

BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT



Friday June 14, 2024

Last week had almost no rain and warm temperatures. Next week is going to start off cool with a little rain then warm up later in the week. Crops are growing well now with warmer conditions and good soil moisture and used about 1½ inches of water this week. Streamflows continue to be far below average and are unlikely to improve this season. The Drought Committee met for the first time this week and **we have the potential to see some of the lowest flows on record**. Once again, we will provide weekly summaries of weather and crop water use along with predictions for the upcoming week. Please send us any ideas or questions on these or other subjects. We will respond and share them with everyone.

WEATHER - COOL/WET THEN WARMING

Most local croplands had little or no rain this last week and a warming trend. Next week will start with cool temperatures (30s) and a little rain then warm at weeks end. Highs will be in the 50s and 60s to start and the 70s later in the week. The 30-day and 90-day forecasts say **below average rainfall and above average temperatures**.



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

CROP WATER USE - CLIMBING ABOVE AVERAGE

Crop water use increased significantly last week with little rain and warmer temperatures. Most crops used about 1½ inches of water which is above average. Next week crop water use will be only slightly higher due to cool temperatures. Despite a low snowpack we should see some good production this year, especially from the first cutting of hay crops.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.6	1.7	.24	6.1
PASTURE	1.4	1.5	.21	5.7
SPRING GRAINS	1.1	1.2	.17	2.6
WINTER WHEAT	1.7	1.8	.26	6.7
LAWNS	1.5	1.6	.23	6.7

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 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 2024 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

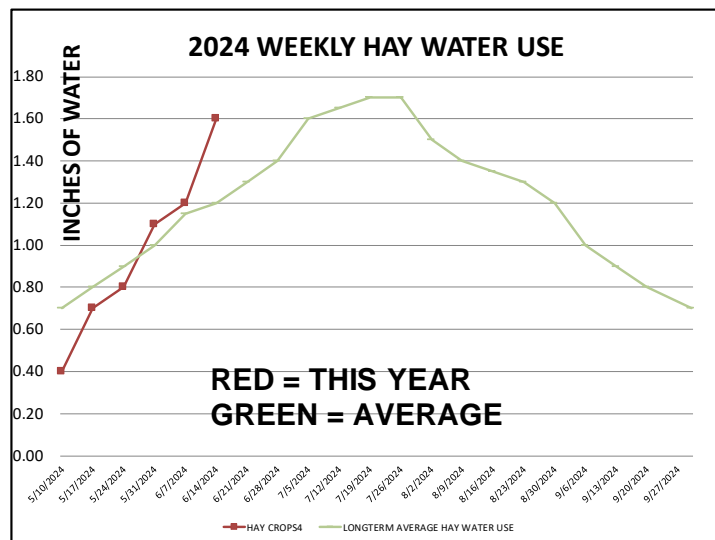
WEEK ENDING	RAIN ¹	2024 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
APRIL	0.50	0.25	0.25			0.25	0.25			
5/10/2024	0.50	0.40	0.50			0.50	0.60	0.70	1.00	0.40
5/17/2024	0.10	0.70	0.80			1.00	1.00	0.80	1.10	0.60
5/24/2024	1.00	0.80	0.80	0.30	0.20	0.90	0.90	0.90	1.20	0.70
5/31/2024	0.50	1.10	0.90	0.50	0.40	1.20	1.20	1.00	1.30	0.70
6/7/2024	0.10	1.20	1.00	0.70	0.50	1.30	1.20	1.15	1.50	0.80
6/14/2024	0.01	1.60	1.40	1.10	0.90	1.70	1.50	1.20	1.70	0.80
6/21/2024								1.30	1.90	0.90
6/28/2024								1.40	2.00	1.00
7/5/2024								1.60	2.10	1.10
7/12/2024								1.65	2.20	1.10
7/19/2024								1.70	2.20	1.10
7/26/2024								1.70	2.20	1.10
8/2/2024								1.50	2.20	1.00
8/9/2024								1.40	2.20	1.00
8/16/2024								1.35	2.00	0.90
8/23/2024								1.30	2.00	0.90
8/30/2024								1.20	1.80	0.90
9/6/2024								1.00	1.40	0.60
9/13/2024								0.90	1.40	0.50
9/20/2024								0.80	1.20	0.50
9/30/2024								0.70	1.00	0.40
TOTAL	2.21	6.05	5.65	2.60	2.00	6.85	6.65	25.25	35.60	17.00

¹ Average across watershed (50-80% gets to the crop depending on irrigation method, weather, evaporation from crop and soil surfaces)

² This years potential water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Varies across watershed.

