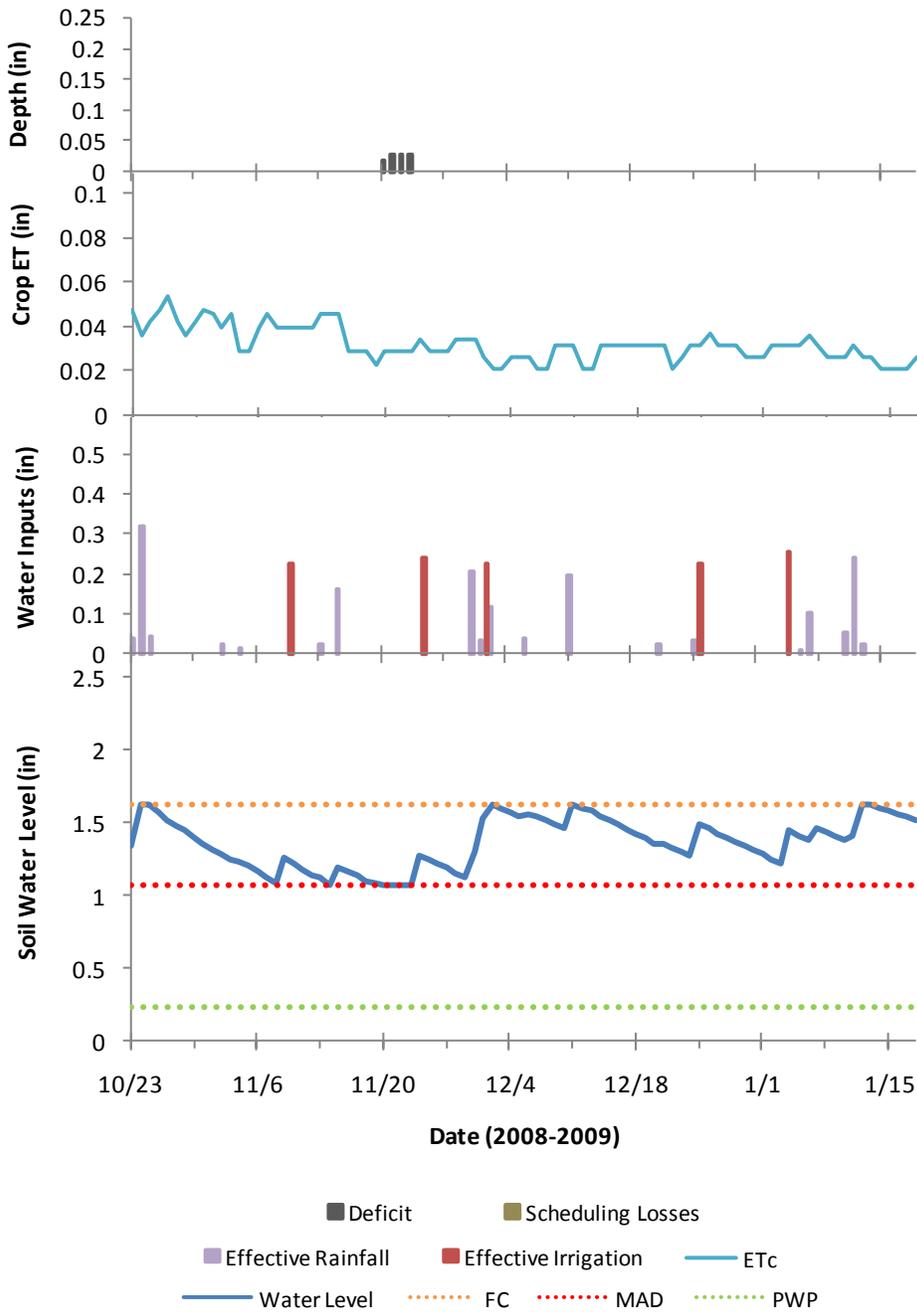


Figure 11. ET-B without an on-site rain sensor (WORS) soil water balance results for zone 2 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

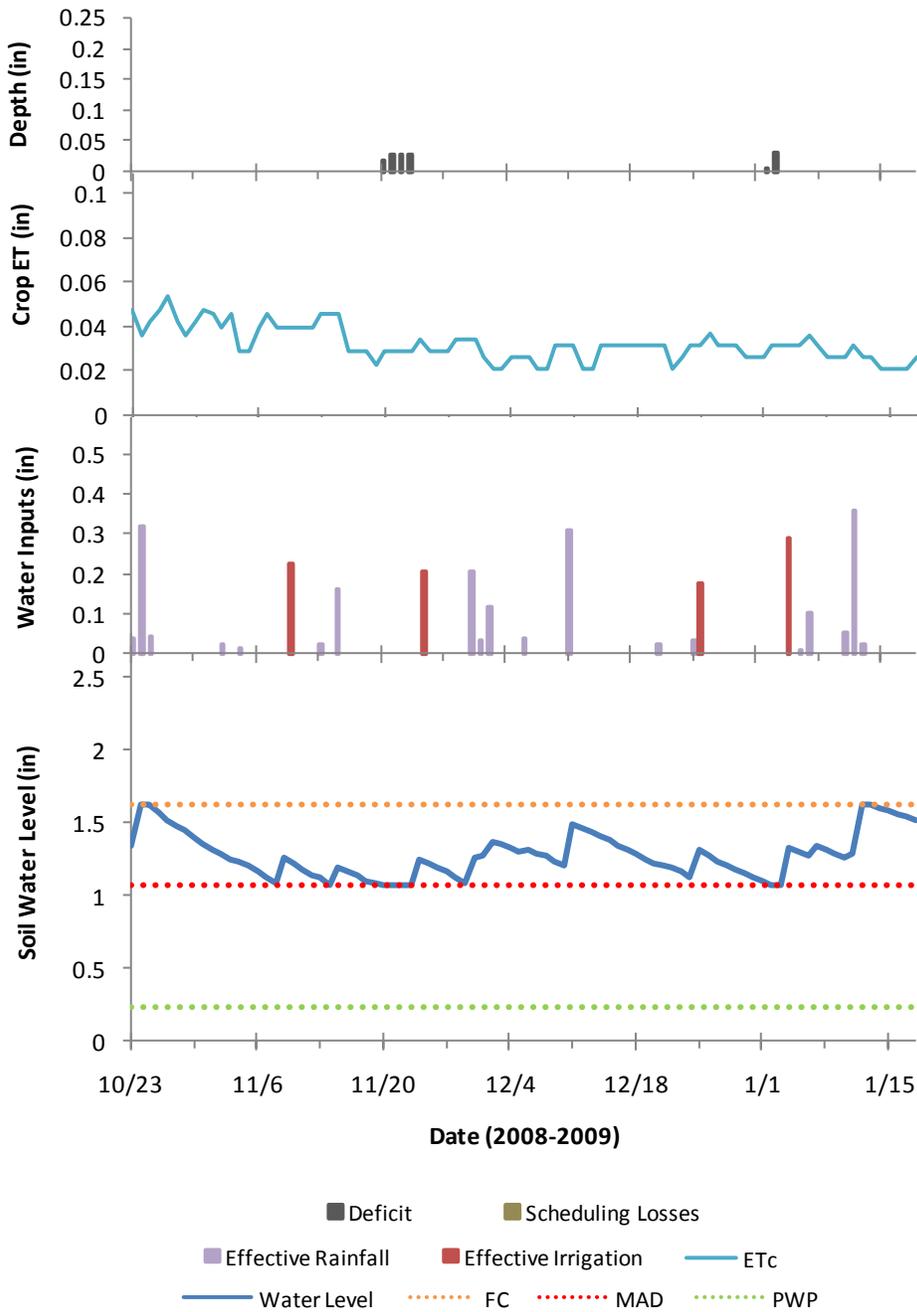


Figure 12. ET-B with an on-site rain sensor (WRS) soil water balance results for zone 2 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

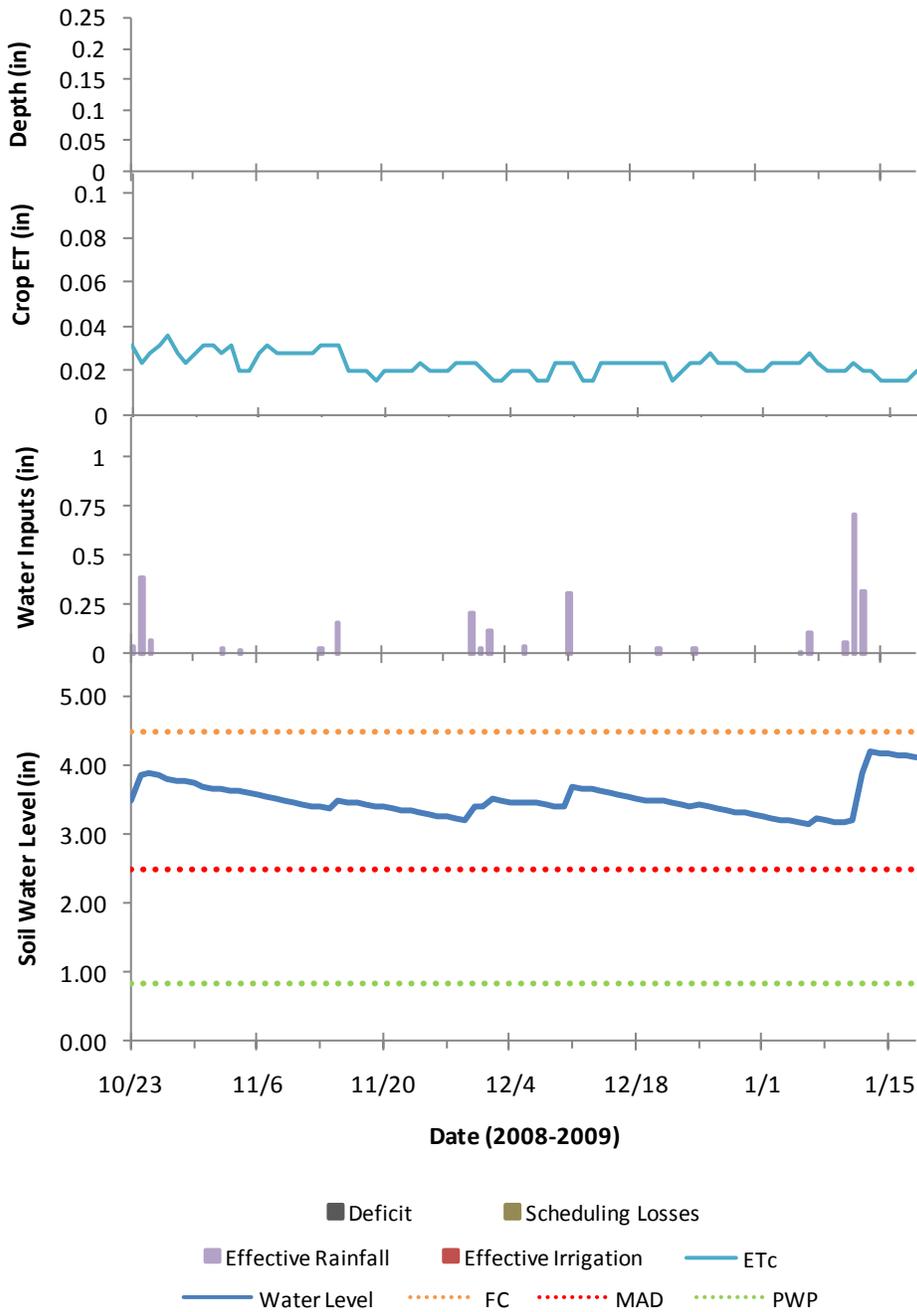


Figure 13. ET-B without an on-site rain sensor (WORS) soil water balance results for zone 4 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

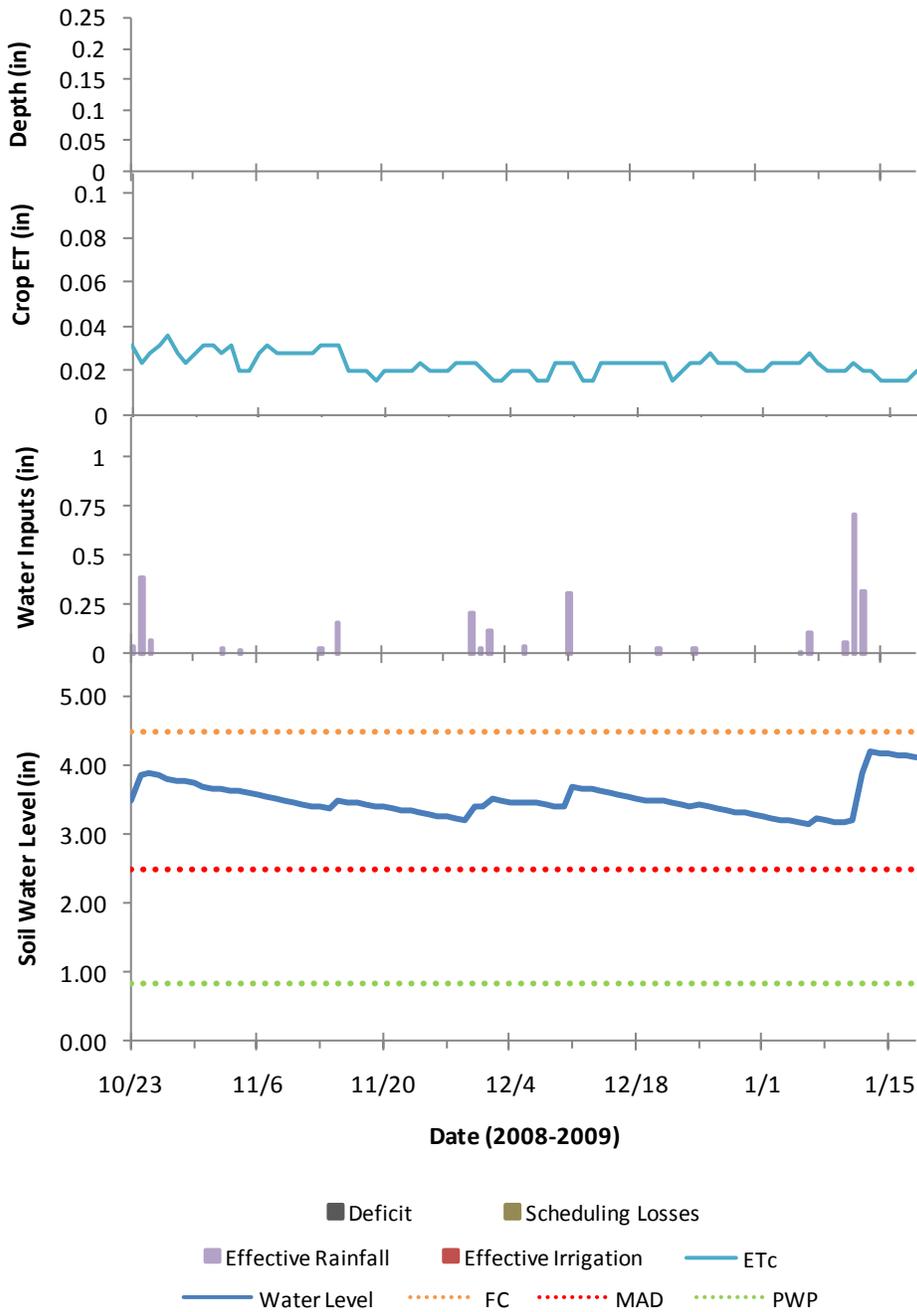


Figure 14. ET-B with an on-site rain sensor (WRS) soil water balance results for zone 4 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

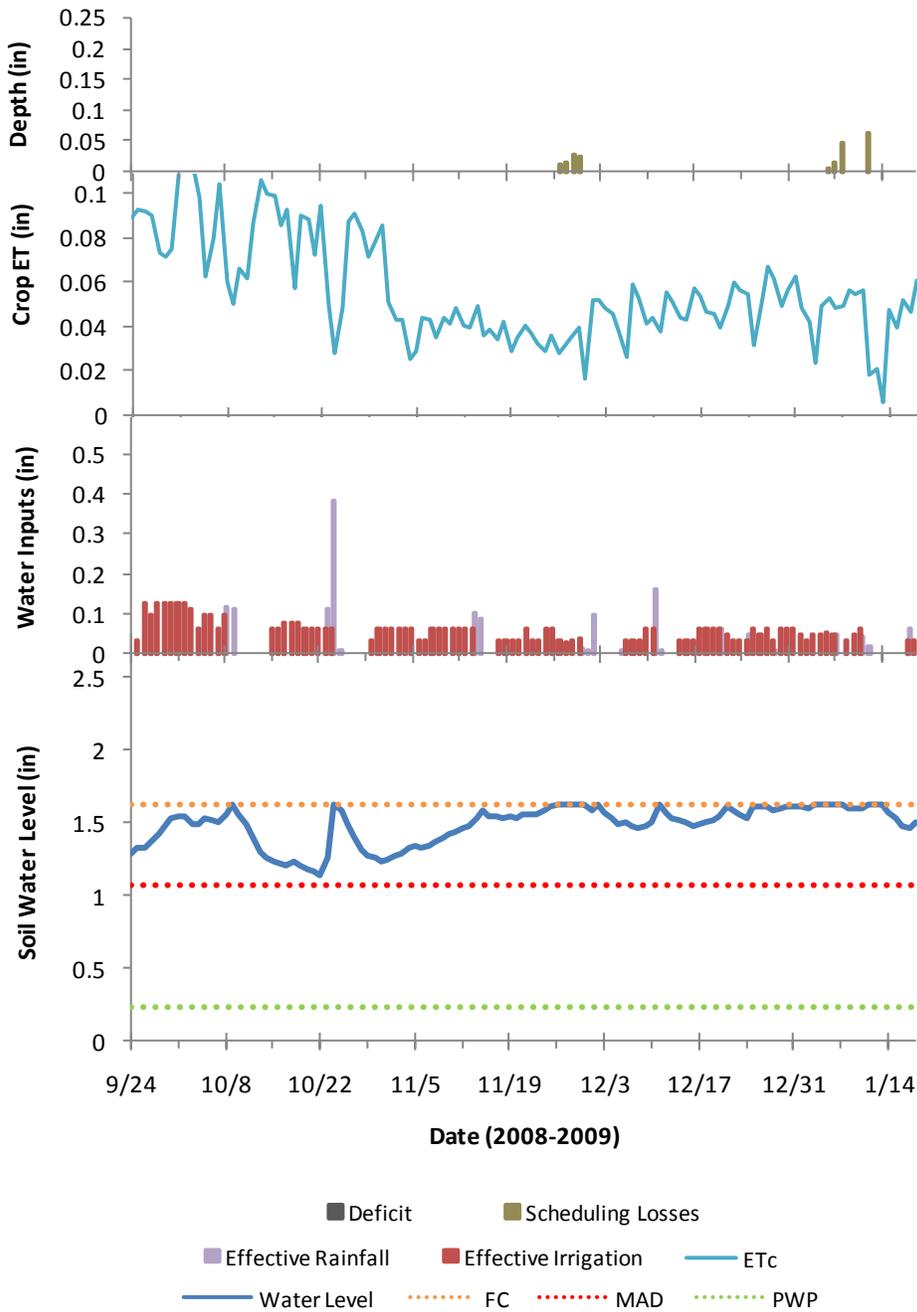


Figure 15. ET-C soil water balance results for zone 2 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

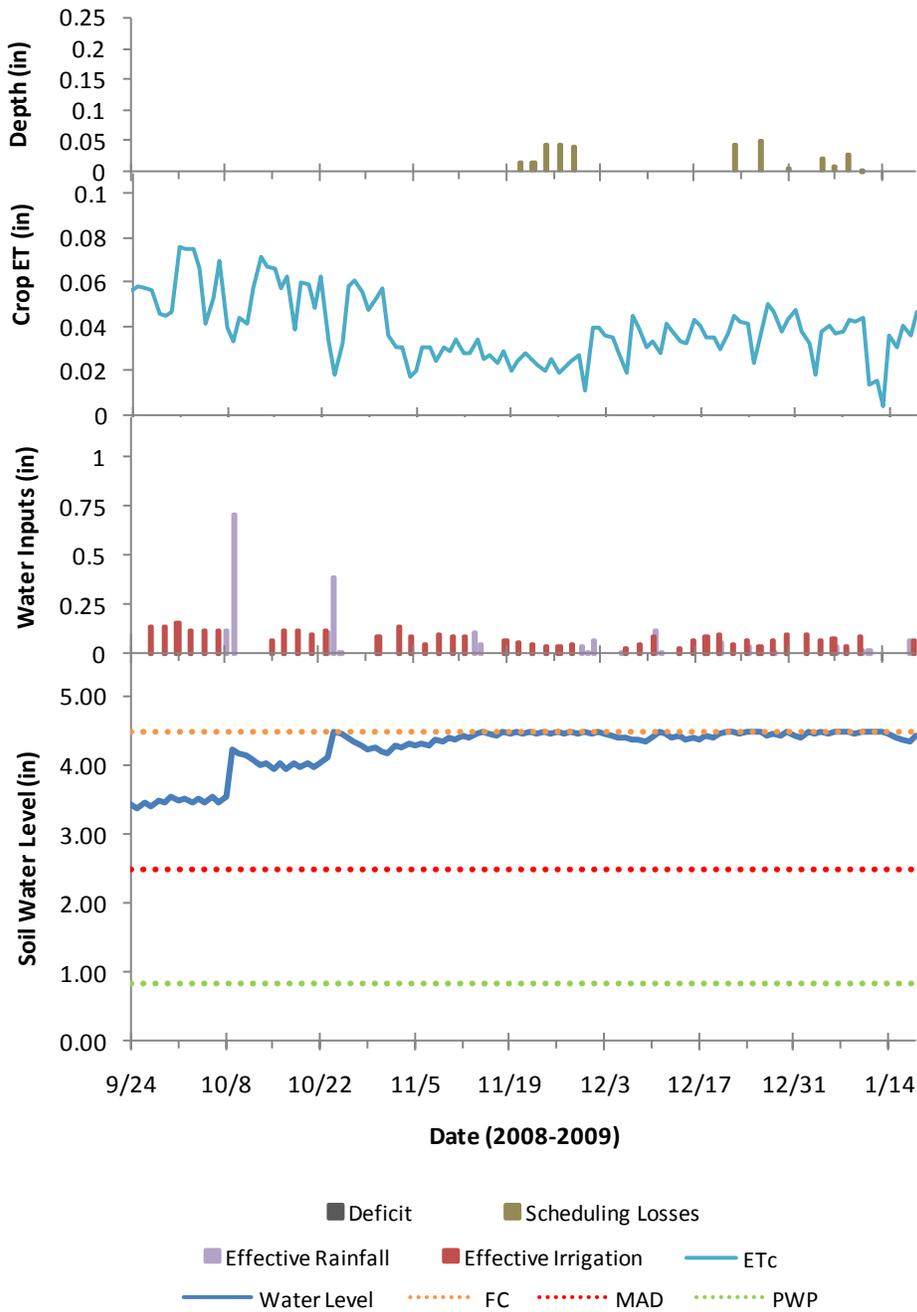


Figure 16. ET-C soil water balance results for zone 4 of the Florida SWAT test where RZWWS is the region between field capacity (FC) and maximum allowable depletion (MAD) and total water in the root zone is the difference between FC and permanent wilting point (PWP).

Appendix A

Irrigation Association - Smart Water Application Technology

Testing of Climatologically-based Controllers

Project Information	
Controller:	ET-A
Sensor:	None (WORS)
Weather Station:	FAWN – Citra, FL
Test Dates:	September 14, 2008 – January 18, 2009
Test Status:	Completed
Protocol Version:	7 th Draft (November, 2006)

Evaluation Summary	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
ET _O (in)	9.72	9.72	9.72	9.72	9.72	9.72
ET _C (in)	4.65	5.68	5.35	3.89	5.93	5.68
Total Rainfall (in)	5.53	5.53	5.53	5.53	5.53	5.53
Effective Rainfall (in)	2.67	2.60	2.26	4.04	4.42	2.61
Gross Irrigation (in)	4.29	5.87	6.07	1.03	2.96	5.39
Net Irrigation (in)	2.36	3.52	4.25	0.77	2.37	3.50
Direct Runoff (in)	0	0	0	0	0	0
Soak Runoff (in)	0	0	0	0	0	0
Deficit (in)	0	0	0	0	0	0
Surplus (in)	0.04	0.28	0.83	0	0	0.28
Scheduling Losses (in)	0.04	0.28	0.83	0	0	0.28
Irrigation Adequacy (%)	100	100	100	100	100	100
Schedule Efficiency (%)	98	92	80	100	100	92
Scheduling Excess (%)	2	8	20	0	0	8
Application Efficiency (%)	55	60	70	75	80	65
Rainfall Efficiency (%)	60	59	51	91	100	59
Overall Efficiency (%)	54	55	56	75	80	60

ET-A WORS – Zone 1

Date	ET _O (in)	ET _C (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Soak (min)	Cycle 3 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
14-Sep	0.16	0.09	0.46	0.368						0	0	0	0.43	0.70	0	0
15-Sep	0.15	0.08	0	0						0	0	0	0.70	0.62	0	0
16-Sep	0.13	0.07	0	0						0	0	0	0.62	0.55	0	0
17-Sep	0.12	0.07	0	0						0	0	0	0.55	0.48	0	0
18-Sep	0.13	0.07	0.03	0.024						0	0	0	0.48	0.43	0	0
19-Sep	0.15	0.08	0	0						0	0	0	0.43	0.35	0	0
20-Sep	0.10	0.06	0.5	0.4						0	0	0	0.35	0.69	0	0
21-Sep	0.15	0.08	0.06	0.048						0	0	0	0.69	0.65	0	0
22-Sep	0.08	0.04	0.01	0.008						0	0	0	0.65	0.62	0	0
23-Sep	0.15	0.08	0	0						0	0	0	0.62	0.53	0	0
24-Sep	0.11	0.06	0	0						0	0	0	0.53	0.47	0	0
25-Sep	0.13	0.07	0	0						0	0	0	0.47	0.40	0	0
26-Sep	0.15	0.08	0	0	9	109	9	109	9	0.396	0.72	0.396	0.40	0.71	0	0
27-Sep	0.15	0.08	0	0						0	0	0	0.71	0.63	0	0
28-Sep	0.15	0.08	0	0						0	0	0	0.63	0.54	0	0
29-Sep	0.15	0.08	0	0						0	0	0	0.54	0.46	0	0
30-Sep	0.12	0.07	0	0						0	0	0	0.46	0.39	0	0
1-Oct	0.13	0.07	0	0						0	0	0	0.39	0.33	0	0
2-Oct	0.13	0.07	0	0	9	158	9	148	9	0.396	0.72	0.396	0.33	0.66	0	0
3-Oct	0.12	0.06	0	0						0	0	0	0.66	0.60	0	0
4-Oct	0.12	0.06	0	0						0	0	0	0.60	0.54	0	0
5-Oct	0.09	0.05	0	0						0	0	0	0.54	0.49	0	0
6-Oct	0.10	0.05	0.45	0.36						0	0	0	0.49	0.80	0	0
7-Oct	0.12	0.06	0	0						0	0	0	0.80	0.74	0	0
8-Oct	0.10	0.05	0.01	0.008						0	0	0	0.74	0.70	0	0
9-Oct	0.10	0.05	0.66	0.199						0	0	0	0.70	0.85	0	0
10-Oct	0.10	0.05	0	0						0	0	0	0.85	0.80	0	0
11-Oct	0.10	0.05	0	0						0	0	0	0.80	0.75	0	0
12-Oct	0.11	0.06	0	0						0	0	0	0.75	0.70	0	0
13-Oct	0.12	0.06	0	0						0	0	0	0.70	0.64	0	0
14-Oct	0.11	0.06	0	0						0	0	0	0.64	0.58	0	0
15-Oct	0.12	0.06	0	0						0	0	0	0.58	0.52	0	0
16-Oct	0.10	0.05	0	0	9	42	9	42	9	0.396	0.72	0.38	0.52	0.85	0	0.016
17-Oct	0.11	0.06	0	0						0	0	0	0.85	0.80	0	0
18-Oct	0.08	0.04	0	0						0	0	0	0.80	0.76	0	0
19-Oct	0.09	0.05	0	0						0	0	0	0.76	0.71	0	0
20-Oct	0.10	0.05	0	0						0	0	0	0.71	0.66	0	0
21-Oct	0.09	0.05	0	0						0	0	0	0.66	0.62	0	0
22-Oct	0.09	0.05	0	0						0	0	0	0.62	0.57	0	0
23-Oct	0.08	0.04	0.05	0.04						0	0	0	0.57	0.57	0	0
24-Oct	0.06	0.03	0.48	0.31						0	0	0	0.57	0.85	0	0
25-Oct	0.07	0.04	0.08	0.035						0	0	0	0.85	0.85	0	0
26-Oct	0.08	0.04	0	0						0	0	0	0.85	0.81	0	0
27-Oct	0.09	0.05	0	0						0	0	0	0.81	0.77	0	0
28-Oct	0.07	0.04	0	0						0	0	0	0.77	0.73	0	0
29-Oct	0.06	0.03	0	0						0	0	0	0.73	0.70	0	0
30-Oct	0.07	0.04	0	0						0	0	0	0.70	0.67	0	0
31-Oct	0.08	0.04	0	0						0	0	0	0.67	0.63	0	0
1-Nov	0.08	0.04	0	0						0	0	0	0.63	0.59	0	0
2-Nov	0.07	0.03	0.03	0.024						0	0	0	0.59	0.58	0	0
3-Nov	0.08	0.04	0	0						0	0	0	0.58	0.55	0	0
4-Nov	0.05	0.02	0.02	0.016						0	0	0	0.55	0.54	0	0
5-Nov	0.05	0.02	0	0						0	0	0	0.54	0.52	0	0
6-Nov	0.07	0.03	0	0						0	0	0	0.52	0.49	0	0
7-Nov	0.08	0.04	0	0						0	0	0	0.49	0.45	0	0
8-Nov	0.07	0.03	0	0	9	42	9	42	9	0.396	0.72	0.396	0.45	0.81	0	0
9-Nov	0.07	0.03	0	0						0	0	0	0.81	0.78	0	0
10-Nov	0.07	0.03	0	0						0	0	0	0.78	0.75	0	0
11-Nov	0.07	0.03	0	0						0	0	0	0.75	0.72	0	0
12-Nov	0.07	0.03	0	0						0	0	0	0.72	0.69	0	0
13-Nov	0.08	0.04	0.03	0.024						0	0	0	0.69	0.68	0	0
14-Nov	0.08	0.04	0	0						0	0	0	0.68	0.64	0	0
15-Nov	0.08	0.04	0.2	0.16						0	0	0	0.64	0.76	0	0
16-Nov	0.05	0.02	0	0						0	0	0	0.76	0.74	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.02	0	0						0	0	0	0.74	0.72	0	0
18-Nov	0.05	0.02	0	0						0	0	0	0.72	0.70	0	0
19-Nov	0.04	0.02	0	0						0	0	0	0.70	0.68	0	0
20-Nov	0.05	0.02	0	0						0	0	0	0.68	0.66	0	0
21-Nov	0.05	0.02	0	0						0	0	0	0.66	0.63	0	0
22-Nov	0.05	0.02	0	0						0	0	0	0.63	0.61	0	0
23-Nov	0.05	0.02	0	0						0	0	0	0.61	0.59	0	0
24-Nov	0.06	0.03	0	0						0	0	0	0.59	0.56	0	0
25-Nov	0.05	0.02	0	0						0	0	0	0.56	0.54	0	0
26-Nov	0.05	0.02	0	0						0	0	0	0.54	0.52	0	0
27-Nov	0.05	0.02	0	0	8	42	9	42	9	0.381	0.693	0.356	0.52	0.85	0	0.025
28-Nov	0.06	0.03	0	0						0	0	0	0.85	0.82	0	0
29-Nov	0.06	0.03	0	0						0	0	0	0.82	0.80	0	0
30-Nov	0.06	0.03	0.26	0.081						0	0	0	0.80	0.85	0	0
1-Dec	0.05	0.02	0.04	0.02						0	0	0	0.85	0.85	0	0
2-Dec	0.04	0.02	0.15	0.016						0	0	0	0.85	0.85	0	0
3-Dec	0.04	0.02	0	0						0	0	0	0.85	0.83	0	0
4-Dec	0.05	0.02	0	0						0	0	0	0.83	0.81	0	0
5-Dec	0.05	0.02	0	0						0	0	0	0.81	0.79	0	0
6-Dec	0.05	0.02	0.05	0.04						0	0	0	0.79	0.81	0	0
7-Dec	0.04	0.02	0	0						0	0	0	0.81	0.80	0	0
8-Dec	0.04	0.02	0	0						0	0	0	0.80	0.78	0	0
9-Dec	0.06	0.02	0	0						0	0	0	0.78	0.76	0	0
10-Dec	0.06	0.02	0	0						0	0	0	0.76	0.73	0	0
11-Dec	0.06	0.02	0.39	0.14						0	0	0	0.73	0.85	0	0
12-Dec	0.04	0.02	0	0						0	0	0	0.85	0.83	0	0
13-Dec	0.04	0.02	0	0						0	0	0	0.83	0.82	0	0
14-Dec	0.06	0.02	0	0						0	0	0	0.82	0.79	0	0
15-Dec	0.06	0.02	0	0						0	0	0	0.79	0.77	0	0
16-Dec	0.06	0.02	0	0						0	0	0	0.77	0.75	0	0
17-Dec	0.06	0.02	0	0						0	0	0	0.75	0.72	0	0
18-Dec	0.06	0.02	0	0						0	0	0	0.72	0.70	0	0
19-Dec	0.06	0.02	0	0						0	0	0	0.70	0.67	0	0
20-Dec	0.06	0.02	0	0						0	0	0	0.67	0.65	0	0
21-Dec	0.06	0.02	0.03	0.024						0	0	0	0.65	0.65	0	0
22-Dec	0.04	0.02	0	0						0	0	0	0.65	0.63	0	0
23-Dec	0.05	0.02	0	0						0	0	0	0.63	0.61	0	0
24-Dec	0.06	0.02	0	0						0	0	0	0.61	0.59	0	0
25-Dec	0.06	0.02	0.04	0.032						0	0	0	0.59	0.60	0	0
26-Dec	0.07	0.03	0	0						0	0	0	0.60	0.57	0	0
27-Dec	0.06	0.02	0	0						0	0	0	0.57	0.55	0	0
28-Dec	0.06	0.02	0	0						0	0	0	0.55	0.52	0	0
29-Dec	0.06	0.02	0	0						0	0	0	0.52	0.50	0	0
30-Dec	0.05	0.02	0	0						0	0	0	0.50	0.48	0	0
31-Dec	0.05	0.02	0	0						0	0	0	0.48	0.46	0	0
1-Jan	0.05	0.02	0	0	9	42	9	42	9	0.396	0.72	0.396	0.46	0.83	0	0
2-Jan	0.06	0.02	0	0						0	0	0	0.83	0.81	0	0
3-Jan	0.06	0.02	0	0						0	0	0	0.81	0.78	0	0
4-Jan	0.06	0.02	0	0						0	0	0	0.78	0.76	0	0
5-Jan	0.06	0.02	0	0						0	0	0	0.76	0.74	0	0
6-Jan	0.07	0.03	0.01	0.008						0	0	0	0.74	0.71	0	0
7-Jan	0.06	0.02	0.13	0.104						0	0	0	0.71	0.79	0	0
8-Jan	0.05	0.02	0	0						0	0	0	0.79	0.77	0	0
9-Jan	0.05	0.02	0	0						0	0	0	0.77	0.75	0	0
10-Jan	0.05	0.02	0	0						0	0	0	0.75	0.73	0	0
11-Jan	0.06	0.02	0.07	0.056						0	0	0	0.73	0.76	0	0
12-Jan	0.05	0.02	0.89	0.107						0	0	0	0.76	0.85	0	0
13-Jan	0.05	0.02	0.4	0.020						0	0	0	0.85	0.85	0	0
14-Jan	0.04	0.02	0	0						0	0	0	0.85	0.83	0	0
15-Jan	0.04	0.02	0	0						0	0	0	0.83	0.82	0	0
16-Jan	0.04	0.02	0	0						0	0	0	0.82	0.80	0	0
17-Jan	0.04	0.02	0	0						0	0	0	0.80	0.78	0	0
18-Jan	0.05	0.02	0	0						0	0	0	0.78	0.76	0	0

