

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday August 26, 2022



After 6 weeks of almost no rain we finally had a few drops across most of the watershed and up to ¾ inch in spots. Next week will start cooler then heat up again with little rain except in isolated thunderstorms. Soil moisture fell about 1½ inches this week unless irrigated and crop water use continues to be way above average. Blackfoot streamflows rebounded this week in a dramatic way, mainly due to irrigators reducing withdrawals and are now average for this time of year.

THE BLACKFOOT DROUGHT PLAN IS A SUCCESS due the cooperation of individual irrigators who either voluntarily reduced diversions or responded to calls, river flows have come up – THANKS TO ALL OF YOU WHO HELPED KEEP THE RIVER WET AND COOL!

SOME COOLER TEMPERATURES AND THUNDESTORMS

Most of the watershed had little or no rain again this week but a few isolated sites reported up to ¾ inch of rain. Temperatures were slightly cooler. Next week will have cooler temperatures and some rain over the weekend then the skies will clear and warm back up by midweek. High temperatures will start out in the 70s then warm to the 80s and 90s with lows in the 30s and 40s. Thunderstorms could produce significant rain at some sites especially over the weekend. The 30-day and 90-day forecasts say average rainfall and above average temperatures.

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

CROP WATER USE: CONTINUES ABOVE AVERAGE WITH HOT WEATHER

Crop water use continues to be above average due to hot dry weather. Most crops used just over 1½ inches of soil moisture last week and will again next week (see chart below). Peak crop water use this year has passed unless the weather gets even weirder (hotter) in the next month.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.6	1.6	.23	24.6
PASTURE	1.3	1.3	.19	20.6
SPRING GRAINS	1.6	1.1	.16	21.9
WINTER WHEAT	0.0	0.0	.00	15.3
LAWNS	1.6	1.6	.23	23.6

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

SOIL MOISTURE - DROPS 1½ INCHES UNLESS IRRIGATED

Soil moisture dropped about 1½ inches this week unless irrigated. Soil moisture will drop about the same next week. Crops use soil moisture from deeper layers during these dry periods when the easy pickings in surface layers are exhausted. Congratulations to those who irrigate deeply. Most local crops simply go dormant as soil moisture is exhausted.

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.

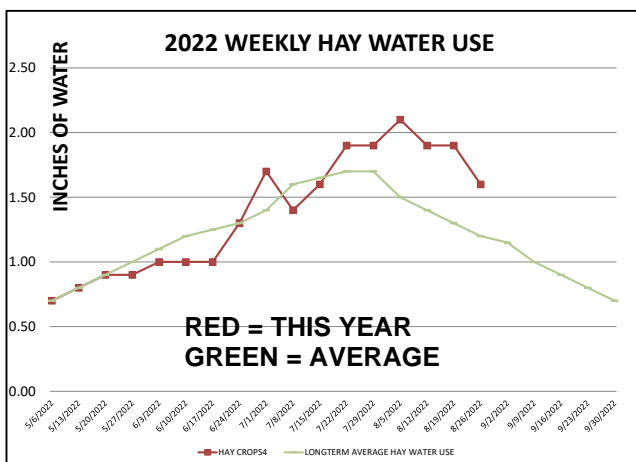
BLACKFOOT 2022 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)										
WEEK ENDING	RAIN ¹	2022 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
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	0.50	1.00	0.80	0.90	0.70	1.10	0.90	1.20	1.70	0.80
6/17/2022	0.75	1.00	0.80	1.10	0.90	1.10	0.90	1.25	1.90	0.90
6/24/2022	1.00	1.30	1.10	1.30	1.20	1.30	1.20	1.30	2.00	1.00
7/1/2022	0.01	1.70	1.40	1.60	1.70	1.70	1.60	1.40	2.00	1.00
7/8/2022	0.75	1.40	1.20	1.60	1.60	1.50	1.30	1.60	2.10	1.10
7/15/2022	0.01	1.60	1.30	1.70	1.70	1.30	1.50	1.65	2.20	1.10
7/22/2022	0.01	1.90	1.60	2.10	2.10	1.00	1.80	1.70	2.20	1.10
7/29/2022	0.01	1.90	1.60	2.20	2.20	0.50	1.80	1.70	2.20	1.10
8/5/2022	0.01	2.10	1.70	2.40	2.40	0.00	2.00	1.50	2.20	1.00
8/12/2022	0.01	1.90	1.60	1.90	2.00	0.00	1.80	1.40	2.20	1.00
8/19/2022	0.01	1.90	1.50	1.70	1.90	0.00	1.80	1.30	2.00	0.90
8/26/2022	0.25	1.60	1.30	1.20	1.60	0.00	1.60	1.20	1.80	0.90
9/2/2022								1.15	1.60	0.70
9/9/2022								1.00	1.40	0.60
9/16/2022								0.90	1.40	0.50
9/23/2022								0.80	1.20	0.50
9/30/2022								0.70	1.00	0.40
TOTAL	3.98	24.60	20.60	21.90	21.30	15.30	23.60	26.25	37.20	17.80