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

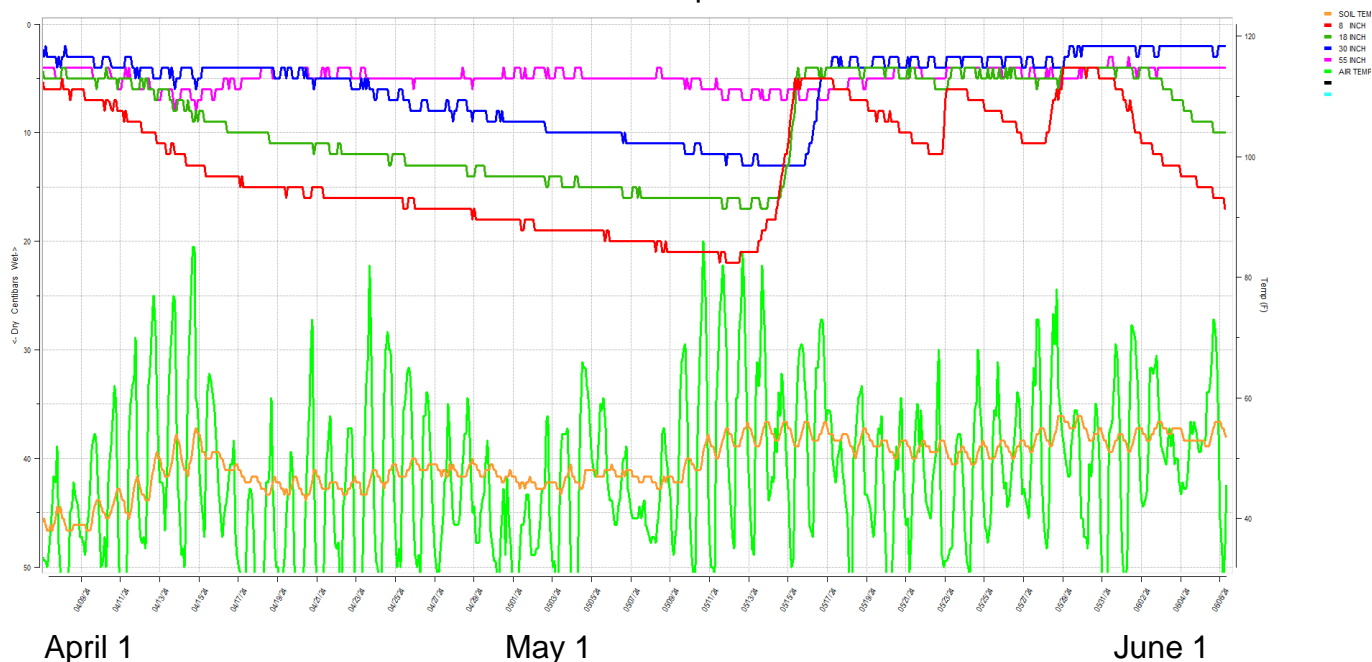
⁴ Hay Crop water use drops from these figures approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.



SOIL MOISTURE - NOW IS THE TIME TO KEEP IT HIGH

With no rainfall last week, cropland soils continued to dry out throughout the drainage unless irrigated. Most crops showed significant growth due to warmer, sunnier weather. Both surface and subsoil moisture are now decreasing steadily. A little rain is predicted early next week but will not be as much as crop water use so soil moisture levels will continue to drop without irrigation. June is the time to “make hay” – when your irrigation is most effective, and crops are growing fastest so **Pour It On!**

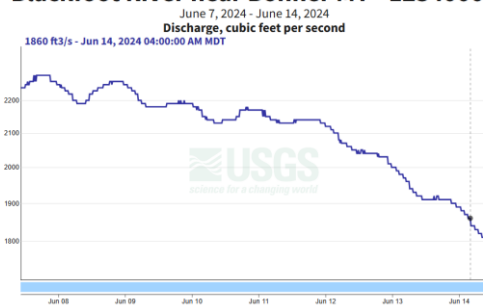
Below is an example soil moisture graph from a local hayfield showing moisture levels at four depths this year. The graph starts in early April and ends in early June. The red line is the shallowest sensor (8 inches). It shows a gradual drying of the soil throughout April when we had little rain. Starting in mid-May, irrigation and rainfall events boosted soil moisture then crop water use reduced it. The crop did not start using moisture from deeper depths until June when crop water use increased and surface moisture was depleted more.



STREAMFLOW - TAKING A NOSEDIVE

The Blackfoot River flow at Bonner dropped this week as the snowpack melted and rain has been scarce. Flow at Bonner is now 1,800 CFS. This is only 36% of the average for this date (5,010 CFS). The highest flow on this date was 13,500 CFS in 1899 while the lowest flow was 1,070 CFS in 1987. Weather predictions for the next 30 days are for average temperatures and rainfall so streamflows are expected to remain well below average.

Blackfoot River near Bonner MT - 12340000



For further information contact Clancy Jandreau, Blackfoot Challenge Water Steward, 406-304-5423 or Barry Dutton, 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- 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 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.