ET-A WORS – Zone 2

Date	ET _O (in)	ET _C (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Soak (min)	Cycle 3 (min)	Soak (min)	Cycle 4 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
14-Sep	0.16	0.10	0.46	0.368								0	0	0	0.28	0.54	0	0
15-Sep	0.15	0.10	0	0								0	0	0	0.54	0.45	0	0
16-Sep	0.13	0.08	0	0								0	0	0	0.45	0.36	0	0
17-Sep	0.12	0.08	0	0								0	0	0	0.36	0.29	0	0
18-Sep	0.13	0.08	0.03	0.024								0	0	0	0.29	0.23	0	0
19-Sep	0.15	0.10	0	0								0	0	0	0.23	0.13	0	0
20-Sep	0.10	0.06	0.5	0.4	5	113	5	113	5	81	5	0.32	0.533	0.085	0.13	0.55	0	0.235
21-Sep	0.15	0.10	0.06	0.048								0	0	0	0.55	0.50	0	0
22-Sep	0.08	0.05	0.01	0.008								0	0	0	0.50	0.46	0	0
23-Sep	0.15	0.10	0	0								0	0	0	0.46	0.36	0	0
24-Sep	0.11	0.07	0	0								0	0	0	0.36	0.29	0	0
25-Sep	0.13	0.08	0	0								0	0	0	0.29	0.21	0	0
26-Sep	0.15	0.10	0	0	5	113	5	113	5	81	5	0.32	0.533	0.32	0.21	0.43	0	0
27-Sep	0.15	0.10	0	0								0	0	0	0.43	0.34	0	0
28-Sep	0.15	0.10	0	0								0	0	0	0.34	0.24	0	0
29-Sep	0.15	0.10	0	0								0	0	0	0.24	0.15	0	0
30-Sep	0.12	0.08	0	0	5	113	5	113	5	81	5	0.32	0.533	0.32	0.15	0.39	0	0
1-Oct	0.13	0.08	0	0								0	0	0	0.39	0.31	0	0
2-Oct	0.13	0.08	0	0								0	0	0	0.31	0.23	0	0
3-Oct	0.12	0.07	0	0								0	0	0	0.23	0.16	0	0
4-Oct	0.12	0.07	0	0	5	113	5	113	5	81	5	0.32	0.533	0.32	0.16	0.41	0	0
5-Oct	0.09	0.05	0	0								0	0	0	0.41	0.36	0	0
6-Oct	0.10	0.06	0.45	0.2556								0	0	0	0.36	0.55	0	0
7-Oct	0.12	0.07	0	0								0	0	0	0.55	0.48	0	0
8-Oct	0.10	0.06	0.01	0.008								0	0	0	0.48	0.43	0	0
9-Oct	0.10	0.06	0.66	0.184								0	0	0	0.43	0.55	0	0
10-Oct	0.10	0.06	0	0								0	0	0	0.55	0.49	0	0
11-Oct	0.10	0.06	0	0								0	0	0	0.49	0.43	0	0
12-Oct	0.11	0.07	0	0								0	0	0	0.43	0.36	0	0
13-Oct	0.12	0.07	0	0								0	0	0	0.36	0.29	0	0
14-Oct	0.11	0.07	0	0								0	0	0	0.29	0.23	0	0
15-Oct	0.12	0.07	0	0	5	113	5	113	5	81	5	0.32	0.533	0.32	0.23	0.47	0	0
16-Oct	0.10	0.06	0	0								0	0	0	0.47	0.41	0	0
17-Oct	0.11	0.07	0	0								0	0	0	0.41	0.35	0	0
18-Oct	0.08	0.05	0	0								0	0	0	0.35	0.30	0	0
19-Oct	0.09	0.05	0	0								0	0	0	0.30	0.25	0	0
20-Oct	0.10	0.06	0	0								0	0	0	0.25	0.19	0	0
21-Oct	0.09	0.05	0	0	5	106	5	106	5	76	5	0.32	0.533	0.32	0.19	0.45	0	0
22-Oct	0.09	0.05	0	0								0	0	0	0.45	0.40	0	0
23-Oct	0.08	0.05	0.05	0.04								0	0	0	0.40	0.39	0	0
24-Oct	0.06	0.04	0.48	0.196								0	0	0	0.39	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042								0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0								0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0								0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0								0	0	0	0.45	0.41	0	0
29-Oct	0.06	0.04	0	0								0	0	0	0.41	0.37	0	0
30-Oct	0.07	0.04	0	0								0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0								0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0								0	0	0	0.28	0.24	0	0
2-Nov	0.07	0.04	0.03	0.024								0	0	0	0.24	0.22	0	0
3-Nov	0.08	0.05	0	0	5	106	5	106	5	80	5	0.32	0.533	0.32	0.22	0.49	0	0
4-Nov	0.05	0.03	0.02	0.016								0	0	0	0.49	0.48	0	0
5-Nov	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
6-Nov	0.07	0.04	0	0								0	0	0	0.45	0.41	0	0
7-Nov	0.08	0.05	0	0								0	0	0	0.41	0.37	0	0
8-Nov	0.07	0.04	0	0								0	0	0	0.37	0.33	0	0
9-Nov	0.07	0.04	0	0								0	0	0	0.33	0.29	0	0
10-Nov	0.07	0.04	0	0								0	0	0	0.29	0.25	0	0
11-Nov	0.07	0.04	0	0								0	0	0	0.25	0.21	0	0
12-Nov	0.07	0.04	0	0	5	106	5	106	5	81	5	0.32	0.533	0.32	0.21	0.49	0	0
13-Nov	0.08	0.05	0.03	0.024								0	0	0	0.49	0.47	0	0
14-Nov	0.08	0.05	0	0								0	0	0	0.47	0.42	0	0
15-Nov	0.08	0.05	0.2	0.16								0	0	0	0.42	0.53	0	0
16-Nov	0.05	0.03	0	0								0	0	0	0.53	0.51	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.03	0	0								0	0	0	0.51	0.48	0	0
18-Nov	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
19-Nov	0.04	0.02	0	0								0	0	0	0.45	0.43	0	0
20-Nov	0.05	0.03	0	0								0	0	0	0.43	0.40	0	0
21-Nov	0.05	0.03	0	0								0	0	0	0.40	0.37	0	0
22-Nov	0.05	0.03	0	0								0	0	0	0.37	0.34	0	0
23-Nov	0.05	0.03	0	0								0	0	0	0.34	0.31	0	0
24-Nov	0.06	0.03	0	0								0	0	0	0.31	0.28	0	0
25-Nov	0.05	0.03	0	0								0	0	0	0.28	0.25	0	0
26-Nov	0.05	0.03	0	0	5	106	5	106	5	81	5	0.32	0.533	0.32	0.25	0.54	0	0
27-Nov	0.05	0.03	0	0								0	0	0	0.54	0.51	0	0
28-Nov	0.06	0.03	0	0								0	0	0	0.51	0.48	0	0
29-Nov	0.06	0.03	0	0								0	0	0	0.48	0.44	0	0
30-Nov	0.06	0.03	0.26	0.1405								0	0	0	0.44	0.55	0	0
1-Dec	0.05	0.03	0.04	0.0265								0	0	0	0.55	0.55	0	0
2-Dec	0.04	0.02	0.15	0.0212								0	0	0	0.55	0.55	0	0
3-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
4-Dec	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0
5-Dec	0.05	0.03	0	0								0	0	0	0.50	0.48	0	0
6-Dec	0.05	0.03	0.05	0.04								0	0	0	0.48	0.49	0	0
7-Dec	0.04	0.02	0	0								0	0	0	0.49	0.47	0	0
8-Dec	0.04	0.02	0	0								0	0	0	0.47	0.45	0	0
9-Dec	0.06	0.03	0	0								0	0	0	0.45	0.42	0	0
10-Dec	0.06	0.03	0	0								0	0	0	0.42	0.38	0	0
11-Dec	0.06	0.03	0.39	0.1985								0	0	0	0.38	0.55	0	0
12-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
13-Dec	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
14-Dec	0.06	0.03	0	0								0	0	0	0.51	0.48	0	0
15-Dec	0.06	0.03	0	0								0	0	0	0.48	0.44	0	0
16-Dec	0.06	0.03	0	0								0	0	0	0.44	0.41	0	0
17-Dec	0.06	0.03	0	0								0	0	0	0.41	0.38	0	0
18-Dec	0.06	0.03	0	0								0	0	0	0.38	0.35	0	0
19-Dec	0.06	0.03	0	0								0	0	0	0.35	0.32	0	0
20-Dec	0.06	0.03	0	0								0	0	0	0.32	0.29	0	0
21-Dec	0.06	0.03	0.03	0.024								0	0	0	0.29	0.28	0	0
22-Dec	0.04	0.02	0	0	5	106	5	106	5	81	5	0.32	0.533	0.294	0.28	0.55	0	0.026
23-Dec	0.05	0.03	0	0								0	0	0	0.55	0.52	0	0
24-Dec	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
25-Dec	0.06	0.03	0.04	0.032								0	0	0	0.49	0.49	0	0
26-Dec	0.07	0.04	0	0								0	0	0	0.49	0.46	0	0
27-Dec	0.06	0.03	0	0								0	0	0	0.46	0.42	0	0
28-Dec	0.06	0.03	0	0								0	0	0	0.42	0.39	0	0
29-Dec	0.06	0.03	0	0								0	0	0	0.39	0.36	0	0
30-Dec	0.05	0.03	0	0								0	0	0	0.36	0.33	0	0
31-Dec	0.05	0.03	0	0								0	0	0	0.33	0.31	0	0
1-Jan	0.05	0.03	0	0								0	0	0	0.31	0.28	0	0
2-Jan	0.06	0.03	0	0	5	106	5	106	5	81	5	0.32	0.533	0.3008	0.28	0.55	0	0.0192
3-Jan	0.06	0.03	0	0								0	0	0	0.55	0.52	0	0
4-Jan	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
5-Jan	0.06	0.03	0	0								0	0	0	0.49	0.46	0	0
6-Jan	0.07	0.04	0.01	0.008								0	0	0	0.46	0.43	0	0
7-Jan	0.06	0.03	0.13	0.104								0	0	0	0.43	0.50	0	0
8-Jan	0.05	0.03	0	0								0	0	0	0.50	0.48	0	0
9-Jan	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
10-Jan	0.05	0.03	0	0								0	0	0	0.45	0.42	0	0
11-Jan	0.06	0.03	0.07	0.056								0	0	0	0.42	0.45	0	0
12-Jan	0.05	0.03	0.89	0.1284								0	0	0	0.45	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026								0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0								0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0								0	0	0	0.49	0.47	0	0
18-Jan	0.05	0.03	0	0								0	0	0	0.47	0.44	0	0

ET-A WORS – Zone 3

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.09	0.46	0.368				0	0	0	0.45	0.73	0	0
15-Sep	0.15	0.08	0	0				0	0	0	0.73	0.65	0	0
16-Sep	0.13	0.07	0	0				0	0	0	0.65	0.58	0	0
17-Sep	0.12	0.07	0	0				0	0	0	0.58	0.51	0	0
18-Sep	0.13	0.07	0.03	0.024				0	0	0	0.51	0.46	0	0
19-Sep	0.15	0.08	0	0				0	0	0	0.46	0.38	0	0
20-Sep	0.10	0.06	0.5	0.4				0	0	0	0.38	0.73	0	0
21-Sep	0.15	0.08	0.06	0.048				0	0	0	0.73	0.69	0	0
22-Sep	0.08	0.04	0.01	0.008				0	0	0	0.69	0.65	0	0
23-Sep	0.15	0.08	0	0				0	0	0	0.65	0.57	0	0
24-Sep	0.11	0.06	0	0				0	0	0	0.57	0.51	0	0
25-Sep	0.13	0.07	0	0	13	46	13	0.425	0.607	0.425	0.51	0.86	0	0
26-Sep	0.15	0.08	0	0				0	0	0	0.86	0.78	0	0
27-Sep	0.15	0.08	0	0				0	0	0	0.78	0.70	0	0
28-Sep	0.15	0.08	0	0				0	0	0	0.70	0.62	0	0
29-Sep	0.15	0.08	0	0	13	46	13	0.425	0.607	0.365	0.62	0.90	0	0.059
30-Sep	0.12	0.07	0	0				0	0	0	0.90	0.83	0	0
1-Oct	0.13	0.07	0	0				0	0	0	0.83	0.76	0	0
2-Oct	0.13	0.07	0	0				0	0	0	0.76	0.69	0	0
3-Oct	0.12	0.07	0	0				0	0	0	0.69	0.63	0	0
4-Oct	0.12	0.07	0	0				0	0	0	0.63	0.56	0	0
5-Oct	0.09	0.05	0	0	13	46	13	0.425	0.607	0.390	0.56	0.90	0	0.034
6-Oct	0.10	0.06	0.45	0.055				0	0	0	0.90	0.90	0	0
7-Oct	0.12	0.07	0	0				0	0	0	0.90	0.83	0	0
8-Oct	0.10	0.06	0.01	0.008				0	0	0	0.83	0.79	0	0
9-Oct	0.10	0.06	0.66	0.168				0	0	0	0.79	0.90	0	0
10-Oct	0.10	0.06	0	0				0	0	0	0.90	0.85	0	0
11-Oct	0.10	0.06	0	0				0	0	0	0.85	0.79	0	0
12-Oct	0.11	0.06	0	0				0	0	0	0.79	0.73	0	0
13-Oct	0.12	0.07	0	0				0	0	0	0.73	0.66	0	0
14-Oct	0.11	0.06	0	0				0	0	0	0.66	0.60	0	0
15-Oct	0.12	0.07	0	0				0	0	0	0.60	0.54	0	0
16-Oct	0.10	0.06	0	0	13	46	13	0.425	0.607	0.418	0.54	0.90	0	0.0067
17-Oct	0.11	0.06	0	0				0	0	0	0.90	0.84	0	0
18-Oct	0.08	0.04	0	0				0	0	0	0.84	0.80	0	0
19-Oct	0.09	0.05	0	0				0	0	0	0.80	0.75	0	0
20-Oct	0.10	0.06	0	0				0	0	0	0.75	0.69	0	0
21-Oct	0.09	0.05	0	0				0	0	0	0.69	0.64	0	0
22-Oct	0.09	0.05	0	0	13	46	13	0.425	0.607	0.308	0.64	0.90	0	0.117
23-Oct	0.08	0.04	0.05	0.04				0	0	0	0.90	0.90	0	0
24-Oct	0.06	0.03	0.48	0.037				0	0	0	0.90	0.90	0	0
25-Oct	0.07	0.04	0.08	0.0385				0	0	0	0.90	0.90	0	0
26-Oct	0.08	0.04	0	0				0	0	0	0.90	0.86	0	0
27-Oct	0.09	0.05	0	0				0	0	0	0.86	0.81	0	0
28-Oct	0.07	0.04	0	0				0	0	0	0.81	0.77	0	0
29-Oct	0.06	0.03	0	0				0	0	0	0.77	0.74	0	0
30-Oct	0.07	0.04	0	0				0	0	0	0.74	0.70	0	0
31-Oct	0.08	0.04	0	0				0	0	0	0.70	0.65	0	0
1-Nov	0.08	0.04	0	0				0	0	0	0.65	0.61	0	0
2-Nov	0.07	0.04	0.03	0.024				0	0	0	0.61	0.59	0	0
3-Nov	0.08	0.04	0	0				0	0	0	0.59	0.55	0	0
4-Nov	0.05	0.03	0.02	0.016				0	0	0	0.55	0.54	0	0
5-Nov	0.05	0.03	0	0	13	46	13	0.425	0.607	0.389	0.54	0.90	0	0.036
6-Nov	0.07	0.04	0	0				0	0	0	0.90	0.86	0	0
7-Nov	0.08	0.04	0	0				0	0	0	0.86	0.82	0	0
8-Nov	0.07	0.04	0	0				0	0	0	0.82	0.78	0	0
9-Nov	0.07	0.04	0	0				0	0	0	0.78	0.74	0	0
10-Nov	0.07	0.04	0	0				0	0	0	0.74	0.70	0	0
11-Nov	0.07	0.04	0	0				0	0	0	0.70	0.66	0	0
12-Nov	0.07	0.04	0	0				0	0	0	0.66	0.63	0	0
13-Nov	0.08	0.04	0.03	0.024				0	0	0	0.63	0.61	0	0
14-Nov	0.08	0.04	0	0				0	0	0	0.61	0.56	0	0
15-Nov	0.08	0.04	0.2	0.16	13	46	13	0.425	0.607	0.223	0.56	0.90	0	0.202
16-Nov	0.05	0.03	0	0				0	0	0	0.90	0.87	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.03	0	0				0	0	0	0.87	0.85	0	0
18-Nov	0.05	0.03	0	0				0	0	0	0.85	0.82	0	0
19-Nov	0.04	0.02	0	0				0	0	0	0.82	0.80	0	0
20-Nov	0.05	0.03	0	0				0	0	0	0.80	0.77	0	0
21-Nov	0.05	0.03	0	0				0	0	0	0.77	0.74	0	0
22-Nov	0.05	0.03	0	0				0	0	0	0.74	0.71	0	0
23-Nov	0.05	0.03	0	0				0	0	0	0.71	0.69	0	0
24-Nov	0.06	0.03	0	0				0	0	0	0.69	0.65	0	0
25-Nov	0.05	0.03	0	0				0	0	0	0.65	0.63	0	0
26-Nov	0.05	0.03	0	0				0	0	0	0.63	0.60	0	0
27-Nov	0.05	0.03	0	0				0	0	0	0.60	0.57	0	0
28-Nov	0.06	0.03	0	0				0	0	0	0.57	0.54	0	0
29-Nov	0.06	0.03	0	0				0	0	0	0.54	0.50	0	0
30-Nov	0.06	0.03	0.26	0.208	13	46	13	0.425	0.607	0.221	0.50	0.90	0	0.204
1-Dec	0.05	0.03	0.04	0.0275				0	0	0	0.90	0.90	0	0
2-Dec	0.04	0.02	0.15	0.022				0	0	0	0.90	0.90	0	0
3-Dec	0.04	0.02	0	0				0	0	0	0.90	0.88	0	0
4-Dec	0.05	0.03	0	0				0	0	0	0.88	0.85	0	0
5-Dec	0.05	0.03	0	0				0	0	0	0.85	0.82	0	0
6-Dec	0.05	0.03	0.05	0.04				0	0	0	0.82	0.84	0	0
7-Dec	0.04	0.02	0	0				0	0	0	0.84	0.81	0	0
8-Dec	0.04	0.02	0	0				0	0	0	0.81	0.79	0	0
9-Dec	0.06	0.03	0	0				0	0	0	0.79	0.76	0	0
10-Dec	0.06	0.03	0	0				0	0	0	0.76	0.73	0	0
11-Dec	0.06	0.03	0.39	0.2075				0	0	0	0.73	0.90	0	0
12-Dec	0.04	0.02	0	0				0	0	0	0.90	0.88	0	0
13-Dec	0.04	0.02	0	0				0	0	0	0.88	0.86	0	0
14-Dec	0.06	0.03	0	0				0	0	0	0.86	0.82	0	0
15-Dec	0.06	0.03	0	0				0	0	0	0.82	0.79	0	0
16-Dec	0.06	0.03	0	0				0	0	0	0.79	0.76	0	0
17-Dec	0.06	0.03	0	0				0	0	0	0.76	0.72	0	0
18-Dec	0.06	0.03	0	0				0	0	0	0.72	0.69	0	0
19-Dec	0.06	0.03	0	0				0	0	0	0.69	0.66	0	0
20-Dec	0.06	0.03	0	0				0	0	0	0.66	0.63	0	0
21-Dec	0.06	0.03	0.03	0.024				0	0	0	0.63	0.62	0	0
22-Dec	0.04	0.02	0	0				0	0	0	0.62	0.59	0	0
23-Dec	0.05	0.03	0	0				0	0	0	0.59	0.57	0	0
24-Dec	0.06	0.03	0	0				0	0	0	0.57	0.53	0	0
25-Dec	0.06	0.03	0.04	0.032	13	46	13	0.425	0.607	0.3675	0.53	0.90	0	0.057
26-Dec	0.07	0.04	0	0				0	0	0	0.90	0.86	0	0
27-Dec	0.06	0.03	0	0				0	0	0	0.86	0.83	0	0
28-Dec	0.06	0.03	0	0				0	0	0	0.83	0.80	0	0
29-Dec	0.06	0.03	0	0				0	0	0	0.80	0.76	0	0
30-Dec	0.05	0.03	0	0				0	0	0	0.76	0.74	0	0
31-Dec	0.05	0.03	0	0				0	0	0	0.74	0.71	0	0
1-Jan	0.05	0.03	0	0				0	0	0	0.71	0.68	0	0
2-Jan	0.06	0.03	0	0				0	0	0	0.68	0.65	0	0
3-Jan	0.06	0.03	0	0				0	0	0	0.65	0.61	0	0
4-Jan	0.06	0.03	0	0				0	0	0	0.61	0.58	0	0
5-Jan	0.06	0.03	0	0				0	0	0	0.58	0.55	0	0
6-Jan	0.07	0.04	0.01	0.008				0	0	0	0.55	0.52	0	0
7-Jan	0.06	0.03	0.13	0.104	13	46	13	0.425	0.607	0.3115	0.52	0.90	0	0.113
8-Jan	0.05	0.03	0	0				0	0	0	0.90	0.87	0	0
9-Jan	0.05	0.03	0	0				0	0	0	0.87	0.85	0	0
10-Jan	0.05	0.03	0	0				0	0	0	0.85	0.82	0	0
11-Jan	0.06	0.03	0.07	0.056				0	0	0	0.82	0.84	0	0
12-Jan	0.05	0.03	0.89	0.087				0	0	0	0.84	0.90	0	0
13-Jan	0.05	0.03	0.4	0.0275				0	0	0	0.90	0.90	0	0
14-Jan	0.04	0.02	0	0				0	0	0	0.90	0.88	0	0
15-Jan	0.04	0.02	0	0				0	0	0	0.88	0.86	0	0
16-Jan	0.04	0.02	0	0				0	0	0	0.86	0.83	0	0
17-Jan	0.04	0.02	0	0				0	0	0	0.83	0.81	0	0
18-Jan	0.05	0.03	0	0				0	0	0	0.81	0.78	0	0

ET-A WORS – Zone 4

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.06	0.46	0.368								0	0	0	1.00	1.31	0	0
15-Sep	0.15	0.06	0	0								0	0	0	1.31	1.25	0	0
16-Sep	0.13	0.05	0	0								0	0	0	1.25	1.19	0	0
17-Sep	0.12	0.05	0	0								0	0	0	1.19	1.15	0	0
18-Sep	0.13	0.05	0.03	0.024								0	0	0	1.15	1.12	0	0
19-Sep	0.15	0.06	0	0								0	0	0	1.12	1.06	0	0
20-Sep	0.10	0.04	0.5	0.4								0	0	0	1.06	1.42	0	0
21-Sep	0.15	0.06	0.06	0.048								0	0	0	1.42	1.41	0	0
22-Sep	0.08	0.03	0.01	0.008								0	0	0	1.41	1.38	0	0
23-Sep	0.15	0.06	0	0								0	0	0	1.38	1.32	0	0
24-Sep	0.11	0.04	0	0								0	0	0	1.32	1.28	0	0
25-Sep	0.13	0.05	0	0								0	0	0	1.28	1.23	0	0
26-Sep	0.15	0.06	0	0								0	0	0	1.23	1.17	0	0
27-Sep	0.15	0.06	0	0								0	0	0	1.17	1.11	0	0
28-Sep	0.15	0.06	0	0								0	0	0	1.11	1.05	0	0
29-Sep	0.15	0.06	0	0								0	0	0	1.05	0.98	0	0
30-Sep	0.12	0.05	0	0								0	0	0	0.98	0.94	0	0
1-Oct	0.13	0.05	0	0								0	0	0	0.94	0.88	0	0
2-Oct	0.13	0.05	0	0								0	0	0	0.88	0.83	0	0
3-Oct	0.12	0.05	0	0								0	0	0	0.83	0.78	0	0
4-Oct	0.12	0.05	0	0								0	0	0	0.78	0.74	0	0
5-Oct	0.09	0.04	0	0								0	0	0	0.74	0.70	0	0
6-Oct	0.10	0.04	0.45	0.36								0	0	0	0.70	1.02	0	0
7-Oct	0.12	0.05	0	0								0	0	0	1.02	0.97	0	0
8-Oct	0.10	0.04	0.01	0.008								0	0	0	0.97	0.94	0	0
9-Oct	0.10	0.04	0.66	0.528								0	0	0	0.94	1.43	0	0
10-Oct	0.10	0.04	0	0								0	0	0	1.43	1.39	0	0
11-Oct	0.10	0.04	0	0								0	0	0	1.39	1.35	0	0
12-Oct	0.11	0.04	0	0								0	0	0	1.35	1.31	0	0
13-Oct	0.12	0.05	0	0								0	0	0	1.31	1.26	0	0
14-Oct	0.11	0.04	0	0								0	0	0	1.26	1.21	0	0
15-Oct	0.12	0.05	0	0								0	0	0	1.21	1.17	0	0
16-Oct	0.10	0.04	0	0								0	0	0	1.17	1.13	0	0
17-Oct	0.11	0.04	0	0								0	0	0	1.13	1.08	0	0
18-Oct	0.08	0.03	0	0								0	0	0	1.08	1.05	0	0
19-Oct	0.09	0.04	0	0								0	0	0	1.05	1.01	0	0
20-Oct	0.10	0.04	0	0								0	0	0	1.01	0.97	0	0
21-Oct	0.09	0.04	0	0								0	0	0	0.97	0.94	0	0
22-Oct	0.09	0.04	0	0								0	0	0	0.94	0.90	0	0
23-Oct	0.08	0.03	0.05	0.04								0	0	0	0.90	0.91	0	0
24-Oct	0.06	0.02	0.48	0.384								0	0	0	0.91	1.27	0	0
25-Oct	0.07	0.03	0.08	0.064								0	0	0	1.27	1.31	0	0
26-Oct	0.08	0.03	0	0								0	0	0	1.31	1.27	0	0
27-Oct	0.09	0.04	0	0								0	0	0	1.27	1.24	0	0
28-Oct	0.07	0.03	0	0								0	0	0	1.24	1.21	0	0
29-Oct	0.06	0.02	0	0								0	0	0	1.21	1.19	0	0
30-Oct	0.07	0.03	0	0								0	0	0	1.19	1.16	0	0
31-Oct	0.08	0.03	0	0								0	0	0	1.16	1.13	0	0
1-Nov	0.08	0.03	0	0								0	0	0	1.13	1.09	0	0
2-Nov	0.07	0.03	0.03	0.024								0	0	0	1.09	1.09	0	0
3-Nov	0.08	0.03	0	0								0	0	0	1.09	1.06	0	0
4-Nov	0.05	0.02	0.02	0.016								0	0	0	1.06	1.05	0	0
5-Nov	0.05	0.02	0	0								0	0	0	1.05	1.03	0	0
6-Nov	0.07	0.03	0	0								0	0	0	1.03	1.01	0	0
7-Nov	0.08	0.03	0	0								0	0	0	1.01	0.97	0	0
8-Nov	0.07	0.03	0	0								0	0	0	0.97	0.94	0	0
9-Nov	0.07	0.03	0	0								0	0	0	0.94	0.92	0	0
10-Nov	0.07	0.03	0	0								0	0	0	0.92	0.89	0	0
11-Nov	0.07	0.03	0	0								0	0	0	0.89	0.86	0	0
12-Nov	0.07	0.03	0	0								0	0	0	0.86	0.83	0	0
13-Nov	0.08	0.03	0.03	0.024								0	0	0	0.83	0.82	0	0
14-Nov	0.08	0.03	0	0	11	39	11	39	11	39	11	0.77	1.027	0.77	0.82	1.56	0	0
15-Nov	0.08	0.03	0.2	0.16								0	0	0	1.56	1.69	0	0
16-Nov	0.05	0.02	0	0								0	0	0	1.69	1.67	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.02	0	0								0	0	0	1.67	1.65	0	0
18-Nov	0.05	0.02	0	0								0	0	0	1.65	1.63	0	0
19-Nov	0.04	0.02	0	0								0	0	0	1.63	1.62	0	0
20-Nov	0.05	0.02	0	0								0	0	0	1.62	1.60	0	0
21-Nov	0.05	0.02	0	0								0	0	0	1.60	1.58	0	0
22-Nov	0.05	0.02	0	0								0	0	0	1.58	1.56	0	0
23-Nov	0.05	0.02	0	0								0	0	0	1.56	1.54	0	0
24-Nov	0.06	0.02	0	0								0	0	0	1.54	1.51	0	0
25-Nov	0.05	0.02	0	0								0	0	0	1.51	1.49	0	0
26-Nov	0.05	0.02	0	0								0	0	0	1.49	1.47	0	0
27-Nov	0.05	0.02	0	0								0	0	0	1.47	1.45	0	0
28-Nov	0.06	0.02	0	0								0	0	0	1.45	1.43	0	0
29-Nov	0.06	0.02	0	0								0	0	0	1.43	1.40	0	0
30-Nov	0.06	0.02	0.26	0.208								0	0	0	1.40	1.59	0	0
1-Dec	0.05	0.02	0.04	0.032								0	0	0	1.59	1.60	0	0
2-Dec	0.04	0.02	0.15	0.12								0	0	0	1.60	1.70	0	0
3-Dec	0.04	0.02	0	0								0	0	0	1.70	1.69	0	0
4-Dec	0.05	0.02	0	0								0	0	0	1.69	1.67	0	0
5-Dec	0.05	0.02	0	0								0	0	0	1.67	1.65	0	0
6-Dec	0.05	0.02	0.05	0.04								0	0	0	1.65	1.67	0	0
7-Dec	0.04	0.02	0	0								0	0	0	1.67	1.65	0	0
8-Dec	0.04	0.02	0	0								0	0	0	1.65	1.64	0	0
9-Dec	0.06	0.02	0	0								0	0	0	1.64	1.61	0	0
10-Dec	0.06	0.02	0	0								0	0	0	1.61	1.59	0	0
11-Dec	0.06	0.02	0.39	0.312								0	0	0	1.59	1.88	0	0
12-Dec	0.04	0.02	0	0								0	0	0	1.88	1.86	0	0
13-Dec	0.04	0.02	0	0								0	0	0	1.86	1.84	0	0
14-Dec	0.06	0.02	0	0								0	0	0	1.84	1.82	0	0
15-Dec	0.06	0.02	0	0								0	0	0	1.82	1.80	0	0
16-Dec	0.06	0.02	0	0								0	0	0	1.80	1.77	0	0
17-Dec	0.06	0.02	0	0								0	0	0	1.77	1.75	0	0
18-Dec	0.06	0.02	0	0								0	0	0	1.75	1.72	0	0
19-Dec	0.06	0.02	0	0								0	0	0	1.72	1.70	0	0
20-Dec	0.06	0.02	0	0								0	0	0	1.70	1.68	0	0
21-Dec	0.06	0.02	0.03	0.024								0	0	0	1.68	1.68	0	0
22-Dec	0.04	0.02	0	0								0	0	0	1.68	1.66	0	0
23-Dec	0.05	0.02	0	0								0	0	0	1.66	1.64	0	0
24-Dec	0.06	0.02	0	0								0	0	0	1.64	1.62	0	0
25-Dec	0.06	0.02	0.04	0.032								0	0	0	1.62	1.62	0	0
26-Dec	0.07	0.03	0	0								0	0	0	1.62	1.60	0	0
27-Dec	0.06	0.02	0	0								0	0	0	1.60	1.57	0	0
28-Dec	0.06	0.02	0	0								0	0	0	1.57	1.55	0	0
29-Dec	0.06	0.02	0	0								0	0	0	1.55	1.52	0	0
30-Dec	0.05	0.02	0	0								0	0	0	1.52	1.50	0	0
31-Dec	0.05	0.02	0	0								0	0	0	1.50	1.48	0	0
1-Jan	0.05	0.02	0	0								0	0	0	1.48	1.46	0	0
2-Jan	0.06	0.02	0	0								0	0	0	1.46	1.44	0	0
3-Jan	0.06	0.02	0	0								0	0	0	1.44	1.42	0	0
4-Jan	0.06	0.02	0	0								0	0	0	1.42	1.39	0	0
5-Jan	0.06	0.02	0	0								0	0	0	1.39	1.37	0	0
6-Jan	0.07	0.03	0.01	0.008								0	0	0	1.37	1.35	0	0
7-Jan	0.06	0.02	0.13	0.104								0	0	0	1.35	1.43	0	0
8-Jan	0.05	0.02	0	0								0	0	0	1.43	1.41	0	0
9-Jan	0.05	0.02	0	0								0	0	0	1.41	1.39	0	0
10-Jan	0.05	0.02	0	0								0	0	0	1.39	1.37	0	0
11-Jan	0.06	0.02	0.07	0.056								0	0	0	1.37	1.40	0	0
12-Jan	0.05	0.02	0.89	0.623								0	0	0	1.40	2.00	0	0
13-Jan	0.05	0.02	0.4	0.02								0	0	0	2.00	2.00	0	0
14-Jan	0.04	0.02	0	0								0	0	0	2.00	1.99	0	0
15-Jan	0.04	0.02	0	0								0	0	0	1.99	1.97	0	0
16-Jan	0.04	0.02	0	0								0	0	0	1.97	1.95	0	0
17-Jan	0.04	0.02	0	0								0	0	0	1.95	1.94	0	0
18-Jan	0.05	0.02	0	0								0	0	0	1.94	1.92	0	0

ET-A WORS – Zone 5

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.10	0.46	0.368				0	0	0	1.13	1.40	0	0
15-Sep	0.15	0.09	0	0				0	0	0	1.40	1.30	0	0
16-Sep	0.13	0.08	0	0				0	0	0	1.30	1.22	0	0
17-Sep	0.12	0.07	0	0				0	0	0	1.22	1.15	0	0
18-Sep	0.13	0.08	0.03	0.024				0	0	0	1.15	1.10	0	0
19-Sep	0.15	0.09	0	0				0	0	0	1.10	1.00	0	0
20-Sep	0.10	0.06	0.5	0.4				0	0	0	1.00	1.34	0	0
21-Sep	0.15	0.09	0.06	0.048				0	0	0	1.34	1.30	0	0
22-Sep	0.08	0.05	0.01	0.008				0	0	0	1.30	1.26	0	0
23-Sep	0.15	0.09	0	0				0	0	0	1.26	1.17	0	0
24-Sep	0.11	0.07	0	0				0	0	0	1.17	1.10	0	0
25-Sep	0.13	0.08	0	0				0	0	0	1.10	1.02	0	0
26-Sep	0.15	0.09	0	0				0	0	0	1.02	0.93	0	0
27-Sep	0.15	0.09	0	0				0	0	0	0.93	0.84	0	0
28-Sep	0.15	0.09	0	0				0	0	0	0.84	0.75	0	0
29-Sep	0.15	0.09	0	0				0	0	0	0.75	0.66	0	0
30-Sep	0.12	0.07	0	0				0	0	0	0.66	0.58	0	0
1-Oct	0.13	0.08	0	0				0	0	0	0.58	0.50	0	0
2-Oct	0.13	0.08	0	0	148	19	148	0.789	0.987	0.789	0.50	1.21	0	0
3-Oct	0.12	0.07	0	0				0	0	0	1.21	1.14	0	0
4-Oct	0.12	0.07	0	0				0	0	0	1.14	1.07	0	0
5-Oct	0.09	0.05	0	0				0	0	0	1.07	1.01	0	0
6-Oct	0.10	0.06	0.45	0.36				0	0	0	1.01	1.31	0	0
7-Oct	0.12	0.07	0	0				0	0	0	1.31	1.24	0	0
8-Oct	0.10	0.06	0.01	0.008				0	0	0	1.24	1.18	0	0
9-Oct	0.10	0.06	0.66	0.528				0	0	0	1.18	1.65	0	0
10-Oct	0.10	0.06	0	0				0	0	0	1.65	1.59	0	0
11-Oct	0.10	0.06	0	0				0	0	0	1.59	1.53	0	0
12-Oct	0.11	0.07	0	0				0	0	0	1.53	1.46	0	0
13-Oct	0.12	0.07	0	0				0	0	0	1.46	1.39	0	0
14-Oct	0.11	0.07	0	0				0	0	0	1.39	1.32	0	0
15-Oct	0.12	0.07	0	0				0	0	0	1.32	1.25	0	0
16-Oct	0.10	0.06	0	0				0	0	0	1.25	1.19	0	0
17-Oct	0.11	0.07	0	0				0	0	0	1.19	1.12	0	0
18-Oct	0.08	0.05	0	0				0	0	0	1.12	1.07	0	0
19-Oct	0.09	0.05	0	0				0	0	0	1.07	1.02	0	0
20-Oct	0.10	0.06	0	0				0	0	0	1.02	0.96	0	0
21-Oct	0.09	0.05	0	0				0	0	0	0.96	0.90	0	0
22-Oct	0.09	0.05	0	0				0	0	0	0.90	0.85	0	0
23-Oct	0.08	0.05	0.05	0.04				0	0	0	0.85	0.84	0	0
24-Oct	0.06	0.04	0.48	0.384				0	0	0	0.84	1.18	0	0
25-Oct	0.07	0.04	0.08	0.064				0	0	0	1.18	1.21	0	0
26-Oct	0.08	0.05	0	0				0	0	0	1.21	1.16	0	0
27-Oct	0.09	0.05	0	0				0	0	0	1.16	1.10	0	0
28-Oct	0.07	0.04	0	0				0	0	0	1.10	1.06	0	0
29-Oct	0.06	0.04	0	0				0	0	0	1.06	1.02	0	0
30-Oct	0.07	0.04	0	0				0	0	0	1.02	0.98	0	0
31-Oct	0.08	0.05	0	0				0	0	0	0.98	0.93	0	0
1-Nov	0.08	0.05	0	0				0	0	0	0.93	0.88	0	0
2-Nov	0.07	0.04	0.03	0.024				0	0	0	0.88	0.86	0	0
3-Nov	0.08	0.05	0	0				0	0	0	0.86	0.82	0	0
4-Nov	0.05	0.03	0.02	0.016				0	0	0	0.82	0.80	0	0
5-Nov	0.05	0.03	0	0				0	0	0	0.80	0.77	0	0
6-Nov	0.07	0.04	0	0				0	0	0	0.77	0.73	0	0
7-Nov	0.08	0.05	0	0	148	10	148	0.789	0.987	0.789	0.73	1.47	0	0
8-Nov	0.07	0.04	0	0				0	0	0	1.47	1.43	0	0
9-Nov	0.07	0.04	0	0				0	0	0	1.43	1.38	0	0
10-Nov	0.07	0.04	0	0				0	0	0	1.38	1.34	0	0
11-Nov	0.07	0.04	0	0				0	0	0	1.34	1.30	0	0
12-Nov	0.07	0.04	0	0				0	0	0	1.30	1.25	0	0
13-Nov	0.08	0.05	0.03	0.024				0	0	0	1.25	1.23	0	0
14-Nov	0.08	0.05	0	0				0	0	0	1.23	1.18	0	0
15-Nov	0.08	0.05	0.2	0.16				0	0	0	1.18	1.29	0	0
16-Nov	0.05	0.03	0	0				0	0	0	1.29	1.26	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.03	0	0				0	0	0	1.26	1.23	0	0
18-Nov	0.05	0.03	0	0				0	0	0	1.23	1.20	0	0
19-Nov	0.04	0.02	0	0				0	0	0	1.20	1.18	0	0
20-Nov	0.05	0.03	0	0				0	0	0	1.18	1.15	0	0
21-Nov	0.05	0.03	0	0				0	0	0	1.15	1.12	0	0
22-Nov	0.05	0.03	0	0				0	0	0	1.12	1.08	0	0
23-Nov	0.05	0.03	0	0				0	0	0	1.08	1.05	0	0
24-Nov	0.06	0.04	0	0				0	0	0	1.05	1.02	0	0
25-Nov	0.05	0.03	0	0				0	0	0	1.02	0.99	0	0
26-Nov	0.05	0.03	0	0				0	0	0	0.99	0.96	0	0
27-Nov	0.05	0.03	0	0				0	0	0	0.96	0.93	0	0
28-Nov	0.06	0.04	0	0				0	0	0	0.93	0.89	0	0
29-Nov	0.06	0.04	0	0				0	0	0	0.89	0.85	0	0
30-Nov	0.06	0.04	0.26	0.208				0	0	0	0.85	1.02	0	0
1-Dec	0.05	0.03	0.04	0.032				0	0	0	1.02	1.03	0	0
2-Dec	0.04	0.02	0.15	0.12				0	0	0	1.03	1.12	0	0
3-Dec	0.04	0.02	0	0				0	0	0	1.12	1.10	0	0
4-Dec	0.05	0.03	0	0				0	0	0	1.10	1.07	0	0
5-Dec	0.05	0.03	0	0				0	0	0	1.07	1.04	0	0
6-Dec	0.05	0.03	0.05	0.04				0	0	0	1.04	1.05	0	0
7-Dec	0.04	0.02	0	0				0	0	0	1.05	1.02	0	0
8-Dec	0.04	0.02	0	0				0	0	0	1.02	1.00	0	0
9-Dec	0.06	0.04	0	0				0	0	0	1.00	0.96	0	0
10-Dec	0.06	0.04	0	0				0	0	0	0.96	0.92	0	0
11-Dec	0.06	0.04	0.39	0.312				0	0	0	0.92	1.20	0	0
12-Dec	0.04	0.02	0	0				0	0	0	1.20	1.17	0	0
13-Dec	0.04	0.02	0	0				0	0	0	1.17	1.15	0	0
14-Dec	0.06	0.04	0	0				0	0	0	1.15	1.11	0	0
15-Dec	0.06	0.04	0	0				0	0	0	1.11	1.08	0	0
16-Dec	0.06	0.04	0	0				0	0	0	1.08	1.04	0	0
17-Dec	0.06	0.04	0	0				0	0	0	1.04	1.00	0	0
18-Dec	0.06	0.04	0	0				0	0	0	1.00	0.97	0	0
19-Dec	0.06	0.04	0	0				0	0	0	0.97	0.93	0	0
20-Dec	0.06	0.04	0	0				0	0	0	0.93	0.89	0	0
21-Dec	0.06	0.04	0.03	0.024				0	0	0	0.89	0.88	0	0
22-Dec	0.04	0.02	0	0				0	0	0	0.88	0.86	0	0
23-Dec	0.05	0.03	0	0				0	0	0	0.86	0.83	0	0
24-Dec	0.06	0.04	0	0				0	0	0	0.83	0.79	0	0
25-Dec	0.06	0.04	0.04	0.032				0	0	0	0.79	0.79	0	0
26-Dec	0.07	0.04	0	0				0	0	0	0.79	0.74	0	0
27-Dec	0.06	0.04	0	0				0	0	0	0.74	0.71	0	0
28-Dec	0.06	0.04	0	0				0	0	0	0.71	0.67	0	0
29-Dec	0.06	0.04	0	0				0	0	0	0.67	0.63	0	0
30-Dec	0.05	0.03	0	0	148	10	148	0.789	0.987	0.789	0.63	1.39	0	0
31-Dec	0.05	0.03	0	0				0	0	0	1.39	1.36	0	0
1-Jan	0.05	0.03	0	0				0	0	0	1.36	1.33	0	0
2-Jan	0.06	0.04	0	0				0	0	0	1.33	1.29	0	0
3-Jan	0.06	0.04	0	0				0	0	0	1.29	1.26	0	0
4-Jan	0.06	0.04	0	0				0	0	0	1.26	1.22	0	0
5-Jan	0.06	0.04	0	0				0	0	0	1.22	1.18	0	0
6-Jan	0.07	0.04	0.01	0.008				0	0	0	1.18	1.15	0	0
7-Jan	0.06	0.04	0.13	0.104				0	0	0	1.15	1.22	0	0
8-Jan	0.05	0.03	0	0				0	0	0	1.22	1.19	0	0
9-Jan	0.05	0.03	0	0				0	0	0	1.19	1.16	0	0
10-Jan	0.05	0.03	0	0				0	0	0	1.16	1.13	0	0
11-Jan	0.06	0.04	0.07	0.056				0	0	0	1.13	1.14	0	0
12-Jan	0.05	0.03	0.89	0.712				0	0	0	1.14	1.83	0	0
13-Jan	0.05	0.03	0.4	0.32				0	0	0	1.83	2.12	0	0
14-Jan	0.04	0.02	0	0				0	0	0	2.12	2.09	0	0
15-Jan	0.04	0.02	0	0				0	0	0	2.09	2.07	0	0
16-Jan	0.04	0.02	0	0				0	0	0	2.07	2.04	0	0
17-Jan	0.04	0.02	0	0				0	0	0	2.04	2.02	0	0
18-Jan	0.05	0.03	0	0				0	0	0	2.02	1.99	0	0

