

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday July 8, 2022



Blackfoot watershed croplands had 0 to 1 ½ inches of rain this week due to highly variable thunderstorm activity with a mix of overcast and sunny skies. Next week will bring good haying weather with little rain, warm temperatures and sunny skies. Hay crops are looking like some of the best first cuttings ever and should put smiles on many faces. Soil moisture fell about 1½ inches this week unless irrigated. Crop water use will be higher next week unless cut for hay. Streamflows are dropping fast. Have a safe and happy 4th of July weekend!

FINALLY SOME GOOD HAYING WEATHER

Rainfall varied widely across Blackfoot croplands this week due to thunderstorms. Many sites in the lower drainage had little or no rain while thunderstorms in the upper drainage produced up to 1½ inches. Next week looks like the good haying weather we have been waiting for to harvest a record first cutting. High temperatures will be in the 80s and 90s with lows in the high 40s and 50s. The 30-day forecast says average rainfall and temperatures. The 90-day forecast says below average rainfall and above average temperatures.



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

CROP WATER USE - ABOVE AVERAGE FOR FIRST TIME THIS YEAR

This week crop water use was above average for this time this year and should remain high through next week as well. We finally have some warm, sunny weather and crops are responding by dramatically increasing growth after a cool spring. Crops will use 1½ inches to 2 inches of soil moisture next week (see chart below). Crop water use is reduced by 2/3 the first week after cutting hay and by 1/3 the second week. Reduce the figures below by these amounts.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.4	1.7	.24	11.7
PASTURE	1.2	1.4	.20	10.0
SPRING GRAINS	1.6	1.8	.26	8.7
WINTER WHEAT	1.5	1.6	.23	12.5
LAWNS	1.3	1.6	.23	11.3

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

SOIL MOISTURE - INCREASING TO 1 ½ INCHES OR MORE NEXT WEEK

Soil moisture dropped by about 1½ inches this week unless irrigated or where there were no thunderstorms with rain. Soil moisture will drop 1½ to almost 2 inches next week without irrigation so continue to check your soil moisture and refill with at least as much as the weekly crop water use. Boost soil moisture before hay cutting and as soon as you can after.

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.

