

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday August 7, 2020



Dry, warm weather has persisted now for the past 4 weeks. It will remain mostly sunny but slightly cooler next week. Crop water use last week was 1½ to 2 inches for most crops and will decrease next week with slightly cooler temperatures. Soil moisture now drops each week by the amount crops use unless irrigated. Blackfoot River flows dropped below 1000 CFS this week (940) and temperatures exceeded 71F for a few days but fishing and irrigation restrictions seem less likely this year (see page 3 for more information). Congratulations - local crops are looking exceptional for the second year in a row due to good initial soil moisture, abundant rainfall and then hot sunny weather! Five inches of rain or more fell from May to the first week of July followed by 4 weeks of sunshine.

We provide weekly summaries of weather, crop water use and soil moisture conditions as well as tips for irrigation, soil health and crop production. A condensed overview of suggestions for the entire irrigation season is presented on the last page of this report. Use it to look ahead and plan or to compare what you're doing now. If you would like other information please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).



WEATHER - SUNNY AND WARM AGAIN

Only a few luck folks had more than a trace of rain this week and it was hot everywhere. Next week looks dry again but slightly cooler. High temperatures will be in the 80s and lows in the 40s with a few nights dropping into the 30s. The 30-day forecast says above average temperatures and below average rainfall. The 90-day forecast says above average temperatures and rainfall.

CROP WATER USE - SEASON PEAKS AT 2 INCHES FOR SPRING GRAINS

I know I said it was the peak last week but this Monday recorded the highest potential crop water use of the season beating last Monday. **Spring grains used just over 1/3 inch in one day.** Crop water use overall remained above average this week due to continued hot, dry weather. Most crops used over 1 ½ inches but it should decrease next week due to slightly lower temperatures. 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.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.7	1.5 (1.5 - 1.8)	.21	18.1
PASTURE	1.4	1.2 (1.2 - 1.5)	.17	15.2
SPRING GRAINS	2.0	1.7 (1.5 - 1.8)	.24	16.0
WINTER WHEAT	0.25	0.2 (0.1 - 0.1)	.00	15.9
LAWNS	1.6	1.4 (1.5 - 1.8)	.20	17.1

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

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

³Beginning 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)

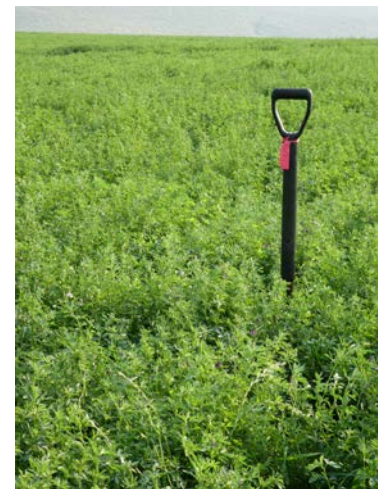
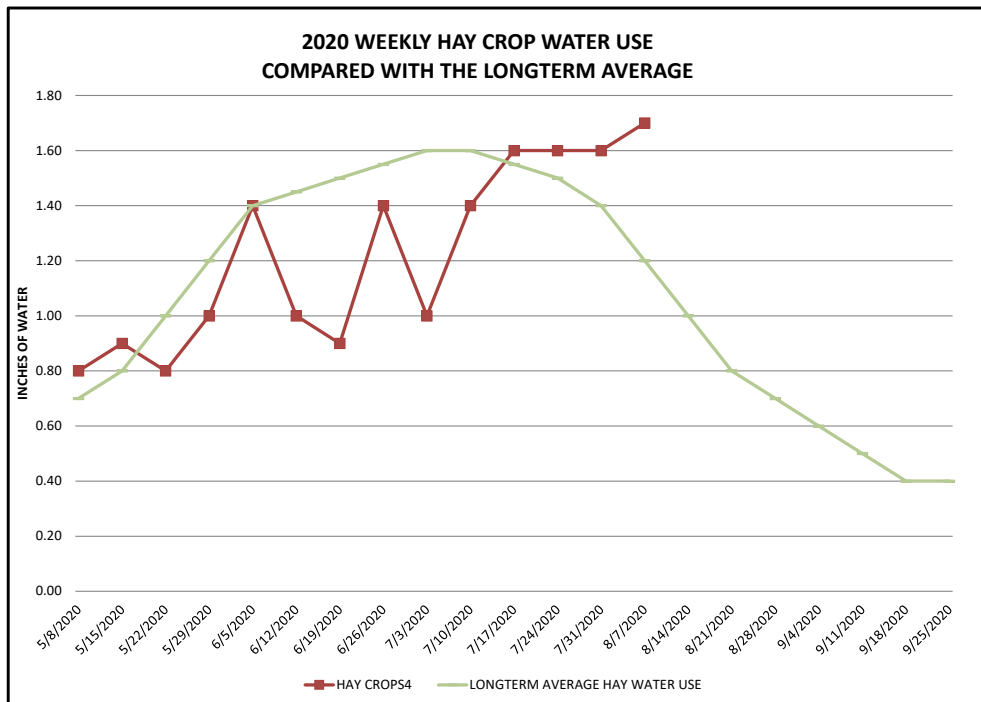
WEEK ENDING	RAIN ¹	2020 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/8/2020	0.01	0.80	0.70	0.10	0.10	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	2.00	2.00	0.25	1.60	1.20	1.50	0.90
8/14/2020								1.00	1.30	0.70
8/21/2020								0.80	1.20	0.60
8/28/2020								0.70	1.10	0.50
9/4/2020								0.60	1.00	0.40
9/11/2020								0.50	0.90	0.40
9/18/2020								0.40	0.70	0.30
9/25/2020								0.40	0.70	0.30
TOTAL	6.46	18.10	15.20	16.00	15.20	15.85	17.10	22.85	30.60	16.40

