

# BLACKFOOT CHALLENGE

## WEEKLY IRRIGATION REPORT

Friday June 3, 2022



It was another week with cool temperatures and little rain for local croplands. Crop water use is low and just waiting for warmer temps to increase. Crops are poised to take off like a rocket when the first real warm weather arrives. Soil moisture has mostly been kept up by irrigation throughout May. It's still a great time to boost moisture levels while temps are cool, crop water use is low and water is abundant. Streamflows are peaking so the remaining snowpack will not last long.

**Pump Tests** are available this year in late June and early July while systems are running. This can get your system operating at its peak while using the least power = **better crops and lower electric bills**. We are very lucky to have John Heffernan doing the testing with his decades of experience helping irrigators understand their systems and what options are for improvements.

### WEATHER - SPECIAL RAIN LOTTERY NEXT WEEK

Most Blackfoot croplands had only a trace of rain this last week and cool temperatures. Skies will be cloudy and rainy until Monday or Tuesday then clear out a bit. High temperatures will be in the 60s and 70s with lows in the 30s and 40s. The 30-day forecast says above average rainfall and below average temperatures. The 90-day forecast says the opposite - below average rainfall and above average temperatures. **The special rain lottery is sponsored this week by THUNDERSTORMS which will drop highly variable amounts of rain.** Some lucky fields may get a lot while most will get ½ inch or so.



*Your own rain gauge is your best source of rainfall information.*

### CROP WATER USE - BELOW AVERAGE AGAIN WITH COOL TEMPS

With cool conditions continuing, crop water use was again below average this last week (and the entire season so far). Crop water use will be below average next week and has evened out across the watershed as the higher elevations catch up to the lower areas.

<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>1.0</b>	<b>1.1</b>	<b>.16</b>	<b>5.3</b>
<b>PASTURE</b>	<b>0.8</b>	<b>1.0</b>	<b>.14</b>	<b>4.7</b>
<b>SPRING GRAINS</b>	<b>0.6-0.8</b>	<b>0.8-1.1</b>	<b>.11-.16</b>	<b>1.4</b>
<b>WINTER WHEAT</b>	<b>1.1</b>	<b>1.2</b>	<b>.17</b>	<b>5.8</b>
<b>LAWNS</b>	<b>0.9</b>	<b>1.2</b>	<b>.17</b>	<b>5.4</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

The table on Page 1 provides a quick summary of crop water use this last week and an estimate for next week. The table and chart below summarize the entire irrigation season and compare it with average, hot and cool conditions so you can plan ahead. This table and chart will be updated weekly all season.

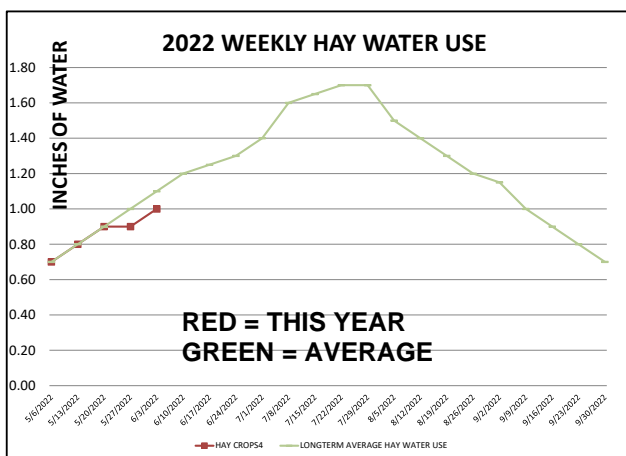
<b>BLACKFOOT 2022 GROWING SEASON WEEKLY RAINFALL &amp; CROP WATER USE</b> (INCHES OF WATER)										
WEEK ENDING	RAIN <sup>1</sup>	2022 WEEKLY POTENTIAL CROP WATER USE <sup>2</sup>						AVERAGE WEEKLY CROP WATER USE <sup>3</sup>		
	RAIN	HAY CROPS <sup>4</sup>	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
APRIL	1.25	1.00	1.00	0.00	0.00	1.00	1.00			
5/6/2022	0.25	0.70	0.60	0.10	0.00	0.80	0.80	0.70	1.00	0.40
5/13/2022	0.01	0.80	0.70	0.20	0.00	0.90	0.90	0.80	1.10	0.60
5/20/2022	0.10	0.90	0.80	0.40	0.20	1.00	0.90	0.90	1.20	0.70
5/27/2022	0.20	0.90	0.80	0.70	0.50	1.00	0.90	1.00	1.30	0.70
6/3/2022	0.10	1.00	0.80	0.80	0.60	1.10	0.90	1.10	1.50	0.80
6/10/2022								1.20	1.70	0.80
6/17/2022								1.25	1.90	0.90
6/24/2022								1.30	2.00	1.00
7/1/2022								1.40	2.00	1.00
7/8/2022								1.60	2.10	1.10
7/15/2022								1.65	2.20	1.10
7/22/2022								1.70	2.20	1.10
7/29/2022								1.70	2.00	1.10
8/5/2022								1.50	1.80	1.00
8/12/2022								1.40	1.70	1.00
8/19/2022								1.30	1.60	0.90
8/26/2022								1.20	1.40	0.90
9/2/2022								1.15	1.40	0.70
9/9/2022								1.00	1.30	0.60
9/16/2022								0.90	1.20	0.50
9/23/2022								0.80	1.10	0.50
9/30/2022								0.70	1.00	0.40
<b>TOTAL</b>	<b>0.66</b>	<b>5.30</b>	<b>4.70</b>	<b>2.20</b>	<b>1.30</b>	<b>5.80</b>	<b>5.40</b>	<b>26.25</b>	<b>34.70</b>	<b>17.80</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 - KEEP CHECKING AND POUR IT ON!

