



# BLACKFOOT CHALLENGE

## WEEKLY IRRIGATION REPORT

Friday August 25, 2017

The Blackfoot drainage had warm temperatures again this week, but with a brief drop during the eclipse. A few raindrops were reported but quickly dismissed as wishful thinking. No significant rainfall is in the forecast and temperatures will again reach near 90 to begin the week and cool slightly by weeks end. Crop water use continues to drop with slightly cooler temperatures. The potential water use by hay crops was near 1.3 inches this week and is decreasing. Blackfoot River flows have dropped below 650 CFS meaning *Drought Management Plans* will remain in effect into September. FWP is making call on junior water rights and irrigators are asked to reduce or cease irrigation. A condensed overview of the entire irrigation season is on the last page of this report so you can plan ahead. Please contact Jennifer Schoonen - Blackfoot River Steward (406-360-6445) for more information on this and other Challenge programs.



### WEATHER - SLIGHTLY COOLER AND SMOKY

It was a bit cooler this week but still smoky. Rain – what’s that? No moisture in the forecast for next week either. The smoke is now coming from local fires and from Washington, Oregon and Canada. You can view satellite fire images (at left) at: <https://fsapps.nwcg.gov/afm/imagery.php?op=fire&fireID=id-mt-000>. This is today's image with Ovando and Missoula marked (blue dots). Temperatures are predicted with highs in the 80s. The 30-day and 90-day forecasts still indicate above normal temperatures and normal rainfall.

### CROP WATER USE - HIGH - BUT NOW DROPPING

Crop water use has peaked but remains above average. Water use has dropped near zero for most small grains and other annual crops as they mature and are harvested. Irrigation water use across the drainage has dropped following harvest and since water is no longer available to many.

<b>WATER USE IN INCHES<sup>1</sup></b>	<b>LAST 7 DAYS</b>	<b>NEXT 7 DAYS<sup>2</sup></b>	<b>SEASON TOTAL<sup>3</sup></b>	<b>DAILY FORECAST<sup>4</sup></b>
<b>HAY CROPS</b>	<b>1.3</b>	<b>1.2</b> (1.0 – 1.4)	23.8	.17
<b>PASTURE</b>	<b>1.0</b>	<b>0.9</b> (0.7 - 1.1)	20.8	.13
<b>SPRING GRAINS</b>	<b>0.0</b> (HARVESTED) <b>0.5</b> (LATE PLANTED)	<b>0.0</b> (0.0 - 0.0) <b>0.0</b> (0.0 - 0.3)	15.3	.00
<b>WINTER WHEAT</b>	<b>0.0</b> (HARVESTED)	<b>0.0</b> (0.0 - 0.0)	15.3	.00
<b>LAWNS</b>	<b>1.2</b>	<b>1.1</b> (0.9 - 1.3)	23.1	.16

<sup>1</sup>Potential maximum water use for a well-irrigated crop without fertility, insect or disease restrictions

<sup>2</sup>Expected water use (range if weather becomes cooler or hotter than expected)

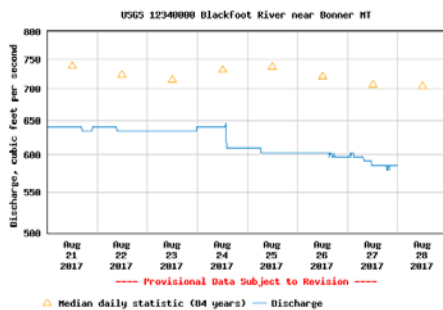
<sup>3</sup>April 1 – September 30 (note in 2010-13 we started our seasonal total on May 1 but now include April)

<sup>4</sup>Predicted average daily crop water use over the next week.

## SOIL MOISTURE – NONE FOR MANY, DROPPING FOR MOST

Most cropland soils across the drainage are very dry with little or no soil moisture since there has been no rain, irrigation has ceased and crops are mostly harvested. Irrigators who are out of water now rely on stored soil moisture. Irrigators with senior water rights and new seedings, pasture crops or aspirations of a second cutting will mostly apply a fraction of the *potential* weekly crop water. This will not boost soil moisture but will help plants get through the dry period and put on some growth while we wait for fall rains. Those with clay soils and/or high organic matter content will have stored 6 inches in a three-foot root zone which should last 4 weeks or so before exhaustion. Those with very sandy and rocky soils have about half this amount.

