

# BLACKFOOT CHALLENGE

## WEEKLY IRRIGATION REPORT

Friday July 6, 2018



Rain was scarce this week and temperatures ranged wildly from cool to hot. Crop water use was again below average at 1 to 1 ½ inch. This continues to be one of the easiest irrigation seasons in a long time and crops are looking great. Long-range forecasts predict above average temperatures and average rainfall for the rest of the season. The July water supply forecast is likely to show some radical changes when it comes out this week so look for this discussion next week. General irrigation suggestions for the entire season are presented on the last page of this report. Use these to look ahead and plan or to compare with what you're doing now. If you have questions or comment please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).

### WEATHER - WARM AND SUNNY AT LAST



Most Blackfoot croplands had only a trace of rain this week and a mix of both warm and cool temperatures. Next week should be dominated by warm temperatures (80s) and sunny skies. Little or no rain is expected. The 30- and 90- day forecasts again suggest above normal temperatures and normal rainfall.

### CROP WATER USE - STILL BELOW NORMAL BUT RISING FAST



Crop water use was again below normal this week but it varied widely with daytime temperatures. On July 3 (cool) hay used about 0.15 inch of water while on July 5 (hot) it used twice as much (0.3 inch). This reflects how temperature is the single most important factor for crop water use. Rising temperatures mean higher irrigation needs in the future. Crop water use may finally get up near normal next week if the predicted warm temperatures and sunshine prevail. It looks like record crops for many and a delayed harvest as plants catch up in the warmer weather. The table and chart on Page 2 summarize the entire irrigation season and compare it with average, hot and cool conditions.

<b>WATER USE IN INCHES</b>	<b>LAST 7 DAYS</b>	<b>NEXT 7 DAYS<sup>1</sup></b>	<b>SEASON TOTAL<sup>2</sup></b>
<b>HAY CROPS</b>	<b>1.3</b>	<b>1.5</b> (1.3 – 1.7)	<b>9.3</b>
<b>PASTURE</b>	<b>1.1</b>	<b>1.3</b> (1.2 – 1.5)	<b>7.7</b>
<b>SPRING GRAINS</b>	<b>1.5</b>	<b>1.6</b> (1.4 – 1.8)	<b>6.4</b>
<b>WINTER WHEAT</b>	<b>1.5</b>	<b>1.6</b> (1.4 – 1.8)	<b>10.1</b>
<b>LAWNS</b>	<b>1.2</b>	<b>1.4</b> (1.2 – 1.6)	<b>8.9</b>
<b>RAIN</b> (Average across drainage croplands)	<b>T</b>	<b>T</b>	<b>6.2</b>
<b>EFFECTIVE RAIN</b>	<b>0</b>	<b>0</b>	<b>4.8</b>

<sup>1</sup>Expected water use (range if weather becomes cooler or hotter than expected)

<sup>2</sup>Beginning April 1 – note in 2010-13 we started our seasonal total on May 1 but since include April