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)

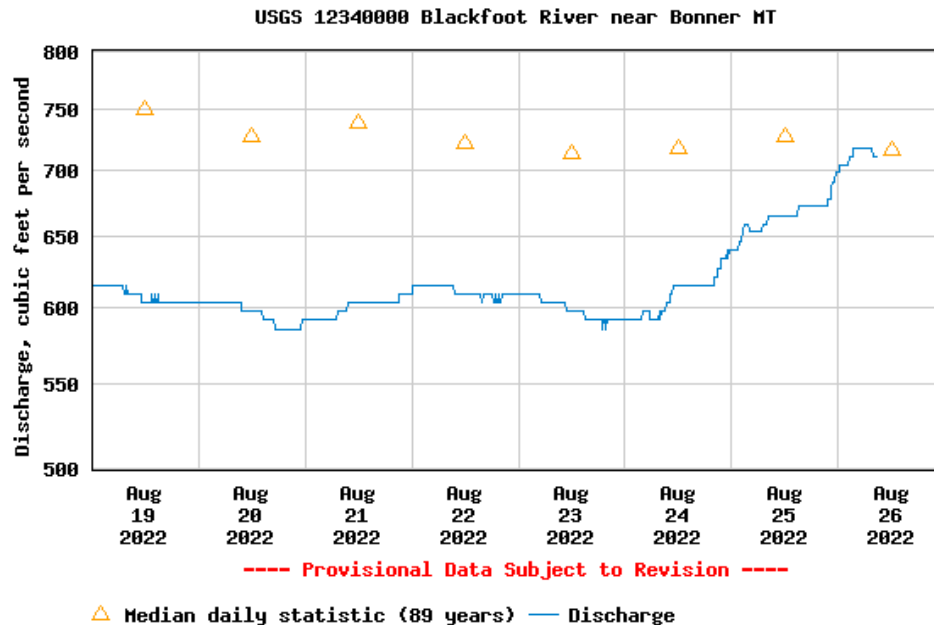
² **This years** maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Will vary slightly across the drainage.

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.



GOOD NEWS - RIVER FLOWS ON THE INCREASE - AND YOU HELPED!



BLACKFOOT DROUGHT RESPONSE IS A SUCCESS!

I don't know any other way to explain the dramatic turnaround in river flows this week than to credit the **BLACKFOOT CHALLENGE DROUGHT RESPONSE PLAN**. There was up to ¼ inch of rain reported in very localized areas of the watershed but this doesn't seem anywhere near enough to account for the increased flows. Your help in sharing the sacrifice has revived the river. Both fish and recreational boaters thank you! Last week we were expecting to drop to the next trigger level of 500 CFS meaning severe restrictions for irrigators. But pleas for action to limit withdrawals were answered and river flows made a dramatic turnaround. Thanks to Challenge staff Jennifer, Kate and Clancy for your great work to help this happen!

The Blackfoot river flow at Bonner rose quickly this week to near average levels. Today flow is **711 CFS** (average for this date is 724 CFS). 1899 saw the highest flow at 1,580 CFS while the lowest flow was 341 CFS in 1988.

Drought Options - Things You Can Still Keep Doing to Help

- Reduce Irrigated Acreage
- Rotate Irrigation Systems During Low River Flows
- Irrigate once after Cutting hay crops then wait until streamflows recover
- Irrigate at night and early morning if possible
- Stagger pivot start times to alternate the area irrigated during peak afternoon heat
- Irrigate a smaller area well instead of a large area poorly
- Switch to pasture which uses less water compared with hayfields since animals constantly remove part of the crop
(less crop leaves = less interception and transpiration = less water use)

For further information contact Clancy Jandreau, Blackfoot Challenge Water Steward, 406-304-5423 or Barry Dutton, Professional Soil Scientist, 406-240-7798 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- BE DROUGHT AWARE, REDUCE IRRIGATION DURING DROUGHT

- 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 to help streamflows.



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.