ET-A WORS – Zone 6

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.10	0.46	0.368								0	0	0	0.27	0.54	0	0
15-Sep	0.15	0.10	0	0								0	0	0	0.54	0.44	0	0
16-Sep	0.13	0.08	0	0								0	0	0	0.44	0.36	0	0
17-Sep	0.12	0.08	0	0								0	0	0	0.36	0.28	0	0
18-Sep	0.13	0.08	0.03	0.024								0	0	0	0.28	0.22	0	0
19-Sep	0.15	0.10	0	0								0	0	0	0.22	0.13	0	0
20-Sep	0.10	0.06	0.5	0.4	21	97	21	97	21	74	21	0.3185	0.49	0.0833	0.13	0.55	0	0.2352
21-Sep	0.15	0.10	0.06	0.048								0	0	0	0.55	0.50	0	0
22-Sep	0.08	0.05	0.01	0.008								0	0	0	0.50	0.46	0	0
23-Sep	0.15	0.10	0	0								0	0	0	0.46	0.36	0	0
24-Sep	0.11	0.07	0	0								0	0	0	0.36	0.29	0	0
25-Sep	0.13	0.08	0	0								0	0	0	0.29	0.21	0	0
26-Sep	0.15	0.10	0	0	21	97	21	97	21	74	21	0.3185	0.49	0.3185	0.21	0.43	0	0
27-Sep	0.15	0.10	0	0								0	0	0	0.43	0.33	0	0
28-Sep	0.15	0.10	0	0								0	0	0	0.33	0.24	0	0
29-Sep	0.15	0.10	0	0								0	0	0	0.24	0.14	0	0
30-Sep	0.12	0.08	0	0	21	97	21	97	21	74	21	0.3185	0.49	0.3185	0.14	0.38	0	0
1-Oct	0.13	0.08	0	0								0	0	0	0.38	0.30	0	0
2-Oct	0.13	0.08	0	0								0	0	0	0.30	0.23	0	0
3-Oct	0.12	0.07	0	0								0	0	0	0.23	0.15	0	0
4-Oct	0.12	0.07	0	0	21	97	21	97	21	74	21	0.3185	0.49	0.3185	0.15	0.40	0	0
5-Oct	0.09	0.05	0	0								0	0	0	0.40	0.35	0	0
6-Oct	0.10	0.06	0.45	0.2601								0	0	0	0.35	0.55	0	0
7-Oct	0.12	0.07	0	0								0	0	0	0.55	0.48	0	0
8-Oct	0.10	0.06	0.01	0.008								0	0	0	0.48	0.42	0	0
9-Oct	0.10	0.06	0.66	0.184								0	0	0	0.42	0.55	0	0
10-Oct	0.10	0.06	0	0								0	0	0	0.55	0.49	0	0
11-Oct	0.10	0.06	0	0								0	0	0	0.49	0.43	0	0
12-Oct	0.11	0.07	0	0								0	0	0	0.43	0.36	0	0
13-Oct	0.12	0.07	0	0								0	0	0	0.36	0.29	0	0
14-Oct	0.11	0.07	0	0								0	0	0	0.29	0.22	0	0
15-Oct	0.12	0.07	0	0	21	97	21	97	21	74	21	0.3185	0.49	0.3185	0.22	0.47	0	0
16-Oct	0.10	0.06	0	0								0	0	0	0.47	0.41	0	0
17-Oct	0.11	0.07	0	0								0	0	0	0.41	0.34	0	0
18-Oct	0.08	0.05	0	0								0	0	0	0.34	0.30	0	0
19-Oct	0.09	0.05	0	0								0	0	0	0.30	0.24	0	0
20-Oct	0.10	0.06	0	0								0	0	0	0.24	0.18	0	0
21-Oct	0.09	0.05	0	0	21	90	21	79	21	74	21	0.3185	0.49	0.3185	0.18	0.45	0	0
22-Oct	0.09	0.05	0	0								0	0	0	0.45	0.39	0	0
23-Oct	0.08	0.05	0.05	0.04								0	0	0	0.39	0.38	0	0
24-Oct	0.06	0.04	0.48	0.199								0	0	0	0.38	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042								0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0								0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0								0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0								0	0	0	0.45	0.40	0	0
29-Oct	0.06	0.04	0	0								0	0	0	0.40	0.37	0	0
30-Oct	0.07	0.04	0	0								0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0								0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0								0	0	0	0.28	0.23	0	0
2-Nov	0.07	0.04	0.03	0.024								0	0	0	0.23	0.22	0	0
3-Nov	0.08	0.05	0	0	21	90	21	78	21	74	21	0.3185	0.49	0.3185	0.22	0.49	0	0
4-Nov	0.05	0.03	0.02	0.016								0	0	0	0.49	0.48	0	0
5-Nov	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
6-Nov	0.07	0.04	0	0								0	0	0	0.45	0.41	0	0
7-Nov	0.08	0.05	0	0								0	0	0	0.41	0.36	0	0
8-Nov	0.07	0.04	0	0								0	0	0	0.36	0.32	0	0
9-Nov	0.07	0.04	0	0								0	0	0	0.32	0.28	0	0
10-Nov	0.07	0.04	0	0								0	0	0	0.28	0.24	0	0
11-Nov	0.07	0.04	0	0								0	0	0	0.24	0.20	0	0
12-Nov	0.07	0.04	0	0	21	90	21	79	21	74	21	0.3185	0.49	0.3185	0.20	0.48	0	0
13-Nov	0.08	0.05	0.03	0.024								0	0	0	0.48	0.46	0	0
14-Nov	0.08	0.05	0	0								0	0	0	0.46	0.41	0	0
15-Nov	0.08	0.05	0.2	0.16								0	0	0	0.41	0.53	0	0
16-Nov	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.03	0	0								0	0	0	0.50	0.47	0	0
18-Nov	0.05	0.03	0	0								0	0	0	0.47	0.44	0	0
19-Nov	0.04	0.02	0	0								0	0	0	0.44	0.42	0	0
20-Nov	0.05	0.03	0	0								0	0	0	0.42	0.39	0	0
21-Nov	0.05	0.03	0	0								0	0	0	0.39	0.36	0	0
22-Nov	0.05	0.03	0	0								0	0	0	0.36	0.33	0	0
23-Nov	0.05	0.03	0	0								0	0	0	0.33	0.31	0	0
24-Nov	0.06	0.03	0	0								0	0	0	0.31	0.27	0	0
25-Nov	0.05	0.03	0	0								0	0	0	0.27	0.24	0	0
26-Nov	0.05	0.03	0	0	21	90	21	79	21	74	21	0.3185	0.49	0.3185	0.24	0.53	0	0
27-Nov	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0
28-Nov	0.06	0.03	0	0								0	0	0	0.50	0.47	0	0
29-Nov	0.06	0.03	0	0								0	0	0	0.47	0.44	0	0
30-Nov	0.06	0.03	0.26	0.145								0	0	0	0.44	0.55	0	0
1-Dec	0.05	0.03	0.04	0.0265								0	0	0	0.55	0.55	0	0
2-Dec	0.04	0.02	0.15	0.0212								0	0	0	0.55	0.55	0	0
3-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
4-Dec	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0
5-Dec	0.05	0.03	0	0								0	0	0	0.50	0.47	0	0
6-Dec	0.05	0.03	0.05	0.04								0	0	0	0.47	0.49	0	0
7-Dec	0.04	0.02	0	0								0	0	0	0.49	0.47	0	0
8-Dec	0.04	0.02	0	0								0	0	0	0.47	0.44	0	0
9-Dec	0.06	0.03	0	0								0	0	0	0.44	0.41	0	0
10-Dec	0.06	0.03	0	0								0	0	0	0.41	0.38	0	0
11-Dec	0.06	0.03	0.39	0.1985								0	0	0	0.38	0.55	0	0
12-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
13-Dec	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
14-Dec	0.06	0.03	0	0								0	0	0	0.51	0.47	0	0
15-Dec	0.06	0.03	0	0								0	0	0	0.47	0.44	0	0
16-Dec	0.06	0.03	0	0								0	0	0	0.44	0.41	0	0
17-Dec	0.06	0.03	0	0								0	0	0	0.41	0.38	0	0
18-Dec	0.06	0.03	0	0								0	0	0	0.38	0.35	0	0
19-Dec	0.06	0.03	0	0								0	0	0	0.35	0.31	0	0
20-Dec	0.06	0.03	0	0								0	0	0	0.31	0.28	0	0
21-Dec	0.06	0.03	0.03	0.024								0	0	0	0.28	0.27	0	0
22-Dec	0.04	0.02	0	0	21	90	21	79	21	74	21	0.3185	0.49	0.294	0.27	0.55	0	0.0245
23-Dec	0.05	0.03	0	0								0	0	0	0.55	0.52	0	0
24-Dec	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
25-Dec	0.06	0.03	0.04	0.032								0	0	0	0.49	0.49	0	0
26-Dec	0.07	0.04	0	0								0	0	0	0.49	0.45	0	0
27-Dec	0.06	0.03	0	0								0	0	0	0.45	0.42	0	0
28-Dec	0.06	0.03	0	0								0	0	0	0.42	0.39	0	0
29-Dec	0.06	0.03	0	0								0	0	0	0.39	0.36	0	0
30-Dec	0.05	0.03	0	0								0	0	0	0.36	0.33	0	0
31-Dec	0.05	0.03	0	0								0	0	0	0.33	0.30	0	0
1-Jan	0.05	0.03	0	0								0	0	0	0.30	0.28	0	0
2-Jan	0.06	0.03	0	0	21	90	21	79	21	74	21	0.3185	0.49	0.3008	0.28	0.55	0	0.0177
3-Jan	0.06	0.03	0	0								0	0	0	0.55	0.52	0	0
4-Jan	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
5-Jan	0.06	0.03	0	0								0	0	0	0.49	0.45	0	0
6-Jan	0.07	0.04	0.01	0.008								0	0	0	0.45	0.43	0	0
7-Jan	0.06	0.03	0.13	0.104								0	0	0	0.43	0.50	0	0
8-Jan	0.05	0.03	0	0								0	0	0	0.50	0.47	0	0
9-Jan	0.05	0.03	0	0								0	0	0	0.47	0.45	0	0
10-Jan	0.05	0.03	0	0								0	0	0	0.45	0.42	0	0
11-Jan	0.06	0.03	0.07	0.056								0	0	0	0.42	0.45	0	0
12-Jan	0.05	0.03	0.89	0.1284								0	0	0	0.45	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026								0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0								0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0								0	0	0	0.49	0.46	0	0
18-Jan	0.05	0.03	0	0								0	0	0	0.46	0.44	0	0

Appendix B

Irrigation Association - Smart Water Application Technology

Testing of Climatologically-based Controllers

Project Information	
Controller:	ET-A
Sensor:	Hunter Mini-клик (WRS)
Weather Station:	FAWN – Citra, FL
Test Dates:	September 14, 2008 – January 18, 2009
Test Status:	Completed
Protocol Version:	7 th Draft (November, 2006)

Evaluation Summary	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
ET _O (in)	9.72	9.72	9.72	9.72	9.72	9.72
ET _C (in)	4.65	5.68	5.35	3.89	5.93	5.68
Total Rainfall (in)	5.53	5.53	5.53	5.53	5.53	5.53
Effective Rainfall (in)	2.67	2.71	2.68	4.04	4.42	2.72
Gross Irrigation (in)	4.32	5.33	4.67	1.03	2.96	4.90
Net Irrigation (in)	2.38	3.20	3.27	0.77	2.37	3.19
Direct Runoff (in)	0	0	0	0	0	0
Soak Runoff (in)	0.06	0.07	0.27	0	0	0.06
Deficit (in)	0	0	0	0	0	0
Surplus (in)	0	0	0	0	0	0
Scheduling Losses (in)	0.06	0.07	0.27	0	0	0.06
Irrigation Adequacy (%)	100	100	100	100	100	100
Schedule Efficiency (%)	98	98	92	100	100	98
Scheduling Excess (%)	2	2	8	0	0	2
Application Efficiency (%)	55	60	70	75	80	65
Rainfall Efficiency (%)	60	61	61	91	100	61
Overall Efficiency (%)	54	59	64	75	80	64

ET-A WRS – Zone 1

Date	ET _O (in)	ET _C (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Soak (min)	Cycle 3 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
14-Sep	0.16	0.09	0.46	0.368						0	0	0	0.43	0.70	0	0
15-Sep	0.15	0.08	0	0						0	0	0	0.70	0.62	0	0
16-Sep	0.13	0.07	0	0						0	0	0	0.62	0.55	0	0
17-Sep	0.12	0.07	0	0						0	0	0	0.55	0.48	0	0
18-Sep	0.13	0.07	0.03	0.024						0	0	0	0.48	0.43	0	0
19-Sep	0.15	0.08	0	0						0	0	0	0.43	0.35	0	0
20-Sep	0.10	0.06	0.5	0.4						0	0	0	0.35	0.69	0	0
21-Sep	0.15	0.08	0.06	0.048						0	0	0	0.69	0.65	0	0
22-Sep	0.08	0.04	0.01	0.008						0	0	0	0.65	0.62	0	0
23-Sep	0.15	0.08	0	0						0	0	0	0.62	0.53	0	0
24-Sep	0.11	0.06	0	0						0	0	0	0.53	0.47	0	0
25-Sep	0.13	0.07	0	0						0	0	0	0.47	0.40	0	0
26-Sep	0.15	0.08	0	0	9	42	9	42	9	0.396	0.72	0.396	0.40	0.71	0	0
27-Sep	0.15	0.08	0	0						0	0	0	0.71	0.63	0	0
28-Sep	0.15	0.08	0	0						0	0	0	0.63	0.54	0	0
29-Sep	0.15	0.08	0	0						0	0	0	0.54	0.46	0	0
30-Sep	0.12	0.07	0	0						0	0	0	0.46	0.39	0	0
1-Oct	0.13	0.07	0	0						0	0	0	0.39	0.33	0	0
2-Oct	0.13	0.07	0	0	9	185	9	185	9	0.396	0.72	0.396	0.33	0.66	0	0
3-Oct	0.12	0.06	0	0						0	0	0	0.66	0.60	0	0
4-Oct	0.12	0.06	0	0						0	0	0	0.60	0.54	0	0
5-Oct	0.09	0.05	0	0						0	0	0	0.54	0.49	0	0
6-Oct	0.10	0.05	0.45	0.36						0	0	0	0.49	0.80	0	0
7-Oct	0.12	0.06	0	0						0	0	0	0.80	0.74	0	0
8-Oct	0.10	0.05	0.01	0.008						0	0	0	0.74	0.70	0	0
9-Oct	0.10	0.05	0.66	0.199						0	0	0	0.70	0.85	0	0
10-Oct	0.10	0.05	0	0						0	0	0	0.85	0.80	0	0
11-Oct	0.10	0.05	0	0						0	0	0	0.80	0.75	0	0
12-Oct	0.11	0.06	0	0						0	0	0	0.75	0.70	0	0
13-Oct	0.12	0.06	0	0						0	0	0	0.70	0.64	0	0
14-Oct	0.11	0.06	0	0						0	0	0	0.64	0.58	0	0
15-Oct	0.12	0.06	0	0						0	0	0	0.58	0.52	0	0
16-Oct	0.10	0.05	0	0	9	42	9	42	9	0.396	0.72	0.38	0.52	0.85	0	0.016
17-Oct	0.11	0.06	0	0						0	0	0	0.85	0.80	0	0
18-Oct	0.08	0.04	0	0						0	0	0	0.80	0.76	0	0
19-Oct	0.09	0.05	0	0						0	0	0	0.76	0.71	0	0
20-Oct	0.10	0.05	0	0						0	0	0	0.71	0.66	0	0
21-Oct	0.09	0.05	0	0						0	0	0	0.66	0.62	0	0
22-Oct	0.09	0.05	0	0						0	0	0	0.62	0.57	0	0
23-Oct	0.08	0.04	0.05	0.04						0	0	0	0.57	0.57	0	0
24-Oct	0.06	0.03	0.48	0.31						0	0	0	0.57	0.85	0	0
25-Oct	0.07	0.04	0.08	0.035						0	0	0	0.85	0.85	0	0
26-Oct	0.08	0.04	0	0						0	0	0	0.85	0.81	0	0
27-Oct	0.09	0.05	0	0						0	0	0	0.81	0.77	0	0
28-Oct	0.07	0.04	0	0						0	0	0	0.77	0.73	0	0
29-Oct	0.06	0.03	0	0						0	0	0	0.73	0.70	0	0
30-Oct	0.07	0.04	0	0						0	0	0	0.70	0.67	0	0
31-Oct	0.08	0.04	0	0						0	0	0	0.67	0.63	0	0
1-Nov	0.08	0.04	0	0						0	0	0	0.63	0.59	0	0
2-Nov	0.07	0.03	0.03	0.024						0	0	0	0.59	0.58	0	0
3-Nov	0.08	0.04	0	0						0	0	0	0.58	0.55	0	0
4-Nov	0.05	0.02	0.02	0.016						0	0	0	0.55	0.54	0	0
5-Nov	0.05	0.02	0	0						0	0	0	0.54	0.52	0	0
6-Nov	0.07	0.03	0	0						0	0	0	0.52	0.49	0	0
7-Nov	0.08	0.04	0	0						0	0	0	0.49	0.45	0	0
8-Nov	0.07	0.03	0	0	9	42	9	42	9	0.396	0.72	0.396	0.45	0.81	0	0
9-Nov	0.07	0.03	0	0						0	0	0	0.81	0.78	0	0
10-Nov	0.07	0.03	0	0						0	0	0	0.78	0.75	0	0
11-Nov	0.07	0.03	0	0						0	0	0	0.75	0.72	0	0
12-Nov	0.07	0.03	0	0						0	0	0	0.72	0.69	0	0
13-Nov	0.08	0.04	0.03	0.024						0	0	0	0.69	0.68	0	0
14-Nov	0.08	0.04	0	0						0	0	0	0.68	0.64	0	0
15-Nov	0.08	0.04	0.2	0.16						0	0	0	0.64	0.76	0	0
16-Nov	0.05	0.02	0	0						0	0	0	0.76	0.74	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.02	0	0						0	0	0	0.74	0.72	0	0
18-Nov	0.05	0.02	0	0						0	0	0	0.72	0.70	0	0
19-Nov	0.04	0.02	0	0						0	0	0	0.70	0.68	0	0
20-Nov	0.05	0.02	0	0						0	0	0	0.68	0.66	0	0
21-Nov	0.05	0.02	0	0						0	0	0	0.66	0.63	0	0
22-Nov	0.05	0.02	0	0						0	0	0	0.63	0.61	0	0
23-Nov	0.05	0.02	0	0						0	0	0	0.61	0.59	0	0
24-Nov	0.06	0.03	0	0						0	0	0	0.59	0.56	0	0
25-Nov	0.05	0.02	0	0						0	0	0	0.56	0.54	0	0
26-Nov	0.05	0.02	0	0						0	0	0	0.54	0.52	0	0
27-Nov	0.05	0.02	0	0	9	42	9	42	9	0.396	0.72	0.3565	0.52	0.85	0	0.0395
28-Nov	0.06	0.03	0	0						0	0	0	0.85	0.82	0	0
29-Nov	0.06	0.03	0	0						0	0	0	0.82	0.80	0	0
30-Nov	0.06	0.03	0.26	0.081						0	0	0	0.80	0.85	0	0
1-Dec	0.05	0.02	0.04	0.02						0	0	0	0.85	0.85	0	0
2-Dec	0.04	0.02	0.15	0.016						0	0	0	0.85	0.85	0	0
3-Dec	0.04	0.02	0	0						0	0	0	0.85	0.83	0	0
4-Dec	0.05	0.02	0	0						0	0	0	0.83	0.81	0	0
5-Dec	0.05	0.02	0	0						0	0	0	0.81	0.79	0	0
6-Dec	0.05	0.02	0.05	0.04						0	0	0	0.79	0.81	0	0
7-Dec	0.04	0.02	0	0						0	0	0	0.81	0.80	0	0
8-Dec	0.04	0.02	0	0						0	0	0	0.80	0.78	0	0
9-Dec	0.06	0.02	0	0						0	0	0	0.78	0.76	0	0
10-Dec	0.06	0.02	0	0						0	0	0	0.76	0.73	0	0
11-Dec	0.06	0.02	0.39	0.14						0	0	0	0.73	0.85	0	0
12-Dec	0.04	0.02	0	0						0	0	0	0.85	0.83	0	0
13-Dec	0.04	0.02	0	0						0	0	0	0.83	0.82	0	0
14-Dec	0.06	0.02	0	0						0	0	0	0.82	0.79	0	0
15-Dec	0.06	0.02	0	0						0	0	0	0.79	0.77	0	0
16-Dec	0.06	0.02	0	0						0	0	0	0.77	0.75	0	0
17-Dec	0.06	0.02	0	0						0	0	0	0.75	0.72	0	0
18-Dec	0.06	0.02	0	0						0	0	0	0.72	0.70	0	0
19-Dec	0.06	0.02	0	0						0	0	0	0.70	0.67	0	0
20-Dec	0.06	0.02	0	0						0	0	0	0.67	0.65	0	0
21-Dec	0.06	0.02	0.03	0.024						0	0	0	0.65	0.65	0	0
22-Dec	0.04	0.02	0	0						0	0	0	0.65	0.63	0	0
23-Dec	0.05	0.02	0	0						0	0	0	0.63	0.61	0	0
24-Dec	0.06	0.02	0	0						0	0	0	0.61	0.59	0	0
25-Dec	0.06	0.02	0.04	0.032						0	0	0	0.59	0.60	0	0
26-Dec	0.07	0.03	0	0						0	0	0	0.60	0.57	0	0
27-Dec	0.06	0.02	0	0						0	0	0	0.57	0.55	0	0
28-Dec	0.06	0.02	0	0						0	0	0	0.55	0.52	0	0
29-Dec	0.06	0.02	0	0						0	0	0	0.52	0.50	0	0
30-Dec	0.05	0.02	0	0						0	0	0	0.50	0.48	0	0
31-Dec	0.05	0.02	0	0						0	0	0	0.48	0.46	0	0
1-Jan	0.05	0.02	0	0	9	59	9	42	9	0.396	0.72	0.396	0.46	0.83	0	0
2-Jan	0.06	0.02	0	0						0	0	0	0.83	0.81	0	0
3-Jan	0.06	0.02	0	0						0	0	0	0.81	0.78	0	0
4-Jan	0.06	0.02	0	0						0	0	0	0.78	0.76	0	0
5-Jan	0.06	0.02	0	0						0	0	0	0.76	0.74	0	0
6-Jan	0.07	0.03	0.01	0.008						0	0	0	0.74	0.71	0	0
7-Jan	0.06	0.02	0.13	0.104						0	0	0	0.71	0.79	0	0
8-Jan	0.05	0.02	0	0						0	0	0	0.79	0.77	0	0
9-Jan	0.05	0.02	0	0						0	0	0	0.77	0.75	0	0
10-Jan	0.05	0.02	0	0						0	0	0	0.75	0.73	0	0
11-Jan	0.06	0.02	0.07	0.056						0	0	0	0.73	0.76	0	0
12-Jan	0.05	0.02	0.89	0.107						0	0	0	0.76	0.85	0	0
13-Jan	0.05	0.02	0.4	0.020						0	0	0	0.85	0.85	0	0
14-Jan	0.04	0.02	0	0						0	0	0	0.85	0.83	0	0
15-Jan	0.04	0.02	0	0						0	0	0	0.83	0.82	0	0
16-Jan	0.04	0.02	0	0						0	0	0	0.82	0.80	0	0
17-Jan	0.04	0.02	0	0						0	0	0	0.80	0.78	0	0
18-Jan	0.05	0.02	0	0						0	0	0	0.78	0.76	0	0

ET-A WRS – Zone 2

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.10	0.46	0.368								0	0	0	0.28	0.54	0	0
15-Sep	0.15	0.10	0	0								0	0	0	0.54	0.45	0	0
16-Sep	0.13	0.08	0	0								0	0	0	0.45	0.36	0	0
17-Sep	0.12	0.08	0	0								0	0	0	0.36	0.29	0	0
18-Sep	0.13	0.08	0.03	0.024								0	0	0	0.29	0.23	0	0
19-Sep	0.15	0.10	0	0								0	0	0	0.23	0.13	0	0
20-Sep	0.10	0.06	0.5	0.4								0	0	0	0.13	0.47	0	0
21-Sep	0.15	0.10	0.06	0.048								0	0	0	0.47	0.42	0	0
22-Sep	0.08	0.05	0.01	0.008								0	0	0	0.42	0.37	0	0
23-Sep	0.15	0.10	0	0								0	0	0	0.37	0.28	0	0
24-Sep	0.11	0.07	0	0	5	113	5	113	5	81	5	0.32	0.533	0.32	0.28	0.53	0	0
25-Sep	0.13	0.08	0	0								0	0	0	0.53	0.45	0	0
26-Sep	0.15	0.10	0	0								0	0	0	0.45	0.35	0	0
27-Sep	0.15	0.10	0	0	5	113	5	113	5	81	5	0.32	0.533	0.2978	0.35	0.55	0	0.0222
28-Sep	0.15	0.10	0	0								0	0	0	0.55	0.45	0	0
29-Sep	0.15	0.10	0	0								0	0	0	0.45	0.36	0	0
30-Sep	0.12	0.08	0	0								0	0	0	0.36	0.28	0	0
1-Oct	0.13	0.08	0	0								0	0	0	0.28	0.20	0	0
2-Oct	0.13	0.08	0	0	5	189	5	189	5	81	5	0.32	0.533	0.32	0.20	0.45	0	0
3-Oct	0.12	0.07	0	0								0	0	0	0.45	0.37	0	0
4-Oct	0.12	0.07	0	0								0	0	0	0.37	0.30	0	0
5-Oct	0.09	0.05	0	0								0	0	0	0.30	0.25	0	0
6-Oct	0.10	0.06	0.45	0.36								0	0	0	0.25	0.55	0	0
7-Oct	0.12	0.07	0	0								0	0	0	0.55	0.48	0	0
8-Oct	0.10	0.06	0.01	0.008								0	0	0	0.48	0.42	0	0
9-Oct	0.10	0.06	0.66	0.187								0	0	0	0.42	0.55	0	0
10-Oct	0.10	0.06	0	0								0	0	0	0.55	0.49	0	0
11-Oct	0.10	0.06	0	0								0	0	0	0.49	0.43	0	0
12-Oct	0.11	0.07	0	0								0	0	0	0.43	0.36	0	0
13-Oct	0.12	0.07	0	0								0	0	0	0.36	0.29	0	0
14-Oct	0.11	0.07	0	0								0	0	0	0.29	0.23	0	0
15-Oct	0.12	0.07	0	0	5	113	5	113	5	81	5	0.32	0.533	0.32	0.23	0.47	0	0
16-Oct	0.10	0.06	0	0								0	0	0	0.47	0.41	0	0
17-Oct	0.11	0.07	0	0								0	0	0	0.41	0.35	0	0
18-Oct	0.08	0.05	0	0								0	0	0	0.35	0.30	0	0
19-Oct	0.09	0.05	0	0								0	0	0	0.30	0.25	0	0
20-Oct	0.10	0.06	0	0								0	0	0	0.25	0.19	0	0
21-Oct	0.09	0.05	0	0	5	106	5	106	5	81	5	0.32	0.533	0.32	0.19	0.45	0	0
22-Oct	0.09	0.05	0	0								0	0	0	0.45	0.40	0	0
23-Oct	0.08	0.05	0.05	0.04								0	0	0	0.40	0.39	0	0
24-Oct	0.06	0.04	0.48	0.196								0	0	0	0.39	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042								0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0								0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0								0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0								0	0	0	0.45	0.41	0	0
29-Oct	0.06	0.04	0	0								0	0	0	0.41	0.37	0	0
30-Oct	0.07	0.04	0	0								0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0								0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0								0	0	0	0.28	0.24	0	0
2-Nov	0.07	0.04	0.03	0.024								0	0	0	0.24	0.22	0	0
3-Nov	0.08	0.05	0	0	5	106	5	106	5	81	5	0.32	0.533	0.32	0.22	0.49	0	0
4-Nov	0.05	0.03	0.02	0.016								0	0	0	0.49	0.48	0	0
5-Nov	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
6-Nov	0.07	0.04	0	0								0	0	0	0.45	0.41	0	0
7-Nov	0.08	0.05	0	0								0	0	0	0.41	0.37	0	0
8-Nov	0.07	0.04	0	0								0	0	0	0.37	0.33	0	0
9-Nov	0.07	0.04	0	0								0	0	0	0.33	0.29	0	0
10-Nov	0.07	0.04	0	0								0	0	0	0.29	0.25	0	0
11-Nov	0.07	0.04	0	0								0	0	0	0.25	0.21	0	0
12-Nov	0.07	0.04	0	0	5	106	5	106	5	81	5	0.32	0.533	0.32	0.21	0.49	0	0
13-Nov	0.08	0.05	0.03	0.024								0	0	0	0.49	0.47	0	0
14-Nov	0.08	0.05	0	0								0	0	0	0.47	0.42	0	0
15-Nov	0.08	0.05	0.2	0.16								0	0	0	0.42	0.53	0	0
16-Nov	0.05	0.03	0	0								0	0	0	0.53	0.51	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.03	0	0								0	0	0	0.51	0.48	0	0
18-Nov	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
19-Nov	0.04	0.02	0	0								0	0	0	0.45	0.43	0	0
20-Nov	0.05	0.03	0	0								0	0	0	0.43	0.40	0	0
21-Nov	0.05	0.03	0	0								0	0	0	0.40	0.37	0	0
22-Nov	0.05	0.03	0	0								0	0	0	0.37	0.34	0	0
23-Nov	0.05	0.03	0	0								0	0	0	0.34	0.31	0	0
24-Nov	0.06	0.03	0	0								0	0	0	0.31	0.28	0	0
25-Nov	0.05	0.03	0	0								0	0	0	0.28	0.25	0	0
26-Nov	0.05	0.03	0	0	5	106	5	106	5	81	5	0.32	0.533	0.32	0.25	0.54	0	0
27-Nov	0.05	0.03	0	0								0	0	0	0.54	0.51	0	0
28-Nov	0.06	0.03	0	0								0	0	0	0.51	0.48	0	0
29-Nov	0.06	0.03	0	0								0	0	0	0.48	0.44	0	0
30-Nov	0.06	0.03	0.26	0.140								0	0	0	0.44	0.55	0	0
1-Dec	0.05	0.03	0.04	0.026								0	0	0	0.55	0.55	0	0
2-Dec	0.04	0.02	0.15	0.021								0	0	0	0.55	0.55	0	0
3-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
4-Dec	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0
5-Dec	0.05	0.03	0	0								0	0	0	0.50	0.48	0	0
6-Dec	0.05	0.03	0.05	0.04								0	0	0	0.48	0.49	0	0
7-Dec	0.04	0.02	0	0								0	0	0	0.49	0.47	0	0
8-Dec	0.04	0.02	0	0								0	0	0	0.47	0.45	0	0
9-Dec	0.06	0.03	0	0								0	0	0	0.45	0.42	0	0
10-Dec	0.06	0.03	0	0								0	0	0	0.42	0.38	0	0
11-Dec	0.06	0.03	0.39	0.198								0	0	0	0.38	0.55	0	0
12-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
13-Dec	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
14-Dec	0.06	0.03	0	0								0	0	0	0.51	0.48	0	0
15-Dec	0.06	0.03	0	0								0	0	0	0.48	0.44	0	0
16-Dec	0.06	0.03	0	0								0	0	0	0.44	0.41	0	0
17-Dec	0.06	0.03	0	0								0	0	0	0.41	0.38	0	0
18-Dec	0.06	0.03	0	0								0	0	0	0.38	0.35	0	0
19-Dec	0.06	0.03	0	0								0	0	0	0.35	0.32	0	0
20-Dec	0.06	0.03	0	0								0	0	0	0.32	0.29	0	0
21-Dec	0.06	0.03	0.03	0.024								0	0	0	0.29	0.28	0	0
22-Dec	0.04	0.02	0	0	5	106	5	106	5	81	5	0.32	0.533	0.294	0.28	0.55	0	0.026
23-Dec	0.05	0.03	0	0								0	0	0	0.55	0.52	0	0
24-Dec	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
25-Dec	0.06	0.03	0.04	0.032								0	0	0	0.49	0.49	0	0
26-Dec	0.07	0.04	0	0								0	0	0	0.49	0.46	0	0
27-Dec	0.06	0.03	0	0								0	0	0	0.46	0.42	0	0
28-Dec	0.06	0.03	0	0								0	0	0	0.42	0.39	0	0
29-Dec	0.06	0.03	0	0								0	0	0	0.39	0.36	0	0
30-Dec	0.05	0.03	0	0								0	0	0	0.36	0.33	0	0
31-Dec	0.05	0.03	0	0								0	0	0	0.33	0.31	0	0
1-Jan	0.05	0.03	0	0								0	0	0	0.31	0.28	0	0
2-Jan	0.06	0.03	0	0	5	106	5	106	5	81	5	0.32	0.533	0.301	0.28	0.55	0	0.0192
3-Jan	0.06	0.03	0	0								0	0	0	0.55	0.52	0	0
4-Jan	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
5-Jan	0.06	0.03	0	0								0	0	0	0.49	0.46	0	0
6-Jan	0.07	0.04	0.01	0.008								0	0	0	0.46	0.43	0	0
7-Jan	0.06	0.03	0.13	0.104								0	0	0	0.43	0.50	0	0
8-Jan	0.05	0.03	0	0								0	0	0	0.50	0.48	0	0
9-Jan	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
10-Jan	0.05	0.03	0	0								0	0	0	0.45	0.42	0	0
11-Jan	0.06	0.03	0.07	0.056								0	0	0	0.42	0.45	0	0
12-Jan	0.05	0.03	0.89	0.128								0	0	0	0.45	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026								0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0								0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0								0	0	0	0.49	0.47	0	0
18-Jan	0.05	0.03	0	0								0	0	0	0.47	0.44	0	0

ET-A WRS – Zone 3

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.09	0.46	0.368				0	0	0	0.45	0.73	0	0
15-Sep	0.15	0.08	0	0				0	0	0	0.73	0.65	0	0
16-Sep	0.13	0.07	0	0				0	0	0	0.65	0.58	0	0
17-Sep	0.12	0.07	0	0				0	0	0	0.58	0.51	0	0
18-Sep	0.13	0.07	0.03	0.024				0	0	0	0.51	0.46	0	0
19-Sep	0.15	0.08	0	0				0	0	0	0.46	0.38	0	0
20-Sep	0.10	0.06	0.5	0.4				0	0	0	0.38	0.73	0	0
21-Sep	0.15	0.08	0.06	0.048				0	0	0	0.73	0.69	0	0
22-Sep	0.08	0.04	0.01	0.008				0	0	0	0.69	0.65	0	0
23-Sep	0.15	0.08	0	0				0	0	0	0.65	0.57	0	0
24-Sep	0.11	0.06	0	0				0	0	0	0.57	0.51	0	0
25-Sep	0.13	0.07	0	0	13	46	13	0.425	0.607	0.425	0.51	0.86	0	0
26-Sep	0.15	0.08	0	0				0	0	0	0.86	0.78	0	0
27-Sep	0.15	0.08	0	0				0	0	0	0.78	0.70	0	0
28-Sep	0.15	0.08	0	0				0	0	0	0.70	0.62	0	0
29-Sep	0.15	0.08	0	0	13			0.212	0.303	0.212	0.62	0.75	0	0
30-Sep	0.12	0.07	0	0				0	0	0	0.75	0.68	0	0
1-Oct	0.13	0.07	0	0				0	0	0	0.68	0.61	0	0
2-Oct	0.13	0.07	0	0				0	0	0	0.61	0.54	0	0
3-Oct	0.12	0.07	0	0				0	0	0	0.54	0.47	0	0
4-Oct	0.12	0.07	0	0				0	0	0	0.47	0.41	0	0
5-Oct	0.09	0.05	0	0	13	46	13	0.425	0.607	0.425	0.41	0.78	0	0
6-Oct	0.10	0.06	0.45	0.174				0	0	0	0.78	0.90	0	0
7-Oct	0.12	0.07	0	0				0	0	0	0.90	0.83	0	0
8-Oct	0.10	0.06	0.01	0.008				0	0	0	0.83	0.79	0	0
9-Oct	0.10	0.06	0.66	0.168				0	0	0	0.79	0.90	0	0
10-Oct	0.10	0.06	0	0				0	0	0	0.90	0.85	0	0
11-Oct	0.10	0.06	0	0				0	0	0	0.85	0.79	0	0
12-Oct	0.11	0.06	0	0				0	0	0	0.79	0.73	0	0
13-Oct	0.12	0.07	0	0				0	0	0	0.73	0.66	0	0
14-Oct	0.11	0.06	0	0				0	0	0	0.66	0.60	0	0
15-Oct	0.12	0.07	0	0				0	0	0	0.60	0.54	0	0
16-Oct	0.10	0.06	0	0	13	46	13	0.425	0.607	0.418	0.54	0.90	0	0.007
17-Oct	0.11	0.06	0	0				0	0	0	0.90	0.84	0	0
18-Oct	0.08	0.04	0	0				0	0	0	0.84	0.80	0	0
19-Oct	0.09	0.05	0	0				0	0	0	0.80	0.75	0	0
20-Oct	0.10	0.06	0	0				0	0	0	0.75	0.69	0	0
21-Oct	0.09	0.05	0	0				0	0	0	0.69	0.64	0	0
22-Oct	0.09	0.05	0	0	13	46	13	0.425	0.607	0.308	0.64	0.90	0	0.117
23-Oct	0.08	0.04	0.05	0.04				0	0	0	0.90	0.90	0	0
24-Oct	0.06	0.03	0.48	0.037				0	0	0	0.90	0.90	0	0
25-Oct	0.07	0.04	0.08	0.038				0	0	0	0.90	0.90	0	0
26-Oct	0.08	0.04	0	0				0	0	0	0.90	0.86	0	0
27-Oct	0.09	0.05	0	0				0	0	0	0.86	0.81	0	0
28-Oct	0.07	0.04	0	0				0	0	0	0.81	0.77	0	0
29-Oct	0.06	0.03	0	0				0	0	0	0.77	0.74	0	0
30-Oct	0.07	0.04	0	0				0	0	0	0.74	0.70	0	0
31-Oct	0.08	0.04	0	0				0	0	0	0.70	0.65	0	0
1-Nov	0.08	0.04	0	0				0	0	0	0.65	0.61	0	0
2-Nov	0.07	0.04	0.03	0.024				0	0	0	0.61	0.59	0	0
3-Nov	0.08	0.04	0	0				0	0	0	0.59	0.55	0	0
4-Nov	0.05	0.03	0.02	0.016				0	0	0	0.55	0.54	0	0
5-Nov	0.05	0.03	0	0	13	46	13	0.425	0.607	0.389	0.54	0.90	0	0.036
6-Nov	0.07	0.04	0	0				0	0	0	0.90	0.86	0	0
7-Nov	0.08	0.04	0	0				0	0	0	0.86	0.82	0	0
8-Nov	0.07	0.04	0	0				0	0	0	0.82	0.78	0	0
9-Nov	0.07	0.04	0	0				0	0	0	0.78	0.74	0	0
10-Nov	0.07	0.04	0	0				0	0	0	0.74	0.70	0	0
11-Nov	0.07	0.04	0	0				0	0	0	0.70	0.66	0	0
12-Nov	0.07	0.04	0	0				0	0	0	0.66	0.63	0	0
13-Nov	0.08	0.04	0.03	0.024				0	0	0	0.63	0.61	0	0
14-Nov	0.08	0.04	0	0				0	0	0	0.61	0.56	0	0
15-Nov	0.08	0.04	0.2	0.16	5	53	13	0.294	0.42	0.223	0.56	0.90	0	0.071
16-Nov	0.05	0.03	0	0				0	0	0	0.90	0.87	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.03	0	0				0	0	0	0.87	0.85	0	0
18-Nov	0.05	0.03	0	0				0	0	0	0.85	0.82	0	0
19-Nov	0.04	0.02	0	0				0	0	0	0.82	0.80	0	0
20-Nov	0.05	0.03	0	0				0	0	0	0.80	0.77	0	0
21-Nov	0.05	0.03	0	0				0	0	0	0.77	0.74	0	0
22-Nov	0.05	0.03	0	0				0	0	0	0.74	0.71	0	0
23-Nov	0.05	0.03	0	0				0	0	0	0.71	0.69	0	0
24-Nov	0.06	0.03	0	0				0	0	0	0.69	0.65	0	0
25-Nov	0.05	0.03	0	0				0	0	0	0.65	0.63	0	0
26-Nov	0.05	0.03	0	0				0	0	0	0.63	0.60	0	0
27-Nov	0.05	0.03	0	0				0	0	0	0.60	0.57	0	0
28-Nov	0.06	0.03	0	0				0	0	0	0.57	0.54	0	0
29-Nov	0.06	0.03	0	0				0	0	0	0.54	0.50	0	0
30-Nov	0.06	0.03	0.26	0.208				0	0	0	0.50	0.68	0	0
1-Dec	0.05	0.03	0.04	0.032				0	0	0	0.68	0.68	0	0
2-Dec	0.04	0.02	0.15	0.12				0	0	0	0.68	0.78	0	0
3-Dec	0.04	0.02	0	0				0	0	0	0.78	0.76	0	0
4-Dec	0.05	0.03	0	0				0	0	0	0.76	0.73	0	0
5-Dec	0.05	0.03	0	0				0	0	0	0.73	0.70	0	0
6-Dec	0.05	0.03	0.05	0.04				0	0	0	0.70	0.72	0	0
7-Dec	0.04	0.02	0	0				0	0	0	0.72	0.70	0	0
8-Dec	0.04	0.02	0	0				0	0	0	0.70	0.67	0	0
9-Dec	0.06	0.03	0	0				0	0	0	0.67	0.64	0	0
10-Dec	0.06	0.03	0	0				0	0	0	0.64	0.61	0	0
11-Dec	0.06	0.03	0.39	0.312				0	0	0	0.61	0.89	0	0
12-Dec	0.04	0.02	0	0				0	0	0	0.89	0.86	0	0
13-Dec	0.04	0.02	0	0				0	0	0	0.86	0.84	0	0
14-Dec	0.06	0.03	0	0				0	0	0	0.84	0.81	0	0
15-Dec	0.06	0.03	0	0				0	0	0	0.81	0.78	0	0
16-Dec	0.06	0.03	0	0				0	0	0	0.78	0.74	0	0
17-Dec	0.06	0.03	0	0				0	0	0	0.74	0.71	0	0
18-Dec	0.06	0.03	0	0				0	0	0	0.71	0.68	0	0
19-Dec	0.06	0.03	0	0	13			0.212	0.303	0.212	0.68	0.86	0	0
20-Dec	0.06	0.03	0	0				0	0	0	0.86	0.82	0	0
21-Dec	0.06	0.03	0.03	0.024				0	0	0	0.82	0.81	0	0
22-Dec	0.04	0.02	0	0				0	0	0	0.81	0.79	0	0
23-Dec	0.05	0.03	0	0				0	0	0	0.79	0.76	0	0
24-Dec	0.06	0.03	0	0				0	0	0	0.76	0.73	0	0
25-Dec	0.06	0.03	0.04	0.032				0	0	0	0.73	0.73	0	0
26-Dec	0.07	0.04	0	0				0	0	0	0.73	0.69	0	0
27-Dec	0.06	0.03	0	0				0	0	0	0.69	0.66	0	0
28-Dec	0.06	0.03	0	0				0	0	0	0.66	0.63	0	0
29-Dec	0.06	0.03	0	0				0	0	0	0.63	0.59	0	0
30-Dec	0.05	0.03	0	0				0	0	0	0.59	0.57	0	0
31-Dec	0.05	0.03	0	0				0	0	0	0.57	0.54	0	0
1-Jan	0.05	0.03	0	0	13	55	13	0.425	0.607	0.389	0.54	0.90	0	0.0355
2-Jan	0.06	0.03	0	0				0	0	0	0.90	0.87	0	0
3-Jan	0.06	0.03	0	0				0	0	0	0.87	0.83	0	0
4-Jan	0.06	0.03	0	0				0	0	0	0.83	0.80	0	0
5-Jan	0.06	0.03	0	0				0	0	0	0.80	0.77	0	0
6-Jan	0.07	0.04	0.01	0.008				0	0	0	0.77	0.74	0	0
7-Jan	0.06	0.03	0.13	0.104				0	0	0	0.74	0.81	0	0
8-Jan	0.05	0.03	0	0				0	0	0	0.81	0.78	0	0
9-Jan	0.05	0.03	0	0				0	0	0	0.78	0.75	0	0
10-Jan	0.05	0.03	0	0				0	0	0	0.75	0.73	0	0
11-Jan	0.06	0.03	0.07	0.056				0	0	0	0.73	0.75	0	0
12-Jan	0.05	0.03	0.89	0.178				0	0	0	0.75	0.90	0	0
13-Jan	0.05	0.03	0.4	0.028				0	0	0	0.90	0.90	0	0
14-Jan	0.04	0.02	0	0				0	0	0	0.90	0.88	0	0
15-Jan	0.04	0.02	0	0				0	0	0	0.88	0.86	0	0
16-Jan	0.04	0.02	0	0				0	0	0	0.86	0.83	0	0
17-Jan	0.04	0.02	0	0				0	0	0	0.83	0.81	0	0
18-Jan	0.05	0.03	0	0				0	0	0	0.81	0.78	0	0