## WEEKLY TIPS



### BLACKFOOT RIVER FLOWS STILL CRITICAL

The Blackfoot River flow at Bonner is now below the 650 CFS level which means **Drought Management Plans** must now be implemented and continue to be after September 1. FWP is making call on junior water rights and irrigators are being asked to reduce or cease irrigation. With current flow only about **586 CFS** it is likely that restrictions will continue into late September. The average flow for this date is **713 CFS**, the lowest 338 CFS (1988) and the highest 1,630 CFS (1899). There is no significant precipitation in the forecast, so the downward trend may continue until we get some. Temperatures in the Blackfoot River have not reached the action level (exceeding 70 degrees for 3 days in a row).

## SOIL HEALTH/COVER CROP TOUR

**Maughn Farm Tour:** There will be a tour of the Foust Farm in the Moeise Valley of Lake County on August 29 at 2:30pm. Take the Moeise Valley Road across from the Bison Range entrance and watch for the Foust Farm sign at the 90 degree corner. The Fousts are cover-crop enthusiasts and have planted a wide variety of “alternative forage” including collard greens. More info at <http://lakecountyconservationdistrict.org/>.

## SEEDING SUCCESSES AND FAILURES

This was another drought year but that doesn't mean you can't plant new crops or replant older pastures and hayfields. As always, local irrigators had a mixture of successes and failures. Here are a few ideas for how to evaluate your new seeding and identify what went wrong when it does:

- Keep a sample of the seed you plant and learn what it looks like
- Monitor – check seed depth, spacing and packing while planting and correct as needed

- Monitor – check your seed for germination at least weekly for the first month
- Keep the seedbed moist to stimulate ensure germination and emergence
- After the seed has germinated be sure to keep the soil moist until the new plants are full established
- Germinate a sample of your seed to confirm its viability – if it comes up in your test it should come up in your field. There are many info sources for germination tests such as this YouTube video <https://www.youtube.com/watch?v=1UwajPc7LWA>.
- Plant more than one type of seed. Including a small amount of another plant or two can help determine if it was your seed, planting technique or other factor.
- Plant seeds, apply fertilizer and apply herbicides in different directions or angles to more easily identify what the problem is or eliminate possibilities.
- Moisten the seedbed before planting to improve seed drill penetration and performance. This may help most in very rocky soils. You may have to let it dry for a day or two to provide a more stable surface for equipment.

## **WELL, WAS IT WORTH IT? WOULD YOU DO IT AGAIN NEXT YEAR?**

I have been talking to folks lately about second cuttings in the Blackfoot drainage. It is possible to get a second cutting most years and may be increasingly possible as the climate warms. However, less water and warmer temperatures may make a second cutting less feasible in the future. Take a close look at the effort, expense and need for hay compared with your production. It is really worth it? Think about what you would do if we get less rainfall, stored soil moisture and stream flows next year and the next. What can you do to plan for a future with less water.

You are the brains that will help identify and implement the answers that save both the ranch and the landscape.

Help us with your ideas by contacting: [Jennifer Schoonen, Blackfoot Challenge Water Steward, 406-360-6445](#) or [Barry Dutton, Professional Soil Scientist, 406-240-7798 \[barry@landandwaterconsulting.net\]\(mailto:barry@landandwaterconsulting.net\)](#)