**BLACKFOOT 2018 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE** (INCHES OF WATER)

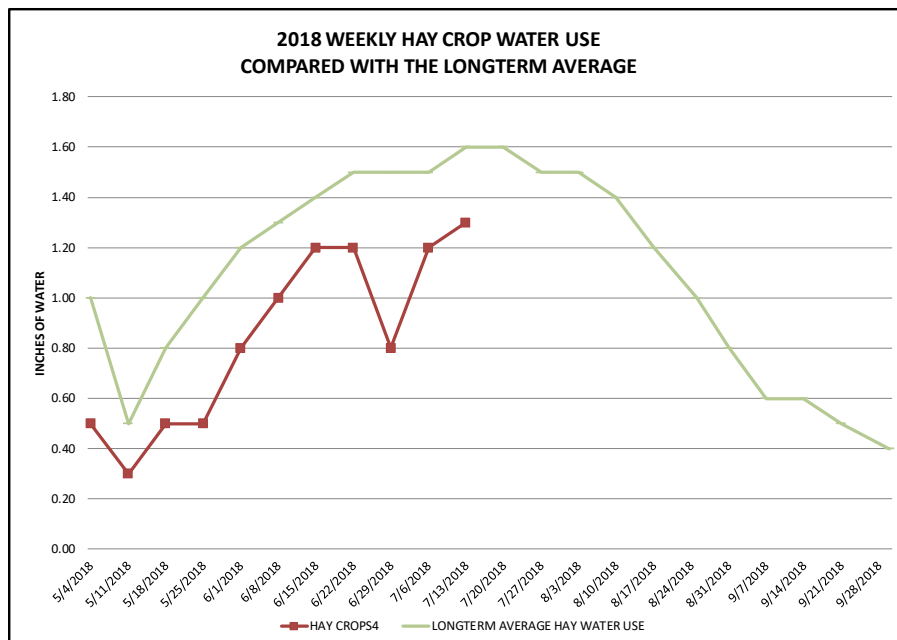
WEEK ENDING	RAIN <sup>1</sup>	2018 WEEKLY POTENTIAL CROP WATER USE <sup>2</sup>						AVERAGE POTENTIAL CROP WATER USE <sup>3</sup>		
	RAIN	HAY CROPS <sup>4</sup>	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
APRIL	1.50	0.50	0.40	0.10	0.10	0.50	0.50	1.00	1.50	0.50
5/4/2018	0.50	0.30	0.20	0.10	0.10	0.30	0.30	0.50	0.80	0.30
5/11/2018	0.50	0.50	0.40	0.10	0.10	0.50	0.50	0.80	1.00	0.50
5/18/2018	0.50	0.50	0.40	0.10	0.10	0.50	0.50	1.00	1.10	0.60
5/25/2018	0.25	0.80	0.70	0.30	0.10	0.80	0.80	1.20	1.30	0.80
6/1/2018	0.75	1.00	0.90	0.50	0.30	1.10	1.00	1.30	1.40	0.90
6/8/2018	0.20	1.20	1.00	0.80	0.50	1.30	1.10	1.40	1.50	1.00
6/15/2018	0.50	1.20	1.00	0.90	0.70	1.30	1.10	1.50	1.70	1.00
6/22/2018	1.25	0.80	0.70	0.80	0.60	1.00	0.80	1.50	1.90	1.10
6/29/2018	0.25	1.20	1.00	1.20	0.90	1.30	1.10	1.50	2.00	1.20
7/6/2018	0.01	1.30	1.00	1.50	1.20	1.50	1.20	1.60	2.10	1.30
7/13/2018								1.60	2.00	1.20
7/20/2018								1.50	2.00	1.20
7/27/2018								1.50	2.20	1.10
8/3/2018								1.40	1.70	1.00
8/10/2018								1.20	1.50	0.90
8/17/2018								1.00	1.30	0.70
8/25/2018								0.80	1.00	0.50
8/31/2018								0.60	0.80	0.40
9/7/2018								0.60	0.70	0.30
9/14/2018								0.50	0.70	0.30
9/21/2018								0.40	0.60	0.20
9/30/2018								0.40	0.60	0.20
<b>TOTAL</b>	<b>6.21</b>	<b>9.30</b>	<b>7.70</b>	<b>6.40</b>	<b>4.70</b>	<b>10.10</b>	<b>8.90</b>	<b>24.80</b>	<b>31.40</b>	<b>17.20</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.





## SOIL MOISTURE - DROPPING FAST

Soils are drying out quickly as crops spring skyward. You can pretty much gauge how much your soil moisture is depleted by how much the crop grows. **Soil moisture levels will now be mainly controlled by irrigation** (additions) and crop water use (withdrawals). It is possible but unlikely we will get enough rain to increase soil moisture much for the rest of the growing season. Try to keep soil moisture levels high up until a week or so before cutting hay crops to maximize production.

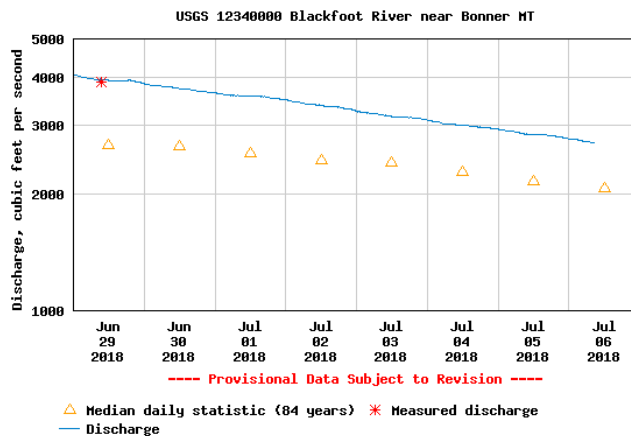
Check surface moisture with a shovel or probe to confirm your “*predictions*” of where your soil moisture is at. Look on both the **wet** (irrigated) and **dry** (unirrigated) side of your sprinklers to help decide when to go across again.

It’s ideal to keep your soil moisture above 50% of water holding capacity for best production. At 50% of water holding capacity the soil can be formed into a ball (top photo). The hand gets dirty and appears moist (bottom photo) but not shiny wet. Call if you have questions about your soil moisture or visit the irrigation guide on the Challenge website.

## WEEKLY TIPS

### Streamflows

Blackfoot river flows have dropped this week to about 2,700 CFS at Bonner which is near average (2,530 CFS). The highest level recorded for this date was 9,430 (1899) and the lowest 589 (1977). The hydrograph below shows a steady decline all week.



### Drought

The July water supply forecast should be available next week and is likely to show dramatic changes from June. Most of the rest of the country is experiencing record high temperatures with more predicted all summer. Irrigators across the west are facing water supply restrictions and we still could get there if temperatures soar, winds blow and the sun shines. Otherwise, enjoy this fantastic season of hydrologic abundance and reduced irrigator stress.

For further information contact 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)

## THE BLACKFOOT DRAINAGE IRRIGATION SEASON IN BRIEF

This is a summary of general activities and recommendations for the whole season (more detail in the 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.