

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday August 27, 2021



It was another week of mixed weather including a little rain, a few cloudy days, a few clear days and then the smoke returned. Sunny skies, moderate temperatures and more smoke are coming next week. Mixed weather this last week resulted in about 1 inch of crop water use and it will be slightly lower next week. This is the first week since May that crop water use was below average. Soil moisture dropped by about 1 inch unless irrigated.

Blackfoot River low flows have triggered the Challenge Drought Response Plan. Participating irrigators (and others) are asked to initiate their individual Drought Response Plans. It is unknown if FWP will make call on non-participating irrigators. There is an on-going debate in Helena about enforcing all kinds of water and air protections including Murphy Rights.



WEATHER - SUNNY, MILD, SMOKY

It was much more pleasant this week with moderate temperatures, a little rain and less smoke. Most folks had about ½ inch of rain but it varied across the drainage. Next week looks like a week of sun with high temperatures around 80F and lows around 40F. The 30-day forecast says average rainfall and above average temperatures. The 90-day forecast says average rainfall and above average temperatures. The California/Oregon fire smoke plume has

been shifting north again so we will have smoke again this week. You can check smoke and air quality conditions anytime at: airnow.gov. The *Smoke and Fire Map* (at left) shows the fires, smoke plumes and air quality in green, yellow and red.

CROP WATER USE - BELOW AVERAGE FIRST TIME SINCE MAY

This week crop water use fell below average for the first time since May due to much cooler temperatures and a little rain. **Most crops used about 1 inch of water. All crops will use about the same next week due.** The table below provides a quick summary of crop water use this last week and an estimate for next week. We also list season totals and compare them with past years in our annual reports available on the Challenge website.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.1	1.1	.16	22.7
PASTURE	0.9	0.9	.13	19.2
SPRING GRAINS	1.2	0.6	.09	21.6
WINTER WHEAT	0.0	0.0	.00	16.0
LAWNS	1.0	1.0	.14	22.2



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

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.

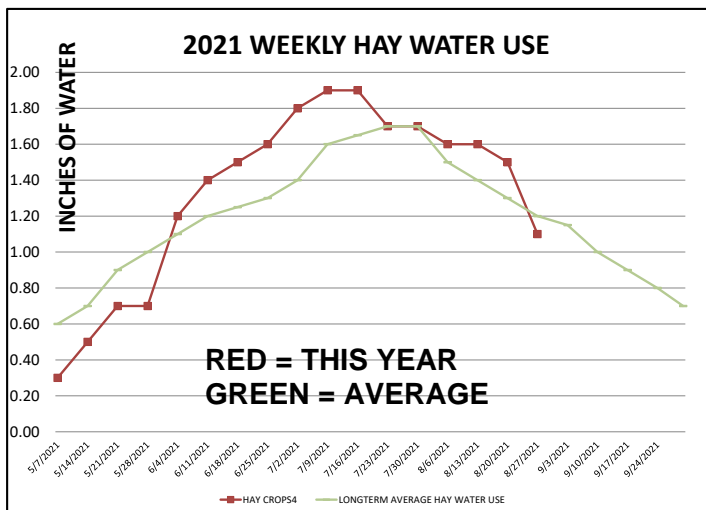
BLACKFOOT 2021 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)										
WEEK ENDING	RAIN ¹	2021 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/7/2021	0.40	0.30	0.40	0.00	0.00	0.50	0.50	0.60	1.00	0.30
5/14/2021	0.20	0.50	0.50	0.10	0.00	0.70	0.70	0.70	1.10	0.40
5/21/2021	0.50	0.70	0.60	0.30	0.10	0.80	0.80	0.90	1.20	0.50
5/28/2021	2.00	0.70	0.60	0.60	0.20	0.80	0.70	1.00	1.30	0.50
6/4/2021	0.10	1.20	1.00	0.90	0.60	1.30	1.20	1.10	1.50	0.60
6/11/2021	0.10	1.40	1.20	1.10	0.80	1.50	1.30	1.20	1.70	0.70
6/18/2021	0.20	1.50	1.30	1.40	1.10	1.60	1.40	1.25	1.90	0.70
6/25/2021	0.20	1.60	1.40	1.60	1.40	1.70	1.50	1.30	2.00	0.80
7/2/2021	0.10	1.80	1.50	1.90	1.70	1.90	1.70	1.40	2.00	0.90
7/9/2021	0.01	1.90	1.60	2.00	2.00	2.00	1.90	1.60	2.10	1.00
7/16/2021	0.01	1.90	1.60	2.00	2.00	1.50	1.90	1.65	2.20	1.00
7/23/2021	0.25	1.70	1.40	1.80	1.80	1.00	1.60	1.70	2.20	1.00
7/30/2021	0.01	1.70	1.40	1.90	1.90	0.50	1.60	1.70	2.00	1.00
8/6/2021	0.25	1.60	1.30	1.80	1.80	0.20	1.50	1.50	1.80	0.90
8/13/2021	0.25	1.60	1.30	1.80	1.80	0.00	1.50	1.40	1.70	0.80
8/20/2021	0.25	1.50	1.20	1.50	1.70	0.00	1.40	1.30	1.60	0.80
8/27/2021	0.50	1.10	0.90	0.90	1.20	0.00	1.00	1.20	1.40	0.70
9/3/2021								1.15	1.40	0.70
9/10/2021								1.00	1.30	0.60
9/17/2021								0.90	1.20	0.50
9/24/2021								0.80	1.10	0.50
9/30/2021								0.70	1.00	0.40
TOTAL	5.33	22.70	19.20	21.60	20.10	16.00	22.20	26.05	34.70	15.30