**BLACKFOOT 2017 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE** (INCHES OF WATER)

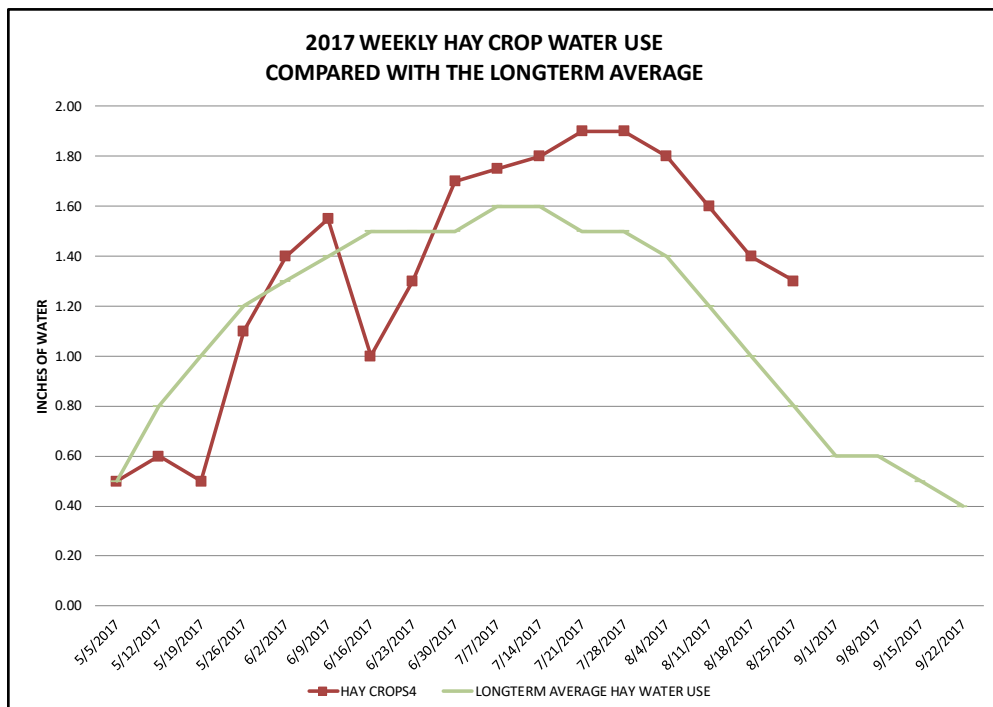
	RAIN <sup>1</sup>	2017 WEEKLY POTENTIAL CROP WATER USE <sup>2</sup>						AVERAGE POTENTIAL CROP WATER USE <sup>3</sup>		
	RAIN	HAY CROPS <sup>4</sup>	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/5/2017	0.02	0.50	0.40	0.10	0.10	0.50	0.50	0.50	0.80	0.20
5/12/2017	0.25	0.60	0.70	0.10	0.10	0.90	0.70	0.80	1.00	0.50
5/19/2017	1.00	0.50	0.60	0.10	0.10	0.60	0.50	1.00	1.10	0.60
5/26/2017	0.00	1.10	1.00	0.20	0.10	1.10	1.10	1.20	1.30	0.80
6/2/2017	0.25	1.40	1.30	0.60	0.20	1.50	1.40	1.30	1.40	0.90
6/9/2017	0.50	1.55	1.35	1.00	0.30	1.60	1.45	1.40	1.50	1.00
6/16/2017	1.50	1.00	0.90	1.20	0.60	1.20	1.00	1.50	1.70	1.00
6/23/2017	0.00	1.30	1.20	1.40	0.80	1.40	1.30	1.50	1.90	1.10
6/30/2017	0.25	1.70	1.60	1.80	1.20	1.80	1.70	1.50	2.00	1.20
7/7/2017	0.00	1.75	1.55	1.80	1.80	1.25	1.70	1.60	2.10	1.30
7/14/2017	0.00	1.80	1.60	1.90	1.90	1.00	1.75	1.60	2.00	1.20
7/21/2017	0.00	1.90	1.60	2.00	2.00	1.00	1.80	1.50	2.00	1.20
7/28/2017	0.00	1.90	1.60	2.00	2.00	0.50	1.80	1.50	2.20	1.10
8/4/2017	0.00	1.80	1.50	1.00	1.80	0.00	1.70	1.40	1.70	1.00
8/11/2017	0.00	1.60	1.20	0.00	0.50	0.00	1.40	1.20	1.50	0.90
8/18/2017	0.00	1.40	1.10	0.00	0.00	0.00	1.30	1.00	1.30	0.70
8/25/2017	0.00	1.30	1.00	0.00	0.00	0.00	1.20	0.80	1.00	0.50
9/1/2017								0.60	0.80	0.40
9/8/2017								0.60	0.70	0.30
9/15/2017								0.50	0.70	0.30
9/22/2017								0.40	0.60	0.20
9/29/2017								0.40	0.60	0.20
<b>TOTAL</b>	<b>5.27</b>	<b>23.80</b>	<b>20.80</b>	<b>15.30</b>	<b>13.60</b>	<b>15.25</b>	<b>23.10</b>	<b>24.80</b>	<b>31.40</b>	<b>17.10</b>

