

2018
Third Quarter Report
April 1, 2019 – June 30, 2019



**WATER CONSERVATION
MANAGEMENT PROGRAM**

East Maricopa
Natural Resource Conservation District
805 East Warner Road, #104
Chandler, Arizona 85225

2018 3rd Quarter Report
Water Conservation Management Program
April 1, 2019 – June 30, 2019

Work Completed:

- Completed 9 standard evaluations
- Completed 1 Technical Service

Work in Progress:

- Scheduling standard evaluations
- Scheduling field services
- Promotional and Outreach services

Water Conservation Management Program

Standard Evaluation Summaries

18-01, Oats, Laveen Loam, Graded Border, 0.60'/100' Row Fall, evaluated 01/15/2019

This standard evaluation was conducted on an oat field using a graded border irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 117%, deficit irrigated. The average amount needed to refill the root zone at the time of the event was 1.9 acre inches per acre. 3.8 cfs was applied to the 59.9 acre field with a total irrigation time of 26 hours, resulting in a net application of 1.63 acre inches per acre. The WCMP respectfully suggested holding the sets for an additional 10 minutes each to ensure an adequate amount of water is applied to refill the entire root zone.

18-02, Wheat, Contine Clay Loam, Graded Border, 0.05'/100' Row Fall, evaluated 02/13/2019

This standard evaluation was conducted on a wheat field using a graded border irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 56%. The average amount needed to refill the root zone at the time of the event was 3.0 acre inches per acre. 10 cfs was applied to the 74.6 acre field with a total irrigation time of 40 hours, resulting in a net application of 5.36 acre inches per acre. The WCMP respectfully suggested reducing set times by an average of approximately 30 minutes to save a total of approximately 3 acre feet.

18-03, Alfalfa, Contine Clay Loam, Graded Border, 0.20'/100' Row Fall, evaluated 05/07/2019

This standard evaluation was conducted on an alfalfa field using a graded border irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 54%. The average amount needed to refill the root zone at the time of the event was 4.0 acre inches per acre. 15 cfs was applied to the 109.1 acre field with a total irrigation time of 54.2 hours, resulting in a net application of 7.45 acre inches per acre. The WCMP respectfully suggested reducing set times by an average of approximately 15 minutes to save a total of approximately 11.5 acre feet across the field.

18-04, Sudan, Laveen Clay Loam, Graded Border, 0.20'/100' Row Fall, evaluated 05/07/2019

This standard evaluation was conducted on a sudan grass field using a graded border irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 47%. The average amount needed to refill the root zone at the time of the event was 3.0 acre inches per acre. 8 cfs was applied to the 20.2 acre field with a total irrigation time of 16 hours, resulting in a net application of 6.32 acre inches per acre. The WCMP respectfully suggested transitioning to a single border set when the longer borders in the field are being irrigated to speed advance time and reduce application amounts.

18-05, Alfalfa, Shontik Clay Loam, Graded Border, 0.03'/100' Row Fall, evaluated 05/08/2019

This standard evaluation was conducted on an alfalfa field using a graded border irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 29%. The average amount needed to refill the root zone at the time of the event

was 3.6 acre inches per acre. 13 cfs was applied to the 42.3 acre field with a total irrigation time of 40 hours, resulting in a net application of 12.29 acre inches per acre. The WCMP respectfully suggested laser touch up in between the borders, reduce the border width by half, and target set times of 3 hours to maximize irrigation efficiency.

18-06, Alfalfa, Contine Clay Loam, Graded Border, 0.30'/100' Row Fall, evaluated 05/14/2019

This standard evaluation was conducted on an alfalfa field using a graded border irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 73%. The average amount needed to refill the root zone at the time of the event was 4.0 acre inches per acre. 12 cfs was applied to the 93.7 acre field with a total irrigation time of 43 hours, resulting in a net application of 12.29 acre inches per acre. The WCMP respectfully suggested changing sets when the water has is approximately 75 feet from the end of the field to maximize irrigation efficiency and crop production.

