

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday July 14, 2023



The good news is that *haying weather is again predicted for next week* although a little warm. Blackfoot watershed croplands had little or no rain and warm temperatures last week and next week will be sunny and hot. **Crop water use was about 1½ inch last week for most crops and will increase again next week unless you cut your hay.** Blackfoot river flows continue to be near half of average and are predicted to continue below average all season. The drought committee is gearing up as stream flows fall quickly. It seems certain that drought plans will be implemented this year. Please send us your ideas or questions about these reports and anything you would like to hear about related to irrigation, soil health, water quality, or other subjects. We will respond and share them with everyone.

WEATHER - SUNNY AND HOT NEXT WEEK

Blackfoot croplands were again slightly warmer this week with highs in the 70s and 80s. Only a trace of rain fell at scattered locations! The forecast for next week says sunny skies and little rain. Temperatures will be warmer with **highs in the 80s and 90s, lows in the 40s and 50s.** The 30-day day forecast predicts average rainfall and temperatures. The 90-day forecast predicts average rainfall and above average temperatures.



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

CROP WATER USE - STILL BELOW AVERAGE, HIGHER NEXT WEEK

Crop water use was below average this last week as it has been all season. It was about 1½ inches for most crops and will increase again next week due to hotter weather. **For most crops it will be over ¼ inch per day!** However, many folks are cutting hay and crop water use decreases by 2/3 the week after cutting and by 1/3 the second week.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.6	1.8	.26	10.9
PASTURE	1.3	1.5	.21	9.5
SPRING GRAINS	1.7	1.9	.27	9.0
WINTER WHEAT	1.7	1.9	.27	12.2
LAWNS	1.5	1.7	.24	10.7

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 2023 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

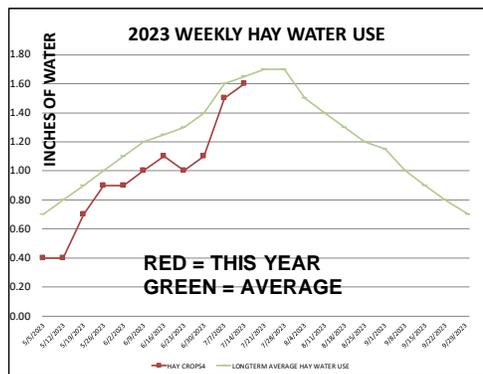
WEEK ENDING	RAIN ¹	2023 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/5/2023	0.10	0.40	0.40	0.00	0.00	0.50	0.40	0.70	1.00	0.40
5/12/2023	1.50	0.40	0.50	0.20	0.00	0.60	0.50	0.80	1.10	0.60
5/19/2023	0.25	0.70	0.70	0.30	0.00	0.80	0.80	0.90	1.20	0.70
5/26/2023	0.75	0.90	0.80	0.50	0.30	1.00	1.00	1.00	1.30	0.70
6/2/2023	0.25	0.90	0.80	0.60	0.40	1.00	0.90	1.10	1.50	0.80
6/9/2023	0.25	1.00	0.90	0.80	0.60	1.10	1.00	1.20	1.70	0.80
6/16/2023	0.40	1.10	0.90	1.00	0.80	1.20	1.00	1.25	1.90	0.90
6/23/2023	0.25	1.00	0.80	1.00	0.90	1.10	0.90	1.30	2.00	1.00
6/30/2023	0.40	1.10	0.90	1.20	1.10	1.20	1.00	1.40	2.00	1.00
7/7/2023	0.01	1.50	1.20	1.70	1.60	1.70	1.40	1.60	2.10	1.10
7/14/2023	0.01	1.60	1.30	1.70	1.60	1.70	1.50	1.65	2.20	1.10
7/21/2023								1.70	2.20	1.10
7/28/2023								1.70	2.20	1.10
8/4/2023								1.50	2.20	1.00
8/11/2023								1.40	2.20	1.00
8/18/2023								1.30	2.00	0.90
8/25/2023								1.20	1.80	0.90
9/1/2023								1.15	1.60	0.70
9/8/2023								1.00	1.40	0.60
9/15/2023								0.90	1.40	0.50
9/22/2023								0.80	1.20	0.50
9/30/2023								0.70	1.00	0.40
TOTAL	4.17	10.85	9.45	9.00	7.30	12.15	10.65	26.25	37.20	17.80

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 FALLING OVER 1½ INCHES A WEEK

With no rain and high crop water use, most soils lost about 1½ inches of water this week. Soils will lose even more next week due to higher crop water use except in hayfields that are cut. Remember to irrigate as close to haying as possible and try to irrigate at least once after cutting to help the crop recover. As temperatures rise, more of the applied water evaporates from crop and soil surfaces and less gets into the soil. Expect to apply an extra ¼ inch or so this week to make up for this loss. As always, check your soil with sensors, probes or shovels to be sure you are adding enough water.



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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 dark stain or shiny surface.



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Soil near 50% of its water holding capacity may form a weak ball but leaves little moisture on the hand. Soil at 25% or less of its water holding capacity does not form a ball when squeezed. It feels and looks dry. If sandy or loamy, it crumbles easily, if high in clay it forms a hard lump. Call, text or email anytime if you have questions about evaluating your soil moisture content and irrigation options.

WEEKLY TIPS

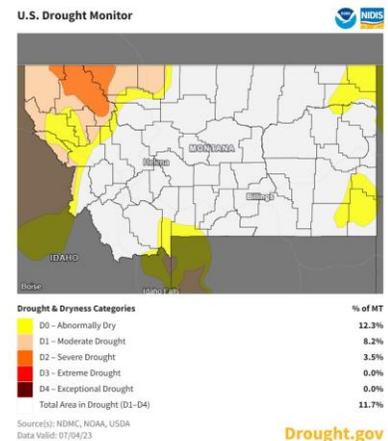
STREAMFLOWS

Blackfoot watershed stream flows continued their steep downward trend this week. Flow today at Bonner is again half of average at **1,000 CFS**. The average for this date is 1,810 CFS. The highest flow on this date was 7,040 CFS in 1899. The lowest flow on this date was 547 CFS in 1977. Flow peaked this year on May 7 at 10,400 CFS. Stream flows for the rest of the season are predicted to be below average.



DROUGHT

The Drought Monitor has not changed from last week and does not yet list us even as *Abnormally Dry*. Although crop conditions are good and soil moisture has been kept high by irrigation, stream flows are rapidly approaching trigger levels for implementing drought plans. Above average temperatures and low stream flows are predicted for the rest of the season.



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- 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.

