

# BLACKFOOT CHALLENGE

## WEEKLY IRRIGATION REPORT

Friday September 25, 2020



One lucky rancher reported ½ inch of rain in the past two weeks but most local croplands had ¼ inch or less. It's been cool and smoky, with a few showers and this will continue next week with temperatures in the 50s to low 70s and lows in the 20s to 30s. Crop water use has dropped below 1 inch per week and will continue to decrease next week. Blackfoot River flows are about 625 CFS today which is average for this time of year. Its been one of the strangest years but without serious water worries.

***This is our final weekly report of the 2020 season.*** Next week we will provide a summary of the entire season with highlights and comparisons to past years and hints for the future. If you have suggestions or would like other information please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).



### WEATHER - HAZE AND SCATTERED SHOWERS

Most croplands throughout the Blackfoot drainage had ¼ inch or less of rain these past two weeks and a mix of smoky, cloudy and clear skies. Temperatures started out with highs in the 70s to 80s and lows in the 30s to 40s but then cooled. Next week will start out with showers then turn sunny with highs in the 50s to 70s and lows in the 20s to 30s. The 30-day and 90-day forecasts say average temperatures and above average rainfall.

### CROP WATER USE - DROPPING WITH COOLER WEATHER

Crop water use continues higher than average for this time of year but is decreasing steadily with temperatures and a little rain. The chart on Page 2 shows lower than normal crop water use early in the season followed by above normal use for the later part of the season. The table below provides a quick summary of crop water use this last week and an estimate for next week. The table and chart on Page 2 summarize the entire irrigation season and compare it with average, hot and cool conditions so you can plan ahead.

<b>WATER USE IN INCHES</b>	<b>LAST 7 DAYS</b>	<b>NEXT 7 DAYS TOTAL<sup>1</sup></b>	<b>NEXT 7 DAYS DAILY AVE<sup>2</sup></b>	<b>SEASON TOTAL<sup>3</sup></b>
<b>HAY CROPS</b>	<b>0.9</b>	<b>0.7</b> (0.9 - 1.2)	<b>.10</b>	<b>25.8</b>
<b>PASTURE</b>	<b>0.6</b>	<b>0.5</b> (0.7 - 1.0)	<b>.07</b>	<b>21.2</b>
<b>SPRING GRAINS</b>	<b>0.0</b>	<b>0.0</b> (0.0 - 0.0)	<b>.00</b>	<b>16.7</b>
<b>WINTER WHEAT</b>	<b>0.0</b>	<b>0.0</b> (0.0 - 0.0)	<b>.00</b>	<b>15.9</b>
<b>LAWNS</b>	<b>0.8</b>	<b>0.6</b> (0.9 - 1.1)	<b>.09</b>	<b>24.1</b>

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

<sup>2</sup>Expected average daily water use over the next week (compare this with your soil moisture content)

<sup>3</sup>Beginning April 1 – note in 2010-13 we started our seasonal total on May 1 but since include April