18-07, Alfalfa, Contine Clay Loam, Graded Border, 0.10'/100' Row Fall, evaluated 05/14/2019

This standard evaluation was conducted on an alfalfa field using a graded border irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) of 84% and irrigation efficiency (IE) of 98%. The average amount needed to refill the root zone at the time of the event was 4.0 acre inches per acre. 12 cfs was applied to the 37.6 acre field with a total irrigation time of 15 hours, resulting in a gross application of 4.78 acre inches per acre and a net application of 4.07 as 0.71 acre inches ran off the field in the form of captured tail water. This was a good irrigation event! The WCMP respectfully declined offering suggestions to improve irrigation efficiency on this field at this time.

18-08, Silage Corn, Gilman Loam, Graded Border, 0.10'/100' Row Fall, evaluated 05/31/2019

This standard evaluation was conducted on a silage corn field using a graded furrow irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 94%. The average amount needed to refill the root zone at the time of the event was 2.8 acre inches per acre. 1 cfs was applied to the 16.1 acre field with a total irrigation time of 48 hours, resulting in a net application of 2.98 acre inches per acre. This was a good irrigation! The WCMP respectfully declined offering suggestions to improve irrigation efficiency at this time.

18-09, Silage Corn, Gilman Loam, Graded Border, 0.05'/100' Row Fall, evaluated 05/31/2019

This standard evaluation was conducted on a silage corn field using a graded furrow irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 143%. The average amount needed to refill the root zone at the time of the event was 2.4 acre inches per acre. 1 cfs was applied to the 28.6 acre field with a total irrigation time of 48 hours, resulting in a net application of 1.68 acre inches per acre. This field was deficit irrigated. The WCMP respectfully suggested adding an additional 0.5 cfs to the irrigation event while maintaining a total field irrigation time of 48 hours to adequately refill the root zone and maximize irrigation efficiency.

18-10, Silage Corn, Gilman Loam, Graded Border, 0.05'/100' Row Fall, evaluated 06/02/2019

This standard evaluation was conducted on a silage corn field using a graded furrow irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 90%. The average amount needed to refill the root zone at the time of the event was 3.0 acre inches per acre. 1.5 cfs was applied to the 43.4 acre field with a total irrigation time of 96 hours, resulting in a net application of 3.32 acre inches per acre. This was a good irrigation event. The WCMP respectfully declined offering any suggestions to improve irrigation efficiency on this field at this time.

18-11, Silage Corn, Gilman Loam, Graded Border, 0.05'/100' Row Fall, evaluated 06/10/2019

This standard evaluation was conducted on a silage corn field using a graded furrow irrigation system. The WCMP discussed all necessary concerns and questions with the grower prior to the evaluation and all field notes were recorded. The results of the evaluation are as follows: field application efficiency (FAE) and irrigation efficiency (IE) of 66%. The average amount needed to refill the root zone at the time of the event was 2.7 acre inches per acre. 2 cfs was applied to the 23.3 acre field with a total irrigation time of 48 hours, resulting in a net application of 4.12 acre inches per acre. The WCMP respectfully suggested reducing set times to 18 hours to save approximately 2 acre feet and improve irrigation efficiency.

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Technical Irrigation & BMP Service Summaries

S18-01, Technical Service, 11/6/2018

A grower requested assistance planning irrigation water needs for the upcoming cropping season. Historical crop water use by the various crops being considered were discussed as well as the general design of the irrigation system including water availability. Management of the irrigation system was also discussed to ensure maximum irrigation efficiency. The grower is interested in conducting standard evaluations and will schedule with the WCMP soon.

S18-02, Technical Service, 12/10/2018

A grower asked to have an irrigation well measured for confirmation of the flow rate. The WCMP used the Fullerform Weir to obtain the measurement. The flow rate was reported back to the grower in cubic feet per second (cfs), gallons per minute (GPM), and miners inches (MI).