ET-A WRS – Zone 4

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.06	0.46	0.368								0	0	0	1.00	1.31	0	0
15-Sep	0.15	0.06	0	0								0	0	0	1.31	1.25	0	0
16-Sep	0.13	0.05	0	0								0	0	0	1.25	1.19	0	0
17-Sep	0.12	0.05	0	0								0	0	0	1.19	1.15	0	0
18-Sep	0.13	0.05	0.03	0.024								0	0	0	1.15	1.12	0	0
19-Sep	0.15	0.06	0	0								0	0	0	1.12	1.06	0	0
20-Sep	0.10	0.04	0.5	0.4								0	0	0	1.06	1.42	0	0
21-Sep	0.15	0.06	0.06	0.048								0	0	0	1.42	1.41	0	0
22-Sep	0.08	0.03	0.01	0.008								0	0	0	1.41	1.38	0	0
23-Sep	0.15	0.06	0	0								0	0	0	1.38	1.32	0	0
24-Sep	0.11	0.04	0	0								0	0	0	1.32	1.28	0	0
25-Sep	0.13	0.05	0	0								0	0	0	1.28	1.23	0	0
26-Sep	0.15	0.06	0	0								0	0	0	1.23	1.17	0	0
27-Sep	0.15	0.06	0	0								0	0	0	1.17	1.11	0	0
28-Sep	0.15	0.06	0	0								0	0	0	1.11	1.05	0	0
29-Sep	0.15	0.06	0	0								0	0	0	1.05	0.98	0	0
30-Sep	0.12	0.05	0	0								0	0	0	0.98	0.94	0	0
1-Oct	0.13	0.05	0	0								0	0	0	0.94	0.88	0	0
2-Oct	0.13	0.05	0	0								0	0	0	0.88	0.83	0	0
3-Oct	0.12	0.05	0	0								0	0	0	0.83	0.78	0	0
4-Oct	0.12	0.05	0	0								0	0	0	0.78	0.74	0	0
5-Oct	0.09	0.04	0	0								0	0	0	0.74	0.70	0	0
6-Oct	0.10	0.04	0.45	0.36								0	0	0	0.70	1.02	0	0
7-Oct	0.12	0.05	0	0								0	0	0	1.02	0.97	0	0
8-Oct	0.10	0.04	0.01	0.008								0	0	0	0.97	0.94	0	0
9-Oct	0.10	0.04	0.66	0.528								0	0	0	0.94	1.43	0	0
10-Oct	0.10	0.04	0	0								0	0	0	1.43	1.39	0	0
11-Oct	0.10	0.04	0	0								0	0	0	1.39	1.35	0	0
12-Oct	0.11	0.04	0	0								0	0	0	1.35	1.31	0	0
13-Oct	0.12	0.05	0	0								0	0	0	1.31	1.26	0	0
14-Oct	0.11	0.04	0	0								0	0	0	1.26	1.21	0	0
15-Oct	0.12	0.05	0	0								0	0	0	1.21	1.17	0	0
16-Oct	0.10	0.04	0	0								0	0	0	1.17	1.13	0	0
17-Oct	0.11	0.04	0	0								0	0	0	1.13	1.08	0	0
18-Oct	0.08	0.03	0	0								0	0	0	1.08	1.05	0	0
19-Oct	0.09	0.04	0	0								0	0	0	1.05	1.01	0	0
20-Oct	0.10	0.04	0	0								0	0	0	1.01	0.97	0	0
21-Oct	0.09	0.04	0	0								0	0	0	0.97	0.94	0	0
22-Oct	0.09	0.04	0	0								0	0	0	0.94	0.90	0	0
23-Oct	0.08	0.03	0.05	0.04								0	0	0	0.90	0.91	0	0
24-Oct	0.06	0.02	0.48	0.384								0	0	0	0.91	1.27	0	0
25-Oct	0.07	0.03	0.08	0.064								0	0	0	1.27	1.31	0	0
26-Oct	0.08	0.03	0	0								0	0	0	1.31	1.27	0	0
27-Oct	0.09	0.04	0	0								0	0	0	1.27	1.24	0	0
28-Oct	0.07	0.03	0	0								0	0	0	1.24	1.21	0	0
29-Oct	0.06	0.02	0	0								0	0	0	1.21	1.19	0	0
30-Oct	0.07	0.03	0	0								0	0	0	1.19	1.16	0	0
31-Oct	0.08	0.03	0	0								0	0	0	1.16	1.13	0	0
1-Nov	0.08	0.03	0	0								0	0	0	1.13	1.09	0	0
2-Nov	0.07	0.03	0.03	0.024								0	0	0	1.09	1.09	0	0
3-Nov	0.08	0.03	0	0								0	0	0	1.09	1.06	0	0
4-Nov	0.05	0.02	0.02	0.016								0	0	0	1.06	1.05	0	0
5-Nov	0.05	0.02	0	0								0	0	0	1.05	1.03	0	0
6-Nov	0.07	0.03	0	0								0	0	0	1.03	1.01	0	0
7-Nov	0.08	0.03	0	0								0	0	0	1.01	0.97	0	0
8-Nov	0.07	0.03	0	0								0	0	0	0.97	0.94	0	0
9-Nov	0.07	0.03	0	0								0	0	0	0.94	0.92	0	0
10-Nov	0.07	0.03	0	0								0	0	0	0.92	0.89	0	0
11-Nov	0.07	0.03	0	0								0	0	0	0.89	0.86	0	0
12-Nov	0.07	0.03	0	0								0	0	0	0.86	0.83	0	0
13-Nov	0.08	0.03	0.03	0.024								0	0	0	0.83	0.82	0	0
14-Nov	0.08	0.03	0	0	11	39	11	39	11	39	11	0.77	1.03	0.77	0.82	1.56	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
15-Nov	0.08	0.03	0.2	0.16								0	0	0	1.56	1.69	0	0
16-Nov	0.05	0.02	0	0								0	0	0	1.69	1.67	0	0
17-Nov	0.05	0.02	0	0								0	0	0	1.67	1.65	0	0
18-Nov	0.05	0.02	0	0								0	0	0	1.65	1.63	0	0
19-Nov	0.04	0.02	0	0								0	0	0	1.63	1.62	0	0
20-Nov	0.05	0.02	0	0								0	0	0	1.62	1.60	0	0
21-Nov	0.05	0.02	0	0								0	0	0	1.60	1.58	0	0
22-Nov	0.05	0.02	0	0								0	0	0	1.58	1.56	0	0
23-Nov	0.05	0.02	0	0								0	0	0	1.56	1.54	0	0
24-Nov	0.06	0.02	0	0								0	0	0	1.54	1.51	0	0
25-Nov	0.05	0.02	0	0								0	0	0	1.51	1.49	0	0
26-Nov	0.05	0.02	0	0								0	0	0	1.49	1.47	0	0
27-Nov	0.05	0.02	0	0								0	0	0	1.47	1.45	0	0
28-Nov	0.06	0.02	0	0								0	0	0	1.45	1.43	0	0
29-Nov	0.06	0.02	0	0								0	0	0	1.43	1.40	0	0
30-Nov	0.06	0.02	0.26	0.208								0	0	0	1.40	1.59	0	0
1-Dec	0.05	0.02	0.04	0.032								0	0	0	1.59	1.60	0	0
2-Dec	0.04	0.02	0.15	0.12								0	0	0	1.60	1.70	0	0
3-Dec	0.04	0.02	0	0								0	0	0	1.70	1.69	0	0
4-Dec	0.05	0.02	0	0								0	0	0	1.69	1.67	0	0
5-Dec	0.05	0.02	0	0								0	0	0	1.67	1.65	0	0
6-Dec	0.05	0.02	0.05	0.04								0	0	0	1.65	1.67	0	0
7-Dec	0.04	0.02	0	0								0	0	0	1.67	1.65	0	0
8-Dec	0.04	0.02	0	0								0	0	0	1.65	1.64	0	0
9-Dec	0.06	0.02	0	0								0	0	0	1.64	1.61	0	0
10-Dec	0.06	0.02	0	0								0	0	0	1.61	1.59	0	0
11-Dec	0.06	0.02	0.39	0.312								0	0	0	1.59	1.88	0	0
12-Dec	0.04	0.02	0	0								0	0	0	1.88	1.86	0	0
13-Dec	0.04	0.02	0	0								0	0	0	1.86	1.84	0	0
14-Dec	0.06	0.02	0	0								0	0	0	1.84	1.82	0	0
15-Dec	0.06	0.02	0	0								0	0	0	1.82	1.80	0	0
16-Dec	0.06	0.02	0	0								0	0	0	1.80	1.77	0	0
17-Dec	0.06	0.02	0	0								0	0	0	1.77	1.75	0	0
18-Dec	0.06	0.02	0	0								0	0	0	1.75	1.72	0	0
19-Dec	0.06	0.02	0	0								0	0	0	1.72	1.70	0	0
20-Dec	0.06	0.02	0	0								0	0	0	1.70	1.68	0	0
21-Dec	0.06	0.02	0.03	0.024								0	0	0	1.68	1.68	0	0
22-Dec	0.04	0.02	0	0								0	0	0	1.68	1.66	0	0
23-Dec	0.05	0.02	0	0								0	0	0	1.66	1.64	0	0
24-Dec	0.06	0.02	0	0								0	0	0	1.64	1.62	0	0
25-Dec	0.06	0.02	0.04	0.032								0	0	0	1.62	1.62	0	0
26-Dec	0.07	0.03	0	0								0	0	0	1.62	1.60	0	0
27-Dec	0.06	0.02	0	0								0	0	0	1.60	1.57	0	0
28-Dec	0.06	0.02	0	0								0	0	0	1.57	1.55	0	0
29-Dec	0.06	0.02	0	0								0	0	0	1.55	1.52	0	0
30-Dec	0.05	0.02	0	0								0	0	0	1.52	1.50	0	0
31-Dec	0.05	0.02	0	0								0	0	0	1.50	1.48	0	0
1-Jan	0.05	0.02	0	0								0	0	0	1.48	1.46	0	0
2-Jan	0.06	0.02	0	0								0	0	0	1.46	1.44	0	0
3-Jan	0.06	0.02	0	0								0	0	0	1.44	1.42	0	0
4-Jan	0.06	0.02	0	0								0	0	0	1.42	1.39	0	0
5-Jan	0.06	0.02	0	0								0	0	0	1.39	1.37	0	0
6-Jan	0.07	0.03	0.01	0.008								0	0	0	1.37	1.35	0	0
7-Jan	0.06	0.02	0.13	0.104								0	0	0	1.35	1.43	0	0
8-Jan	0.05	0.02	0	0								0	0	0	1.43	1.41	0	0
9-Jan	0.05	0.02	0	0								0	0	0	1.41	1.39	0	0
10-Jan	0.05	0.02	0	0								0	0	0	1.39	1.37	0	0
11-Jan	0.06	0.02	0.07	0.056								0	0	0	1.37	1.40	0	0
12-Jan	0.05	0.02	0.89	0.623								0	0	0	1.40	2.00	0	0
13-Jan	0.05	0.02	0.4	0.02								0	0	0	2.00	2.00	0	0
14-Jan	0.04	0.02	0	0								0	0	0	2.00	1.99	0	0
15-Jan	0.04	0.02	0	0								0	0	0	1.99	1.97	0	0
16-Jan	0.04	0.02	0	0								0	0	0	1.97	1.95	0	0
17-Jan	0.04	0.02	0	0								0	0	0	1.95	1.94	0	0
18-Jan	0.05	0.02	0	0								0	0	0	1.94	1.92	0	0

ET-A WRS – Zone 5

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.10	0.46	0.368				0	0	0	1.13	1.40	0	0
15-Sep	0.15	0.09	0	0				0	0	0	1.40	1.30	0	0
16-Sep	0.13	0.08	0	0				0	0	0	1.30	1.22	0	0
17-Sep	0.12	0.07	0	0				0	0	0	1.22	1.15	0	0
18-Sep	0.13	0.08	0.03	0.024				0	0	0	1.15	1.10	0	0
19-Sep	0.15	0.09	0	0				0	0	0	1.10	1.00	0	0
20-Sep	0.10	0.06	0.5	0.4				0	0	0	1.00	1.34	0	0
21-Sep	0.15	0.09	0.06	0.048				0	0	0	1.34	1.30	0	0
22-Sep	0.08	0.05	0.01	0.008				0	0	0	1.30	1.26	0	0
23-Sep	0.15	0.09	0	0				0	0	0	1.26	1.17	0	0
24-Sep	0.11	0.07	0	0				0	0	0	1.17	1.10	0	0
25-Sep	0.13	0.08	0	0				0	0	0	1.10	1.02	0	0
26-Sep	0.15	0.09	0	0				0	0	0	1.02	0.93	0	0
27-Sep	0.15	0.09	0	0				0	0	0	0.93	0.84	0	0
28-Sep	0.15	0.09	0	0				0	0	0	0.84	0.75	0	0
29-Sep	0.15	0.09	0	0				0	0	0	0.75	0.66	0	0
30-Sep	0.12	0.07	0	0				0	0	0	0.66	0.58	0	0
1-Oct	0.13	0.08	0	0				0	0	0	0.58	0.50	0	0
2-Oct	0.13	0.08	0	0	148	46	148	0.789	0.987	0.789	0.50	1.21	0	0
3-Oct	0.12	0.07	0	0				0	0	0	1.21	1.14	0	0
4-Oct	0.12	0.07	0	0				0	0	0	1.14	1.07	0	0
5-Oct	0.09	0.05	0	0				0	0	0	1.07	1.01	0	0
6-Oct	0.10	0.06	0.45	0.36				0	0	0	1.01	1.31	0	0
7-Oct	0.12	0.07	0	0				0	0	0	1.31	1.24	0	0
8-Oct	0.10	0.06	0.01	0.008				0	0	0	1.24	1.18	0	0
9-Oct	0.10	0.06	0.66	0.528				0	0	0	1.18	1.65	0	0
10-Oct	0.10	0.06	0	0				0	0	0	1.65	1.59	0	0
11-Oct	0.10	0.06	0	0				0	0	0	1.59	1.53	0	0
12-Oct	0.11	0.07	0	0				0	0	0	1.53	1.46	0	0
13-Oct	0.12	0.07	0	0				0	0	0	1.46	1.39	0	0
14-Oct	0.11	0.07	0	0				0	0	0	1.39	1.32	0	0
15-Oct	0.12	0.07	0	0				0	0	0	1.32	1.25	0	0
16-Oct	0.10	0.06	0	0				0	0	0	1.25	1.19	0	0
17-Oct	0.11	0.07	0	0				0	0	0	1.19	1.12	0	0
18-Oct	0.08	0.05	0	0				0	0	0	1.12	1.07	0	0
19-Oct	0.09	0.05	0	0				0	0	0	1.07	1.02	0	0
20-Oct	0.10	0.06	0	0				0	0	0	1.02	0.96	0	0
21-Oct	0.09	0.05	0	0				0	0	0	0.96	0.90	0	0
22-Oct	0.09	0.05	0	0				0	0	0	0.90	0.85	0	0
23-Oct	0.08	0.05	0.05	0.04				0	0	0	0.85	0.84	0	0
24-Oct	0.06	0.04	0.48	0.384				0	0	0	0.84	1.18	0	0
25-Oct	0.07	0.04	0.08	0.064				0	0	0	1.18	1.21	0	0
26-Oct	0.08	0.05	0	0				0	0	0	1.21	1.16	0	0
27-Oct	0.09	0.05	0	0				0	0	0	1.16	1.10	0	0
28-Oct	0.07	0.04	0	0				0	0	0	1.10	1.06	0	0
29-Oct	0.06	0.04	0	0				0	0	0	1.06	1.02	0	0
30-Oct	0.07	0.04	0	0				0	0	0	1.02	0.98	0	0
31-Oct	0.08	0.05	0	0				0	0	0	0.98	0.93	0	0
1-Nov	0.08	0.05	0	0				0	0	0	0.93	0.88	0	0
2-Nov	0.07	0.04	0.03	0.024				0	0	0	0.88	0.86	0	0
3-Nov	0.08	0.05	0	0				0	0	0	0.86	0.82	0	0
4-Nov	0.05	0.03	0.02	0.016				0	0	0	0.82	0.80	0	0
5-Nov	0.05	0.03	0	0				0	0	0	0.80	0.77	0	0
6-Nov	0.07	0.04	0	0				0	0	0	0.77	0.73	0	0
7-Nov	0.08	0.05	0	0	148	10	148	0.789	0.987	0.789	0.73	1.47	0	0
8-Nov	0.07	0.04	0	0				0	0	0	1.47	1.43	0	0
9-Nov	0.07	0.04	0	0				0	0	0	1.43	1.38	0	0
10-Nov	0.07	0.04	0	0				0	0	0	1.38	1.34	0	0
11-Nov	0.07	0.04	0	0				0	0	0	1.34	1.30	0	0
12-Nov	0.07	0.04	0	0				0	0	0	1.30	1.25	0	0
13-Nov	0.08	0.05	0.03	0.024				0	0	0	1.25	1.23	0	0
14-Nov	0.08	0.05	0	0				0	0	0	1.23	1.18	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
15-Nov	0.08	0.05	0.2	0.16				0	0	0	1.18	1.29	0	0
16-Nov	0.05	0.03	0	0				0	0	0	1.29	1.26	0	0
17-Nov	0.05	0.03	0	0				0	0	0	1.26	1.23	0	0
18-Nov	0.05	0.03	0	0				0	0	0	1.23	1.20	0	0
19-Nov	0.04	0.02	0	0				0	0	0	1.20	1.18	0	0
20-Nov	0.05	0.03	0	0				0	0	0	1.18	1.15	0	0
21-Nov	0.05	0.03	0	0				0	0	0	1.15	1.12	0	0
22-Nov	0.05	0.03	0	0				0	0	0	1.12	1.08	0	0
23-Nov	0.05	0.03	0	0				0	0	0	1.08	1.05	0	0
24-Nov	0.06	0.04	0	0				0	0	0	1.05	1.02	0	0
25-Nov	0.05	0.03	0	0				0	0	0	1.02	0.99	0	0
26-Nov	0.05	0.03	0	0				0	0	0	0.99	0.96	0	0
27-Nov	0.05	0.03	0	0				0	0	0	0.96	0.93	0	0
28-Nov	0.06	0.04	0	0				0	0	0	0.93	0.89	0	0
29-Nov	0.06	0.04	0	0				0	0	0	0.89	0.85	0	0
30-Nov	0.06	0.04	0.26	0.208				0	0	0	0.85	1.02	0	0
1-Dec	0.05	0.03	0.04	0.032				0	0	0	1.02	1.03	0	0
2-Dec	0.04	0.02	0.15	0.12				0	0	0	1.03	1.12	0	0
3-Dec	0.04	0.02	0	0				0	0	0	1.12	1.10	0	0
4-Dec	0.05	0.03	0	0				0	0	0	1.10	1.07	0	0
5-Dec	0.05	0.03	0	0				0	0	0	1.07	1.04	0	0
6-Dec	0.05	0.03	0.05	0.04				0	0	0	1.04	1.05	0	0
7-Dec	0.04	0.02	0	0				0	0	0	1.05	1.02	0	0
8-Dec	0.04	0.02	0	0				0	0	0	1.02	1.00	0	0
9-Dec	0.06	0.04	0	0				0	0	0	1.00	0.96	0	0
10-Dec	0.06	0.04	0	0				0	0	0	0.96	0.92	0	0
11-Dec	0.06	0.04	0.39	0.312				0	0	0	0.92	1.20	0	0
12-Dec	0.04	0.02	0	0				0	0	0	1.20	1.17	0	0
13-Dec	0.04	0.02	0	0				0	0	0	1.17	1.15	0	0
14-Dec	0.06	0.04	0	0				0	0	0	1.15	1.11	0	0
15-Dec	0.06	0.04	0	0				0	0	0	1.11	1.08	0	0
16-Dec	0.06	0.04	0	0				0	0	0	1.08	1.04	0	0
17-Dec	0.06	0.04	0	0				0	0	0	1.04	1.00	0	0
18-Dec	0.06	0.04	0	0				0	0	0	1.00	0.97	0	0
19-Dec	0.06	0.04	0	0				0	0	0	0.97	0.93	0	0
20-Dec	0.06	0.04	0	0				0	0	0	0.93	0.89	0	0
21-Dec	0.06	0.04	0.03	0.024				0	0	0	0.89	0.88	0	0
22-Dec	0.04	0.02	0	0				0	0	0	0.88	0.86	0	0
23-Dec	0.05	0.03	0	0				0	0	0	0.86	0.83	0	0
24-Dec	0.06	0.04	0	0				0	0	0	0.83	0.79	0	0
25-Dec	0.06	0.04	0.04	0.032				0	0	0	0.79	0.79	0	0
26-Dec	0.07	0.04	0	0				0	0	0	0.79	0.74	0	0
27-Dec	0.06	0.04	0	0				0	0	0	0.74	0.71	0	0
28-Dec	0.06	0.04	0	0				0	0	0	0.71	0.67	0	0
29-Dec	0.06	0.04	0	0				0	0	0	0.67	0.63	0	0
30-Dec	0.05	0.03	0	0	148	10	148	0.789	0.987	0.789	0.63	1.39	0	0
31-Dec	0.05	0.03	0	0				0	0	0	1.39	1.36	0	0
1-Jan	0.05	0.03	0	0				0	0	0	1.36	1.33	0	0
2-Jan	0.06	0.04	0	0				0	0	0	1.33	1.29	0	0
3-Jan	0.06	0.04	0	0				0	0	0	1.29	1.26	0	0
4-Jan	0.06	0.04	0	0				0	0	0	1.26	1.22	0	0
5-Jan	0.06	0.04	0	0				0	0	0	1.22	1.18	0	0
6-Jan	0.07	0.04	0.01	0.008				0	0	0	1.18	1.15	0	0
7-Jan	0.06	0.04	0.13	0.104				0	0	0	1.15	1.22	0	0
8-Jan	0.05	0.03	0	0				0	0	0	1.22	1.19	0	0
9-Jan	0.05	0.03	0	0				0	0	0	1.19	1.16	0	0
10-Jan	0.05	0.03	0	0				0	0	0	1.16	1.13	0	0
11-Jan	0.06	0.04	0.07	0.056				0	0	0	1.13	1.14	0	0
12-Jan	0.05	0.03	0.89	0.712				0	0	0	1.14	1.83	0	0
13-Jan	0.05	0.03	0.4	0.32				0	0	0	1.83	2.12	0	0
14-Jan	0.04	0.02	0	0				0	0	0	2.12	2.09	0	0
15-Jan	0.04	0.02	0	0				0	0	0	2.09	2.07	0	0
16-Jan	0.04	0.02	0	0				0	0	0	2.07	2.04	0	0
17-Jan	0.04	0.02	0	0				0	0	0	2.04	2.02	0	0
18-Jan	0.05	0.03	0	0				0	0	0	2.02	1.99	0	0

ET-A WRS – Zone 6

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Sep	0.16	0.10	0.46	0.368								0	0	0	0.27	0.54	0	0
15-Sep	0.15	0.10	0	0								0	0	0	0.54	0.44	0	0
16-Sep	0.13	0.08	0	0								0	0	0	0.44	0.36	0	0
17-Sep	0.12	0.08	0	0								0	0	0	0.36	0.28	0	0
18-Sep	0.13	0.08	0.03	0.024								0	0	0	0.28	0.22	0	0
19-Sep	0.15	0.10	0	0								0	0	0	0.22	0.13	0	0
20-Sep	0.10	0.06	0.5	0.4								0	0	0	0.13	0.46	0	0
21-Sep	0.15	0.10	0.06	0.048								0	0	0	0.46	0.42	0	0
22-Sep	0.08	0.05	0.01	0.008								0	0	0	0.42	0.37	0	0
23-Sep	0.15	0.10	0	0								0	0	0	0.37	0.28	0	0
24-Sep	0.11	0.07	0	0	21	97	21	97	21	74	21	0.318	0.49	0.318	0.28	0.53	0	0
25-Sep	0.13	0.08	0	0								0	0	0	0.53	0.44	0	0
26-Sep	0.15	0.10	0	0								0	0	0	0.44	0.35	0	0
27-Sep	0.15	0.10	0	0	21	97	21	97	21	74	21	0.318	0.49	0.298	0.35	0.55	0	0.0209
28-Sep	0.15	0.10	0	0								0	0	0	0.55	0.45	0	0
29-Sep	0.15	0.10	0	0								0	0	0	0.45	0.36	0	0
30-Sep	0.12	0.08	0	0								0	0	0	0.36	0.28	0	0
1-Oct	0.13	0.08	0	0								0	0	0	0.28	0.20	0	0
2-Oct	0.13	0.08	0	0	21	173	21	173	21	74	21	0.318	0.49	0.318	0.20	0.44	0	0
3-Oct	0.12	0.07	0	0								0	0	0	0.44	0.37	0	0
4-Oct	0.12	0.07	0	0								0	0	0	0.37	0.30	0	0
5-Oct	0.09	0.05	0	0								0	0	0	0.30	0.24	0	0
6-Oct	0.10	0.06	0.45	0.36								0	0	0	0.24	0.54	0	0
7-Oct	0.12	0.07	0	0								0	0	0	0.54	0.47	0	0
8-Oct	0.10	0.06	0.01	0.008								0	0	0	0.47	0.42	0	0
9-Oct	0.10	0.06	0.66	0.1883								0	0	0	0.42	0.55	0	0
10-Oct	0.10	0.06	0	0								0	0	0	0.55	0.49	0	0
11-Oct	0.10	0.06	0	0								0	0	0	0.49	0.43	0	0
12-Oct	0.11	0.07	0	0								0	0	0	0.43	0.36	0	0
13-Oct	0.12	0.07	0	0								0	0	0	0.36	0.29	0	0
14-Oct	0.11	0.07	0	0								0	0	0	0.29	0.22	0	0
15-Oct	0.12	0.07	0	0	21	97	21	97	21	74	21	0.318	0.49	0.318	0.22	0.47	0	0
16-Oct	0.10	0.06	0	0								0	0	0	0.47	0.41	0	0
17-Oct	0.11	0.07	0	0								0	0	0	0.41	0.34	0	0
18-Oct	0.08	0.05	0	0								0	0	0	0.34	0.30	0	0
19-Oct	0.09	0.05	0	0								0	0	0	0.30	0.24	0	0
20-Oct	0.10	0.06	0	0								0	0	0	0.24	0.18	0	0
21-Oct	0.09	0.05	0	0	21	90	21	79	21	74	21	0.318	0.49	0.318	0.18	0.45	0	0
22-Oct	0.09	0.05	0	0								0	0	0	0.45	0.39	0	0
23-Oct	0.08	0.05	0.05	0.04								0	0	0	0.39	0.38	0	0
24-Oct	0.06	0.04	0.48	0.199								0	0	0	0.38	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042								0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0								0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0								0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0								0	0	0	0.45	0.40	0	0
29-Oct	0.06	0.04	0	0								0	0	0	0.40	0.37	0	0
30-Oct	0.07	0.04	0	0								0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0								0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0								0	0	0	0.28	0.23	0	0
2-Nov	0.07	0.04	0.03	0.024								0	0	0	0.23	0.22	0	0
3-Nov	0.08	0.05	0	0	21	90	21	79	21	74	21	0.318	0.49	0.318	0.22	0.49	0	0
4-Nov	0.05	0.03	0.02	0.016								0	0	0	0.49	0.48	0	0
5-Nov	0.05	0.03	0	0								0	0	0	0.48	0.45	0	0
6-Nov	0.07	0.04	0	0								0	0	0	0.45	0.41	0	0
7-Nov	0.08	0.05	0	0								0	0	0	0.41	0.36	0	0
8-Nov	0.07	0.04	0	0								0	0	0	0.36	0.32	0	0
9-Nov	0.07	0.04	0	0								0	0	0	0.32	0.28	0	0
10-Nov	0.07	0.04	0	0								0	0	0	0.28	0.24	0	0
11-Nov	0.07	0.04	0	0								0	0	0	0.24	0.20	0	0
12-Nov	0.07	0.04	0	0	21	90	21	79	21	74	21	0.318	0.49	0.318	0.20	0.48	0	0
13-Nov	0.08	0.05	0.03	0.024								0	0	0	0.48	0.46	0	0
14-Nov	0.08	0.05	0	0								0	0	0	0.46	0.41	0	0
15-Nov	0.08	0.05	0.2	0.16								0	0	0	0.41	0.53	0	0
16-Nov	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Nov	0.05	0.03	0	0								0	0	0	0.50	0.47	0	0
18-Nov	0.05	0.03	0	0								0	0	0	0.47	0.44	0	0
19-Nov	0.04	0.02	0	0								0	0	0	0.44	0.42	0	0
20-Nov	0.05	0.03	0	0								0	0	0	0.42	0.39	0	0
21-Nov	0.05	0.03	0	0								0	0	0	0.39	0.36	0	0
22-Nov	0.05	0.03	0	0								0	0	0	0.36	0.33	0	0
23-Nov	0.05	0.03	0	0								0	0	0	0.33	0.31	0	0
24-Nov	0.06	0.03	0	0								0	0	0	0.31	0.27	0	0
25-Nov	0.05	0.03	0	0								0	0	0	0.27	0.24	0	0
26-Nov	0.05	0.03	0	0	21	90	21	79	21	74	21	0.318	0.49	0.318	0.24	0.53	0	0
27-Nov	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0
28-Nov	0.06	0.03	0	0								0	0	0	0.50	0.47	0	0
29-Nov	0.06	0.03	0	0								0	0	0	0.47	0.44	0	0
30-Nov	0.06	0.03	0.26	0.145								0	0	0	0.44	0.55	0	0
1-Dec	0.05	0.03	0.04	0.0265								0	0	0	0.55	0.55	0	0
2-Dec	0.04	0.02	0.15	0.0212								0	0	0	0.55	0.55	0	0
3-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
4-Dec	0.05	0.03	0	0								0	0	0	0.53	0.50	0	0
5-Dec	0.05	0.03	0	0								0	0	0	0.50	0.47	0	0
6-Dec	0.05	0.03	0.05	0.04								0	0	0	0.47	0.49	0	0
7-Dec	0.04	0.02	0	0								0	0	0	0.49	0.47	0	0
8-Dec	0.04	0.02	0	0								0	0	0	0.47	0.44	0	0
9-Dec	0.06	0.03	0	0								0	0	0	0.44	0.41	0	0
10-Dec	0.06	0.03	0	0								0	0	0	0.41	0.38	0	0
11-Dec	0.06	0.03	0.39	0.1985								0	0	0	0.38	0.55	0	0
12-Dec	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
13-Dec	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
14-Dec	0.06	0.03	0	0								0	0	0	0.51	0.47	0	0
15-Dec	0.06	0.03	0	0								0	0	0	0.47	0.44	0	0
16-Dec	0.06	0.03	0	0								0	0	0	0.44	0.41	0	0
17-Dec	0.06	0.03	0	0								0	0	0	0.41	0.38	0	0
18-Dec	0.06	0.03	0	0								0	0	0	0.38	0.35	0	0
19-Dec	0.06	0.03	0	0								0	0	0	0.35	0.31	0	0
20-Dec	0.06	0.03	0	0								0	0	0	0.31	0.28	0	0
21-Dec	0.06	0.03	0.03	0.024								0	0	0	0.28	0.27	0	0
22-Dec	0.04	0.02	0	0	21	90	21	79	21	74	21	0.318	0.49	0.294	0.27	0.55	0	0.0245
23-Dec	0.05	0.03	0	0								0	0	0	0.55	0.52	0	0
24-Dec	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
25-Dec	0.06	0.03	0.04	0.032								0	0	0	0.49	0.49	0	0
26-Dec	0.07	0.04	0	0								0	0	0	0.49	0.45	0	0
27-Dec	0.06	0.03	0	0								0	0	0	0.45	0.42	0	0
28-Dec	0.06	0.03	0	0								0	0	0	0.42	0.39	0	0
29-Dec	0.06	0.03	0	0								0	0	0	0.39	0.36	0	0
30-Dec	0.05	0.03	0	0								0	0	0	0.36	0.33	0	0
31-Dec	0.05	0.03	0	0								0	0	0	0.33	0.30	0	0
1-Jan	0.05	0.03	0	0								0	0	0	0.30	0.28	0	0
2-Jan	0.06	0.03	0	0	21	90	21	79	21	74	21	0.318	0.49	0.301	0.28	0.55	0	0.0177
3-Jan	0.06	0.03	0	0								0	0	0	0.55	0.52	0	0
4-Jan	0.06	0.03	0	0								0	0	0	0.52	0.49	0	0
5-Jan	0.06	0.03	0	0								0	0	0	0.49	0.45	0	0
6-Jan	0.07	0.04	0.01	0.008								0	0	0	0.45	0.43	0	0
7-Jan	0.06	0.03	0.13	0.104								0	0	0	0.43	0.50	0	0
8-Jan	0.05	0.03	0	0								0	0	0	0.50	0.47	0	0
9-Jan	0.05	0.03	0	0								0	0	0	0.47	0.45	0	0
10-Jan	0.05	0.03	0	0								0	0	0	0.45	0.42	0	0
11-Jan	0.06	0.03	0.07	0.056								0	0	0	0.42	0.45	0	0
12-Jan	0.05	0.03	0.89	0.1284								0	0	0	0.45	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026								0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0								0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0								0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0								0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0								0	0	0	0.49	0.46	0	0
18-Jan	0.05	0.03	0	0								0	0	0	0.46	0.44	0	0

Appendix C

Irrigation Association - Smart Water Application Technology

Testing of Climatologically-based Controllers

Project Information
Controller: ET-B
Sensor: None (WORS)
Weather Station: FAWN – Citra, FL
Test Dates: October 23, 2008 – January 18, 2009
Test Status: Completed
Protocol Version: 7 th Draft (November, 2006)

Evaluation Summary	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
ET _O (in)	5.11	5.11	5.11	5.11	5.11	5.11
ET _C (in)	2.21	2.82	2.81	2.04	3.12	2.82
Total Rainfall (in)	3.35	3.35	3.35	3.35	3.35	3.35
Effective Rainfall (in)	1.64	1.71	1.97	2.68	2.68	1.72
Net Irrigation (in)	2.11	1.95	2.50	0	0	1.80
Gross Irrigation (in)	1.16	1.17	1.75	0	0	1.17
Deficit (in)	0	0.10	0	0	0.17	0.10
Surplus (in)	0.25	0	0.57	0	0	0
Direct Runoff (in)	0	0	0	0	0	0
Soak Runoff (in)	0	0	0	0	0	0
Scheduling Losses (in)	0.25	0	0.57	0	0	0
Irrigation Adequacy (%)	100	96	100	100	94	96
Schedule Efficiency (%)	79	100	67	N/A	N/A	100
Scheduling Excess (%)	21	0	33	N/A	N/A	0
Application Efficiency (%)	55	60	70	75	80	65
Rainfall Efficiency (%)	61	64	73	100	100	64
Overall Efficiency (%)	43	58	47	N/A	N/A	63