With little rainfall again last week, soil moisture has been dependent on irrigation, especially in the surface layers. Continue to check your soil moisture and refill with at least as much as the weekly crop water use. This is also the easiest time to fill up soils to their full water holding capacities - while crop water use is low, crops are short and weather is cool. This is the month to “**MAKE HAY**” so pour it on while water is available and crops are growing fast.



Soil near 100% of its water holding forms a ball when squeezed and leaves the hand moist. (photo at left).

Soil near 50% of its water holding capacity may form a weak ball but leaves little moisture on the hand (photo at right). Call, text or email anytime if you have questions about evaluating your soil moisture.



## SNOWPACK AND WATER SUPPLY

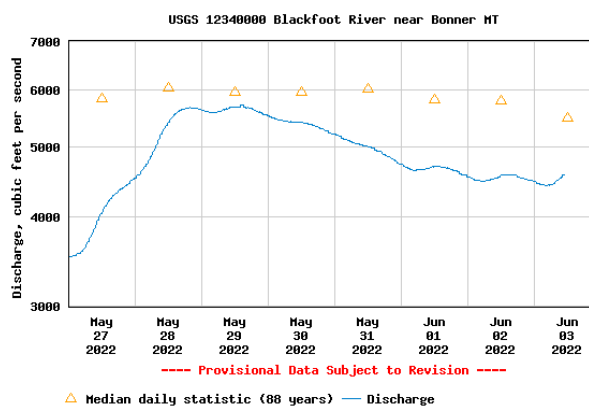
Blackfoot watershed snowpack rose from 147% of average last week to **175%** due to more cool weather and very little rain. This sounds like there is still a lot of snowmelt to run off but remember this is just a comparison to average. This time of year is when most snowpack is gone and even 175% of average adds up to little snow. Precipitation in the last 30 days is slightly below average. So far, Blackfoot river flows are still predicted to be about normal this season but it looks like the peak has past unless we get a monsoon. We use NRCS figures which are updated daily.



---

## STREAMFLOW

The Blackfoot river flow at Bonner is about **4,570 CFS** which is well below average for this date (6,040 CFS). 1972 saw the highest flow at 15,300 CFS while the lowest flow was 1,450 CFS in 1977. The Blackfoot watershed streamflow forecast is still for near normal flows but that depends on upcoming weather. You can get the current Blackfoot flow anytime at: [USGS Current Conditions for USGS 12340000 Blackfoot River near Bonner MT.](https://www.water.usgs.gov/monitoring/products/current_conditions/?station=12340000) You can get the latest NRCS prediction of future flows at: [Interactive Map \(usda.gov\)](https://www.nrcs.usda.gov/)



---

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 WATERSHED 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- 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 watershed, 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.