**BLACKFOOT 2020 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE** (INCHES OF WATER)

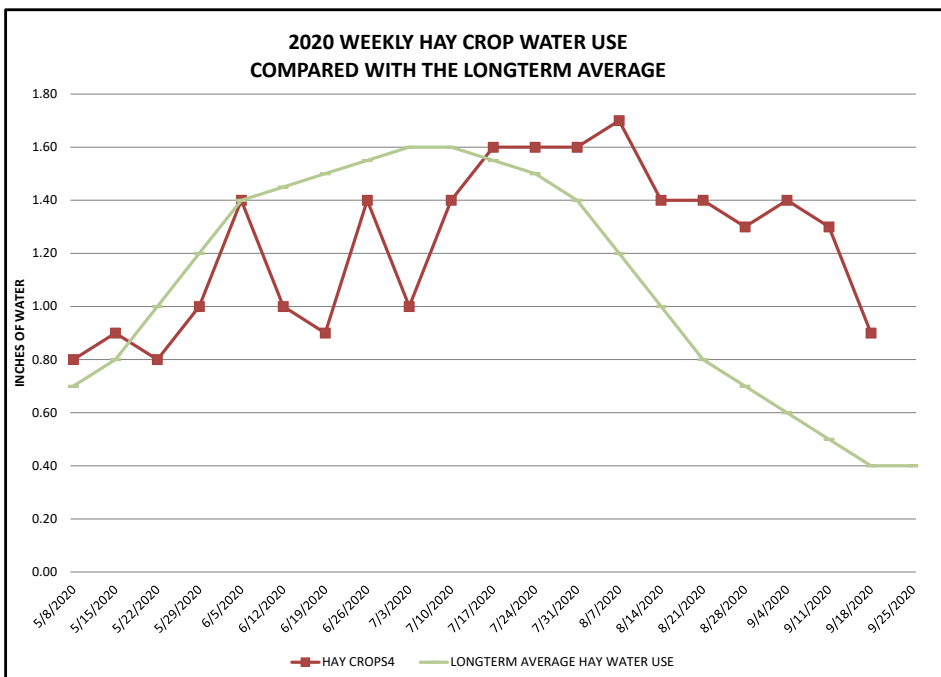
WEEK ENDING	RAIN <sup>1</sup>	2020 WEEKLY POTENTIAL CROP WATER USE <sup>2</sup>						AVERAGE WEEKLY CROP WATER USE <sup>3</sup>		
	RAIN	HAY CROPS <sup>4</sup>	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/8/2020	0.01	0.80	0.70	0.10	0.10	0.90	0.90	0.70	1.00	0.30
5/15/2020	0.30	0.90	0.80	0.10	0.10	0.90	0.90	0.80	1.10	0.50
5/22/2020	1.25	0.80	0.70	0.30	0.20	0.80	0.80	1.00	1.20	0.60
5/29/2020	0.10	1.00	0.80	0.70	0.40	1.20	0.90	1.20	1.30	0.80
6/5/2020	1.00	1.40	1.20	1.00	0.70	1.50	1.30	1.40	1.50	1.00
6/12/2020	1.00	1.00	0.90	1.00	0.90	1.10	1.00	1.45	1.70	1.00
6/19/2020	0.25	0.90	0.70	0.90	0.90	1.00	0.80	1.50	1.90	1.10
6/26/2020	0.25	1.40	1.20	1.70	1.70	1.70	1.30	1.55	2.00	1.10
7/3/2020	1.00	1.00	0.80	1.20	1.20	1.20	0.90	1.60	2.10	1.30
7/10/2020	0.01	1.40	1.10	1.50	1.50	1.40	1.20	1.60	2.00	1.20
7/17/2020	0.01	1.60	1.30	1.80	1.80	1.20	1.50	1.55	2.00	1.20
7/24/2020	0.01	1.60	1.30	1.80	1.80	0.80	1.50	1.50	2.20	1.10
7/31/2020	0.01	1.60	1.30	1.80	1.80	0.80	1.50	1.40	2.20	1.10
8/7/2020	0.01	1.70	1.40	1.20	2.00	0.25	1.60	1.20	1.50	0.90
8/14/2020	0.01	1.40	1.20	0.50	1.00	0.00	1.30	1.00	1.30	0.70
8/21/2020	0.01	1.40	1.10	0.00	0.50	0.00	1.20	0.80	1.20	0.60
8/28/2020	0.01	1.30	1.00	0.00	0.00	0.00	1.20	0.70	1.10	0.50
9/4/2020	0.01	1.40	1.10	0.00	0.00	0.00	1.30	0.60	1.00	0.40
9/11/2020	0.25	1.30	1.00	0.00	0.00	0.00	1.20	0.50	0.90	0.40
9/18/2020	0.30	0.90	0.60	0.00	0.00	0.00	0.80	0.40	0.70	0.30
9/25/2020								0.40	0.70	0.30
<b>TOTAL</b>	<b>7.05</b>	<b>25.80</b>	<b>21.20</b>	<b>15.70</b>	<b>16.70</b>	<b>15.85</b>	<b>24.10</b>	<b>22.85</b>	<b>30.60</b>	<b>16.40</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)  
(This rainfall figure is an average across all Blackfoot croplands - use your own rain gauge for better accuracy)

<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 - NOW UP TO NATURE

Irrigation has stopped for most throughout the drainage so soil moisture is now in the hands of mother nature. We are expecting a winter with good snowpack and a spring with soils full to their moisture-holding capacities.

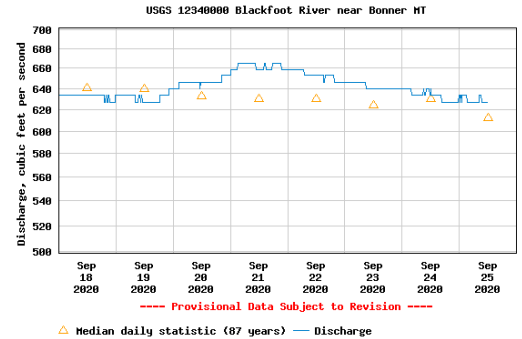


## WEEKLY TIPS



### Blackfoot River Flow is Just About Average

<b>TODAY:</b>	<b>627 CFS</b>
<b>AVERAGE:</b>	<b>639</b>
<b>HIGHEST:</b>	<b>1,220 (1965)</b>
<b>LOWEST:</b>	<b>372 (1987)</b>



The Blackfoot River is flowing at about an average level for this time of year. Let's hope for another season in 2021 without flow and temperature concerns. One less thing.

## SOIL MOISTURE SENSORS: SIGN UP FOR NEXT YEAR



The Blackfoot Challenge is helping irrigators install, calibrate and interpret soil moisture sensors. These allow instant readings as well as long-term records of soil moisture conditions. You can use this information to adjust irrigations and to compare results over time.

Contact Jennifer Schoonen or Barry Dutton for help next year or with any questions you have about soil moisture.



### IRRIGATIONS...CUTTING.....IRRIGATION.....WINTER.....





Tony Schoonen Fishing Access Site, Big Hole River, Montana

I want to acknowledge our water steward Jennifer Schoonen in this last report of the year and thank her for all her support of my work while with the Challenge. This week Governor Bullock honored a great Montana defender of stream access and public land use. Tony Schoonen was someone who not only participated in, but directly supported some of the most important public land debates of our time. His work provides a guarantee of public access to our most important water resources as a recreational foundation of our society. All future fisherpersons, waders, floaters, boaters, gawkers and other water fans will benefit. We all know why we live here and access to Montana's waters is a big part of it. Thank you Tony and thank you Jennifer.

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. Small grains harvested for seed are usually irrigated up to the milk to soft dough stage but be sure soil moisture remains to prevent kernel shriveling. Small grains for forage are often harvested earlier when plants are less dry and seeds soft.

### AUGUST- REDUCE OR CEASE IRRIGATING IF POSSIBLE DURING DROUGHTS!

- Apply 1 - 2 ½ 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.