ET-B WORS – Zone 1

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.04	0.05	0.04								0	0	0	0.43	0.43	0	0
24-Oct	0.06	0.03	0.48	0.384								0	0	0	0.43	0.78	0	0
25-Oct	0.07	0.04	0.08	0.064								0	0	0	0.78	0.81	0	0
26-Oct	0.08	0.04	0	0								0	0	0	0.81	0.77	0	0
27-Oct	0.09	0.05	0	0								0	0	0	0.77	0.72	0	0
28-Oct	0.07	0.04	0	0								0	0	0	0.72	0.69	0	0
29-Oct	0.06	0.03	0	0								0	0	0	0.69	0.66	0	0
30-Oct	0.07	0.04	0	0								0	0	0	0.66	0.62	0	0
31-Oct	0.08	0.04	0	0								0	0	0	0.62	0.58	0	0
1-Nov	0.08	0.04	0	0								0	0	0	0.58	0.55	0	0
2-Nov	0.07	0.03	0.03	0.024								0	0	0	0.55	0.54	0	0
3-Nov	0.08	0.04	0	0								0	0	0	0.54	0.50	0	0
4-Nov	0.05	0.02	0.02	0.016								0	0	0	0.50	0.50	0	0
5-Nov	0.05	0.02	0	0								0	0	0	0.50	0.47	0	0
6-Nov	0.07	0.03	0	0								0	0	0	0.47	0.44	0	0
7-Nov	0.08	0.04	0	0								0	0	0	0.44	0.41	0	0
8-Nov	0.07	0.03	0	0								0	0	0	0.41	0.38	0	0
9-Nov	0.07	0.03	0	0								0	0	0	0.38	0.34	0	0
10-Nov	0.07	0.03	0	0								0	0	0	0.34	0.31	0	0
11-Nov	0.07	0.03	0	0								0	0	0	0.31	0.28	0	0
12-Nov	0.07	0.03	0	0								0	0	0	0.28	0.25	0	0
13-Nov	0.08	0.04	0.03	0.024								0	0	0	0.25	0.24	0	0
14-Nov	0.08	0.04	0	0								0	0	0	0.24	0.20	0	0
15-Nov	0.08	0.04	0.2	0.16								0	0	0	0.20	0.33	0	0
16-Nov	0.05	0.02	0	0								0	0	0	0.33	0.30	0	0
17-Nov	0.05	0.02	0	0								0	0	0	0.30	0.28	0	0
18-Nov	0.05	0.02	0	0								0	0	0	0.28	0.26	0	0
19-Nov	0.04	0.02	0	0								0	0	0	0.26	0.24	0	0
20-Nov	0.05	0.02	0	0								0	0	0	0.24	0.22	0	0
21-Nov	0.05	0.02	0	0								0	0	0	0.22	0.20	0	0
22-Nov	0.05	0.02	0	0								0	0	0	0.20	0.17	0	0
23-Nov	0.05	0.02	0	0								0	0	0	0.17	0.15	0	0
24-Nov	0.06	0.03	0	0								0	0	0	0.15	0.12	0	0
25-Nov	0.05	0.02	0	0								0	0	0	0.12	0.10	0	0
26-Nov	0.05	0.02	0	0								0	0	0	0.10	0.08	0	0
27-Nov	0.05	0.02	0	0								0	0	0	0.08	0.06	0	0
28-Nov	0.06	0.03	0	0								0	0	0	0.06	0.03	0	0
29-Nov	0.06	0.03	0	0								0	0	0	0.03	0.00	0	0
30-Nov	0.06	0.03	0.26	0.208								0	0	0	0.00	0.18	0	0
1-Dec	0.05	0.02	0.04	0.032	7	15	6	25	6	26	6	0.367	0.667	0.367	0.18	0.56	0	0
2-Dec	0.04	0.02	0.15	0.12								0	0	0	0.56	0.67	0	0
3-Dec	0.04	0.02	0	0								0	0	0	0.67	0.65	0	0
4-Dec	0.05	0.02	0	0								0	0	0	0.65	0.63	0	0
5-Dec	0.05	0.02	0	0								0	0	0	0.63	0.61	0	0
6-Dec	0.05	0.02	0.05	0.04								0	0	0	0.61	0.63	0	0
7-Dec	0.04	0.02	0	0								0	0	0	0.63	0.61	0	0
8-Dec	0.04	0.02	0	0								0	0	0	0.61	0.60	0	0
9-Dec	0.06	0.02	0	0								0	0	0	0.60	0.57	0	0
10-Dec	0.06	0.02	0	0								0	0	0	0.57	0.55	0	0
11-Dec	0.06	0.02	0.39	0.312								0	0	0	0.55	0.84	0	0
12-Dec	0.04	0.02	0	0								0	0	0	0.84	0.82	0	0
13-Dec	0.04	0.02	0	0								0	0	0	0.82	0.81	0	0
14-Dec	0.06	0.02	0	0								0	0	0	0.81	0.78	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	
15-Dec	0.06	0.02	0	0								0	0	0	0.78	0.76	0	0
16-Dec	0.06	0.02	0	0								0	0	0	0.76	0.73	0	0
17-Dec	0.06	0.02	0	0								0	0	0	0.73	0.71	0	0
18-Dec	0.06	0.02	0	0								0	0	0	0.71	0.69	0	0
19-Dec	0.06	0.02	0	0								0	0	0	0.69	0.66	0	0
20-Dec	0.06	0.02	0	0								0	0	0	0.66	0.64	0	0
21-Dec	0.06	0.02	0.03	0.024								0	0	0	0.64	0.64	0	0
22-Dec	0.04	0.02	0	0								0	0	0	0.64	0.62	0	0
23-Dec	0.05	0.02	0	0								0	0	0	0.62	0.60	0	0
24-Dec	0.06	0.02	0	0								0	0	0	0.60	0.58	0	0
25-Dec	0.06	0.02	0.04	0.032								0	0	0	0.58	0.59	0	0
26-Dec	0.07	0.03	0	0								0	0	0	0.59	0.56	0	0
27-Dec	0.06	0.02	0	0								0	0	0	0.56	0.53	0	0
28-Dec	0.06	0.02	0	0								0	0	0	0.53	0.51	0	0
29-Dec	0.06	0.02	0	0								0	0	0	0.51	0.49	0	0
30-Dec	0.05	0.02	0	0								0	0	0	0.49	0.47	0	0
31-Dec	0.05	0.02	0	0								0	0	0	0.47	0.45	0	0
1-Jan	0.05	0.02	0	0								0	0	0	0.45	0.42	0	0
2-Jan	0.06	0.02	0	0								0	0	0	0.42	0.40	0	0
3-Jan	0.06	0.02	0	0								0	0	0	0.40	0.38	0	0
4-Jan	0.06	0.02	0	0								0	0	0	0.38	0.35	0	0
5-Jan	0.06	0.02	0	0	7	15	7	15	7	15	6	0.396	0.72	0.396	0.35	0.72	0	0
6-Jan	0.07	0.03	0.01	0.008	7	15	7	15	7	15	6	0.396	0.72	0.148	0.72	0.85	0	0.248
7-Jan	0.06	0.02	0.13	0.0246								0	0	0	0.85	0.85	0	0
8-Jan	0.05	0.02	0	0								0	0	0	0.85	0.83	0	0
9-Jan	0.05	0.02	0	0								0	0	0	0.83	0.81	0	0
10-Jan	0.05	0.02	0	0								0	0	0	0.81	0.79	0	0
11-Jan	0.06	0.02	0.07	0.056								0	0	0	0.79	0.82	0	0
12-Jan	0.05	0.02	0.89	0.051								0	0	0	0.82	0.85	0	0
13-Jan	0.05	0.02	0.4	0.021								0	0	0	0.85	0.85	0	0
14-Jan	0.04	0.02	0	0								0	0	0	0.85	0.83	0	0
15-Jan	0.04	0.02	0	0								0	0	0	0.83	0.82	0	0
16-Jan	0.04	0.02	0	0								0	0	0	0.82	0.80	0	0
17-Jan	0.04	0.02	0	0								0	0	0	0.80	0.78	0	0
18-Jan	0.05	0.02	0	0								0	0	0	0.78	0.76	0	0

ET-B WORS – Zone 2

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Soak	Cycle 6	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)								
23-Oct	0.08	0.05	0.05	0.04												0	0	0	0.28	0.27	0	0
24-Oct	0.06	0.04	0.48	0.319												0	0	0	0.27	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042												0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0												0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0												0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0												0	0	0	0.45	0.41	0	0
29-Oct	0.06	0.04	0	0												0	0	0	0.41	0.37	0	0
30-Oct	0.07	0.04	0	0												0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0												0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0												0	0	0	0.28	0.24	0	0
2-Nov	0.07	0.04	0.03	0.024												0	0	0	0.24	0.22	0	0
3-Nov	0.08	0.05	0	0												0	0	0	0.22	0.17	0	0
4-Nov	0.05	0.03	0.02	0.016												0	0	0	0.17	0.16	0	0
5-Nov	0.05	0.03	0	0												0	0	0	0.16	0.13	0	0
6-Nov	0.07	0.04	0	0												0	0	0	0.13	0.09	0	0
7-Nov	0.08	0.05	0	0												0	0	0	0.09	0.05	0	0
8-Nov	0.07	0.04	0	0												0	0	0	0.05	0.01	0	0
9-Nov	0.07	0.04	0	0	2	20	3	22	3	29	3	29	3		0.224	0.373	0.224	0.01	0.19	0	0	
10-Nov	0.07	0.04	0	0												0	0	0	0.19	0.15	0	0
11-Nov	0.07	0.04	0	0												0	0	0	0.15	0.11	0	0
12-Nov	0.07	0.04	0	0												0	0	0	0.11	0.07	0	0
13-Nov	0.08	0.05	0.03	0.024												0	0	0	0.07	0.05	0	0
14-Nov	0.08	0.05	0	0												0	0	0	0.05	0.00	0	0
15-Nov	0.08	0.05	0.2	0.16												0	0	0	0.00	0.12	0	0
16-Nov	0.05	0.03	0	0												0	0	0	0.12	0.09	0	0
17-Nov	0.05	0.03	0	0												0	0	0	0.09	0.06	0	0
18-Nov	0.05	0.03	0	0												0	0	0	0.06	0.03	0	0
19-Nov	0.04	0.02	0	0												0	0	0	0.03	0.01	0	0
20-Nov	0.05	0.03	0	0												0	0	0	0.01	0.00	0.02	0
21-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
22-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
23-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
24-Nov	0.06	0.03	0	0	3	20	3	20	3	29	3	29	3		0.240	0.400	0.240	0.00	0.21	0	0	
25-Nov	0.05	0.03	0	0												0	0	0	0.21	0.18	0	0
26-Nov	0.05	0.03	0	0												0	0	0	0.18	0.15	0	0
27-Nov	0.05	0.03	0	0												0	0	0	0.15	0.12	0	0
28-Nov	0.06	0.03	0	0												0	0	0	0.12	0.09	0	0
29-Nov	0.06	0.03	0	0												0	0	0	0.09	0.05	0	0
30-Nov	0.06	0.03	0.26	0.208												0	0	0	0.05	0.23	0	0
1-Dec	0.05	0.03	0.04	0.032	2	20	3	27	3	29	3	22	3		0.224	0.373	0.224	0.23	0.46	0	0	
2-Dec	0.04	0.02	0.15	0.117												0	0	0	0.46	0.55	0	0
3-Dec	0.04	0.02	0	0												0	0	0	0.55	0.53	0	0
4-Dec	0.05	0.03	0	0												0	0	0	0.53	0.50	0	0
5-Dec	0.05	0.03	0	0												0	0	0	0.50	0.48	0	0
6-Dec	0.05	0.03	0.05	0.04												0	0	0	0.48	0.49	0	0
7-Dec	0.04	0.02	0	0												0	0	0	0.49	0.47	0	0
8-Dec	0.04	0.02	0	0												0	0	0	0.47	0.45	0	0
9-Dec	0.06	0.03	0	0												0	0	0	0.45	0.42	0	0
10-Dec	0.06	0.03	0	0												0	0	0	0.42	0.38	0	0
11-Dec	0.06	0.03	0.39	0.199												0	0	0	0.38	0.55	0	0
12-Dec	0.04	0.02	0	0												0	0	0	0.55	0.53	0	0
13-Dec	0.04	0.02	0	0												0	0	0	0.53	0.51	0	0
14-Dec	0.06	0.03	0	0												0	0	0	0.51	0.48	0	0

Date	ET _O (in)	ET _C (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Soak (min)	Cycle 3 (min)	Soak (min)	Cycle 4 (min)	Soak (min)	Cycle 5 (min)	Soak (min)	Cycle 6 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Scheduling Losses (in)
15-Dec	0.06	0.03	0	0												0	0	0	0.48	0.44	0	0
16-Dec	0.06	0.03	0	0												0	0	0	0.44	0.41	0	0
17-Dec	0.06	0.03	0	0												0	0	0	0.41	0.38	0	0
18-Dec	0.06	0.03	0	0												0	0	0	0.38	0.35	0	0
19-Dec	0.06	0.03	0	0												0	0	0	0.35	0.32	0	0
20-Dec	0.06	0.03	0	0												0	0	0	0.32	0.29	0	0
21-Dec	0.06	0.03	0.03	0.024												0	0	0	0.29	0.28	0	0
22-Dec	0.04	0.02	0	0												0	0	0	0.28	0.26	0	0
23-Dec	0.05	0.03	0	0												0	0	0	0.26	0.23	0	0
24-Dec	0.06	0.03	0	0												0	0	0	0.23	0.20	0	0
25-Dec	0.06	0.03	0.04	0.032	3	20	3	20	3	29	2	29	3		0.224	0.373	0.224	0.20	0.42	0	0	
26-Dec	0.07	0.04	0	0												0	0	0	0.42	0.39	0	0
27-Dec	0.06	0.03	0	0												0	0	0	0.39	0.35	0	0
28-Dec	0.06	0.03	0	0												0	0	0	0.35	0.32	0	0
29-Dec	0.06	0.03	0	0												0	0	0	0.32	0.29	0	0
30-Dec	0.05	0.03	0	0												0	0	0	0.29	0.26	0	0
31-Dec	0.05	0.03	0	0												0	0	0	0.26	0.24	0	0
1-Jan	0.05	0.03	0	0												0	0	0	0.24	0.21	0	0
2-Jan	0.06	0.03	0	0												0	0	0	0.21	0.18	0	0
3-Jan	0.06	0.03	0	0												0	0	0	0.18	0.15	0	0
4-Jan	0.06	0.03	0	0	3	20	3	21	3	29	3	29	2	30	2	0.256	0.427	0.256	0.15	0.37	0	0
5-Jan	0.06	0.03	0	0												0	0	0	0.37	0.34	0	0
6-Jan	0.07	0.04	0.01	0.008												0	0	0	0.34	0.31	0	0
7-Jan	0.06	0.03	0.13	0.104												0	0	0	0.31	0.39	0	0
8-Jan	0.05	0.03	0	0												0	0	0	0.39	0.36	0	0
9-Jan	0.05	0.03	0	0												0	0	0	0.36	0.33	0	0
10-Jan	0.05	0.03	0	0												0	0	0	0.33	0.31	0	0
11-Jan	0.06	0.03	0.07	0.056												0	0	0	0.31	0.33	0	0
12-Jan	0.05	0.03	0.89	0.243												0	0	0	0.33	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026												0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0												0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0												0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0												0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0												0	0	0	0.49	0.47	0	0
18-Jan	0.05	0.03	0	0												0	0	0	0.47	0.44	0	0

ET-B WORS – Zone 3

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.04	0.05	0.04										0	0	0	0.45	0.45	0	0
24-Oct	0.06	0.03	0.48	0.384										0	0	0	0.45	0.80	0	0
25-Oct	0.07	0.04	0.08	0.064										0	0	0	0.80	0.82	0	0
26-Oct	0.08	0.04	0	0										0	0	0	0.82	0.78	0	0
27-Oct	0.09	0.05	0	0										0	0	0	0.78	0.73	0	0
28-Oct	0.07	0.04	0	0										0	0	0	0.73	0.69	0	0
29-Oct	0.06	0.03	0	0										0	0	0	0.69	0.66	0	0
30-Oct	0.07	0.04	0	0										0	0	0	0.66	0.62	0	0
31-Oct	0.08	0.04	0	0										0	0	0	0.62	0.58	0	0
1-Nov	0.08	0.04	0	0										0	0	0	0.58	0.53	0	0
2-Nov	0.07	0.04	0.03	0.024										0	0	0	0.53	0.52	0	0
3-Nov	0.08	0.04	0	0										0	0	0	0.52	0.47	0	0
4-Nov	0.05	0.03	0.02	0.016										0	0	0	0.47	0.46	0	0
5-Nov	0.05	0.03	0	0										0	0	0	0.46	0.43	0	0
6-Nov	0.07	0.04	0	0										0	0	0	0.43	0.40	0	0
7-Nov	0.08	0.04	0	0										0	0	0	0.40	0.35	0	0
8-Nov	0.07	0.04	0	0										0	0	0	0.35	0.31	0	0
9-Nov	0.07	0.04	0	0										0	0	0	0.31	0.27	0	0
10-Nov	0.07	0.04	0	0										0	0	0	0.27	0.24	0	0
11-Nov	0.07	0.04	0	0	4	10	8	10	7	10	8	10	7	0.555	0.793	0.555	0.24	0.75	0	0
12-Nov	0.07	0.04	0	0										0	0	0	0.75	0.71	0	0
13-Nov	0.08	0.04	0.03	0.024										0	0	0	0.71	0.69	0	0
14-Nov	0.08	0.04	0	0										0	0	0	0.69	0.65	0	0
15-Nov	0.08	0.04	0.2	0.16										0	0	0	0.65	0.77	0	0
16-Nov	0.05	0.03	0	0										0	0	0	0.77	0.74	0	0
17-Nov	0.05	0.03	0	0										0	0	0	0.74	0.71	0	0
18-Nov	0.05	0.03	0	0										0	0	0	0.71	0.68	0	0
19-Nov	0.04	0.02	0	0										0	0	0	0.68	0.66	0	0
20-Nov	0.05	0.03	0	0										0	0	0	0.66	0.63	0	0
21-Nov	0.05	0.03	0	0										0	0	0	0.63	0.61	0	0
22-Nov	0.05	0.03	0	0										0	0	0	0.61	0.58	0	0
23-Nov	0.05	0.03	0	0										0	0	0	0.58	0.55	0	0
24-Nov	0.06	0.03	0	0										0	0	0	0.55	0.52	0	0
25-Nov	0.05	0.03	0	0										0	0	0	0.52	0.49	0	0
26-Nov	0.05	0.03	0	0										0	0	0	0.49	0.46	0	0
27-Nov	0.05	0.03	0	0										0	0	0	0.46	0.44	0	0
28-Nov	0.06	0.03	0	0										0	0	0	0.44	0.40	0	0
29-Nov	0.06	0.03	0	0										0	0	0	0.40	0.37	0	0
30-Nov	0.06	0.03	0.26	0.208										0	0	0	0.37	0.54	0	0
1-Dec	0.05	0.03	0.04	0.032										0	0	0	0.54	0.55	0	0
2-Dec	0.04	0.02	0.15	0.12										0	0	0	0.55	0.65	0	0
3-Dec	0.04	0.02	0	0										0	0	0	0.65	0.63	0	0
4-Dec	0.05	0.03	0	0										0	0	0	0.63	0.60	0	0
5-Dec	0.05	0.03	0	0										0	0	0	0.60	0.57	0	0
6-Dec	0.05	0.03	0.05	0.04										0	0	0	0.57	0.58	0	0
7-Dec	0.04	0.02	0	0										0	0	0	0.58	0.56	0	0
8-Dec	0.04	0.02	0	0										0	0	0	0.56	0.54	0	0
9-Dec	0.06	0.03	0	0										0	0	0	0.54	0.51	0	0
10-Dec	0.06	0.03	0	0										0	0	0	0.51	0.47	0	0
11-Dec	0.06	0.03	0.39	0.312										0	0	0	0.47	0.75	0	0
12-Dec	0.04	0.02	0	0										0	0	0	0.75	0.73	0	0
13-Dec	0.04	0.02	0	0										0	0	0	0.73	0.71	0	0
14-Dec	0.06	0.03	0	0										0	0	0	0.71	0.67	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
15-Dec	0.06	0.03	0	0										0	0	0	0.67	0.64	0	0
16-Dec	0.06	0.03	0	0										0	0	0	0.64	0.61	0	0
17-Dec	0.06	0.03	0	0										0	0	0	0.61	0.58	0	0
18-Dec	0.06	0.03	0	0										0	0	0	0.58	0.54	0	0
19-Dec	0.06	0.03	0	0										0	0	0	0.54	0.51	0	0
20-Dec	0.06	0.03	0	0										0	0	0	0.51	0.48	0	0
21-Dec	0.06	0.03	0.03	0.024										0	0	0	0.48	0.47	0	0
22-Dec	0.04	0.02	0	0										0	0	0	0.47	0.45	0	0
23-Dec	0.05	0.03	0	0										0	0	0	0.45	0.42	0	0
24-Dec	0.06	0.03	0	0										0	0	0	0.42	0.39	0	0
25-Dec	0.06	0.03	0.04	0.032										0	0	0	0.39	0.38	0	0
26-Dec	0.07	0.04	0	0										0	0	0	0.38	0.35	0	0
27-Dec	0.06	0.03	0	0	7	10	7	10	7	10	7	10	7	0.572	0.817	0.572	0.35	0.88	0	0
28-Dec	0.06	0.03	0	0	8	10	7	10	8	10	8	10	7	0.621	0.887	0.0485	0.88	0.90	0	0.572
29-Dec	0.06	0.03	0	0										0	0	0	0.90	0.87	0	0
30-Dec	0.05	0.03	0	0										0	0	0	0.87	0.84	0	0
31-Dec	0.05	0.03	0	0										0	0	0	0.84	0.81	0	0
1-Jan	0.05	0.03	0	0										0	0	0	0.81	0.78	0	0
2-Jan	0.06	0.03	0	0										0	0	0	0.78	0.75	0	0
3-Jan	0.06	0.03	0	0										0	0	0	0.75	0.72	0	0
4-Jan	0.06	0.03	0	0										0	0	0	0.72	0.69	0	0
5-Jan	0.06	0.03	0	0										0	0	0	0.69	0.65	0	0
6-Jan	0.07	0.04	0.01	0.008										0	0	0	0.65	0.62	0	0
7-Jan	0.06	0.03	0.13	0.104										0	0	0	0.62	0.69	0	0
8-Jan	0.05	0.03	0	0										0	0	0	0.69	0.67	0	0
9-Jan	0.05	0.03	0	0										0	0	0	0.67	0.64	0	0
10-Jan	0.05	0.03	0	0										0	0	0	0.64	0.61	0	0
11-Jan	0.06	0.03	0.07	0.056										0	0	0	0.61	0.63	0	0
12-Jan	0.05	0.03	0.89	0.294										0	0	0	0.63	0.90	0	0
13-Jan	0.05	0.03	0.4	0.028										0	0	0	0.90	0.90	0	0
14-Jan	0.04	0.02	0	0										0	0	0	0.90	0.88	0	0
15-Jan	0.04	0.02	0	0										0	0	0	0.88	0.86	0	0
16-Jan	0.04	0.02	0	0										0	0	0	0.86	0.83	0	0
17-Jan	0.04	0.02	0	0										0	0	0	0.83	0.81	0	0
18-Jan	0.05	0.03	0	0										0	0	0	0.81	0.78	0	0

ET-B WORS – Zone 4

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.03	0.05	0.04				0	0	0	1.00	1.01	0	0
24-Oct	0.06	0.02	0.48	0.384				0	0	0	1.01	1.37	0	0
25-Oct	0.07	0.03	0.08	0.064				0	0	0	1.37	1.41	0	0
26-Oct	0.08	0.03	0	0				0	0	0	1.41	1.37	0	0
27-Oct	0.09	0.04	0	0				0	0	0	1.37	1.34	0	0
28-Oct	0.07	0.03	0	0				0	0	0	1.34	1.31	0	0
29-Oct	0.06	0.02	0	0				0	0	0	1.31	1.29	0	0
30-Oct	0.07	0.03	0	0				0	0	0	1.29	1.26	0	0
31-Oct	0.08	0.03	0	0				0	0	0	1.26	1.23	0	0
1-Nov	0.08	0.03	0	0				0	0	0	1.23	1.19	0	0
2-Nov	0.07	0.03	0.03	0.024				0	0	0	1.19	1.19	0	0
3-Nov	0.08	0.03	0	0				0	0	0	1.19	1.16	0	0
4-Nov	0.05	0.02	0.02	0.016				0	0	0	1.16	1.15	0	0
5-Nov	0.05	0.02	0	0				0	0	0	1.15	1.13	0	0
6-Nov	0.07	0.03	0	0				0	0	0	1.13	1.11	0	0
7-Nov	0.08	0.03	0	0				0	0	0	1.11	1.07	0	0
8-Nov	0.07	0.03	0	0				0	0	0	1.07	1.05	0	0
9-Nov	0.07	0.03	0	0				0	0	0	1.05	1.02	0	0
10-Nov	0.07	0.03	0	0				0	0	0	1.02	0.99	0	0
11-Nov	0.07	0.03	0	0				0	0	0	0.99	0.96	0	0
12-Nov	0.07	0.03	0	0				0	0	0	0.96	0.93	0	0
13-Nov	0.08	0.03	0.03	0.024				0	0	0	0.93	0.92	0	0
14-Nov	0.08	0.03	0	0				0	0	0	0.92	0.89	0	0
15-Nov	0.08	0.03	0.2	0.16				0	0	0	0.89	1.02	0	0
16-Nov	0.05	0.02	0	0				0	0	0	1.02	1.00	0	0
17-Nov	0.05	0.02	0	0				0	0	0	1.00	0.98	0	0
18-Nov	0.05	0.02	0	0				0	0	0	0.98	0.96	0	0
19-Nov	0.04	0.02	0	0				0	0	0	0.96	0.94	0	0
20-Nov	0.05	0.02	0	0				0	0	0	0.94	0.92	0	0
21-Nov	0.05	0.02	0	0				0	0	0	0.92	0.90	0	0
22-Nov	0.05	0.02	0	0				0	0	0	0.90	0.88	0	0
23-Nov	0.05	0.02	0	0				0	0	0	0.88	0.86	0	0
24-Nov	0.06	0.02	0	0				0	0	0	0.86	0.84	0	0
25-Nov	0.05	0.02	0	0				0	0	0	0.84	0.82	0	0
26-Nov	0.05	0.02	0	0				0	0	0	0.82	0.80	0	0
27-Nov	0.05	0.02	0	0				0	0	0	0.80	0.78	0	0
28-Nov	0.06	0.02	0	0				0	0	0	0.78	0.76	0	0
29-Nov	0.06	0.02	0	0				0	0	0	0.76	0.73	0	0
30-Nov	0.06	0.02	0.26	0.208				0	0	0	0.73	0.92	0	0
1-Dec	0.05	0.02	0.04	0.032				0	0	0	0.92	0.93	0	0
2-Dec	0.04	0.02	0.15	0.12				0	0	0	0.93	1.03	0	0
3-Dec	0.04	0.02	0	0				0	0	0	1.03	1.02	0	0
4-Dec	0.05	0.02	0	0				0	0	0	1.02	1.00	0	0
5-Dec	0.05	0.02	0	0				0	0	0	1.00	0.98	0	0
6-Dec	0.05	0.02	0.05	0.04				0	0	0	0.98	1.00	0	0
7-Dec	0.04	0.02	0	0				0	0	0	1.00	0.98	0	0
8-Dec	0.04	0.02	0	0				0	0	0	0.98	0.96	0	0
9-Dec	0.06	0.02	0	0				0	0	0	0.96	0.94	0	0
10-Dec	0.06	0.02	0	0				0	0	0	0.94	0.92	0	0
11-Dec	0.06	0.02	0.39	0.312				0	0	0	0.92	1.21	0	0
12-Dec	0.04	0.02	0	0				0	0	0	1.21	1.19	0	0
13-Dec	0.04	0.02	0	0				0	0	0	1.19	1.17	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Dec	0.06	0.02	0	0				0	0	0	1.17	1.15	0	0
15-Dec	0.06	0.02	0	0				0	0	0	1.15	1.13	0	0
16-Dec	0.06	0.02	0	0				0	0	0	1.13	1.10	0	0
17-Dec	0.06	0.02	0	0				0	0	0	1.10	1.08	0	0
18-Dec	0.06	0.02	0	0				0	0	0	1.08	1.05	0	0
19-Dec	0.06	0.02	0	0				0	0	0	1.05	1.03	0	0
20-Dec	0.06	0.02	0	0				0	0	0	1.03	1.01	0	0
21-Dec	0.06	0.02	0.03	0.024				0	0	0	1.01	1.01	0	0
22-Dec	0.04	0.02	0	0				0	0	0	1.01	0.99	0	0
23-Dec	0.05	0.02	0	0				0	0	0	0.99	0.97	0	0
24-Dec	0.06	0.02	0	0				0	0	0	0.97	0.94	0	0
25-Dec	0.06	0.02	0.04	0.032				0	0	0	0.94	0.95	0	0
26-Dec	0.07	0.03	0	0				0	0	0	0.95	0.92	0	0
27-Dec	0.06	0.02	0	0				0	0	0	0.92	0.90	0	0
28-Dec	0.06	0.02	0	0				0	0	0	0.90	0.88	0	0
29-Dec	0.06	0.02	0	0				0	0	0	0.88	0.85	0	0
30-Dec	0.05	0.02	0	0				0	0	0	0.85	0.83	0	0
31-Dec	0.05	0.02	0	0				0	0	0	0.83	0.81	0	0
1-Jan	0.05	0.02	0	0				0	0	0	0.81	0.79	0	0
2-Jan	0.06	0.02	0	0				0	0	0	0.79	0.77	0	0
3-Jan	0.06	0.02	0	0				0	0	0	0.77	0.74	0	0
4-Jan	0.06	0.02	0	0				0	0	0	0.74	0.72	0	0
5-Jan	0.06	0.02	0	0				0	0	0	0.72	0.70	0	0
6-Jan	0.07	0.03	0.01	0.008				0	0	0	0.70	0.68	0	0
7-Jan	0.06	0.02	0.13	0.104				0	0	0	0.68	0.76	0	0
8-Jan	0.05	0.02	0	0				0	0	0	0.76	0.74	0	0
9-Jan	0.05	0.02	0	0				0	0	0	0.74	0.72	0	0
10-Jan	0.05	0.02	0	0				0	0	0	0.72	0.70	0	0
11-Jan	0.06	0.02	0.07	0.056				0	0	0	0.70	0.73	0	0
12-Jan	0.05	0.02	0.89	0.712				0	0	0	0.73	1.42	0	0
13-Jan	0.05	0.02	0.4	0.32				0	0	0	1.42	1.72	0	0
14-Jan	0.04	0.02	0	0				0	0	0	1.72	1.71	0	0
15-Jan	0.04	0.02	0	0				0	0	0	1.71	1.69	0	0
16-Jan	0.04	0.02	0	0				0	0	0	1.69	1.67	0	0
17-Jan	0.04	0.02	0	0				0	0	0	1.67	1.66	0	0
18-Jan	0.05	0.02	0	0				0	0	0	1.66	1.64	0	0

ET-B WORS – Zone 5

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.05	0.05	0.04				0	0	0	1.13	1.12	0	0
24-Oct	0.06	0.04	0.48	0.384				0	0	0	1.12	1.46	0	0
25-Oct	0.07	0.04	0.08	0.064				0	0	0	1.46	1.48	0	0
26-Oct	0.08	0.05	0	0				0	0	0	1.48	1.44	0	0
27-Oct	0.09	0.05	0	0				0	0	0	1.44	1.38	0	0
28-Oct	0.07	0.04	0	0				0	0	0	1.38	1.34	0	0
29-Oct	0.06	0.04	0	0				0	0	0	1.34	1.30	0	0
30-Oct	0.07	0.04	0	0				0	0	0	1.30	1.26	0	0
31-Oct	0.08	0.05	0	0				0	0	0	1.26	1.21	0	0
1-Nov	0.08	0.05	0	0				0	0	0	1.21	1.16	0	0
2-Nov	0.07	0.04	0.03	0.024				0	0	0	1.16	1.14	0	0
3-Nov	0.08	0.05	0	0				0	0	0	1.14	1.09	0	0
4-Nov	0.05	0.03	0.02	0.016				0	0	0	1.09	1.08	0	0
5-Nov	0.05	0.03	0	0				0	0	0	1.08	1.05	0	0
6-Nov	0.07	0.04	0	0				0	0	0	1.05	1.01	0	0
7-Nov	0.08	0.05	0	0				0	0	0	1.01	0.96	0	0
8-Nov	0.07	0.04	0	0				0	0	0	0.96	0.91	0	0
9-Nov	0.07	0.04	0	0				0	0	0	0.91	0.87	0	0
10-Nov	0.07	0.04	0	0				0	0	0	0.87	0.83	0	0
11-Nov	0.07	0.04	0	0				0	0	0	0.83	0.79	0	0
12-Nov	0.07	0.04	0	0				0	0	0	0.79	0.74	0	0
13-Nov	0.08	0.05	0.03	0.024				0	0	0	0.74	0.72	0	0
14-Nov	0.08	0.05	0	0				0	0	0	0.72	0.67	0	0
15-Nov	0.08	0.05	0.2	0.16				0	0	0	0.67	0.78	0	0
16-Nov	0.05	0.03	0	0				0	0	0	0.78	0.75	0	0
17-Nov	0.05	0.03	0	0				0	0	0	0.75	0.72	0	0
18-Nov	0.05	0.03	0	0				0	0	0	0.72	0.69	0	0
19-Nov	0.04	0.02	0	0				0	0	0	0.69	0.67	0	0
20-Nov	0.05	0.03	0	0				0	0	0	0.67	0.64	0	0
21-Nov	0.05	0.03	0	0				0	0	0	0.64	0.60	0	0
22-Nov	0.05	0.03	0	0				0	0	0	0.60	0.57	0	0
23-Nov	0.05	0.03	0	0				0	0	0	0.57	0.54	0	0
24-Nov	0.06	0.04	0	0				0	0	0	0.54	0.51	0	0
25-Nov	0.05	0.03	0	0				0	0	0	0.51	0.48	0	0
26-Nov	0.05	0.03	0	0				0	0	0	0.48	0.45	0	0
27-Nov	0.05	0.03	0	0				0	0	0	0.45	0.42	0	0
28-Nov	0.06	0.04	0	0				0	0	0	0.42	0.38	0	0
29-Nov	0.06	0.04	0	0				0	0	0	0.38	0.34	0	0
30-Nov	0.06	0.04	0.26	0.208				0	0	0	0.34	0.51	0	0
1-Dec	0.05	0.03	0.04	0.032				0	0	0	0.51	0.52	0	0
2-Dec	0.04	0.02	0.15	0.12				0	0	0	0.52	0.61	0	0
3-Dec	0.04	0.02	0	0				0	0	0	0.61	0.59	0	0
4-Dec	0.05	0.03	0	0				0	0	0	0.59	0.56	0	0
5-Dec	0.05	0.03	0	0				0	0	0	0.56	0.53	0	0
6-Dec	0.05	0.03	0.05	0.04				0	0	0	0.53	0.54	0	0
7-Dec	0.04	0.02	0	0				0	0	0	0.54	0.51	0	0
8-Dec	0.04	0.02	0	0				0	0	0	0.51	0.49	0	0
9-Dec	0.06	0.04	0	0				0	0	0	0.49	0.45	0	0
10-Dec	0.06	0.04	0	0				0	0	0	0.45	0.41	0	0
11-Dec	0.06	0.04	0.39	0.312				0	0	0	0.41	0.69	0	0
12-Dec	0.04	0.02	0	0				0	0	0	0.69	0.66	0	0
13-Dec	0.04	0.02	0	0				0	0	0	0.66	0.64	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Dec	0.06	0.04	0	0				0	0	0	0.64	0.60	0	0
15-Dec	0.06	0.04	0	0				0	0	0	0.60	0.57	0	0
16-Dec	0.06	0.04	0	0				0	0	0	0.57	0.53	0	0
17-Dec	0.06	0.04	0	0				0	0	0	0.53	0.49	0	0
18-Dec	0.06	0.04	0	0				0	0	0	0.49	0.46	0	0
19-Dec	0.06	0.04	0	0				0	0	0	0.46	0.42	0	0
20-Dec	0.06	0.04	0	0				0	0	0	0.42	0.38	0	0
21-Dec	0.06	0.04	0.03	0.024				0	0	0	0.38	0.37	0	0
22-Dec	0.04	0.02	0	0				0	0	0	0.37	0.35	0	0
23-Dec	0.05	0.03	0	0				0	0	0	0.35	0.32	0	0
24-Dec	0.06	0.04	0	0				0	0	0	0.32	0.28	0	0
25-Dec	0.06	0.04	0.04	0.032				0	0	0	0.28	0.27	0	0
26-Dec	0.07	0.04	0	0				0	0	0	0.27	0.23	0	0
27-Dec	0.06	0.04	0	0				0	0	0	0.23	0.20	0	0
28-Dec	0.06	0.04	0	0				0	0	0	0.20	0.16	0	0
29-Dec	0.06	0.04	0	0				0	0	0	0.16	0.12	0	0
30-Dec	0.05	0.03	0	0				0	0	0	0.12	0.09	0	0
31-Dec	0.05	0.03	0	0				0	0	0	0.09	0.06	0	0
1-Jan	0.05	0.03	0	0				0	0	0	0.06	0.03	0	0
2-Jan	0.06	0.04	0	0				0	0	0	0.03	0.00	0.006	0
3-Jan	0.06	0.04	0	0				0	0	0	0.00	0.00	0.037	0
4-Jan	0.06	0.04	0	0				0	0	0	0.00	0.00	0.037	0
5-Jan	0.06	0.04	0	0				0	0	0	0.00	0.00	0.037	0
6-Jan	0.07	0.04	0.01	0.008				0	0	0	0.00	0.00	0.035	0
7-Jan	0.06	0.04	0.13	0.104				0	0	0	0.00	0.07	0	0
8-Jan	0.05	0.03	0	0				0	0	0	0.07	0.04	0	0
9-Jan	0.05	0.03	0	0				0	0	0	0.04	0.01	0	0
10-Jan	0.05	0.03	0	0				0	0	0	0.01	0.00	0.024	0
11-Jan	0.06	0.04	0.07	0.056				0	0	0	0.00	0.02	0	0
12-Jan	0.05	0.03	0.89	0.712				0	0	0	0.02	0.70	0	0
13-Jan	0.05	0.03	0.4	0.32				0	0	0	0.70	0.99	0	0
14-Jan	0.04	0.02	0	0				0	0	0	0.99	0.97	0	0
15-Jan	0.04	0.02	0	0				0	0	0	0.97	0.94	0	0
16-Jan	0.04	0.02	0	0				0	0	0	0.94	0.92	0	0
17-Jan	0.04	0.02	0	0				0	0	0	0.92	0.89	0	0
18-Jan	0.05	0.03	0	0				0	0	0	0.89	0.86	0	0

ET-B WORS – Zone 6

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Soak	Cycle 6	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)								
23-Oct	0.08	0.05	0.05	0.04												0	0	0	0.27	0.27	0	0
24-Oct	0.06	0.04	0.48	0.32												0	0	0	0.27	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042												0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0												0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0												0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0												0	0	0	0.45	0.40	0	0
29-Oct	0.06	0.04	0	0												0	0	0	0.40	0.37	0	0
30-Oct	0.07	0.04	0	0												0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0												0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0												0	0	0	0.28	0.23	0	0
2-Nov	0.07	0.04	0.03	0.024												0	0	0	0.23	0.22	0	0
3-Nov	0.08	0.05	0	0												0	0	0	0.22	0.17	0	0
4-Nov	0.05	0.03	0.02	0.016												0	0	0	0.17	0.16	0	0
5-Nov	0.05	0.03	0	0												0	0	0	0.16	0.13	0	0
6-Nov	0.07	0.04	0	0												0	0	0	0.13	0.09	0	0
7-Nov	0.08	0.05	0	0												0	0	0	0.09	0.04	0	0
8-Nov	0.07	0.04	0	0												0	0	0	0.04	0.00	0	0
9-Nov	0.07	0.04	0	0	13	20	12	20	12	20	12	20	13		0.235	0.362	0.235	0.00	0.20	0	0	
10-Nov	0.07	0.04	0	0												0	0	0	0.20	0.16	0	0
11-Nov	0.07	0.04	0	0												0	0	0	0.16	0.12	0	0
12-Nov	0.07	0.04	0	0												0	0	0	0.12	0.08	0	0
13-Nov	0.08	0.05	0.03	0.024												0	0	0	0.08	0.06	0	0
14-Nov	0.08	0.05	0	0												0	0	0	0.06	0.01	0	0
15-Nov	0.08	0.05	0.2	0.16												0	0	0	0.01	0.13	0	0
16-Nov	0.05	0.03	0	0												0	0	0	0.13	0.10	0	0
17-Nov	0.05	0.03	0	0												0	0	0	0.10	0.07	0	0
18-Nov	0.05	0.03	0	0												0	0	0	0.07	0.04	0	0
19-Nov	0.04	0.02	0	0												0	0	0	0.04	0.02	0	0
20-Nov	0.05	0.03	0	0												0	0	0	0.02	0.00	0.01	0
21-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
22-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
23-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
24-Nov	0.06	0.03	0	0	12	20	11	20	12	20	12	20	11		0.220	0.338	0.220	0.00	0.19	0	0	
25-Nov	0.05	0.03	0	0												0	0	0	0.19	0.16	0	0
26-Nov	0.05	0.03	0	0												0	0	0	0.16	0.13	0	0
27-Nov	0.05	0.03	0	0												0	0	0	0.13	0.10	0	0
28-Nov	0.06	0.03	0	0												0	0	0	0.10	0.07	0	0
29-Nov	0.06	0.03	0	0												0	0	0	0.07	0.03	0	0
30-Nov	0.06	0.03	0.26	0.208												0	0	0	0.03	0.21	0	0
1-Dec	0.05	0.03	0.04	0.032	12	20	12	20	12	20	11	20	12		0.224	0.344	0.224	0.21	0.43	0	0	
2-Dec	0.04	0.02	0.15	0.12												0	0	0	0.43	0.53	0	0
3-Dec	0.04	0.02	0	0												0	0	0	0.53	0.51	0	0
4-Dec	0.05	0.03	0	0												0	0	0	0.51	0.49	0	0
5-Dec	0.05	0.03	0	0												0	0	0	0.49	0.46	0	0
6-Dec	0.05	0.03	0.05	0.04												0	0	0	0.46	0.47	0	0
7-Dec	0.04	0.02	0	0												0	0	0	0.47	0.45	0	0
8-Dec	0.04	0.02	0	0												0	0	0	0.45	0.43	0	0
9-Dec	0.06	0.03	0	0												0	0	0	0.43	0.40	0	0
10-Dec	0.06	0.03	0	0												0	0	0	0.40	0.37	0	0
11-Dec	0.06	0.03	0.39	0.212												0	0	0	0.37	0.55	0	0
12-Dec	0.04	0.02	0	0												0	0	0	0.55	0.53	0	0
13-Dec	0.04	0.02	0	0												0	0	0	0.53	0.51	0	0
14-Dec	0.06	0.03	0	0												0	0	0	0.51	0.47	0	0

