

BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

Friday May 17, 2024



It was warmer and sunnier this last week but next looks cold and rainy. Crops started growing a bit faster and soil moisture dropped significantly in the surface foot. This had many irrigators applying water, especially in the lower watershed and on the sandier soils. Streamflows came up this week and the snowpack continued to be far below average. 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 - COOLER NEXT WEEK

Most local croplands had only a trace of rain this week but some nice sunny days with warm temperatures. Next week will be cooler with high temperatures in the 50s and lows back down in the 30s. There is a chance of rain throughout the week and there may be some snowflakes mixed in. The 30-day forecast says **average rainfall and temperatures**. The 90-day forecast says below average rainfall and above average temperatures. Northern lights put on a show this week.



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

CROP WATER USE - MODERATE LAST WEEK AND LOWER NEXT

Crop water use increased this last week due to warmer temperatures and no rain. Most crops used about an inch in the lower watershed and less at the higher elevations. Next week crop water use should be slightly lower due to cooler temperatures and some rain. Note that in the early season things are more variable across Blackfoot croplands since low elevations and coarser soils warm up quicker. In these early reports, we list a range of crop water use to account for this variation. Crop water use will even out when crops start actively growing across the entire drainage.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	0.5-0.8	0.4-0.7	.06 -.10	1.4
PASTURE	0.6-0.9	0.4-0.7	.06 -.10	1.6
SPRING GRAINS	0.0	0.0	.00 -.00	0.0
WINTER WHEAT	0.7-1.2	0.5-0.9	.06 -.12	1.8
LAWNS	0.7-1.1	0.5-0.7	.06 -.10	1.9

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)

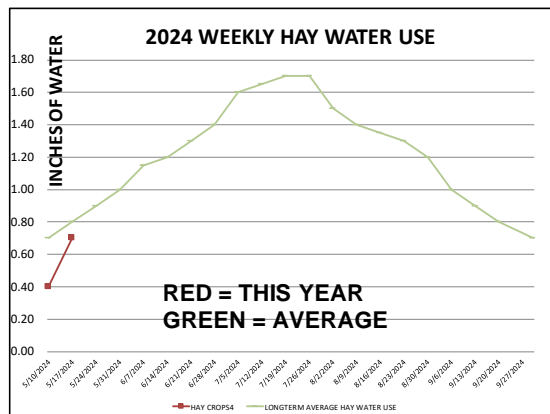
WEEK ENDING	RAIN ¹	2024 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
APRIL	0.50	0.25	0.25			0.25	0.25			
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								0.90	1.20	0.70
5/31/2024								1.00	1.30	0.70
6/7/2024								1.15	1.50	0.80
6/14/2024								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	0.60	1.35	1.55	0.00	0.00	1.75	1.85	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 - DROPPED THIS WEEK!

Soil moisture levels throughout the drainage dropped this week due to warmer temperatures and no rain. Crops started growing with a little more enthusiasm and surface soil layers dried out enough to get many folks irrigating. Subsoil moisture is still quite good. Rain is predicted throughout the coming week but may not be much greater than crop water use so soil moisture levels are likely to drop further without irrigation. Everything will now mostly depend on irrigation to keep soil moisture levels high. Next week's weather (cool and moist) will be good conditions for filling up your soil to its water-holding capacity.

WEEKLY TIPS

SNOWPACK AND WATER SUPPLY

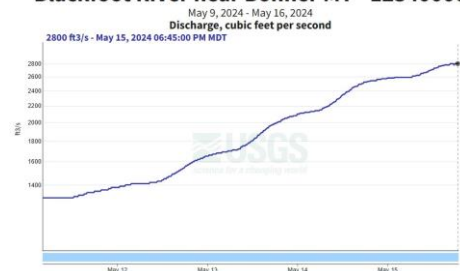
The NRCS website that provides daily updates by watershed was not working when I checked. The two Blackfoot sites that were available showed the snowpack at 56% of normal (Nevada Ridge) and 13% of normal at Copper Camp. Across the entire watershed the figure is likely to be slightly lower than the 57% of average reported last week. Reservoir storage is still below average. Blackfoot river flows are predicted to be below average throughout this season with May flows predicted as 55% of average. Irrigation districts across the region have already indicated there will be less water for distribution this year. We are currently listed as in *Severe Drought* conditions throughout the Blackfoot watershed.



STREAMFLOW

The Blackfoot river flow at Bonner increased significantly this week and is now about 2,800 CFS. This is well below average for this date (5,160 CFS). 2018 set the highest flow record at 14,900 CFS while the lowest flow on this date was 1,120 CFS in 1905. Weather predictions for the next 30 days are for average temperatures and average rainfall but streamflows are expected to remain well below average. It's difficult to predict flows next week since it will be cooler which reduces flows but it also may rain so the net result is anyone's guess.

Blackfoot River near Bonner MT - 12340000



DROUGHT

In the past I have tried to never use the word *drought* before July 1. However, this year could easily be the worst we have seen so you should start thinking about limited water supplies. It all depends on rainfall now which *could* come but is unlikely to make up for our low snowpack.

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.