

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday June 2, 2023



Most croplands throughout the watershed had a trace to ½ inch of rain this week with a few areas getting a little more. Crop water use was about **1 inch for many crops** and will be about the same next week. Most cropland soils still have significant subsoil moisture. Surface moisture has decreased unless irrigated. Crops are growing well but still set back slightly by the late start of the growing season and cooler than normal weather. 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 - CHANCE OF SHOWERS AND THUNDER

Most croplands in the watershed had a trace to ½ inch of rain this week with some folks getting a little more! More rain may fall throughout next week but in small amounts except in scattered thunderstorms. Temperatures will warm all week with **highs in the 70s and low 80s. Lows will be in the 40s and low 50s.** The 30-day day forecast predicts average rainfall and above average temperatures. The 90-day forecast predicts above average temperatures and average rainfall.



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

CROP WATER USE - HIGHER NEXT WEEK AS CROPS GET TALLER

Crop water use was again below average this last week due to cool, cloudy weather and a slow start to growth this season. **It was about 1 inch for most crops** and will increase slightly next week with warming temperatures predicted following another cool, showery weekend.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	0.9	1.0	.14	3.6
PASTURE	0.8	0.9	.13	3.5
SPRING GRAINS	0.4-0.6	0.6-0.8	.09-.11	1.6
WINTER WHEAT	1.0	1.1	.16	4.2
LAWNS	0.9	1.0	.14	3.0

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)

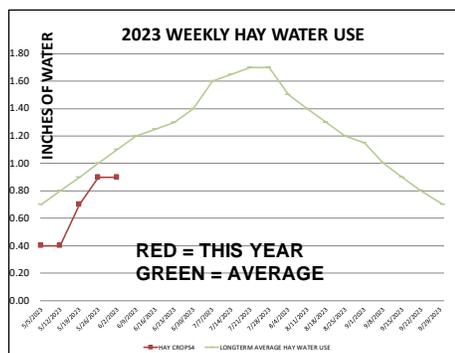
WEEK ENDING	RAIN ¹	2023 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/5/2023	0.10	0.40	0.40	0.00	0.00	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								1.20	1.70	0.80
6/16/2023								1.25	1.90	0.90
6/23/2023								1.30	2.00	1.00
6/30/2023								1.40	2.00	1.00
7/7/2023								1.60	2.10	1.10
7/14/2023								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	2.85	3.55	3.45	1.60	0.70	4.15	3.85	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 GOOD IN MANY FIELDS

It hasn't been hard to keep soil moisture levels high this season due to cool weather, a little rain and low crop water use. Subsoil moisture has remained high in most fields since crops use moisture in the surface first and surface soils have had abundant moisture. Surface soils have dried significantly on warmer days but have been replenished by rainfall and a little irrigation. Most sites did not have enough rain this week to completely replenish crop water use (unless they had more than 1 inch). Only 50-80% of rain actually gets into the soil. Some rain completely evaporates from soil and crop surfaces (less than 2/10 inch under recent weather conditions).



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.

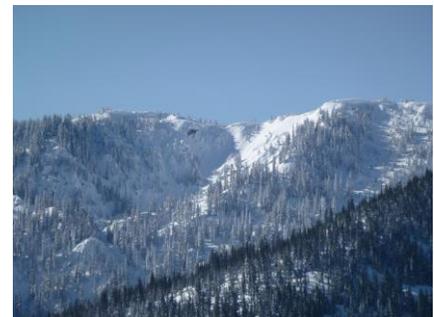


Soil near 50% of its water holding capacity may form a weak ball but leaves little moisture on the hand. Soil at 25% or less of its water holding capacity does not form a ball when squeezed. It feels and looks dry. If sandy or loamy, it crumbles easily, if high in clay it forms a hard lump. Call, text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

WEEKLY TIPS

SNOWPACK AND WATER SUPPLY

The NRCS website lists our Blackfoot watershed snowpack as 23% of average today, down from 45% last week. However, this is the time of year when these numbers are less meaningful for many reasons. It still does not bode well for late season stream flows and irrigation. Reservoir storage is still good. Blackfoot river flows are still predicted to be slightly above average this season and hopefully some of that will come in late summer.



STREAMFLOW

The Blackfoot river flow at Bonner continued to drop this week and continues to be below average at **3,970 CFS**. The average for this date is 5,970 CFS. 1972 set the highest flow record on this date at 15,300 CFS while the lowest flow on this date was 1,380 CFS in 1977. Weather predictions for the next 30 days are for above average temperatures and rainfall. The 90 day prediction is for above average temperatures and average rainfall so flows are likely to continue falling.



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.