Date	ET _O (in)	ET _C (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Soak (min)	Cycle 3 (min)	Soak (min)	Cycle 4 (min)	Soak (min)	Cycle 5 (min)	Soak (min)	Cycle 6 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Scheduling Losses (in)
15-Dec	0.06	0.03	0	0												0	0	0	0.47	0.44	0	0
16-Dec	0.06	0.03	0	0												0	0	0	0.44	0.41	0	0
17-Dec	0.06	0.03	0	0												0	0	0	0.41	0.38	0	0
18-Dec	0.06	0.03	0	0												0	0	0	0.38	0.35	0	0
19-Dec	0.06	0.03	0	0												0	0	0	0.35	0.31	0	0
20-Dec	0.06	0.03	0	0												0	0	0	0.31	0.28	0	0
21-Dec	0.06	0.03	0.03	0.024												0	0	0	0.28	0.27	0	0
22-Dec	0.04	0.02	0	0												0	0	0	0.27	0.25	0	0
23-Dec	0.05	0.03	0	0												0	0	0	0.25	0.23	0	0
24-Dec	0.06	0.03	0	0												0	0	0	0.23	0.20	0	0
25-Dec	0.06	0.03	0.04	0.032	12	20	11	20	12	20	11	20	12		0.220	0.338	0.220	0.20	0.42	0	0	
26-Dec	0.07	0.04	0	0												0	0	0	0.42	0.38	0	0
27-Dec	0.06	0.03	0	0												0	0	0	0.38	0.35	0	0
28-Dec	0.06	0.03	0	0												0	0	0	0.35	0.31	0	0
29-Dec	0.06	0.03	0	0												0	0	0	0.31	0.28	0	0
30-Dec	0.05	0.03	0	0												0	0	0	0.28	0.26	0	0
31-Dec	0.05	0.03	0	0												0	0	0	0.26	0.23	0	0
1-Jan	0.05	0.03	0	0												0	0	0	0.23	0.20	0	0
2-Jan	0.06	0.03	0	0												0	0	0	0.20	0.17	0	0
3-Jan	0.06	0.03	0	0												0	0	0	0.17	0.14	0	0
4-Jan	0.06	0.03	0	0	12	20	12	20	12	20	12	20	12	20	12	0.273	0.42	0.273	0.14	0.38	0	0
5-Jan	0.06	0.03	0	0												0	0	0	0.38	0.35	0	0
6-Jan	0.07	0.04	0.01	0.008												0	0	0	0.35	0.32	0	0
7-Jan	0.06	0.03	0.13	0.104												0	0	0	0.32	0.40	0	0
8-Jan	0.05	0.03	0	0												0	0	0	0.40	0.37	0	0
9-Jan	0.05	0.03	0	0												0	0	0	0.37	0.34	0	0
10-Jan	0.05	0.03	0	0												0	0	0	0.34	0.32	0	0
11-Jan	0.06	0.03	0.07	0.056												0	0	0	0.32	0.34	0	0
12-Jan	0.05	0.03	0.89	0.230												0	0	0	0.34	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026												0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0												0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0												0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0												0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0												0	0	0	0.49	0.46	0	0
18-Jan	0.05	0.03	0	0												0	0	0	0.46	0.44	0	0

Appendix D

Irrigation Association - Smart Water Application Technology

Testing of Climatologically-based Controllers

Project Information	
Controller:	ET-B
Sensor:	Hunter Mini-клик (WRS)
Weather Station:	FAWN – Citra, FL
Test Dates:	October 23, 2008 – January 18, 2009
Test Status:	Completed
Protocol Version:	7 th Draft (November, 2006)

Evaluation Summary	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
ET _O (in)	5.11	5.11	5.11	5.11	5.11	5.11
ET _C (in)	2.21	2.82	2.81	2.04	3.12	2.82
Total Rainfall (in)	3.35	3.35	3.35	3.35	3.35	3.35
Effective Rainfall (in)	1.64	1.95	2.04	2.68	2.68	1.96
Gross Irrigation (in)	2.16	1.49	2.57	0	0	1.39
Net Irrigation (in)	1.19	0.90	1.80	0	0	0.91
Deficit (in)	0	0.14	0	0	0.17	0.12
Surplus (in)	0.28	0	0.69	0	0	0
Direct Runoff (in)	0	0	0	0	0	0
Soak Runoff (in)	0	0	0	0	0	0
Scheduling Losses (in)	0.28	0	0.69	0	0	0
Irrigation Adequacy (%)	100	95	100	100	94	96
Schedule Efficiency (%)	77	100	62	N/A	N/A	100
Scheduling Excess (%)	23	0	38	N/A	N/A	0
Application Efficiency (%)	55	60	70	75	80	65
Rainfall Efficiency (%)	61	73	76	100	100	73
Overall Efficiency (%)	42	57	43	N/A	N/A	62

ET-B WRS – Zone 1

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.04	0.05	0.04								0	0	0	0.43	0.43	0	0
24-Oct	0.06	0.03	0.48	0.384								0	0	0	0.43	0.78	0	0
25-Oct	0.07	0.04	0.08	0.064								0	0	0	0.78	0.81	0	0
26-Oct	0.08	0.04	0	0								0	0	0	0.81	0.77	0	0
27-Oct	0.09	0.05	0	0								0	0	0	0.77	0.72	0	0
28-Oct	0.07	0.04	0	0								0	0	0	0.72	0.69	0	0
29-Oct	0.06	0.03	0	0								0	0	0	0.69	0.66	0	0
30-Oct	0.07	0.04	0	0								0	0	0	0.66	0.62	0	0
31-Oct	0.08	0.04	0	0								0	0	0	0.62	0.58	0	0
1-Nov	0.08	0.04	0	0								0	0	0	0.58	0.55	0	0
2-Nov	0.07	0.03	0.03	0.024								0	0	0	0.55	0.54	0	0
3-Nov	0.08	0.04	0	0								0	0	0	0.54	0.50	0	0
4-Nov	0.05	0.02	0.02	0.016								0	0	0	0.50	0.50	0	0
5-Nov	0.05	0.02	0	0								0	0	0	0.50	0.47	0	0
6-Nov	0.07	0.03	0	0								0	0	0	0.47	0.44	0	0
7-Nov	0.08	0.04	0	0								0	0	0	0.44	0.41	0	0
8-Nov	0.07	0.03	0	0								0	0	0	0.41	0.38	0	0
9-Nov	0.07	0.03	0	0								0	0	0	0.38	0.34	0	0
10-Nov	0.07	0.03	0	0								0	0	0	0.34	0.31	0	0
11-Nov	0.07	0.03	0	0								0	0	0	0.31	0.28	0	0
12-Nov	0.07	0.03	0	0								0	0	0	0.28	0.25	0	0
13-Nov	0.08	0.04	0.03	0.024								0	0	0	0.25	0.24	0	0
14-Nov	0.08	0.04	0	0								0	0	0	0.24	0.20	0	0
15-Nov	0.08	0.04	0.2	0.16								0	0	0	0.20	0.33	0	0
16-Nov	0.05	0.02	0	0								0	0	0	0.33	0.30	0	0
17-Nov	0.05	0.02	0	0								0	0	0	0.30	0.28	0	0
18-Nov	0.05	0.02	0	0								0	0	0	0.28	0.26	0	0
19-Nov	0.04	0.02	0	0								0	0	0	0.26	0.24	0	0
20-Nov	0.05	0.02	0	0								0	0	0	0.24	0.22	0	0
21-Nov	0.05	0.02	0	0								0	0	0	0.22	0.20	0	0
22-Nov	0.05	0.02	0	0								0	0	0	0.20	0.17	0	0
23-Nov	0.05	0.02	0	0								0	0	0	0.17	0.15	0	0
24-Nov	0.06	0.03	0	0								0	0	0	0.15	0.12	0	0
25-Nov	0.05	0.02	0	0								0	0	0	0.12	0.10	0	0
26-Nov	0.05	0.02	0	0								0	0	0	0.10	0.08	0	0
27-Nov	0.05	0.02	0	0								0	0	0	0.08	0.06	0	0
28-Nov	0.06	0.03	0	0								0	0	0	0.06	0.03	0	0
29-Nov	0.06	0.03	0	0								0	0	0	0.03	0.00	0	0
30-Nov	0.06	0.03	0.26	0.208								0	0	0	0.00	0.18	0	0
1-Dec	0.05	0.02	0.04	0.032								0	0	0	0.18	0.19	0	0
2-Dec	0.04	0.02	0.15	0.12								0	0	0	0.19	0.30	0	0
3-Dec	0.04	0.02	0	0								0	0	0	0.30	0.28	0	0
4-Dec	0.05	0.02	0	0								0	0	0	0.28	0.26	0	0
5-Dec	0.05	0.02	0	0								0	0	0	0.26	0.24	0	0
6-Dec	0.05	0.02	0.05	0.04								0	0	0	0.24	0.26	0	0
7-Dec	0.04	0.02	0	0								0	0	0	0.26	0.25	0	0
8-Dec	0.04	0.02	0	0								0	0	0	0.25	0.23	0	0
9-Dec	0.06	0.02	0	0								0	0	0	0.23	0.21	0	0
10-Dec	0.06	0.02	0	0								0	0	0	0.21	0.18	0	0
11-Dec	0.06	0.02	0.39	0.312								0	0	0	0.18	0.47	0	0
12-Dec	0.04	0.02	0	0								0	0	0	0.47	0.45	0	0
13-Dec	0.04	0.02	0	0								0	0	0	0.45	0.44	0	0
14-Dec	0.06	0.02	0	0								0	0	0	0.44	0.41	0	0
15-Dec	0.06	0.02	0	0								0	0	0	0.41	0.39	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
16-Dec	0.06	0.02	0	0								0	0	0	0.39	0.37	0	0
17-Dec	0.06	0.02	0	0								0	0	0	0.37	0.34	0	0
18-Dec	0.06	0.02	0	0								0	0	0	0.34	0.32	0	0
19-Dec	0.06	0.02	0	0								0	0	0	0.32	0.29	0	0
20-Dec	0.06	0.02	0	0								0	0	0	0.29	0.27	0	0
21-Dec	0.06	0.02	0.03	0.024								0	0	0	0.27	0.27	0	0
22-Dec	0.04	0.02	0	0								0	0	0	0.27	0.25	0	0
23-Dec	0.05	0.02	0	0								0	0	0	0.25	0.23	0	0
24-Dec	0.06	0.02	0	0								0	0	0	0.23	0.21	0	0
25-Dec	0.06	0.02	0.04	0.032	7	15	6	25	6	25	6	0.367	0.667	0.367	0.21	0.59	0	0
26-Dec	0.07	0.03	0	0								0	0	0	0.59	0.56	0	0
27-Dec	0.06	0.02	0	0								0	0	0	0.56	0.53	0	0
28-Dec	0.06	0.02	0	0								0	0	0	0.53	0.51	0	0
29-Dec	0.06	0.02	0	0								0	0	0	0.51	0.49	0	0
30-Dec	0.05	0.02	0	0								0	0	0	0.49	0.47	0	0
31-Dec	0.05	0.02	0	0								0	0	0	0.47	0.45	0	0
1-Jan	0.05	0.02	0	0								0	0	0	0.45	0.42	0	0
2-Jan	0.06	0.02	0	0								0	0	0	0.42	0.40	0	0
3-Jan	0.06	0.02	0	0								0	0	0	0.40	0.38	0	0
4-Jan	0.06	0.02	0	0								0	0	0	0.38	0.35	0	0
5-Jan	0.06	0.02	0	0	7	15	7	15	7	15	7	0.411	0.747	0.411	0.35	0.74	0	0
6-Jan	0.07	0.03	0.01	0.008	7	15	7	15	7	15	7	0.411	0.747	0.134	0.74	0.85	0	0.277
7-Jan	0.06	0.02	0.13	0.025								0	0	0	0.85	0.85	0	0
8-Jan	0.05	0.02	0	0								0	0	0	0.85	0.83	0	0
9-Jan	0.05	0.02	0	0								0	0	0	0.83	0.81	0	0
10-Jan	0.05	0.02	0	0								0	0	0	0.81	0.79	0	0
11-Jan	0.06	0.02	0.07	0.056								0	0	0	0.79	0.82	0	0
12-Jan	0.05	0.02	0.89	0.051								0	0	0	0.82	0.85	0	0
13-Jan	0.05	0.02	0.4	0.020								0	0	0	0.85	0.85	0	0
14-Jan	0.04	0.02	0	0								0	0	0	0.85	0.83	0	0
15-Jan	0.04	0.02	0	0								0	0	0	0.83	0.82	0	0
16-Jan	0.04	0.02	0	0								0	0	0	0.82	0.80	0	0
17-Jan	0.04	0.02	0	0								0	0	0	0.80	0.78	0	0
18-Jan	0.05	0.02	0	0								0	0	0	0.78	0.76	0	0

ET-B WRS – Zone 2

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Soak	Cycle 6	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)								
23-Oct	0.08	0.05	0.05	0.04												0	0	0	0.28	0.27	0	0
24-Oct	0.06	0.04	0.48	0.319												0	0	0	0.27	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042												0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0												0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0												0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0												0	0	0	0.45	0.41	0	0
29-Oct	0.06	0.04	0	0												0	0	0	0.41	0.37	0	0
30-Oct	0.07	0.04	0	0												0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0												0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0												0	0	0	0.28	0.24	0	0
2-Nov	0.07	0.04	0.03	0.024												0	0	0	0.24	0.22	0	0
3-Nov	0.08	0.05	0	0												0	0	0	0.22	0.17	0	0
4-Nov	0.05	0.03	0.02	0.016												0	0	0	0.17	0.16	0	0
5-Nov	0.05	0.03	0	0												0	0	0	0.16	0.13	0	0
6-Nov	0.07	0.04	0	0												0	0	0	0.13	0.09	0	0
7-Nov	0.08	0.05	0	0												0	0	0	0.09	0.05	0	0
8-Nov	0.07	0.04	0	0												0	0	0	0.05	0.01	0	0
9-Nov	0.07	0.04	0	0	2	20	3	22	3	29	3	29	3		0.224	0.373	0.224	0.01	0.19	0	0	
10-Nov	0.07	0.04	0	0												0	0	0	0.19	0.15	0	0
11-Nov	0.07	0.04	0	0												0	0	0	0.15	0.11	0	0
12-Nov	0.07	0.04	0	0												0	0	0	0.11	0.07	0	0
13-Nov	0.08	0.05	0.03	0.024												0	0	0	0.07	0.05	0	0
14-Nov	0.08	0.05	0	0												0	0	0	0.05	0.00	0	0
15-Nov	0.08	0.05	0.2	0.16												0	0	0	0.00	0.12	0	0
16-Nov	0.05	0.03	0	0												0	0	0	0.12	0.09	0	0
17-Nov	0.05	0.03	0	0												0	0	0	0.09	0.06	0	0
18-Nov	0.05	0.03	0	0												0	0	0	0.06	0.03	0	0
19-Nov	0.04	0.02	0	0												0	0	0	0.03	0.01	0	0
20-Nov	0.05	0.03	0	0												0	0	0	0.01	0.00	0.02	0
21-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
22-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
23-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
24-Nov	0.06	0.03	0	0	2	20	3	21	2	29	3	29	3		0.208	0.347	0.208	0.00	0.17	0	0	
25-Nov	0.05	0.03	0	0												0	0	0	0.17	0.15	0	0
26-Nov	0.05	0.03	0	0												0	0	0	0.15	0.12	0	0
27-Nov	0.05	0.03	0	0												0	0	0	0.12	0.09	0	0
28-Nov	0.06	0.03	0	0												0	0	0	0.09	0.05	0	0
29-Nov	0.06	0.03	0	0												0	0	0	0.05	0.02	0	0
30-Nov	0.06	0.03	0.26	0.208												0	0	0	0.02	0.19	0	0
1-Dec	0.05	0.03	0.04	0.032												0	0	0	0.19	0.20	0	0
2-Dec	0.04	0.02	0.15	0.12												0	0	0	0.20	0.30	0	0
3-Dec	0.04	0.02	0	0												0	0	0	0.30	0.28	0	0
4-Dec	0.05	0.03	0	0												0	0	0	0.28	0.25	0	0
5-Dec	0.05	0.03	0	0												0	0	0	0.25	0.22	0	0
6-Dec	0.05	0.03	0.05	0.04												0	0	0	0.22	0.24	0	0
7-Dec	0.04	0.02	0	0												0	0	0	0.24	0.22	0	0
8-Dec	0.04	0.02	0	0												0	0	0	0.22	0.19	0	0
9-Dec	0.06	0.03	0	0												0	0	0	0.19	0.16	0	0
10-Dec	0.06	0.03	0	0												0	0	0	0.16	0.13	0	0
11-Dec	0.06	0.03	0.39	0.312												0	0	0	0.13	0.41	0	0
12-Dec	0.04	0.02	0	0												0	0	0	0.41	0.39	0	0
13-Dec	0.04	0.02	0	0												0	0	0	0.39	0.37	0	0
14-Dec	0.06	0.03	0	0												0	0	0	0.37	0.34	0	0
15-Dec	0.06	0.03	0	0												0	0	0	0.34	0.31	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Soak	Cycle 6	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)									
16-Dec	0.06	0.03	0	0												0	0	0	0.31	0.27	0	0
17-Dec	0.06	0.03	0	0												0	0	0	0.27	0.24	0	0
18-Dec	0.06	0.03	0	0												0	0	0	0.24	0.21	0	0
19-Dec	0.06	0.03	0	0												0	0	0	0.21	0.18	0	0
20-Dec	0.06	0.03	0	0												0	0	0	0.18	0.15	0	0
21-Dec	0.06	0.03	0.03	0.024												0	0	0	0.15	0.14	0	0
22-Dec	0.04	0.02	0	0												0	0	0	0.14	0.12	0	0
23-Dec	0.05	0.03	0	0												0	0	0	0.12	0.09	0	0
24-Dec	0.06	0.03	0	0												0	0	0	0.09	0.06	0	0
25-Dec	0.06	0.03	0.04	0.032	3	27	2	29	3	23	3				0.176	0.293	0.176	0.06	0.24	0	0	
26-Dec	0.07	0.04	0	0												0	0	0	0.24	0.20	0	0
27-Dec	0.06	0.03	0	0												0	0	0	0.20	0.17	0	0
28-Dec	0.06	0.03	0	0												0	0	0	0.17	0.13	0	0
29-Dec	0.06	0.03	0	0												0	0	0	0.13	0.10	0	0
30-Dec	0.05	0.03	0	0												0	0	0	0.10	0.08	0	0
31-Dec	0.05	0.03	0	0												0	0	0	0.08	0.05	0	0
1-Jan	0.05	0.03	0	0												0	0	0	0.05	0.02	0	0
2-Jan	0.06	0.03	0	0												0	0	0	0.02	0.00	0.007	0
3-Jan	0.06	0.03	0	0												0	0	0	0.00	0.00	0.031	0
4-Jan	0.06	0.03	0	0	3	20	3	21	3	29	3	29	3	29	3	0.288	0.48	0.288	0.00	0.26	0	0
5-Jan	0.06	0.03	0	0												0	0	0	0.26	0.23	0	0
6-Jan	0.07	0.04	0.01	0.008												0	0	0	0.23	0.20	0	0
7-Jan	0.06	0.03	0.13	0.104												0	0	0	0.20	0.27	0	0
8-Jan	0.05	0.03	0	0												0	0	0	0.27	0.24	0	0
9-Jan	0.05	0.03	0	0												0	0	0	0.24	0.22	0	0
10-Jan	0.05	0.03	0	0												0	0	0	0.22	0.19	0	0
11-Jan	0.06	0.03	0.07	0.056												0	0	0	0.19	0.22	0	0
12-Jan	0.05	0.03	0.89	0.36												0	0	0	0.22	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026												0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0												0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0												0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0												0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0												0	0	0	0.49	0.47	0	0
18-Jan	0.05	0.03	0	0												0	0	0	0.47	0.44	0	0

ET-B WRS – Zone 3

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.04	0.05	0.04										0	0	0	0.45	0.45	0	0
24-Oct	0.06	0.03	0.48	0.384										0	0	0	0.45	0.80	0	0
25-Oct	0.07	0.04	0.08	0.064										0	0	0	0.80	0.82	0	0
26-Oct	0.08	0.04	0	0										0	0	0	0.82	0.78	0	0
27-Oct	0.09	0.05	0	0										0	0	0	0.78	0.73	0	0
28-Oct	0.07	0.04	0	0										0	0	0	0.73	0.69	0	0
29-Oct	0.06	0.03	0	0										0	0	0	0.69	0.66	0	0
30-Oct	0.07	0.04	0	0										0	0	0	0.66	0.62	0	0
31-Oct	0.08	0.04	0	0										0	0	0	0.62	0.58	0	0
1-Nov	0.08	0.04	0	0										0	0	0	0.58	0.53	0	0
2-Nov	0.07	0.04	0.03	0.024										0	0	0	0.53	0.52	0	0
3-Nov	0.08	0.04	0	0										0	0	0	0.52	0.47	0	0
4-Nov	0.05	0.03	0.02	0.016										0	0	0	0.47	0.46	0	0
5-Nov	0.05	0.03	0	0										0	0	0	0.46	0.43	0	0
6-Nov	0.07	0.04	0	0										0	0	0	0.43	0.40	0	0
7-Nov	0.08	0.04	0	0										0	0	0	0.40	0.35	0	0
8-Nov	0.07	0.04	0	0										0	0	0	0.35	0.31	0	0
9-Nov	0.07	0.04	0	0										0	0	0	0.31	0.27	0	0
10-Nov	0.07	0.04	0	0										0	0	0	0.27	0.24	0	0
11-Nov	0.07	0.04	0	0	7	10	8	10	7	10	8	10	7	0.604	0.863	0.604	0.24	0.80	0	0
12-Nov	0.07	0.04	0	0										0	0	0	0.80	0.76	0	0
13-Nov	0.08	0.04	0.03	0.024										0	0	0	0.76	0.74	0	0
14-Nov	0.08	0.04	0	0										0	0	0	0.74	0.70	0	0
15-Nov	0.08	0.04	0.2	0.16										0	0	0	0.70	0.81	0	0
16-Nov	0.05	0.03	0	0										0	0	0	0.81	0.79	0	0
17-Nov	0.05	0.03	0	0										0	0	0	0.79	0.76	0	0
18-Nov	0.05	0.03	0	0										0	0	0	0.76	0.73	0	0
19-Nov	0.04	0.02	0	0										0	0	0	0.73	0.71	0	0
20-Nov	0.05	0.03	0	0										0	0	0	0.71	0.68	0	0
21-Nov	0.05	0.03	0	0										0	0	0	0.68	0.66	0	0
22-Nov	0.05	0.03	0	0										0	0	0	0.66	0.63	0	0
23-Nov	0.05	0.03	0	0										0	0	0	0.63	0.60	0	0
24-Nov	0.06	0.03	0	0										0	0	0	0.60	0.57	0	0
25-Nov	0.05	0.03	0	0										0	0	0	0.57	0.54	0	0
26-Nov	0.05	0.03	0	0										0	0	0	0.54	0.51	0	0
27-Nov	0.05	0.03	0	0										0	0	0	0.51	0.48	0	0
28-Nov	0.06	0.03	0	0										0	0	0	0.48	0.45	0	0
29-Nov	0.06	0.03	0	0										0	0	0	0.45	0.42	0	0
30-Nov	0.06	0.03	0.26	0.208										0	0	0	0.42	0.59	0	0
1-Dec	0.05	0.03	0.04	0.032										0	0	0	0.59	0.60	0	0
2-Dec	0.04	0.02	0.15	0.12										0	0	0	0.60	0.70	0	0
3-Dec	0.04	0.02	0	0										0	0	0	0.70	0.67	0	0
4-Dec	0.05	0.03	0	0										0	0	0	0.67	0.65	0	0
5-Dec	0.05	0.03	0	0										0	0	0	0.65	0.62	0	0
6-Dec	0.05	0.03	0.05	0.04										0	0	0	0.62	0.63	0	0
7-Dec	0.04	0.02	0	0										0	0	0	0.63	0.61	0	0
8-Dec	0.04	0.02	0	0										0	0	0	0.61	0.59	0	0
9-Dec	0.06	0.03	0	0										0	0	0	0.59	0.55	0	0
10-Dec	0.06	0.03	0	0										0	0	0	0.55	0.52	0	0
11-Dec	0.06	0.03	0.39	0.312										0	0	0	0.52	0.80	0	0
12-Dec	0.04	0.02	0	0										0	0	0	0.80	0.78	0	0
13-Dec	0.04	0.02	0	0										0	0	0	0.78	0.76	0	0
14-Dec	0.06	0.03	0	0										0	0	0	0.76	0.72	0	0
15-Dec	0.06	0.03	0	0										0	0	0	0.72	0.69	0	0
16-Dec	0.06	0.03	0	0										0	0	0	0.69	0.66	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
17-Dec	0.06	0.03	0	0										0	0	0	0.66	0.62	0	0
18-Dec	0.06	0.03	0	0										0	0	0	0.62	0.59	0	0
19-Dec	0.06	0.03	0	0										0	0	0	0.59	0.56	0	0
20-Dec	0.06	0.03	0	0										0	0	0	0.56	0.53	0	0
21-Dec	0.06	0.03	0.03	0.024										0	0	0	0.53	0.52	0	0
22-Dec	0.04	0.02	0	0										0	0	0	0.52	0.49	0	0
23-Dec	0.05	0.03	0	0										0	0	0	0.49	0.47	0	0
24-Dec	0.06	0.03	0	0										0	0	0	0.47	0.43	0	0
25-Dec	0.06	0.03	0.04	0.032	7	10	7	10	7	10	7	10	7	0.572	0.817	0.467	0.43	0.90	0	0.105
26-Dec	0.07	0.04	0	0	8	10	8	10	7	10	8	10	7	0.621	0.887	0.039	0.90	0.90	0	0.582
27-Dec	0.06	0.03	0	0										0	0	0	0.90	0.87	0	0
28-Dec	0.06	0.03	0	0										0	0	0	0.87	0.83	0	0
29-Dec	0.06	0.03	0	0										0	0	0	0.83	0.80	0	0
30-Dec	0.05	0.03	0	0										0	0	0	0.80	0.77	0	0
31-Dec	0.05	0.03	0	0										0	0	0	0.77	0.75	0	0
1-Jan	0.05	0.03	0	0										0	0	0	0.75	0.72	0	0
2-Jan	0.06	0.03	0	0										0	0	0	0.72	0.69	0	0
3-Jan	0.06	0.03	0	0										0	0	0	0.69	0.65	0	0
4-Jan	0.06	0.03	0	0										0	0	0	0.65	0.62	0	0
5-Jan	0.06	0.03	0	0										0	0	0	0.62	0.59	0	0
6-Jan	0.07	0.04	0.01	0.008										0	0	0	0.59	0.56	0	0
7-Jan	0.06	0.03	0.13	0.104										0	0	0	0.56	0.63	0	0
8-Jan	0.05	0.03	0	0										0	0	0	0.63	0.60	0	0
9-Jan	0.05	0.03	0	0										0	0	0	0.60	0.57	0	0
10-Jan	0.05	0.03	0	0										0	0	0	0.57	0.54	0	0
11-Jan	0.06	0.03	0.07	0.056										0	0	0	0.54	0.57	0	0
12-Jan	0.05	0.03	0.89	0.36										0	0	0	0.57	0.90	0	0
13-Jan	0.05	0.03	0.4	0.028										0	0	0	0.90	0.90	0	0
14-Jan	0.04	0.02	0	0										0	0	0	0.90	0.88	0	0
15-Jan	0.04	0.02	0	0										0	0	0	0.88	0.86	0	0
16-Jan	0.04	0.02	0	0										0	0	0	0.86	0.83	0	0
17-Jan	0.04	0.02	0	0										0	0	0	0.83	0.81	0	0
18-Jan	0.05	0.03	0	0										0	0	0	0.81	0.78	0	0

ET-B WRS – Zone 4

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.03	0.05	0.04				0	0	0	1.00	1.01	0	0
24-Oct	0.06	0.02	0.48	0.384				0	0	0	1.01	1.37	0	0
25-Oct	0.07	0.03	0.08	0.064				0	0	0	1.37	1.41	0	0
26-Oct	0.08	0.03	0	0				0	0	0	1.41	1.37	0	0
27-Oct	0.09	0.04	0	0				0	0	0	1.37	1.34	0	0
28-Oct	0.07	0.03	0	0				0	0	0	1.34	1.31	0	0
29-Oct	0.06	0.02	0	0				0	0	0	1.31	1.29	0	0
30-Oct	0.07	0.03	0	0				0	0	0	1.29	1.26	0	0
31-Oct	0.08	0.03	0	0				0	0	0	1.26	1.23	0	0
1-Nov	0.08	0.03	0	0				0	0	0	1.23	1.19	0	0
2-Nov	0.07	0.03	0.03	0.024				0	0	0	1.19	1.19	0	0
3-Nov	0.08	0.03	0	0				0	0	0	1.19	1.16	0	0
4-Nov	0.05	0.02	0.02	0.016				0	0	0	1.16	1.15	0	0
5-Nov	0.05	0.02	0	0				0	0	0	1.15	1.13	0	0
6-Nov	0.07	0.03	0	0				0	0	0	1.13	1.11	0	0
7-Nov	0.08	0.03	0	0				0	0	0	1.11	1.07	0	0
8-Nov	0.07	0.03	0	0				0	0	0	1.07	1.05	0	0
9-Nov	0.07	0.03	0	0				0	0	0	1.05	1.02	0	0
10-Nov	0.07	0.03	0	0				0	0	0	1.02	0.99	0	0
11-Nov	0.07	0.03	0	0				0	0	0	0.99	0.96	0	0
12-Nov	0.07	0.03	0	0				0	0	0	0.96	0.93	0	0
13-Nov	0.08	0.03	0.03	0.024				0	0	0	0.93	0.92	0	0
14-Nov	0.08	0.03	0	0				0	0	0	0.92	0.89	0	0
15-Nov	0.08	0.03	0.2	0.16				0	0	0	0.89	1.02	0	0
16-Nov	0.05	0.02	0	0				0	0	0	1.02	1.00	0	0
17-Nov	0.05	0.02	0	0				0	0	0	1.00	0.98	0	0
18-Nov	0.05	0.02	0	0				0	0	0	0.98	0.96	0	0
19-Nov	0.04	0.02	0	0				0	0	0	0.96	0.94	0	0
20-Nov	0.05	0.02	0	0				0	0	0	0.94	0.92	0	0
21-Nov	0.05	0.02	0	0				0	0	0	0.92	0.90	0	0
22-Nov	0.05	0.02	0	0				0	0	0	0.90	0.88	0	0
23-Nov	0.05	0.02	0	0				0	0	0	0.88	0.86	0	0
24-Nov	0.06	0.02	0	0				0	0	0	0.86	0.84	0	0
25-Nov	0.05	0.02	0	0				0	0	0	0.84	0.82	0	0
26-Nov	0.05	0.02	0	0				0	0	0	0.82	0.80	0	0
27-Nov	0.05	0.02	0	0				0	0	0	0.80	0.78	0	0
28-Nov	0.06	0.02	0	0				0	0	0	0.78	0.76	0	0
29-Nov	0.06	0.02	0	0				0	0	0	0.76	0.73	0	0
30-Nov	0.06	0.02	0.26	0.208				0	0	0	0.73	0.92	0	0
1-Dec	0.05	0.02	0.04	0.032				0	0	0	0.92	0.93	0	0
2-Dec	0.04	0.02	0.15	0.12				0	0	0	0.93	1.03	0	0
3-Dec	0.04	0.02	0	0				0	0	0	1.03	1.02	0	0
4-Dec	0.05	0.02	0	0				0	0	0	1.02	1.00	0	0
5-Dec	0.05	0.02	0	0				0	0	0	1.00	0.98	0	0
6-Dec	0.05	0.02	0.05	0.04				0	0	0	0.98	1.00	0	0
7-Dec	0.04	0.02	0	0				0	0	0	1.00	0.98	0	0
8-Dec	0.04	0.02	0	0				0	0	0	0.98	0.96	0	0
9-Dec	0.06	0.02	0	0				0	0	0	0.96	0.94	0	0
10-Dec	0.06	0.02	0	0				0	0	0	0.94	0.92	0	0
11-Dec	0.06	0.02	0.39	0.312				0	0	0	0.92	1.21	0	0
12-Dec	0.04	0.02	0	0				0	0	0	1.21	1.19	0	0
13-Dec	0.04	0.02	0	0				0	0	0	1.19	1.17	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
14-Dec	0.06	0.02	0	0				0	0	0	1.17	1.15	0	0
15-Dec	0.06	0.02	0	0				0	0	0	1.15	1.13	0	0
16-Dec	0.06	0.02	0	0				0	0	0	1.13	1.10	0	0
17-Dec	0.06	0.02	0	0				0	0	0	1.10	1.08	0	0
18-Dec	0.06	0.02	0	0				0	0	0	1.08	1.05	0	0
19-Dec	0.06	0.02	0	0				0	0	0	1.05	1.03	0	0
20-Dec	0.06	0.02	0	0				0	0	0	1.03	1.01	0	0
21-Dec	0.06	0.02	0.03	0.024				0	0	0	1.01	1.01	0	0
22-Dec	0.04	0.02	0	0				0	0	0	1.01	0.99	0	0
23-Dec	0.05	0.02	0	0				0	0	0	0.99	0.97	0	0
24-Dec	0.06	0.02	0	0				0	0	0	0.97	0.94	0	0
25-Dec	0.06	0.02	0.04	0.032				0	0	0	0.94	0.95	0	0
26-Dec	0.07	0.03	0	0				0	0	0	0.95	0.92	0	0
27-Dec	0.06	0.02	0	0				0	0	0	0.92	0.90	0	0
28-Dec	0.06	0.02	0	0				0	0	0	0.90	0.88	0	0
29-Dec	0.06	0.02	0	0				0	0	0	0.88	0.85	0	0
30-Dec	0.05	0.02	0	0				0	0	0	0.85	0.83	0	0
31-Dec	0.05	0.02	0	0				0	0	0	0.83	0.81	0	0
1-Jan	0.05	0.02	0	0				0	0	0	0.81	0.79	0	0
2-Jan	0.06	0.02	0	0				0	0	0	0.79	0.77	0	0
3-Jan	0.06	0.02	0	0				0	0	0	0.77	0.74	0	0
4-Jan	0.06	0.02	0	0				0	0	0	0.74	0.72	0	0
5-Jan	0.06	0.02	0	0				0	0	0	0.72	0.70	0	0
6-Jan	0.07	0.03	0.01	0.008				0	0	0	0.70	0.68	0	0
7-Jan	0.06	0.02	0.13	0.104				0	0	0	0.68	0.76	0	0
8-Jan	0.05	0.02	0	0				0	0	0	0.76	0.74	0	0
9-Jan	0.05	0.02	0	0				0	0	0	0.74	0.72	0	0
10-Jan	0.05	0.02	0	0				0	0	0	0.72	0.70	0	0
11-Jan	0.06	0.02	0.07	0.056				0	0	0	0.70	0.73	0	0
12-Jan	0.05	0.02	0.89	0.712				0	0	0	0.73	1.42	0	0
13-Jan	0.05	0.02	0.4	0.32				0	0	0	1.42	1.72	0	0
14-Jan	0.04	0.02	0	0				0	0	0	1.72	1.71	0	0
15-Jan	0.04	0.02	0	0				0	0	0	1.71	1.69	0	0
16-Jan	0.04	0.02	0	0				0	0	0	1.69	1.67	0	0
17-Jan	0.04	0.02	0	0				0	0	0	1.67	1.66	0	0
18-Jan	0.05	0.02	0	0				0	0	0	1.66	1.64	0	0

ET-B WRS – Zone 5

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
23-Oct	0.08	0.05	0.05	0.04				0	0	0	1.13	1.12	0	0
24-Oct	0.06	0.04	0.48	0.384				0	0	0	1.12	1.46	0	0
25-Oct	0.07	0.04	0.08	0.064				0	0	0	1.46	1.48	0	0
26-Oct	0.08	0.05	0	0				0	0	0	1.48	1.44	0	0
27-Oct	0.09	0.05	0	0				0	0	0	1.44	1.38	0	0
28-Oct	0.07	0.04	0	0				0	0	0	1.38	1.34	0	0
29-Oct	0.06	0.04	0	0				0	0	0	1.34	1.30	0	0
30-Oct	0.07	0.04	0	0				0	0	0	1.30	1.26	0	0
31-Oct	0.08	0.05	0	0				0	0	0	1.26	1.21	0	0
1-Nov	0.08	0.05	0	0				0	0	0	1.21	1.16	0	0
2-Nov	0.07	0.04	0.03	0.024				0	0	0	1.16	1.14	0	0
3-Nov	0.08	0.05	0	0				0	0	0	1.14	1.09	0	0
4-Nov	0.05	0.03	0.02	0.016				0	0	0	1.09	1.08	0	0
5-Nov	0.05	0.03	0	0				0	0	0	1.08	1.05	0	0
6-Nov	0.07	0.04	0	0				0	0	0	1.05	1.01	0	0
7-Nov	0.08	0.05	0	0				0	0	0	1.01	0.96	0	0
8-Nov	0.07	0.04	0	0				0	0	0	0.96	0.91	0	0
9-Nov	0.07	0.04	0	0				0	0	0	0.91	0.87	0	0
10-Nov	0.07	0.04	0	0				0	0	0	0.87	0.83	0	0
11-Nov	0.07	0.04	0	0				0	0	0	0.83	0.79	0	0
12-Nov	0.07	0.04	0	0				0	0	0	0.79	0.74	0	0
13-Nov	0.08	0.05	0.03	0.024				0	0	0	0.74	0.72	0	0
14-Nov	0.08	0.05	0	0				0	0	0	0.72	0.67	0	0
15-Nov	0.08	0.05	0.2	0.16				0	0	0	0.67	0.78	0	0
16-Nov	0.05	0.03	0	0				0	0	0	0.78	0.75	0	0
17-Nov	0.05	0.03	0	0				0	0	0	0.75	0.72	0	0
18-Nov	0.05	0.03	0	0				0	0	0	0.72	0.69	0	0
19-Nov	0.04	0.02	0	0				0	0	0	0.69	0.67	0	0
20-Nov	0.05	0.03	0	0				0	0	0	0.67	0.64	0	0
21-Nov	0.05	0.03	0	0				0	0	0	0.64	0.60	0	0
22-Nov	0.05	0.03	0	0				0	0	0	0.60	0.57	0	0
23-Nov	0.05	0.03	0	0				0	0	0	0.57	0.54	0	0
24-Nov	0.06	0.04	0	0				0	0	0	0.54	0.51	0	0
25-Nov	0.05	0.03	0	0				0	0	0	0.51	0.48	0	0
26-Nov	0.05	0.03	0	0				0	0	0	0.48	0.45	0	0
27-Nov	0.05	0.03	0	0				0	0	0	0.45	0.42	0	0
28-Nov	0.06	0.04	0	0				0	0	0	0.42	0.38	0	0
29-Nov	0.06	0.04	0	0				0	0	0	0.38	0.34	0	0
30-Nov	0.06	0.04	0.26	0.208				0	0	0	0.34	0.51	0	0
1-Dec	0.05	0.03	0.04	0.032				0	0	0	0.51	0.52	0	0
2-Dec	0.04	0.02	0.15	0.12				0	0	0	0.52	0.61	0	0
3-Dec	0.04	0.02	0	0				0	0	0	0.61	0.59	0	0
4-Dec	0.05	0.03	0	0				0	0	0	0.59	0.56	0	0
5-Dec	0.05	0.03	0	0				0	0	0	0.56	0.53	0	0
6-Dec	0.05	0.03	0.05	0.04				0	0	0	0.53	0.54	0	0
7-Dec	0.04	0.02	0	0				0	0	0	0.54	0.51	0	0
8-Dec	0.04	0.02	0	0				0	0	0	0.51	0.49	0	0
9-Dec	0.06	0.04	0	0				0	0	0	0.49	0.45	0	0
10-Dec	0.06	0.04	0	0				0	0	0	0.45	0.41	0	0
11-Dec	0.06	0.04	0.39	0.312				0	0	0	0.41	0.69	0	0
12-Dec	0.04	0.02	0	0				0	0	0	0.69	0.66	0	0
13-Dec	0.04	0.02	0	0				0	0	0	0.66	0.64	0	0
14-Dec	0.06	0.04	0	0				0	0	0	0.64	0.60	0	0
15-Dec	0.06	0.04	0	0				0	0	0	0.60	0.57	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
16-Dec	0.06	0.04	0	0				0	0	0	0.57	0.53	0	0
17-Dec	0.06	0.04	0	0				0	0	0	0.53	0.49	0	0
18-Dec	0.06	0.04	0	0				0	0	0	0.49	0.46	0	0
19-Dec	0.06	0.04	0	0				0	0	0	0.46	0.42	0	0
20-Dec	0.06	0.04	0	0				0	0	0	0.42	0.38	0	0
21-Dec	0.06	0.04	0.03	0.024				0	0	0	0.38	0.37	0	0
22-Dec	0.04	0.02	0	0				0	0	0	0.37	0.35	0	0
23-Dec	0.05	0.03	0	0				0	0	0	0.35	0.32	0	0
24-Dec	0.06	0.04	0	0				0	0	0	0.32	0.28	0	0
25-Dec	0.06	0.04	0.04	0.032				0	0	0	0.28	0.27	0	0
26-Dec	0.07	0.04	0	0				0	0	0	0.27	0.23	0	0
27-Dec	0.06	0.04	0	0				0	0	0	0.23	0.20	0	0
28-Dec	0.06	0.04	0	0				0	0	0	0.20	0.16	0	0
29-Dec	0.06	0.04	0	0				0	0	0	0.16	0.12	0	0
30-Dec	0.05	0.03	0	0				0	0	0	0.12	0.09	0	0
31-Dec	0.05	0.03	0	0				0	0	0	0.09	0.06	0	0
1-Jan	0.05	0.03	0	0				0	0	0	0.06	0.03	0	0
2-Jan	0.06	0.04	0	0				0	0	0	0.03	0.00	0.006	0
3-Jan	0.06	0.04	0	0				0	0	0	0.00	0.00	0.037	0
4-Jan	0.06	0.04	0	0				0	0	0	0.00	0.00	0.037	0
5-Jan	0.06	0.04	0	0				0	0	0	0.00	0.00	0.037	0
6-Jan	0.07	0.04	0.01	0.008				0	0	0	0.00	0.00	0.035	0
7-Jan	0.06	0.04	0.13	0.104				0	0	0	0.00	0.07	0	0
8-Jan	0.05	0.03	0	0				0	0	0	0.07	0.04	0	0
9-Jan	0.05	0.03	0	0				0	0	0	0.04	0.01	0	0
10-Jan	0.05	0.03	0	0				0	0	0	0.01	0.00	0.024	0
11-Jan	0.06	0.04	0.07	0.056				0	0	0	0.00	0.02	0	0
12-Jan	0.05	0.03	0.89	0.712				0	0	0	0.02	0.70	0	0
13-Jan	0.05	0.03	0.4	0.32				0	0	0	0.70	0.99	0	0
14-Jan	0.04	0.02	0	0				0	0	0	0.99	0.97	0	0
15-Jan	0.04	0.02	0	0				0	0	0	0.97	0.94	0	0
16-Jan	0.04	0.02	0	0				0	0	0	0.94	0.92	0	0
17-Jan	0.04	0.02	0	0				0	0	0	0.92	0.89	0	0
18-Jan	0.05	0.03	0	0				0	0	0	0.89	0.86	0	0