S18-03, Technical Service, 1/28/2019

A grower contacted the WCMP to inquire about standard evaluations. The grower wanted to know what specific information is provided in the summary report and what is done with the information after the evaluation process is complete. The WCMP discussed the process in detail with the grower who is looking forward to participating with the program.

S18-04, Technical Service, 3/5/2019

A grower, referred by the USDA NRCS, contacted the WCMP about receiving cost share to improve irrigation system performance by laser leveling fields and pouring new ditches. The grower had follow up questions about the WCMP and the services available to him. Irrigation efficiency was discussed with the grower in detail and the impact management practices has on it including border sizes, flow rates, and set times. The conversation ended with the grower wanting to follow up to schedule field services.

S18-05, Technical Service, 3/18/2019

The WCMP was asked to assist with surveying a farm for new ditch installation. The WCMP met the technician on the farm and assisted with the alignment and placement of the new ditches using a transit, a surveying tool used to identify and maintain “true” alignment.

18-06, Technical Service, 3/19/2019

A grower contacted the WCMP about the association of water management and tillage practices. The WCMP met the grower on site and identified soil textures and associated intake rates. The grower agreed that light tillage would best support the effort of minimizing tractor time in the field and reducing the amount of water required to complete the first two or three irrigation events. The grower believes he saved 3 to 4 weeks of field preparation time and countless amounts of water.

18-07, BMP Service, 4/2/2019

A grower contacted the WCMP to inquire about enrolling a farm into the BMP. All of the grower’s questions were addressed to his satisfaction. The discussion ended with the grower having a few tasks to complete and to contact the WCMP when those tasks were completed to help finalize the application prior to submittal.

“Wheat and Barley Irrigation Water Management”, 01/09/2019

Water Conservation Management Program

NEWSLETTER

January 2019

Wheat and Barley Irrigation Water Management

Arizona wheat and barley water requirements are approximately 2 acre feet. Scheduling irrigation events to occur when the crop and soil require an application is a key management practice that helps maximize irrigation efficiency.

The following critical crop growth stages are good rules of thumb for timing irrigations. Making sure the soil profile is filled to capacity at these growth stages, minimizes the effects of crop water stress on overall production:

- 5 leaf stage
- 2 nodes
- Pre-boot
- Heading to flowering
- Milk
- Soft Dough

These are good rules of thumb, however, there are several factors that influence when an irrigation event should occur. An evaluation of the active root depth, soil moisture content, crop growth stage, and weather (recent passed, current, & forecasted) should be considered when making irrigation scheduling decisions.

Irrigation scheduling is a key component to any irrigation management program. The WCMP is here to help you master this component of your irrigation management program. Call the WCMP today to schedule a field visit!

WCMP SERVICES

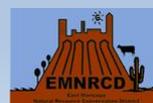
- ❖ Irrigation System Performance Evaluations
- ❖ Flow Rate Measurement
- ❖ Ag BMP Enrollment
- ❖ Irrigation Scheduling Assistance
- ❖ Topographic Survey
- ❖ Soil Texture & Water Holding Capacity Identification
- ❖ Root Depth Determination
- ❖ Field & Set Size Measurement

Call the WCMP today!
480.244.8394

The WCMP provides irrigation services that help improve irrigation efficiency and save you money.

Through a cooperative effort between the East Maricopa Natural Resource Conservation District and the Arizona Department of Water Resources, the WCMP is a free irrigation management services program helping to sustain production agriculture in the Phoenix AMA. The WCMP provides water measurement, slope determination, irrigation scheduling assistance, irrigation system evaluations, pump energy analyses, and practical recommendations to help improve irrigation efficiency.

Call today to experience the value of the
WCMP 480.244.8394



Buckeye Valley Natural Resource Conservation District meeting, 03/26/2019

The WCMP requested time to present the program to the district board of directors during one of their regular meetings. The WCMP was allowed up to 20 minutes to introduce the program, its association with ADWR, program services, and success stories from their area of the active management area. The board members were very appreciative of the information provided, especially of the efforts made in their area. They will continue to support and promote the WCMP as often as they can.