<sup>1</sup> Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-April, May and Sept, 0.15-June and August, 0.2-July)

<sup>2</sup> This years maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Will vary slightly across the drainage.

<sup>3</sup> Longterm average water use for each crop each week based on long-term historic data.

<sup>4</sup> Hay Crop water use drops approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.



## THE BLACKFOOT DRAINAGE IRRIGATION SEASON IN BRIEF

This is a summary of general activities and recommendations with more detail provided throughout our irrigation guide.

### APRIL – GET READY AND PLAN YOUR IRRIGATION STRATEGY!

- Get your irrigation system ready – perform maintenance and test system.
- Evaluate soil moisture conditions and weather predictions then plan for irrigation and drought if needed.



### MAY – CHECK SOIL MOISTURE & BE READY FOR UNUSUAL HEAT OR COLD!

- Check the soil moisture content at the start of growing season and fill up the soil to its water holding capacity during early irrigations (2-4 inches).
- Watch for dry soil conditions, especially with new plantings and apply water to ensure good germination and emergence.
- Irrigate deeply at least once early in the season to promote deep root growth.
- Apply 2-5 inches of irrigation to hay and pasture crops in May depending on weather. Apply 0-2 inches to spring grains and new plantings as needed based on weather and growth. Apply extra water to fill up the soil (2-4 in).

### JUNE – THIS IS THE TIME TO MAKE YOUR BIGGEST EFFORT SO POUR IT ON!

- Apply 6-8 inches of irrigation in June to hay and pasture crops and winter wheat depending on weather. Apply 5-8 inches to spring grains and new plantings as needed based on weather and growth.
- Consider irrigating deeply to fill up soil root zone and promote deep root growth.
- Be sure small grains are irrigated well during their critical periods of boot, bloom and early heading.



### JULY – POUR IT ON UNTIL HARVEST AND RETURN QUICKLY

- Apply 1 - 2 ½ inches of irrigation per week in July to all crops - depending on weather.
- Cutting is a critical stress period for hay crops, especially alfalfa so irrigate deeply to fill up the root zone before cutting then get back across the field quickly after cutting. Crop water use declines when hay is cut so this is a good opportunity to fill up the soil again. Irrigate at least once after cutting.
- Stop irrigating small grains at the milk to soft dough stage but be sure there are 1- 2 inches of soil moisture left at this stage to prevent kernels from shrinking.

### AUGUST- KEEP IRRIGATING SMALL GRAINS UNTIL KERNELS MATURE, BE DROUGHT AWARE!

- Apply 1 - 2 inches of irrigation per week in August to hay and pasture crops for full production depending on weather. Irrigate new plantings as needed.
- Many folks irrigate for pasture following their one hay cutting. Irrigate according to how much pasture you seek and with consideration for other water needs in the drainage, especially in drought years.
- Reduce river withdrawals by rotating systems and reducing the amount of irrigation at one time. Stop irrigating if you can.



### SEPTEMBER – APPLY AS NEEDED/AVAILABLE & GET READY FOR SPRING!

- Apply ½ - 1 ½ inches of irrigation per week in September to hay and pasture crops for full production depending on weather. Irrigate new plantings as needed. Prepare the system for winter and an early start next spring.