ET-B WRS – Zone 6

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Soak	Cycle 6	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)								
23-Oct	0.08	0.05	0.05	0.04												0	0	0	0.27	0.27	0	0
24-Oct	0.06	0.04	0.48	0.32												0	0	0	0.27	0.55	0	0
25-Oct	0.07	0.04	0.08	0.042												0	0	0	0.55	0.55	0	0
26-Oct	0.08	0.05	0	0												0	0	0	0.55	0.50	0	0
27-Oct	0.09	0.05	0	0												0	0	0	0.50	0.45	0	0
28-Oct	0.07	0.04	0	0												0	0	0	0.45	0.40	0	0
29-Oct	0.06	0.04	0	0												0	0	0	0.40	0.37	0	0
30-Oct	0.07	0.04	0	0												0	0	0	0.37	0.33	0	0
31-Oct	0.08	0.05	0	0												0	0	0	0.33	0.28	0	0
1-Nov	0.08	0.05	0	0												0	0	0	0.28	0.23	0	0
2-Nov	0.07	0.04	0.03	0.024												0	0	0	0.23	0.22	0	0
3-Nov	0.08	0.05	0	0												0	0	0	0.22	0.17	0	0
4-Nov	0.05	0.03	0.02	0.016												0	0	0	0.17	0.16	0	0
5-Nov	0.05	0.03	0	0												0	0	0	0.16	0.13	0	0
6-Nov	0.07	0.04	0	0												0	0	0	0.13	0.09	0	0
7-Nov	0.08	0.05	0	0												0	0	0	0.09	0.04	0	0
8-Nov	0.07	0.04	0	0												0	0	0	0.04	0.00	0	0
9-Nov	0.07	0.04	0	0	13	20	12	20	12	20	12	20	13		0.235	0.362	0.235	0.00	0.20	0	0	
10-Nov	0.07	0.04	0	0												0	0	0	0.20	0.16	0	0
11-Nov	0.07	0.04	0	0												0	0	0	0.16	0.12	0	0
12-Nov	0.07	0.04	0	0												0	0	0	0.12	0.08	0	0
13-Nov	0.08	0.05	0.03	0.024												0	0	0	0.08	0.06	0	0
14-Nov	0.08	0.05	0	0												0	0	0	0.06	0.01	0	0
15-Nov	0.08	0.05	0.2	0.16												0	0	0	0.01	0.13	0	0
16-Nov	0.05	0.03	0	0												0	0	0	0.13	0.10	0	0
17-Nov	0.05	0.03	0	0												0	0	0	0.10	0.07	0	0
18-Nov	0.05	0.03	0	0												0	0	0	0.07	0.04	0	0
19-Nov	0.04	0.02	0	0												0	0	0	0.04	0.02	0	0
20-Nov	0.05	0.03	0	0												0	0	0	0.02	0.00	0.01	0
21-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
22-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
23-Nov	0.05	0.03	0	0												0	0	0	0.00	0.00	0.03	0
24-Nov	0.06	0.03	0	0	12	20	12	20	11	20	12	20	12		0.224	0.344	0.224	0.00	0.19	0	0	
25-Nov	0.05	0.03	0	0												0	0	0	0.19	0.16	0	0
26-Nov	0.05	0.03	0	0												0	0	0	0.16	0.13	0	0
27-Nov	0.05	0.03	0	0												0	0	0	0.13	0.10	0	0
28-Nov	0.06	0.03	0	0												0	0	0	0.10	0.07	0	0
29-Nov	0.06	0.03	0	0												0	0	0	0.07	0.04	0	0
30-Nov	0.06	0.03	0.26	0.208												0	0	0	0.04	0.21	0	0
1-Dec	0.05	0.03	0.04	0.032												0	0	0	0.21	0.21	0	0
2-Dec	0.04	0.02	0.15	0.12												0	0	0	0.21	0.31	0	0
3-Dec	0.04	0.02	0	0												0	0	0	0.31	0.29	0	0
4-Dec	0.05	0.03	0	0												0	0	0	0.29	0.27	0	0
5-Dec	0.05	0.03	0	0												0	0	0	0.27	0.24	0	0
6-Dec	0.05	0.03	0.05	0.04												0	0	0	0.24	0.25	0	0
7-Dec	0.04	0.02	0	0												0	0	0	0.25	0.23	0	0
8-Dec	0.04	0.02	0	0												0	0	0	0.23	0.21	0	0
9-Dec	0.06	0.03	0	0												0	0	0	0.21	0.18	0	0
10-Dec	0.06	0.03	0	0												0	0	0	0.18	0.15	0	0
11-Dec	0.06	0.03	0.39	0.312												0	0	0	0.15	0.43	0	0
12-Dec	0.04	0.02	0	0												0	0	0	0.43	0.41	0	0
13-Dec	0.04	0.02	0	0												0	0	0	0.41	0.38	0	0
14-Dec	0.06	0.03	0	0												0	0	0	0.38	0.35	0	0

Date	ET _O	ET _C	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Soak	Cycle 3	Soak	Cycle 4	Soak	Cycle 5	Soak	Cycle 6	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Scheduling Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)								
15-Dec	0.06	0.03	0	0												0	0	0	0.35	0.32	0	0
16-Dec	0.06	0.03	0	0												0	0	0	0.32	0.29	0	0
17-Dec	0.06	0.03	0	0												0	0	0	0.29	0.26	0	0
18-Dec	0.06	0.03	0	0												0	0	0	0.26	0.23	0	0
19-Dec	0.06	0.03	0	0												0	0	0	0.23	0.19	0	0
20-Dec	0.06	0.03	0	0												0	0	0	0.19	0.16	0	0
21-Dec	0.06	0.03	0.03	0.024												0	0	0	0.16	0.15	0	0
22-Dec	0.04	0.02	0	0												0	0	0	0.15	0.13	0	0
23-Dec	0.05	0.03	0	0												0	0	0	0.13	0.11	0	0
24-Dec	0.06	0.03	0	0												0	0	0	0.11	0.07	0	0
25-Dec	0.06	0.03	0.04	0.032	12	20	11	20	12	20	11				0.174	0.268	0.174	0.07	0.25	0	0	
26-Dec	0.07	0.04	0	0												0	0	0	0.25	0.21	0	0
27-Dec	0.06	0.03	0	0												0	0	0	0.21	0.18	0	0
28-Dec	0.06	0.03	0	0												0	0	0	0.18	0.15	0	0
29-Dec	0.06	0.03	0	0												0	0	0	0.15	0.12	0	0
30-Dec	0.05	0.03	0	0												0	0	0	0.12	0.09	0	0
31-Dec	0.05	0.03	0	0												0	0	0	0.09	0.06	0	0
1-Jan	0.05	0.03	0	0												0	0	0	0.06	0.04	0	0
2-Jan	0.06	0.03	0	0												0	0	0	0.04	0.01	0	0
3-Jan	0.06	0.03	0	0												0	0	0	0.01	0.00	0.024	0
4-Jan	0.06	0.03	0	0	12	20	12	20	12	20	12	20	12	20	12	0.273	0.42	0.273	0.00	0.24	0	0
5-Jan	0.06	0.03	0	0												0	0	0	0.24	0.21	0	0
6-Jan	0.07	0.04	0.01	0.008												0	0	0	0.21	0.18	0	0
7-Jan	0.06	0.03	0.13	0.104												0	0	0	0.18	0.26	0	0
8-Jan	0.05	0.03	0	0												0	0	0	0.26	0.23	0	0
9-Jan	0.05	0.03	0	0												0	0	0	0.23	0.20	0	0
10-Jan	0.05	0.03	0	0												0	0	0	0.20	0.18	0	0
11-Jan	0.06	0.03	0.07	0.056												0	0	0	0.18	0.20	0	0
12-Jan	0.05	0.03	0.89	0.372												0	0	0	0.20	0.55	0	0
13-Jan	0.05	0.03	0.4	0.026												0	0	0	0.55	0.55	0	0
14-Jan	0.04	0.02	0	0												0	0	0	0.55	0.53	0	0
15-Jan	0.04	0.02	0	0												0	0	0	0.53	0.51	0	0
16-Jan	0.04	0.02	0	0												0	0	0	0.51	0.49	0	0
17-Jan	0.04	0.02	0	0												0	0	0	0.49	0.46	0	0
18-Jan	0.05	0.03	0	0												0	0	0	0.46	0.44	0	0

Appendix E

Irrigation Association - Smart Water Application Technology

Testing of Climatologically-based Controllers

Project Information	
Controller:	ET-C
Sensor:	Yes
Weather Station:	UF on-site station – Gainesville, FL
Test Dates:	September 24, 2008 – January 18, 2009
Test Status:	Completed
Protocol Version:	7 th Draft (November, 2006)

Evaluation Summary	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
ET _O (in)	11.48	11.48	11.48	11.48	11.48	11.48
ET _C (in)	5.27	6.54	6.32	4.59	7.00	6.54
Total Rainfall (in)	4.73	4.73	4.73	4.73	4.73	4.73
Effective Rainfall (in)	1.58	1.52	1.60	1.98	3.78	1.32
Gross Irrigation (in)	8.00	8.99	7.75	5.16	5.18	8.77
Net Irrigation (in)	4.40	5.39	5.42	3.87	4.15	5.70
Direct Runoff (in)	0	0	0	0	0	0
Soak Runoff (in)	0	0	0	0	0	0
Deficit (in)	0	0	0	0	0	0
Surplus (in)	0.36	0.22	0.38	0.31	0	0.32
Scheduling Losses (in)	0.36	0.22	0.38	0.31	0	0.32
Irrigation Adequacy (%)	100	100	100	100	100	100
Schedule Efficiency (%)	92	96	93	92	100	94
Scheduling Excess (%)	8	4	7	8	0	6
Application Efficiency (%)	55	60	70	75	80	65
Rainfall Efficiency (%)	42	40	42	52	100	35
Overall Efficiency (%)	51	58	65	69	80	61

ET-C – Zone 1

Date	ET _O (in)	ET _C (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
24-Sep	0.14	0.08	0	0	2			0.029	0.053	0.029	0.43	0.38	0	0
25-Sep	0.14	0.08	0	0				0	0	0	0.38	0.29	0	0
26-Sep	0.14	0.08	0	0	11	92	1	0.176	0.32	0.176	0.29	0.39	0	0
27-Sep	0.14	0.08	0	0				0	0	0	0.39	0.31	0	0
28-Sep	0.11	0.06	0	0	11	99	2	0.191	0.347	0.191	0.31	0.44	0	0
29-Sep	0.11	0.06	0	0				0	0	0	0.44	0.37	0	0
30-Sep	0.12	0.07	0	0	11	101	2	0.191	0.347	0.191	0.37	0.50	0	0
1-Oct	0.19	0.09	0	0				0	0	0	0.50	0.40	0	0
2-Oct	0.19	0.09	0	0	11	90	1	0.176	0.32	0.176	0.40	0.49	0	0
3-Oct	0.19	0.09	0	0				0	0	0	0.49	0.39	0	0
4-Oct	0.16	0.08	0	0	10	90	1	0.161	0.293	0.161	0.39	0.47	0	0
5-Oct	0.10	0.05	0	0				0	0	0	0.47	0.42	0	0
6-Oct	0.13	0.07	0	0	9			0.132	0.24	0.132	0.42	0.49	0	0
7-Oct	0.17	0.09	0	0				0	0	0	0.49	0.40	0	0
8-Oct	0.10	0.05	0.15	0.12				0	0	0	0.40	0.47	0	0
9-Oct	0.08	0.04	0.89	0.423				0	0	0	0.47	0.85	0	0
10-Oct	0.11	0.06	0	0				0	0	0	0.85	0.79	0	0
11-Oct	0.10	0.05	0	0				0	0	0	0.79	0.74	0	0
12-Oct	0.14	0.07	0	0				0	0	0	0.74	0.67	0	0
13-Oct	0.18	0.09	0	0				0	0	0	0.67	0.58	0	0
14-Oct	0.17	0.08	0	0	4			0.059	0.107	0.059	0.58	0.56	0	0
15-Oct	0.17	0.08	0	0				0	0	0	0.56	0.47	0	0
16-Oct	0.14	0.07	0	0	9			0.132	0.24	0.132	0.47	0.53	0	0
17-Oct	0.16	0.08	0	0				0	0	0	0.53	0.46	0	0
18-Oct	0.10	0.05	0	0	10			0.147	0.267	0.147	0.46	0.56	0	0
19-Oct	0.15	0.08	0	0				0	0	0	0.56	0.48	0	0
20-Oct	0.15	0.07	0	0	8			0.117	0.213	0.117	0.48	0.52	0	0
21-Oct	0.12	0.06	0	0				0	0	0	0.52	0.46	0	0
22-Oct	0.16	0.08	0	0	9			0.132	0.24	0.132	0.46	0.52	0	0
23-Oct	0.08	0.04	0.14	0.112				0	0	0	0.52	0.59	0	0
24-Oct	0.05	0.02	0.48	0.287				0	0	0	0.59	0.85	0	0
25-Oct	0.08	0.04	0.01	0.008				0	0	0	0.85	0.82	0	0
26-Oct	0.15	0.07	0	0				0	0	0	0.82	0.74	0	0
27-Oct	0.15	0.08	0	0				0	0	0	0.74	0.67	0	0
28-Oct	0.14	0.07	0	0				0	0	0	0.67	0.60	0	0
29-Oct	0.12	0.06	0	0				0	0	0	0.60	0.54	0	0
30-Oct	0.13	0.07	0	0	6			0.088	0.16	0.088	0.54	0.56	0	0
31-Oct	0.14	0.07	0	0				0	0	0	0.56	0.49	0	0
1-Nov	0.09	0.04	0	0				0	0	0	0.49	0.45	0	0
2-Nov	0.08	0.03	0	0	10	97	1	0.16	0.29	0.16	0.45	0.58	0	0
3-Nov	0.08	0.03	0	0				0	0	0	0.58	0.54	0	0
4-Nov	0.04	0.02	0	0	7			0.103	0.187	0.103	0.54	0.62	0	0
5-Nov	0.05	0.02	0	0				0	0	0	0.62	0.60	0	0
6-Nov	0.08	0.03	0	0	4			0.059	0.107	0.059	0.60	0.62	0	0
7-Nov	0.08	0.03	0	0				0	0	0	0.62	0.59	0	0
8-Nov	0.06	0.03	0	0	8			0.117	0.213	0.117	0.59	0.68	0	0
9-Nov	0.08	0.03	0	0				0	0	0	0.68	0.65	0	0
10-Nov	0.07	0.03	0	0	7			0.103	0.187	0.103	0.65	0.72	0	0
11-Nov	0.09	0.04	0	0				0	0	0	0.72	0.68	0	0
12-Nov	0.07	0.03	0	0	7			0.103	0.187	0.103	0.68	0.75	0	0
13-Nov	0.07	0.03	0	0				0	0	0	0.75	0.72	0	0
14-Nov	0.09	0.04	0.13	0.104				0	0	0	0.72	0.78	0	0
15-Nov	0.06	0.03	0.11	0.088				0	0	0	0.78	0.84	0	0
16-Nov	0.07	0.03	0	0				0	0	0	0.84	0.81	0	0
17-Nov	0.06	0.03	0	0				0	0	0	0.81	0.78	0	0
18-Nov	0.07	0.03	0	0	5			0.073	0.133	0.073	0.78	0.82	0	0
19-Nov	0.05	0.02	0	0				0	0	0	0.82	0.80	0	0
20-Nov	0.06	0.03	0	0	5			0.073	0.133	0.073	0.80	0.85	0	0
21-Nov	0.07	0.03	0	0				0	0	0	0.85	0.81	0	0

Date	ET _o (in)	ET _c (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
22-Nov	0.06	0.03	0	0	5			0.073	0.133	0.066	0.81	0.85	0	0.008
23-Nov	0.06	0.03	0	0				0	0	0	0.85	0.82	0	0
24-Nov	0.05	0.02	0	0	6			0.088	0.160	0.049	0.82	0.85	0	0.039
25-Nov	0.06	0.03	0	0				0	0	0	0.85	0.82	0	0
26-Nov	0.05	0.02	0	0	6			0.088	0.160	0.050	0.82	0.85	0	0.038
27-Nov	0.06	0.02	0	0				0	0	0	0.85	0.83	0	0
28-Nov	0.06	0.03	0	0	6			0.088	0.160	0.052	0.83	0.85	0	0.036
29-Nov	0.07	0.03	0	0				0	0	0	0.85	0.82	0	0
30-Nov	0.03	0.01	1.46	0.044				0	0	0	0.82	0.85	0	0
1-Dec	0.10	0.04	0.01	0.008				0	0	0	0.85	0.82	0	0
2-Dec	0.10	0.04	0.13	0.071				0	0	0	0.82	0.85	0	0
3-Dec	0.09	0.04	0	0				0	0	0	0.85	0.81	0	0
4-Dec	0.09	0.03	0	0				0	0	0	0.81	0.78	0	0
5-Dec	0.07	0.03	0	0				0	0	0	0.78	0.75	0	0
6-Dec	0.05	0.02	0.01	0.008	3			0.044	0.08	0.044	0.75	0.78	0	0
7-Dec	0.11	0.04	0	0				0	0	0	0.78	0.74	0	0
8-Dec	0.10	0.04	0	0	4			0.059	0.107	0.059	0.74	0.76	0	0
9-Dec	0.08	0.03	0	0				0	0	0	0.76	0.73	0	0
10-Dec	0.08	0.03	0	0	7			0.103	0.187	0.103	0.73	0.79	0	0
11-Dec	0.07	0.03	0.56	0.084				0	0	0	0.79	0.85	0	0
12-Dec	0.10	0.04	0.01	0.008				0	0	0	0.85	0.82	0	0
13-Dec	0.10	0.04	0	0				0	0	0	0.82	0.78	0	0
14-Dec	0.08	0.03	0	0	2			0.029	0.053	0.029	0.78	0.77	0	0
15-Dec	0.08	0.03	0	0				0	0	0	0.77	0.74	0	0
16-Dec	0.11	0.04	0	0	6			0.088	0.16	0.088	0.74	0.79	0	0
17-Dec	0.10	0.04	0	0				0	0	0	0.79	0.75	0	0
18-Dec	0.09	0.04	0	0	7			0.103	0.187	0.103	0.75	0.81	0	0
19-Dec	0.09	0.03	0	0				0	0	0	0.81	0.78	0	0
20-Dec	0.07	0.03	0	0	7			0.103	0.187	0.102	0.78	0.85	0	0.001
21-Dec	0.09	0.04	0.08	0.037				0	0	0	0.85	0.85	0	0
22-Dec	0.11	0.05	0	0	6			0.088	0.16	0.045	0.85	0.85	0	0.043
23-Dec	0.11	0.04	0	0				0	0	0	0.85	0.81	0	0
24-Dec	0.10	0.04	0	0	5			0.073	0.133	0.073	0.81	0.84	0	0
25-Dec	0.06	0.02	0.06	0.035				0	0	0	0.84	0.85	0	0
26-Dec	0.10	0.04	0	0	7			0.103	0.187	0.039	0.85	0.85	0	0.064
27-Dec	0.13	0.05	0	0				0	0	0	0.85	0.80	0	0
28-Dec	0.12	0.05	0	0	6			0.088	0.16	0.088	0.80	0.84	0	0
29-Dec	0.09	0.04	0.01	0.008				0	0	0	0.84	0.81	0	0
30-Dec	0.11	0.04	0	0	7			0.103	0.187	0.0817	0.81	0.85	0	0.021
31-Dec	0.12	0.05	0	0				0	0	0	0.85	0.80	0	0
1-Jan	0.09	0.04	0	0				0	0	0	0.80	0.76	0	0
2-Jan	0.08	0.03	0	0	9			0.132	0.24	0.119	0.76	0.85	0	0.013
3-Jan	0.05	0.02	0	0				0	0	0	0.85	0.83	0	0
4-Jan	0.09	0.04	0	0	6			0.088	0.16	0.057	0.83	0.85	0	0.031
5-Jan	0.10	0.04	0	0				0	0	0	0.85	0.81	0	0
6-Jan	0.09	0.04	0	0	7			0.103	0.187	0.080	0.81	0.85	0	0.023
7-Jan	0.10	0.04	0.1	0.039				0	0	0	0.85	0.85	0	0
8-Jan	0.11	0.04	0	0	6			0.088	0.16	0.044	0.85	0.85	0	0.044
9-Jan	0.11	0.04	0	0				0	0	0	0.85	0.81	0	0
10-Jan	0.11	0.04	0	0	6			0.088	0.16	0.088	0.81	0.85	0	0
11-Jan	0.03	0.01	0.21	0.014				0	0	0	0.85	0.85	0	0
12-Jan	0.04	0.02	0.1	0.017				0	0	0	0.85	0.85	0	0
13-Jan	0.01	0.00	0	0				0	0	0	0.85	0.85	0	0
14-Jan	0.09	0.04	0	0				0	0	0	0.85	0.81	0	0
15-Jan	0.08	0.03	0	0				0	0	0	0.81	0.78	0	0
16-Jan	0.10	0.04	0	0				0	0	0	0.78	0.74	0	0
17-Jan	0.09	0.04	0	0				0	0	0	0.74	0.70	0	0
18-Jan	0.12	0.05	0.08	0.064	4			0.059	0.107	0.059	0.70	0.77	0	0

ET-C – Zone 2

Date	ET _o (in)	ET _c (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
24-Sep	0.14	0.09	0	0	2			0.032	0.053	0.032	0.28	0.22	0	0
25-Sep	0.14	0.09	0	0	4	56	4	0.128	0.213	0.128	0.22	0.25	0	0
26-Sep	0.14	0.09	0	0	3	57	3	0.096	0.160	0.096	0.25	0.26	0	0
27-Sep	0.14	0.09	0	0	4	56	4	0.128	0.213	0.128	0.26	0.29	0	0
28-Sep	0.11	0.07	0	0	4	56	4	0.128	0.213	0.128	0.29	0.35	0	0
29-Sep	0.11	0.07	0	0	4	56	4	0.128	0.213	0.128	0.35	0.41	0	0
30-Sep	0.12	0.08	0	0	4	56	4	0.128	0.213	0.128	0.41	0.46	0	0
1-Oct	0.19	0.11	0	0	4	56	4	0.128	0.213	0.128	0.46	0.47	0	0
2-Oct	0.19	0.11	0	0	3	57	4	0.112	0.187	0.112	0.47	0.47	0	0
3-Oct	0.19	0.11	0	0	2	58	2	0.064	0.107	0.064	0.47	0.42	0	0
4-Oct	0.16	0.10	0	0	3	57	3	0.096	0.160	0.096	0.42	0.42	0	0
5-Oct	0.10	0.06	0	0	3	57	3	0.096	0.160	0.096	0.42	0.45	0	0
6-Oct	0.13	0.08	0	0	2	58	2	0.064	0.107	0.064	0.45	0.44	0	0
7-Oct	0.17	0.10	0	0	3	57	3	0.096	0.160	0.096	0.44	0.43	0	0
8-Oct	0.10	0.06	0.15	0.120				0	0	0	0.43	0.49	0	0
9-Oct	0.08	0.05	0.89	0.111				0	0	0	0.49	0.55	0	0
10-Oct	0.11	0.07	0	0				0	0	0	0.55	0.48	0	0
11-Oct	0.10	0.06	0	0				0	0	0	0.48	0.42	0	0
12-Oct	0.14	0.09	0	0				0	0	0	0.42	0.34	0	0
13-Oct	0.18	0.11	0	0				0	0	0	0.34	0.23	0	0
14-Oct	0.17	0.10	0	0	2	58	2	0.064	0.107	0.064	0.23	0.19	0	0
15-Oct	0.17	0.10	0	0	2	58	2	0.064	0.107	0.064	0.19	0.16	0	0
16-Oct	0.14	0.09	0	0	2	58	3	0.080	0.133	0.080	0.16	0.15	0	0
17-Oct	0.16	0.09	0	0	2	58	3	0.080	0.133	0.080	0.15	0.14	0	0
18-Oct	0.10	0.06	0	0	2	58	3	0.080	0.133	0.080	0.14	0.16	0	0
19-Oct	0.15	0.09	0	0	2	58	2	0.064	0.107	0.064	0.16	0.13	0	0
20-Oct	0.15	0.09	0	0	2	58	2	0.064	0.107	0.064	0.13	0.11	0	0
21-Oct	0.12	0.07	0	0	2	58	2	0.064	0.107	0.064	0.11	0.10	0	0
22-Oct	0.16	0.09	0	0	2	58	2	0.064	0.107	0.064	0.10	0.07	0	0
23-Oct	0.08	0.05	0.14	0.112	2	58	2	0.064	0.107	0.064	0.07	0.20	0	0
24-Oct	0.05	0.03	0.48	0.383				0	0	0	0.20	0.55	0	0
25-Oct	0.08	0.05	0.01	0.008				0	0	0	0.55	0.51	0	0
26-Oct	0.15	0.09	0	0				0	0	0	0.51	0.42	0	0
27-Oct	0.15	0.09	0	0				0	0	0	0.42	0.33	0	0
28-Oct	0.14	0.08	0	0				0	0	0	0.33	0.25	0	0
29-Oct	0.12	0.07	0	0	1	59	1	0.032	0.053	0.032	0.25	0.21	0	0
30-Oct	0.13	0.08	0	0	2	58	2	0.064	0.107	0.064	0.21	0.19	0	0
31-Oct	0.14	0.09	0	0	2	58	2	0.064	0.107	0.064	0.19	0.17	0	0
1-Nov	0.09	0.05	0	0	2	58	2	0.064	0.107	0.064	0.17	0.18	0	0
2-Nov	0.08	0.04	0	0	2	58	2	0.064	0.107	0.064	0.18	0.20	0	0
3-Nov	0.08	0.04	0	0	2	58	2	0.064	0.107	0.064	0.20	0.22	0	0
4-Nov	0.04	0.03	0	0	2	58	2	0.064	0.107	0.064	0.22	0.26	0	0
5-Nov	0.05	0.03	0	0	1	59	1	0.032	0.053	0.032	0.26	0.27	0	0
6-Nov	0.08	0.04	0	0	1	59	1	0.032	0.053	0.032	0.27	0.25	0	0
7-Nov	0.08	0.04	0	0	2	58	2	0.064	0.107	0.064	0.25	0.27	0	0
8-Nov	0.06	0.04	0	0	2	58	2	0.064	0.107	0.064	0.27	0.30	0	0
9-Nov	0.08	0.04	0	0	2	58	2	0.064	0.107	0.064	0.30	0.32	0	0
10-Nov	0.07	0.04	0	0	2	58	2	0.064	0.107	0.064	0.32	0.35	0	0
11-Nov	0.09	0.05	0	0	2	58	2	0.064	0.107	0.064	0.35	0.36	0	0
12-Nov	0.07	0.04	0	0	2	58	2	0.064	0.107	0.064	0.36	0.38	0	0
13-Nov	0.07	0.04	0	0	2	58	2	0.064	0.107	0.064	0.38	0.41	0	0
14-Nov	0.09	0.05	0.13	0.104				0	0	0	0.41	0.46	0	0
15-Nov	0.06	0.04	0.11	0.088				0	0	0	0.46	0.52	0	0
16-Nov	0.07	0.04	0	0				0	0	0	0.52	0.48	0	0
17-Nov	0.06	0.03	0	0	1	59	1	0.032	0.053	0.032	0.48	0.47	0	0
18-Nov	0.07	0.04	0	0	1	59	1	0.032	0.053	0.032	0.47	0.46	0	0
19-Nov	0.05	0.03	0	0	1	59	1	0.032	0.053	0.032	0.46	0.47	0	0
20-Nov	0.06	0.04	0	0	1	59	1	0.032	0.053	0.032	0.47	0.46	0	0
21-Nov	0.07	0.04	0	0	2	58	2	0.064	0.107	0.064	0.46	0.49	0	0

Date	ET _o (in)	ET _c (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
22-Nov	0.06	0.04	0	0	1	59	1	0.032	0.053	0.032	0.49	0.48	0	0
23-Nov	0.06	0.03	0	0	1	59	1	0.032	0.053	0.032	0.48	0.48	0	0
24-Nov	0.05	0.03	0	0	2	58	2	0.064	0.107	0.064	0.48	0.52	0	0
25-Nov	0.06	0.04	0	0	2	58	2	0.064	0.107	0.064	0.52	0.54	0	0
26-Nov	0.05	0.03	0	0	1	59	2	0.048	0.080	0.035	0.54	0.55	0	0.013
27-Nov	0.06	0.03	0	0	1	59	2	0.048	0.080	0.031	0.55	0.55	0	0.017
28-Nov	0.06	0.03	0	0	2	58	2	0.064	0.107	0.035	0.55	0.55	0	0.029
29-Nov	0.07	0.04	0	0	2	58	2	0.064	0.107	0.040	0.55	0.55	0	0.024
30-Nov	0.03	0.02	1.46	0.016				0	0	0	0.55	0.55	0	0
1-Dec	0.10	0.05	0.01	0.008				0	0	0	0.55	0.51	0	0
2-Dec	0.10	0.05	0.13	0.097				0	0	0	0.51	0.55	0	0
3-Dec	0.09	0.05	0	0				0	0	0	0.55	0.50	0	0
4-Dec	0.09	0.05	0	0				0	0	0	0.50	0.46	0	0
5-Dec	0.07	0.04	0	0				0	0	0	0.46	0.42	0	0
6-Dec	0.05	0.03	0.01	0.008	1	119	1	0.032	0.053	0.032	0.42	0.43	0	0
7-Dec	0.11	0.06	0	0	1	119	1	0.032	0.053	0.032	0.43	0.41	0	0
8-Dec	0.10	0.05	0	0	1	119	1	0.032	0.053	0.032	0.41	0.38	0	0
9-Dec	0.08	0.04	0	0	2	118	2	0.064	0.107	0.064	0.38	0.41	0	0
10-Dec	0.08	0.04	0	0	2	118	2	0.064	0.107	0.064	0.41	0.43	0	0
11-Dec	0.07	0.04	0.56	0.162				0	0	0	0.43	0.55	0	0
12-Dec	0.10	0.06	0.01	0.008				0	0	0	0.55	0.50	0	0
13-Dec	0.10	0.05	0	0				0	0	0	0.50	0.45	0	0
14-Dec	0.08	0.04	0	0	1	119	1	0.032	0.053	0.032	0.45	0.44	0	0
15-Dec	0.08	0.04	0	0	1	119	1	0.032	0.053	0.032	0.44	0.43	0	0
16-Dec	0.11	0.06	0	0	1	119	1	0.032	0.053	0.032	0.43	0.40	0	0
17-Dec	0.10	0.05	0	0	2	118	2	0.064	0.107	0.064	0.40	0.41	0	0
18-Dec	0.09	0.05	0	0	2	118	2	0.064	0.107	0.064	0.41	0.43	0	0
19-Dec	0.09	0.05	0	0	2	118	2	0.064	0.107	0.064	0.43	0.45	0	0
20-Dec	0.07	0.04	0	0	2	118	2	0.064	0.107	0.064	0.45	0.47	0	0
21-Dec	0.09	0.05	0.08	0.064	1	119	2	0.048	0.080	0.048	0.47	0.54	0	0
22-Dec	0.11	0.06	0	0	1	119	1	0.032	0.053	0.032	0.54	0.51	0	0
23-Dec	0.11	0.06	0	0	2			0.032	0.053	0.032	0.51	0.48	0	0
24-Dec	0.10	0.05	0	0	1	119	1	0.032	0.053	0.032	0.48	0.46	0	0
25-Dec	0.06	0.03	0.06	0.048	2	118	2	0.064	0.107	0.064	0.46	0.54	0	0
26-Dec	0.10	0.05	0	0	1	119	2	0.048	0.08	0.048	0.54	0.54	0	0
27-Dec	0.13	0.07	0	0	2	118	2	0.064	0.107	0.064	0.54	0.53	0	0
28-Dec	0.12	0.06	0	0	1	119	1	0.032	0.053	0.032	0.53	0.50	0	0
29-Dec	0.09	0.05	0.01	0.008	2	118	2	0.064	0.107	0.064	0.50	0.53	0	0
30-Dec	0.11	0.06	0	0	2	118	2	0.064	0.107	0.064	0.53	0.53	0	0
31-Dec	0.12	0.06	0	0	2	118	2	0.064	0.107	0.064	0.53	0.54	0	0
1-Jan	0.09	0.05	0	0	1	119	2	0.048	0.08	0.048	0.54	0.53	0	0
2-Jan	0.08	0.04	0	0	1	119	1	0.032	0.053	0.032	0.53	0.52	0	0
3-Jan	0.05	0.02	0	0	1	119	2	0.048	0.08	0.048	0.52	0.55	0	0
4-Jan	0.09	0.05	0	0	1	119	2	0.048	0.08	0.048	0.55	0.55	0	0
5-Jan	0.10	0.05	0	0	2	118	2	0.064	0.107	0.056	0.55	0.55	0	0.007
6-Jan	0.09	0.05	0	0	2	118	2	0.064	0.107	0.048	0.55	0.55	0	0.015
7-Jan	0.10	0.05	0.1	0.050	1	119	2	0.048	0.08	0	0.55	0.55	0	0.048
8-Jan	0.11	0.06	0	0	1	119	1	0.032	0.053	0.032	0.55	0.53	0	0
9-Jan	0.11	0.05	0	0	1	119	2	0.048	0.08	0.048	0.53	0.52	0	0
10-Jan	0.11	0.06	0	0	2	118	2	0.064	0.107	0.064	0.52	0.53	0	0
11-Jan	0.03	0.02	0.21	0.042	2	119	2	0.064	0.107	0	0.53	0.55	0	0.064
12-Jan	0.04	0.02	0.1	0.021				0	0	0	0.55	0.55	0	0
13-Jan	0.01	0.01	0	0				0	0	0	0.55	0.55	0	0
14-Jan	0.09	0.05	0	0				0	0	0	0.55	0.50	0	0
15-Jan	0.08	0.04	0	0				0	0	0	0.50	0.46	0	0
16-Jan	0.10	0.05	0	0				0	0	0	0.46	0.41	0	0
17-Jan	0.09	0.05	0	0	1	119	1	0.032	0.053	0.032	0.41	0.39	0	0
18-Jan	0.12	0.06	0.08	0.064	1	119	1	0.032	0.053	0.032	0.39	0.43	0	0

ET-C – Zone 3

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
24-Sep	0.14	0.08	0	0	1			0.016	0.023	0.016	0.45	0.39	0	0
25-Sep	0.14	0.08	0	0				0	0	0	0.39	0.31	0	0
26-Sep	0.14	0.08	0	0	12			0.196	0.280	0.196	0.31	0.43	0	0
27-Sep	0.14	0.08	0	0				0	0	0	0.43	0.35	0	0
28-Sep	0.11	0.06	0	0	12	89	1	0.212	0.303	0.212	0.35	0.50	0	0
29-Sep	0.11	0.06	0	0				0	0	0	0.50	0.44	0	0
30-Sep	0.12	0.06	0	0	12	91	1	0.212	0.303	0.212	0.44	0.58	0	0
1-Oct	0.19	0.10	0	0				0	0	0	0.58	0.48	0	0
2-Oct	0.19	0.10	0	0	12			0.196	0.280	0.196	0.48	0.57	0	0
3-Oct	0.19	0.10	0	0				0	0	0	0.57	0.47	0	0
4-Oct	0.16	0.09	0	0	12			0.196	0.280	0.196	0.47	0.57	0	0
5-Oct	0.10	0.06	0	0				0	0	0	0.57	0.52	0	0
6-Oct	0.13	0.07	0	0	11			0.180	0.257	0.180	0.52	0.62	0	0
7-Oct	0.17	0.10	0	0				0	0	0	0.62	0.53	0	0
8-Oct	0.10	0.05	0.15	0.120				0	0	0	0.53	0.59	0	0
9-Oct	0.08	0.05	0.89	0.352				0	0	0	0.59	0.90	0	0
10-Oct	0.11	0.06	0	0				0	0	0	0.90	0.84	0	0
11-Oct	0.10	0.06	0	0				0	0	0	0.84	0.78	0	0
12-Oct	0.14	0.08	0	0				0	0	0	0.78	0.70	0	0
13-Oct	0.18	0.10	0	0				0	0	0	0.70	0.61	0	0
14-Oct	0.17	0.09	0	0	5			0.082	0.117	0.082	0.61	0.60	0	0
15-Oct	0.17	0.09	0	0				0	0	0	0.60	0.50	0	0
16-Oct	0.14	0.08	0	0	11			0.180	0.257	0.180	0.50	0.60	0	0
17-Oct	0.16	0.09	0	0				0	0	0	0.60	0.52	0	0
18-Oct	0.10	0.05	0	0	11			0.180	0.257	0.180	0.52	0.65	0	0
19-Oct	0.15	0.08	0	0				0	0	0	0.65	0.56	0	0
20-Oct	0.15	0.08	0	0	8			0.131	0.187	0.131	0.56	0.61	0	0
21-Oct	0.12	0.07	0	0				0	0	0	0.61	0.55	0	0
22-Oct	0.16	0.09	0	0	9			0.147	0.210	0.147	0.55	0.61	0	0
23-Oct	0.08	0.05	0.14	0.112				0	0	0	0.61	0.67	0	0
24-Oct	0.05	0.03	0.48	0.254				0	0	0	0.67	0.90	0	0
25-Oct	0.08	0.04	0.01	0.008				0	0	0	0.90	0.86	0	0
26-Oct	0.15	0.08	0	0				0	0	0	0.86	0.78	0	0
27-Oct	0.15	0.08	0	0				0	0	0	0.78	0.70	0	0
28-Oct	0.14	0.08	0	0				0	0	0	0.70	0.62	0	0
29-Oct	0.12	0.07	0	0				0	0	0	0.62	0.56	0	0
30-Oct	0.13	0.07	0	0	6			0.098	0.140	0.098	0.56	0.58	0	0
31-Oct	0.14	0.08	0	0				0	0	0	0.58	0.50	0	0
1-Nov	0.09	0.05	0	0				0	0	0	0.50	0.45	0	0
2-Nov	0.08	0.04	0	0	12			0.196	0.280	0.196	0.45	0.61	0	0
3-Nov	0.08	0.04	0	0				0	0	0	0.61	0.57	0	0
4-Nov	0.04	0.02	0	0	8			0.131	0.187	0.131	0.57	0.67	0	0
5-Nov	0.05	0.03	0	0				0	0	0	0.67	0.64	0	0
6-Nov	0.08	0.04	0	0	5			0.082	0.117	0.082	0.64	0.68	0	0
7-Nov	0.08	0.04	0	0				0	0	0	0.68	0.64	0	0
8-Nov	0.06	0.03	0	0	9			0.147	0.210	0.147	0.64	0.75	0	0
9-Nov	0.08	0.04	0	0				0	0	0	0.75	0.71	0	0
10-Nov	0.07	0.04	0	0	8			0.131	0.187	0.131	0.71	0.80	0	0
11-Nov	0.09	0.05	0	0				0	0	0	0.80	0.76	0	0
12-Nov	0.07	0.04	0	0	9			0.147	0.210	0.147	0.76	0.86	0	0
13-Nov	0.07	0.04	0	0				0	0	0	0.86	0.83	0	0
14-Nov	0.09	0.05	0.13	0.104				0	0	0	0.83	0.88	0	0
15-Nov	0.06	0.03	0.11	0.053				0	0	0	0.88	0.90	0	0
16-Nov	0.07	0.04	0	0				0	0	0	0.90	0.86	0	0
17-Nov	0.06	0.03	0	0				0	0	0	0.86	0.83	0	0
18-Nov	0.07	0.04	0	0	6			0.098	0.140	0.098	0.83	0.89	0	0
19-Nov	0.05	0.03	0	0				0	0	0	0.89	0.86	0	0
20-Nov	0.06	0.03	0	0	5			0.082	0.117	0.075	0.86	0.90	0	0.006
21-Nov	0.07	0.04	0	0				0	0	0	0.90	0.86	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
22-Nov	0.06	0.04	0	0	7			0.114	0.163	0.075	0.86	0.90	0	0.040
23-Nov	0.06	0.03	0	0				0	0	0	0.90	0.87	0	0
24-Nov	0.05	0.03	0	0	6			0.098	0.140	0.060	0.87	0.90	0	0.038
25-Nov	0.06	0.03	0	0				0	0	0	0.90	0.87	0	0
26-Nov	0.05	0.03	0	0	7			0.114	0.163	0.062	0.87	0.90	0	0.053
27-Nov	0.06	0.03	0	0				0	0	0	0.90	0.87	0	0
28-Nov	0.06	0.03	0	0	7			0.114	0.163	0.064	0.87	0.90	0	0.050
29-Nov	0.07	0.04	0	0				0	0	0	0.90	0.86	0	0
30-Nov	0.03	0.02	1.46	0.054				0	0	0	0.86	0.90	0	0
1-Dec	0.10	0.05	0.01	0.008				0	0	0	0.90	0.85	0	0
2-Dec	0.10	0.05	0.13	0.101				0	0	0	0.85	0.90	0	0
3-Dec	0.09	0.05	0	0				0	0	0	0.90	0.85	0	0
4-Dec	0.09	0.05	0	0				0	0	0	0.85	0.80	0	0
5-Dec	0.07	0.04	0	0				0	0	0	0.80	0.76	0	0
6-Dec	0.05	0.03	0.01	0.008	3			0.049	0.070	0.049	0.76	0.79	0	0
7-Dec	0.11	0.06	0	0				0	0	0	0.79	0.73	0	0
8-Dec	0.10	0.05	0	0	6			0.098	0.140	0.098	0.73	0.77	0	0
9-Dec	0.08	0.04	0	0				0	0	0	0.77	0.73	0	0
10-Dec	0.08	0.05	0	0	7			0.114	0.163	0.114	0.73	0.80	0	0
11-Dec	0.07	0.04	0.56	0.139				0	0	0	0.80	0.90	0	0
12-Dec	0.10	0.06	0.01	0.008				0	0	0	0.90	0.85	0	0
13-Dec	0.10	0.05	0	0				0	0	0	0.85	0.80	0	0
14-Dec	0.08	0.05	0	0	3			0.049	0.070	0.049	0.80	0.80	0	0
15-Dec	0.08	0.04	0	0				0	0	0	0.80	0.76	0	0
16-Dec	0.11	0.06	0	0	7			0.114	0.163	0.114	0.76	0.81	0	0
17-Dec	0.10	0.06	0	0				0	0	0	0.81	0.76	0	0
18-Dec	0.09	0.05	0	0	8			0.131	0.187	0.131	0.76	0.84	0	0
19-Dec	0.09	0.05	0	0				0	0	0	0.84	0.79	0	0
20-Dec	0.07	0.04	0	0	7			0.114	0.163	0.114	0.79	0.86	0	0
21-Dec	0.09	0.05	0.08	0.064				0	0	0	0.86	0.87	0	0
22-Dec	0.11	0.06	0	0	7			0.114	0.163	0.087	0.87	0.90	0	0.027
23-Dec	0.11	0.06	0	0				0	0	0	0.90	0.84	0	0
24-Dec	0.10	0.06	0	0	5			0.082	0.117	0.082	0.84	0.87	0	0
25-Dec	0.06	0.03	0.06	0.048				0	0	0	0.87	0.88	0	0
26-Dec	0.10	0.05	0	0	7			0.114	0.163	0.072	0.88	0.90	0	0.042
27-Dec	0.13	0.07	0	0				0	0	0	0.90	0.83	0	0
28-Dec	0.12	0.06	0	0	8			0.131	0.187	0.131	0.83	0.90	0	0
29-Dec	0.09	0.05	0.01	0.008				0	0	0	0.90	0.85	0	0
30-Dec	0.11	0.06	0	0	7			0.114	0.163	0.105	0.85	0.90	0	0.009
31-Dec	0.12	0.06	0	0				0	0	0	0.90	0.84	0	0
1-Jan	0.09	0.05	0	0				0	0	0	0.84	0.78	0	0
2-Jan	0.08	0.04	0	0	10			0.163	0.233	0.161	0.78	0.90	0	0.002
3-Jan	0.05	0.03	0	0				0	0	0	0.90	0.87	0	0
4-Jan	0.09	0.05	0	0	7			0.114	0.163	0.077	0.87	0.90	0	0.037
5-Jan	0.10	0.06	0	0				0	0	0	0.90	0.84	0	0
6-Jan	0.09	0.05	0	0	8			0.131	0.187	0.107	0.84	0.90	0	0.023
7-Jan	0.10	0.05	0.1	0.053				0	0	0	0.90	0.90	0	0
8-Jan	0.11	0.06	0	0	7			0.114	0.163	0.059	0.90	0.90	0	0.055
9-Jan	0.11	0.06	0	0				0	0	0	0.90	0.84	0	0
10-Jan	0.11	0.06	0	0	7			0.114	0.163	0.114	0.84	0.90	0	0
11-Jan	0.03	0.02	0.21	0.023				0	0	0	0.90	0.90	0	0
12-Jan	0.04	0.02	0.1	0.022				0	0	0	0.90	0.90	0	0
13-Jan	0.01	0.01	0	0				0	0	0	0.90	0.89	0	0
14-Jan	0.09	0.05	0	0				0	0	0	0.89	0.84	0	0
15-Jan	0.08	0.04	0	0				0	0	0	0.84	0.80	0	0
16-Jan	0.10	0.06	0	0				0	0	0	0.80	0.75	0	0
17-Jan	0.09	0.05	0	0				0	0	0	0.75	0.70	0	0
18-Jan	0.12	0.06	0.08	0.064	5			0.082	0.117	0.082	0.70	0.78	0	0