¹ 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)

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

³ **Longterm average** water use for each crop each week based on long-term historic data.

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





SOIL MOISTURE - DROPS 1 ½ TO 2 INCHES

Where there was soil moisture it dropped by 1½ to 2 inches this week depending on crop type and whether you just cut or not. It will continue to decrease next week at a similar rate until soil moisture is exhausted. Crop water use decreases with cutting by 2/3 the first week and 1/3 the second week before returning to the crop's full potential in the third week after cutting. **Cutting during these high**

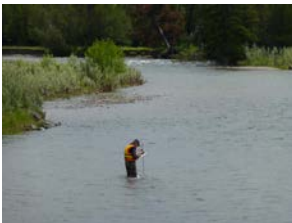
use periods (hot and dry) saves soil moisture.

Soil near 100% of its water holding forms a ball when squeezed and leaves the hand moist. Water is visible on the surface of the soil and the hand as a shiny surface. Bouncing the soil in the hand usually brings water to the surface. Soil near 75% of its water holding capacity also forms a ball and leaves the hand moist but no actual water is visible on the hand or soil.



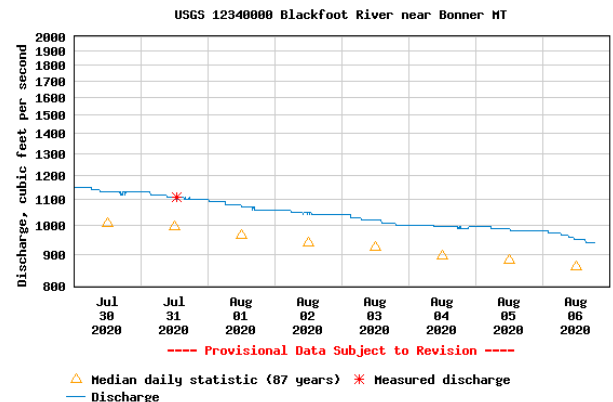
WEEKLY TIPS

Blackfoot River Flow About Normal



TODAY:	940 CFS
AVERAGE:	920
HIGHEST:	2,290 (1899)
LOWEST:	380 (1988)

Blackfoot River flows continue to drop but are still slightly above average levels. Weather predictions for the remainder of the irrigation season suggest a continual decrease in flow.



2020 Drought Concerns and Fishing/Irrigation Restrictions

On August 3, the Blackfoot River flow dropped below 1,000 CFS at the Bonner measuring gage. Last week, river temperatures topped 71 degrees F for a day or two -- which can also be a trigger point for fishing restrictions.

This is the point where we give anglers and water users a heads up that the **Drought Response Plan** may be enacted if the river drops below 700 CFS or water temps rise for a sustained period. However, because flows are still above average at this point, drought response action is unlikely this year. Watch our website and this weekly irrigation report for drought response updates or contact Water Steward Jennifer Schoonen (jennifer@blackfootchallenge.org) with questions.



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

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.