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.

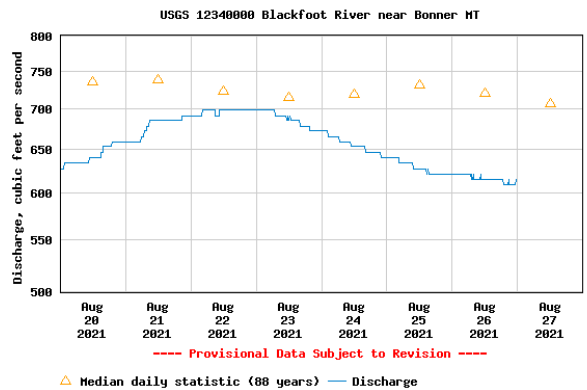
⁴ Hay Crop water use drops approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.



WEEKLY TIPS

Blackfoot Stream Flow at Bonner 615 CFS

Today's flow was 615 CFS compared with an average of 718 CFS. The highest flow recorded on this date was 1,580 CFS in 1899 while the lowest flow was 338 CFS in 1988. With no rain in the forecast and sunny skies flows will likely drop further this week below 600 CFS which is another drought plan trigger level. The good news is that water temperatures fell to the 50s and low 60s making life easier for fish.



Do You Have A Drought Plan?

The Blackfoot Drought Response Plan is now in effect. The goal of this plan is to minimize the adverse impacts of drought on fisheries and to aid in the equitable distribution of water resources during low flow summers. The Blackfoot Drought Response Plan is based on the premise of “**shared sacrifice**” with the goal that all Blackfoot water users (agricultural, irrigators, outfitters, anglers, recreational users, government agencies, homeowner associations, businesses, conservation groups, and others) voluntarily agree to take actions that will result in water savings and/or the reduction of stress to fisheries resources during critical low flow periods. The Blackfoot Challenge works with individual irrigators to create **Drought Response Plans** that include practices such as those listed below under **Drought Options**. FWP has agreed that it will not make Murphy Right calls on junior water right holders that follow a Blackfoot Challenge Drought Response Plan. The priority date for these FWP Murphy rights will soon change from 1971 to 1904 making many more water rights junior.



The Drought Committee is asking all plan participants to begin water cutbacks according to their drought plan. Please ask everyone you know who diverts water throughout the Blackfoot Drainage to put together a Drought Response Plan with the Blackfoot Challenge. Call Jennifer Schoonen for details 406-360-6445.

Drought Options - Things You Can Do Now

- Rotate Irrigation Systems During Low River Flows
- Reduce Irrigated Acreage
- Concentrate Your Efforts on the First Cutting and Then Rest
- Apply More Water During Each Application
- Shut off during peak afternoon heat when water just evaporates from crop leaves
- Irrigate at night and early morning if possible
- Stagger start times to alternate the area irrigated during peak afternoon heat
- Reduce or eliminate tailwater
- Switch to pasture which uses less water compared with hayfields since animals constantly remove part of the crop (less crop leaves = less interception = less water use)

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 - IN DROUGHT CONSIDER REDUCING OR ENDING IRRIGATION

- Apply 1 - 2 inches of irrigation per week in August to hay and pasture crops for full production depending on weather and water availability.
- 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. **Make a BC Drought Plan.**



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.