ET-C – Zone 4

Date	ET _o (in)	ET _c (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
24-Sep	0.14	0.06	0	0				0	0	0	1.00	0.94	0	0
25-Sep	0.14	0.06	0	0				0	0	0	0.94	0.89	0	0
26-Sep	0.14	0.06	0	0	8			0.140	0.187	0.140	0.89	0.97	0	0
27-Sep	0.14	0.06	0	0				0	0	0	0.97	0.91	0	0
28-Sep	0.11	0.05	0	0	8			0.140	0.187	0.140	0.91	1.01	0	0
29-Sep	0.11	0.04	0	0				0	0	0	1.01	0.96	0	0
30-Sep	0.12	0.05	0	0	9			0.158	0.210	0.158	0.96	1.07	0	0
1-Oct	0.19	0.08	0	0				0	0	0	1.07	1.00	0	0
2-Oct	0.19	0.08	0	0	7			0.123	0.163	0.123	1.00	1.04	0	0
3-Oct	0.19	0.07	0	0				0	0	0	1.04	0.97	0	0
4-Oct	0.16	0.07	0	0	7			0.123	0.163	0.123	0.97	1.03	0	0
5-Oct	0.10	0.04	0	0				0	0	0	1.03	0.98	0	0
6-Oct	0.13	0.05	0	0	7			0.123	0.163	0.123	0.98	1.05	0	0
7-Oct	0.17	0.07	0	0				0	0	0	1.05	0.98	0	0
8-Oct	0.10	0.04	0.15	0.12				0	0	0	0.98	1.06	0	0
9-Oct	0.08	0.03	0.89	0.712				0	0	0	1.06	1.74	0	0
10-Oct	0.11	0.04	0	0				0	0	0	1.74	1.70	0	0
11-Oct	0.10	0.04	0	0				0	0	0	1.70	1.66	0	0
12-Oct	0.14	0.06	0	0				0	0	0	1.66	1.60	0	0
13-Oct	0.18	0.07	0	0				0	0	0	1.60	1.53	0	0
14-Oct	0.17	0.07	0	0	4			0.070	0.093	0.070	1.53	1.53	0	0
15-Oct	0.17	0.07	0	0				0	0	0	1.53	1.47	0	0
16-Oct	0.14	0.06	0	0	7			0.123	0.163	0.123	1.47	1.53	0	0
17-Oct	0.16	0.06	0	0				0	0	0	1.53	1.47	0	0
18-Oct	0.10	0.04	0	0	7			0.123	0.163	0.123	1.47	1.55	0	0
19-Oct	0.15	0.06	0	0				0	0	0	1.55	1.49	0	0
20-Oct	0.15	0.06	0	0	6			0.105	0.140	0.105	1.49	1.54	0	0
21-Oct	0.12	0.05	0	0				0	0	0	1.54	1.49	0	0
22-Oct	0.16	0.06	0	0	7			0.123	0.163	0.123	1.49	1.55	0	0
23-Oct	0.08	0.03	0.14	0.112				0	0	0	1.55	1.63	0	0
24-Oct	0.05	0.02	0.48	0.384				0	0	0	1.63	1.99	0	0
25-Oct	0.08	0.03	0.01	0.008				0	0	0	1.99	1.97	0	0
26-Oct	0.15	0.06	0	0				0	0	0	1.97	1.91	0	0
27-Oct	0.15	0.06	0	0				0	0	0	1.91	1.85	0	0
28-Oct	0.14	0.06	0	0				0	0	0	1.85	1.79	0	0
29-Oct	0.12	0.05	0	0				0	0	0	1.79	1.74	0	0
30-Oct	0.13	0.05	0	0	5			0.088	0.117	0.088	1.74	1.78	0	0
31-Oct	0.14	0.06	0	0				0	0	0	1.78	1.72	0	0
1-Nov	0.09	0.04	0	0				0	0	0	1.72	1.69	0	0
2-Nov	0.08	0.03	0	0	8			0.140	0.187	0.140	1.69	1.80	0	0
3-Nov	0.08	0.03	0	0				0	0	0	1.80	1.77	0	0
4-Nov	0.04	0.02	0	0	5			0.088	0.117	0.088	1.77	1.83	0	0
5-Nov	0.05	0.02	0	0				0	0	0	1.83	1.81	0	0
6-Nov	0.08	0.03	0	0	3			0.053	0.070	0.053	1.81	1.84	0	0
7-Nov	0.08	0.03	0	0				0	0	0	1.84	1.81	0	0
8-Nov	0.06	0.02	0	0	6			0.105	0.140	0.105	1.81	1.89	0	0
9-Nov	0.08	0.03	0	0				0	0	0	1.89	1.86	0	0
10-Nov	0.07	0.03	0	0	5			0.088	0.117	0.088	1.86	1.91	0	0
11-Nov	0.09	0.03	0	0				0	0	0	1.91	1.88	0	0
12-Nov	0.07	0.03	0	0	5			0.088	0.117	0.088	1.88	1.94	0	0
13-Nov	0.07	0.03	0	0				0	0	0	1.94	1.91	0	0
14-Nov	0.09	0.03	0.13	0.104				0	0	0	1.91	1.98	0	0
15-Nov	0.06	0.03	0.11	0.047				0	0	0	1.98	2.00	0	0
16-Nov	0.07	0.03	0	0				0	0	0	2.00	1.97	0	0
17-Nov	0.06	0.02	0	0				0	0	0	1.97	1.95	0	0
18-Nov	0.07	0.03	0	0	4			0.070	0.093	0.070	1.95	1.99	0	0
19-Nov	0.05	0.02	0	0				0	0	0	1.99	1.97	0	0
20-Nov	0.06	0.02	0	0	4			0.070	0.093	0.056	1.97	2.00	0	0.014
21-Nov	0.07	0.03	0	0				0	0	0	2.00	1.97	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
22-Nov	0.06	0.03	0	0	4			0.070	0.093	0.054	1.97	2.00	0	0.016
23-Nov	0.06	0.02	0	0				0	0	0	2.00	1.98	0	0
24-Nov	0.05	0.02	0	0	5			0.088	0.117	0.044	1.98	2.00	0	0.044
25-Nov	0.06	0.03	0	0				0	0	0	2.00	1.98	0	0
26-Nov	0.05	0.02	0	0	5			0.088	0.117	0.045	1.98	2.00	0	0.043
27-Nov	0.06	0.02	0	0				0	0	0	2.00	1.98	0	0
28-Nov	0.06	0.02	0	0	5			0.088	0.117	0.047	1.98	2.00	0	0.041
29-Nov	0.07	0.03	0	0				0	0	0	2.00	1.97	0	0
30-Nov	0.03	0.01	1.46	0.039				0	0	0	1.97	2.00	0	0
1-Dec	0.10	0.04	0.01	0.008				0	0	0	2.00	1.97	0	0
2-Dec	0.10	0.04	0.13	0.071				0	0	0	1.97	2.00	0	0
3-Dec	0.09	0.04	0	0				0	0	0	2.00	1.97	0	0
4-Dec	0.09	0.03	0	0				0	0	0	1.97	1.93	0	0
5-Dec	0.07	0.03	0	0				0	0	0	1.93	1.90	0	0
6-Dec	0.05	0.02	0.01	0.008	2			0.035	0.047	0.035	1.90	1.93	0	0
7-Dec	0.11	0.04	0	0				0	0	0	1.93	1.88	0	0
8-Dec	0.10	0.04	0	0	3			0.053	0.070	0.053	1.88	1.89	0	0
9-Dec	0.08	0.03	0	0				0	0	0	1.89	1.86	0	0
10-Dec	0.08	0.03	0	0	5			0.088	0.117	0.088	1.86	1.92	0	0
11-Dec	0.07	0.03	0.56	0.114				0	0	0	1.92	2.00	0	0
12-Dec	0.10	0.04	0.01	0.008				0	0	0	2.00	1.97	0	0
13-Dec	0.10	0.04	0	0				0	0	0	1.97	1.93	0	0
14-Dec	0.08	0.03	0	0	2			0.035	0.047	0.035	1.93	1.93	0	0
15-Dec	0.08	0.03	0	0				0	0	0	1.93	1.90	0	0
16-Dec	0.11	0.04	0	0	4			0.070	0.093	0.070	1.90	1.93	0	0
17-Dec	0.10	0.04	0	0				0	0	0	1.93	1.89	0	0
18-Dec	0.09	0.04	0	0	5			0.088	0.117	0.088	1.89	1.94	0	0
19-Dec	0.09	0.03	0	0				0	0	0	1.94	1.90	0	0
20-Dec	0.07	0.03	0	0	6			0.105	0.140	0.105	1.90	1.98	0	0
21-Dec	0.09	0.04	0.08	0.062				0	0	0	1.98	2.00	0	0
22-Dec	0.11	0.05	0	0	5			0.088	0.117	0.045	2.00	2.00	0	0.042
23-Dec	0.11	0.04	0	0				0	0	0	2.00	1.96	0	0
24-Dec	0.10	0.04	0	0	4			0.07	0.093	0.07	1.96	1.99	0	0
25-Dec	0.06	0.02	0.06	0.038				0	0	0	1.99	2.00	0	0
26-Dec	0.10	0.04	0	0	5			0.088	0.117	0.039	2.00	2.00	0	0.048
27-Dec	0.13	0.05	0	0				0	0	0	2.00	1.95	0	0
28-Dec	0.12	0.05	0	0	4			0.07	0.093	0.07	1.95	1.97	0	0
29-Dec	0.09	0.04	0.01	0.008				0	0	0	1.97	1.95	0	0
30-Dec	0.11	0.04	0	0	6			0.105	0.14	0.100	1.95	2.00	0	0.005
31-Dec	0.12	0.05	0	0				0	0	0	2.00	1.95	0	0
1-Jan	0.09	0.04	0	0				0	0	0	1.95	1.92	0	0
2-Jan	0.08	0.03	0	0	6			0.105	0.14	0.105	1.92	1.99	0	0
3-Jan	0.05	0.02	0	0				0	0	0	1.99	1.97	0	0
4-Jan	0.09	0.04	0	0	5			0.088	0.117	0.068	1.97	2.00	0	0.019
5-Jan	0.10	0.04	0	0				0	0	0	2.00	1.96	0	0
6-Jan	0.09	0.04	0	0	5			0.088	0.117	0.078	1.96	2.00	0	0.009
7-Jan	0.10	0.04	0.1	0.038				0	0	0	2.00	2.00	0	0
8-Jan	0.11	0.04	0	0	4			0.07	0.093	0.043	2.00	2.00	0	0.027
9-Jan	0.11	0.04	0	0				0	0	0	2.00	1.96	0	0
10-Jan	0.11	0.04	0	0	5			0.088	0.117	0.086	1.96	2.00	0	0.002
11-Jan	0.03	0.01	0.21	0.014				0	0	0	2.00	2.00	0	0
12-Jan	0.04	0.02	0.1	0.016				0	0	0	2.00	2.00	0	0
13-Jan	0.01	0.00	0	0				0	0	0	2.00	2.00	0	0
14-Jan	0.09	0.04	0	0				0	0	0	2.00	1.96	0	0
15-Jan	0.08	0.03	0	0				0	0	0	1.96	1.93	0	0
16-Jan	0.10	0.04	0	0				0	0	0	1.93	1.89	0	0
17-Jan	0.09	0.04	0	0				0	0	0	1.89	1.85	0	0
18-Jan	0.12	0.05	0.08	0.064	4			0.07	0.093	0.07	1.85	1.94	0	0

ET-C – Zone 5

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
24-Sep	0.14	0.09	0	0	7			0.019	0.023	0.019	1.13	1.06	0	0
25-Sep	0.14	0.09	0	0				0	0	0	1.06	0.97	0	0
26-Sep	0.14	0.09	0	0	12			0.032	0.040	0.032	0.97	0.91	0	0
27-Sep	0.14	0.09	0	0				0	0	0	0.91	0.83	0	0
28-Sep	0.11	0.07	0	0	19			0.051	0.063	0.051	0.83	0.81	0	0
29-Sep	0.11	0.07	0	0				0	0	0	0.81	0.74	0	0
30-Sep	0.12	0.07	0	0	20			0.053	0.067	0.053	0.74	0.72	0	0
1-Oct	0.19	0.12	0	0				0	0	0	0.72	0.61	0	0
2-Oct	0.19	0.11	0	0	71			0.189	0.237	0.189	0.61	0.68	0	0
3-Oct	0.19	0.11	0	0				0	0	0	0.68	0.57	0	0
4-Oct	0.16	0.10	0	0	11			0.029	0.037	0.029	0.57	0.50	0	0
5-Oct	0.10	0.06	0	0				0	0	0	0.50	0.43	0	0
6-Oct	0.13	0.08	0	0	5			0.013	0.017	0.013	0.43	0.36	0	0
7-Oct	0.17	0.11	0	0				0	0	0	0.36	0.26	0	0
8-Oct	0.10	0.06	0.15	0.12				0	0	0	0.26	0.32	0	0
9-Oct	0.08	0.05	0.89	0.712				0	0	0	0.32	0.98	0	0
10-Oct	0.11	0.07	0	0				0	0	0	0.98	0.91	0	0
11-Oct	0.10	0.06	0	0				0	0	0	0.91	0.85	0	0
12-Oct	0.14	0.09	0	0				0	0	0	0.85	0.76	0	0
13-Oct	0.18	0.11	0	0				0	0	0	0.76	0.65	0	0
14-Oct	0.17	0.10	0	0	31			0.083	0.103	0.083	0.65	0.63	0	0
15-Oct	0.17	0.10	0	0				0	0	0	0.63	0.53	0	0
16-Oct	0.14	0.09	0	0	4			0.011	0.013	0.011	0.53	0.45	0	0
17-Oct	0.16	0.09	0	0				0	0	0	0.45	0.36	0	0
18-Oct	0.10	0.06	0	0	8			0.021	0.027	0.021	0.36	0.32	0	0
19-Oct	0.15	0.09	0	0				0	0	0	0.32	0.23	0	0
20-Oct	0.15	0.09	0	0	53			0.141	0.177	0.141	0.23	0.28	0	0
21-Oct	0.12	0.07	0	0				0	0	0	0.28	0.21	0	0
22-Oct	0.16	0.10	0	0	60			0.160	0.200	0.160	0.21	0.27	0	0
23-Oct	0.08	0.05	0.14	0.112				0	0	0	0.27	0.33	0	0
24-Oct	0.05	0.03	0.48	0.384				0	0	0	0.33	0.69	0	0
25-Oct	0.08	0.05	0.01	0.008				0	0	0	0.69	0.65	0	0
26-Oct	0.15	0.09	0	0				0	0	0	0.65	0.56	0	0
27-Oct	0.15	0.09	0	0				0	0	0	0.56	0.46	0	0
28-Oct	0.14	0.09	0	0				0	0	0	0.46	0.38	0	0
29-Oct	0.12	0.07	0	0				0	0	0	0.38	0.31	0	0
30-Oct	0.13	0.08	0	0	40			0.107	0.133	0.107	0.31	0.33	0	0
31-Oct	0.14	0.09	0	0				0	0	0	0.33	0.24	0	0
1-Nov	0.09	0.05	0	0				0	0	0	0.24	0.19	0	0
2-Nov	0.08	0.05	0	0	17			0.045	0.057	0.045	0.19	0.19	0	0
3-Nov	0.08	0.05	0	0				0	0	0	0.19	0.14	0	0
4-Nov	0.04	0.03	0	0	49			0.131	0.163	0.131	0.14	0.25	0	0
5-Nov	0.05	0.03	0	0				0	0	0	0.25	0.21	0	0
6-Nov	0.08	0.05	0	0	31			0.083	0.103	0.083	0.21	0.25	0	0
7-Nov	0.08	0.05	0	0				0	0	0	0.25	0.20	0	0
8-Nov	0.06	0.04	0	0	56			0.149	0.187	0.149	0.20	0.31	0	0
9-Nov	0.08	0.05	0	0				0	0	0	0.31	0.27	0	0
10-Nov	0.07	0.04	0	0	49			0.131	0.163	0.131	0.27	0.35	0	0
11-Nov	0.09	0.05	0	0				0	0	0	0.35	0.30	0	0
12-Nov	0.07	0.04	0	0	52			0.139	0.173	0.139	0.30	0.40	0	0
13-Nov	0.07	0.04	0	0				0	0	0	0.40	0.36	0	0
14-Nov	0.09	0.05	0.13	0.104				0	0	0	0.36	0.41	0	0
15-Nov	0.06	0.04	0.11	0.088				0	0	0	0.41	0.46	0	0
16-Nov	0.07	0.04	0	0				0	0	0	0.46	0.41	0	0
17-Nov	0.06	0.04	0	0				0	0	0	0.41	0.38	0	0
18-Nov	0.07	0.04	0	0	36			0.096	0.120	0.096	0.38	0.43	0	0
19-Nov	0.05	0.03	0	0				0	0	0	0.43	0.40	0	0
20-Nov	0.06	0.04	0	0	33			0.088	0.110	0.088	0.40	0.45	0	0
21-Nov	0.07	0.04	0	0				0	0	0	0.45	0.40	0	0

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
22-Nov	0.06	0.04	0	0	38			0.101	0.127	0.101	0.40	0.47	0	0
23-Nov	0.06	0.04	0	0				0	0	0	0.47	0.43	0	0
24-Nov	0.05	0.03	0	0	40			0.107	0.133	0.107	0.43	0.51	0	0
25-Nov	0.06	0.04	0	0				0	0	0	0.51	0.47	0	0
26-Nov	0.05	0.03	0	0	42			0.112	0.140	0.112	0.47	0.55	0	0
27-Nov	0.06	0.03	0	0				0	0	0	0.55	0.52	0	0
28-Nov	0.06	0.04	0	0	42			0.112	0.140	0.112	0.52	0.59	0	0
29-Nov	0.07	0.04	0	0				0	0	0	0.59	0.55	0	0
30-Nov	0.03	0.02	1.46	1.168				0	0	0	0.55	1.70	0	0
1-Dec	0.10	0.06	0.01	0.008				0	0	0	1.70	1.65	0	0
2-Dec	0.10	0.06	0.13	0.104				0	0	0	1.65	1.69	0	0
3-Dec	0.09	0.06	0	0				0	0	0	1.69	1.63	0	0
4-Dec	0.09	0.05	0	0				0	0	0	1.63	1.58	0	0
5-Dec	0.07	0.04	0	0				0	0	0	1.58	1.54	0	0
6-Dec	0.05	0.03	0.01	0.008	21			0.056	0.070	0.056	1.54	1.57	0	0
7-Dec	0.11	0.07	0	0				0	0	0	1.57	1.50	0	0
8-Dec	0.10	0.06	0	0	32			0.085	0.107	0.085	1.50	1.53	0	0
9-Dec	0.08	0.05	0	0				0	0	0	1.53	1.48	0	0
10-Dec	0.08	0.05	0	0	45			0.120	0.150	0.120	1.48	1.55	0	0
11-Dec	0.07	0.04	0.56	0.448				0	0	0	1.55	1.95	0	0
12-Dec	0.10	0.06	0.01	0.008				0	0	0	1.95	1.90	0	0
13-Dec	0.10	0.06	0	0				0	0	0	1.90	1.84	0	0
14-Dec	0.08	0.05	0	0	17			0.045	0.057	0.045	1.84	1.83	0	0
15-Dec	0.08	0.05	0	0				0	0	0	1.83	1.78	0	0
16-Dec	0.11	0.07	0	0	42			0.112	0.140	0.112	1.78	1.83	0	0
17-Dec	0.10	0.06	0	0				0	0	0	1.83	1.77	0	0
18-Dec	0.09	0.05	0	0	48			0.128	0.160	0.128	1.77	1.84	0	0
19-Dec	0.09	0.05	0	0				0	0	0	1.84	1.79	0	0
20-Dec	0.07	0.05	0	0	46			0.123	0.153	0.123	1.79	1.87	0	0
21-Dec	0.09	0.06	0.08	0.064				0	0	0	1.87	1.87	0	0
22-Dec	0.11	0.07	0	0	43			0.115	0.143	0.115	1.87	1.92	0	0
23-Dec	0.11	0.07	0	0				0	0	0	1.92	1.85	0	0
24-Dec	0.10	0.06	0	0	34			0.091	0.113	0.091	1.85	1.88	0	0
25-Dec	0.06	0.04	0.06	0.048				0	0	0	1.88	1.89	0	0
26-Dec	0.10	0.06	0	0	47			0.125	0.157	0.125	1.89	1.96	0	0
27-Dec	0.13	0.08	0	0				0	0	0	1.96	1.88	0	0
28-Dec	0.12	0.07	0	0	45			0.12	0.15	0.12	1.88	1.93	0	0
29-Dec	0.09	0.06	0.01	0.008				0	0	0	1.93	1.88	0	0
30-Dec	0.11	0.07	0	0	46			0.123	0.153	0.123	1.88	1.94	0	0
31-Dec	0.12	0.07	0	0				0	0	0	1.94	1.87	0	0
1-Jan	0.09	0.06	0	0				0	0	0	1.87	1.81	0	0
2-Jan	0.08	0.05	0	0	60			0.16	0.2	0.16	1.81	1.92	0	0
3-Jan	0.05	0.03	0	0				0	0	0	1.92	1.89	0	0
4-Jan	0.09	0.06	0	0	42			0.112	0.14	0.112	1.89	1.95	0	0
5-Jan	0.10	0.06	0	0				0	0	0	1.95	1.88	0	0
6-Jan	0.09	0.06	0	0	48			0.128	0.16	0.128	1.88	1.96	0	0
7-Jan	0.10	0.06	0.1	0.08				0	0	0	1.96	1.98	0	0
8-Jan	0.11	0.07	0	0	41			0.109	0.137	0.109	1.98	2.02	0	0
9-Jan	0.11	0.06	0	0				0	0	0	2.02	1.96	0	0
10-Jan	0.11	0.07	0	0	42			0.112	0.14	0.112	1.96	2.00	0	0
11-Jan	0.03	0.02	0.21	0.168				0	0	0	2.00	2.15	0	0
12-Jan	0.04	0.02	0.1	0.08				0	0	0	2.15	2.20	0	0
13-Jan	0.01	0.01	0	0				0	0	0	2.20	2.20	0	0
14-Jan	0.09	0.06	0	0				0	0	0	2.20	2.14	0	0
15-Jan	0.08	0.05	0	0				0	0	0	2.14	2.09	0	0
16-Jan	0.10	0.06	0	0				0	0	0	2.09	2.03	0	0
17-Jan	0.09	0.05	0	0				0	0	0	2.03	1.98	0	0
18-Jan	0.12	0.07	0.08	0.064	30			0.08	0.1	0.08	1.98	2.05	0	0

ET-C – Zone 6

Date	ET _o (in)	ET _c (in)	Rainfall (in)	Effective Rainfall (in)	Cycle 1 (min)	Soak (min)	Cycle 2 (min)	Net Irrigation (in)	Gross Irrigation (in)	Effective Irrigation (in)	Initial Moisture Balance (in)	Final Moisture Balance (in)	Daily Deficit (in)	Daily Schedule Losses (in)
24-Sep	0.14	0.09	0	0	3	59	3	0.023	0.035	0.023	0.27	0.21	0	0
25-Sep	0.14	0.09	0	0	13	47	14	0.102	0.158	0.102	0.21	0.22	0	0
26-Sep	0.14	0.09	0	0	14	46	14	0.106	0.163	0.106	0.22	0.23	0	0
27-Sep	0.14	0.09	0	0	14	45	14	0.106	0.163	0.106	0.23	0.25	0	0
28-Sep	0.11	0.07	0	0	15	45	16	0.118	0.181	0.118	0.25	0.29	0	0
29-Sep	0.11	0.07	0	0	15	45	16	0.118	0.181	0.118	0.29	0.34	0	0
30-Sep	0.12	0.08	0	0	15	45	15	0.114	0.175	0.114	0.34	0.37	0	0
1-Oct	0.19	0.11	0	0	13	47	13	0.099	0.152	0.099	0.37	0.36	0	0
2-Oct	0.19	0.11	0	0	14	47	13	0.102	0.158	0.102	0.36	0.35	0	0
3-Oct	0.19	0.11	0	0	13	47	13	0.099	0.152	0.099	0.35	0.34	0	0
4-Oct	0.16	0.10	0	0	14	46	14	0.106	0.163	0.106	0.34	0.34	0	0
5-Oct	0.10	0.06	0	0	13	47	13	0.099	0.152	0.099	0.34	0.38	0	0
6-Oct	0.13	0.08	0	0	11	49	12	0.087	0.134	0.087	0.38	0.39	0	0
7-Oct	0.17	0.10	0	0	13	47	13	0.099	0.152	0.099	0.39	0.38	0	0
8-Oct	0.10	0.06	0.15	0.120				0	0	0	0.38	0.44	0	0
9-Oct	0.08	0.05	0.89	0.157				0	0	0	0.44	0.55	0	0
10-Oct	0.11	0.07	0	0				0	0	0	0.55	0.48	0	0
11-Oct	0.10	0.06	0	0				0	0	0	0.48	0.42	0	0
12-Oct	0.14	0.09	0	0				0	0	0	0.42	0.33	0	0
13-Oct	0.18	0.11	0	0				0	0	0	0.33	0.23	0	0
14-Oct	0.17	0.10	0	0	12	48	12	0.091	0.140	0.091	0.23	0.22	0	0
15-Oct	0.17	0.10	0	0	12	48	12	0.091	0.140	0.091	0.22	0.21	0	0
16-Oct	0.14	0.09	0	0	13	48	12	0.095	0.146	0.095	0.21	0.22	0	0
17-Oct	0.16	0.09	0	0	13	48	12	0.095	0.146	0.095	0.22	0.22	0	0
18-Oct	0.10	0.06	0	0	13	48	12	0.095	0.146	0.095	0.22	0.26	0	0
19-Oct	0.15	0.09	0	0	10	50	10	0.076	0.117	0.076	0.26	0.24	0	0
20-Oct	0.15	0.09	0	0	10	50	10	0.076	0.117	0.076	0.24	0.23	0	0
21-Oct	0.12	0.07	0	0	12	48	12	0.091	0.140	0.091	0.23	0.25	0	0
22-Oct	0.16	0.09	0	0	11	49	11	0.083	0.128	0.083	0.25	0.24	0	0
23-Oct	0.08	0.05	0.14	0.112	12	48	12	0.091	0.140	0.091	0.24	0.39	0	0
24-Oct	0.05	0.03	0.48	0.188				0	0	0	0.39	0.55	0	0
25-Oct	0.08	0.05	0.01	0.008				0	0	0	0.55	0.51	0	0
26-Oct	0.15	0.09	0	0				0	0	0	0.51	0.42	0	0
27-Oct	0.15	0.09	0	0				0	0	0	0.42	0.33	0	0
28-Oct	0.14	0.08	0	0				0	0	0	0.33	0.24	0	0
29-Oct	0.12	0.07	0	0	7	53	7	0.053	0.082	0.053	0.24	0.23	0	0
30-Oct	0.13	0.08	0	0	8	52	8	0.061	0.093	0.061	0.23	0.21	0	0
31-Oct	0.14	0.09	0	0	10	50	10	0.076	0.117	0.076	0.21	0.20	0	0
1-Nov	0.09	0.05	0	0	9	51	9	0.068	0.105	0.068	0.20	0.21	0	0
2-Nov	0.08	0.04	0	0	9	51	10	0.072	0.111	0.072	0.21	0.24	0	0
3-Nov	0.08	0.04	0	0	9	51	10	0.072	0.111	0.072	0.24	0.27	0	0
4-Nov	0.04	0.03	0	0	9	51	9	0.068	0.105	0.068	0.27	0.31	0	0
5-Nov	0.05	0.03	0	0	5	55	5	0.038	0.058	0.038	0.31	0.32	0	0
6-Nov	0.08	0.04	0	0	7	53	7	0.053	0.082	0.053	0.32	0.33	0	0
7-Nov	0.08	0.04	0	0	10	50	10	0.076	0.117	0.076	0.33	0.36	0	0
8-Nov	0.06	0.04	0	0	11	49	11	0.083	0.128	0.083	0.36	0.41	0	0
9-Nov	0.08	0.04	0	0	9	51	9	0.068	0.105	0.068	0.41	0.44	0	0
10-Nov	0.07	0.04	0	0	9	51	9	0.068	0.105	0.068	0.44	0.46	0	0
11-Nov	0.09	0.05	0	0	9	51	9	0.068	0.105	0.068	0.46	0.48	0	0
12-Nov	0.07	0.04	0	0	10	50	11	0.080	0.123	0.080	0.48	0.52	0	0
13-Nov	0.07	0.04	0	0	9	51	10	0.072	0.111	0.065	0.52	0.55	0	0.007
14-Nov	0.09	0.05	0.13	0.049				0	0	0	0.55	0.55	0	0
15-Nov	0.06	0.04	0.11	0.036				0	0	0	0.55	0.55	0	0
16-Nov	0.07	0.04	0	0				0	0	0	0.55	0.51	0	0
17-Nov	0.06	0.03	0	0	6	54	6	0.046	0.070	0.046	0.51	0.52	0	0
18-Nov	0.07	0.04	0	0	8	52	8	0.061	0.093	0.061	0.52	0.54	0	0
19-Nov	0.05	0.03	0	0	6	54	6	0.046	0.070	0.038	0.54	0.55	0	0.007
20-Nov	0.06	0.04	0	0	6	54	7	0.049	0.076	0.035	0.55	0.55	0	0.014
21-Nov	0.07	0.04	0	0	8	52	8	0.061	0.093	0.041	0.55	0.55	0	0.020

Date	ET _o	ET _c	Rainfall	Effective Rainfall	Cycle 1	Soak	Cycle 2	Net Irrigation	Gross Irrigation	Effective Irrigation	Initial Moisture Balance	Final Moisture Balance	Daily Deficit	Daily Schedule Losses
	(in)	(in)	(in)	(in)	(min)	(min)	(min)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
22-Nov	0.06	0.04	0	0	6	54	6	0.046	0.070	0.037	0.55	0.55	0	0.009
23-Nov	0.06	0.03	0	0	7	53	8	0.057	0.088	0.033	0.55	0.55	0	0.024
24-Nov	0.05	0.03	0	0	8	52	8	0.061	0.093	0.029	0.55	0.55	0	0.031
25-Nov	0.06	0.04	0	0	8	52	8	0.061	0.093	0.036	0.55	0.55	0	0.024
26-Nov	0.05	0.03	0	0	8	53	7	0.057	0.088	0.028	0.55	0.55	0	0.029
27-Nov	0.06	0.03	0	0	8	53	7	0.057	0.088	0.031	0.55	0.55	0	0.025
28-Nov	0.06	0.03	0	0	8	52	8	0.061	0.093	0.035	0.55	0.55	0	0.026
29-Nov	0.07	0.04	0	0	9	51	9	0.068	0.105	0.040	0.55	0.55	0	0.029
30-Nov	0.03	0.02	1.46	0.016				0	0	0	0.55	0.55	0	0
1-Dec	0.10	0.05	0.01	0.008				0	0	0	0.55	0.50	0	0
2-Dec	0.10	0.05	0.13	0.097				0	0	0	0.50	0.55	0	0
3-Dec	0.09	0.05	0	0				0	0	0	0.55	0.50	0	0
4-Dec	0.09	0.05	0	0				0	0	0	0.50	0.45	0	0
5-Dec	0.07	0.04	0	0				0	0	0	0.45	0.42	0	0
6-Dec	0.05	0.03	0.01	0.008	6	114	6	0.046	0.070	0.046	0.42	0.44	0	0
7-Dec	0.11	0.06	0	0	4	116	5	0.034	0.053	0.034	0.44	0.42	0	0
8-Dec	0.10	0.05	0	0	4	116	5	0.034	0.053	0.034	0.42	0.40	0	0
9-Dec	0.08	0.04	0	0	6	114	6	0.046	0.070	0.046	0.40	0.40	0	0
10-Dec	0.08	0.04	0	0	6	114	6	0.046	0.070	0.046	0.40	0.40	0	0
11-Dec	0.07	0.04	0.56	0.181				0	0	0	0.40	0.55	0	0
12-Dec	0.10	0.06	0.01	0.008				0	0	0	0.55	0.50	0	0
13-Dec	0.10	0.05	0	0				0	0	0	0.50	0.45	0	0
14-Dec	0.08	0.04	0	0	5	115	5	0.038	0.058	0.038	0.45	0.44	0	0
15-Dec	0.08	0.04	0	0	6	114	6	0.046	0.070	0.046	0.44	0.45	0	0
16-Dec	0.11	0.06	0	0	6	114	6	0.046	0.070	0.046	0.45	0.43	0	0
17-Dec	0.10	0.05	0	0	6	114	6	0.046	0.070	0.046	0.43	0.43	0	0
18-Dec	0.09	0.05	0	0	7	113	7	0.053	0.082	0.053	0.43	0.43	0	0
19-Dec	0.09	0.05	0	0	7	113	7	0.053	0.082	0.053	0.43	0.44	0	0
20-Dec	0.07	0.04	0	0	6	114	6	0.046	0.070	0.046	0.44	0.44	0	0
21-Dec	0.09	0.05	0.08	0.064	7	114	6	0.049	0.076	0.049	0.44	0.51	0	0
22-Dec	0.11	0.06	0	0	6	114	7	0.049	0.076	0.049	0.51	0.50	0	0
23-Dec	0.11	0.06	0	0	3	117	4	0.026	0.041	0.026	0.50	0.47	0	0
24-Dec	0.10	0.05	0	0	7	113	7	0.053	0.082	0.053	0.47	0.47	0	0
25-Dec	0.06	0.03	0.06	0.048	7	113	7	0.053	0.082	0.053	0.47	0.53	0	0
26-Dec	0.10	0.05	0	0	7	114	6	0.049	0.076	0.049	0.53	0.53	0	0
27-Dec	0.13	0.07	0	0	6	114	6	0.046	0.07	0.046	0.53	0.51	0	0
28-Dec	0.12	0.06	0	0	7	113	7	0.053	0.082	0.053	0.51	0.50	0	0
29-Dec	0.09	0.05	0.01	0.008	7	113	7	0.053	0.082	0.053	0.50	0.51	0	0
30-Dec	0.11	0.06	0	0	6	114	6	0.046	0.07	0.046	0.51	0.50	0	0
31-Dec	0.12	0.06	0	0	6	114	6	0.046	0.07	0.046	0.50	0.49	0	0
1-Jan	0.09	0.05	0	0	7	114	6	0.049	0.076	0.049	0.49	0.49	0	0
2-Jan	0.08	0.04	0	0	5	115	5	0.038	0.058	0.038	0.49	0.48	0	0
3-Jan	0.05	0.02	0	0	6	115	6	0.046	0.07	0.046	0.48	0.50	0	0
4-Jan	0.09	0.05	0	0	6	115	6	0.046	0.07	0.046	0.50	0.50	0	0
5-Jan	0.10	0.05	0	0	6	114	6	0.046	0.07	0.046	0.50	0.49	0	0
6-Jan	0.09	0.05	0	0	7	113	7	0.053	0.082	0.053	0.49	0.50	0	0
7-Jan	0.10	0.05	0.1	0.08	6	115	6	0.046	0.07	0.021	0.50	0.55	0	0.025
8-Jan	0.11	0.06	0	0	6	114	6	0.046	0.07	0.046	0.55	0.54	0	0
9-Jan	0.11	0.05	0	0	6	115	6	0.046	0.07	0.046	0.54	0.53	0	0
10-Jan	0.11	0.06	0	0	6	114	6	0.046	0.07	0.046	0.53	0.52	0	0
11-Jan	0.03	0.02	0.21	0.050	7	113	7	0.053	0.082	0	0.52	0.55	0	0.053
12-Jan	0.04	0.02	0.1	0.021				0	0	0	0.55	0.55	0	0
13-Jan	0.01	0.01	0	0				0	0	0	0.55	0.54	0	0
14-Jan	0.09	0.05	0	0				0	0	0	0.54	0.49	0	0
15-Jan	0.08	0.04	0	0				0	0	0	0.49	0.45	0	0
16-Jan	0.10	0.05	0	0				0	0	0	0.45	0.40	0	0
17-Jan	0.09	0.05	0	0	4	116	4	0.030	0.047	0.030	0.40	0.39	0	0
18-Jan	0.12	0.06	0.08	0.064	5	115	5	0.038	0.058	0.038	0.39	0.43	0	0