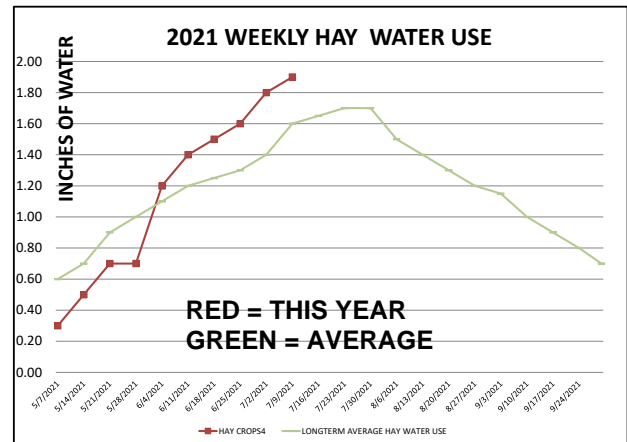
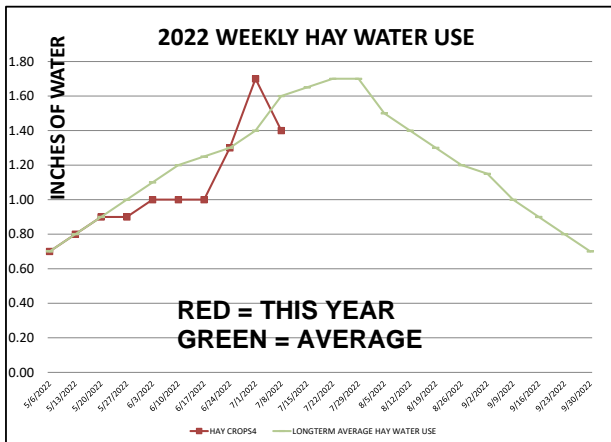
BLACKFOOT 2022 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)										
WEEK ENDING	RAIN ¹	2022 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
APRIL	1.25	1.00	1.00	0.00	0.00	1.00	1.00			
5/6/2022	0.25	0.70	0.60	0.10	0.00	0.80	0.80	0.70	1.00	0.40
5/13/2022	0.01	0.80	0.70	0.20	0.00	0.90	0.90	0.80	1.10	0.60
5/20/2022	0.10	0.90	0.80	0.40	0.20	1.00	0.90	0.90	1.20	0.70
5/27/2022	0.20	0.90	0.80	0.70	0.50	1.00	0.90	1.00	1.30	0.70
6/3/2022	0.10	1.00	0.80	0.80	0.60	1.10	0.90	1.10	1.50	0.80
6/10/2022	0.50	1.00	0.80	0.90	0.70	1.10	0.90	1.20	1.70	0.80
6/17/2022	0.75	1.00	0.80	1.10	0.90	1.10	0.90	1.25	1.90	0.90
6/24/2022	1.00	1.30	1.10	1.30	1.20	1.30	1.20	1.30	2.00	1.00
7/1/2022	0.01	1.70	1.40	1.60	1.70	1.70	1.60	1.40	2.00	1.00
7/8/2022	0.75	1.40	1.20	1.60	1.60	1.50	1.30	1.60	2.10	1.10
7/15/2022								1.65	2.20	1.10
7/22/2022								1.70	2.20	1.10
7/29/2022								1.70	2.00	1.10
8/5/2022								1.50	1.80	1.00
8/12/2022								1.40	1.70	1.00
8/19/2022								1.30	1.60	0.90
8/26/2022								1.20	1.40	0.90
9/2/2022								1.15	1.40	0.70
9/9/2022								1.00	1.30	0.60
9/16/2022								0.90	1.20	0.50
9/23/2022								0.80	1.10	0.50
9/30/2022								0.70	1.00	0.40
TOTAL	3.67	11.70	10.00	8.70	7.40	12.50	11.30	26.25	34.70	17.80

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.



STREAMFLOW

The Blackfoot river at Bonner increased flow for a couple daily days due to thunderstorms in the upper drainage that dropped significant amounts of rain. Then flow continued its downward trend the rest of the week. Today's flow is **2,620 CFS** which is above average for this date (2,290 CFS). 1899 saw the highest flow at 8,790 CFS while the lowest flow was 562 CFS in 1977. Blackfoot river flows are still predicted to be about normal for the rest of this season.

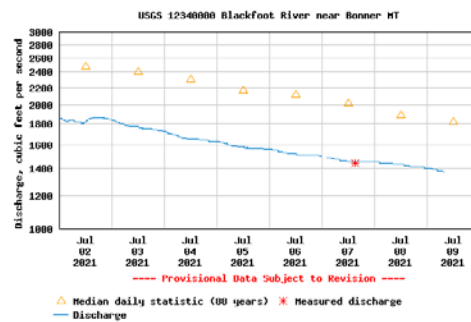
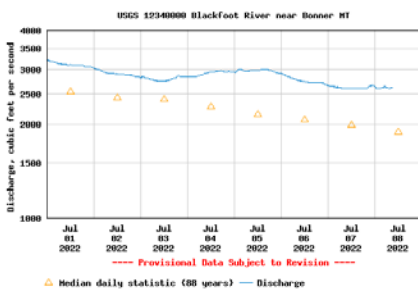
WHAT A DIFFERENCE A YEAR MAKES

This year is the coolest and wettest we have seen in the past 12 years. It will likely be used for comparison for years to come. Here are a few comparisons:

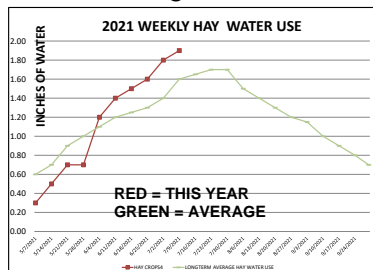
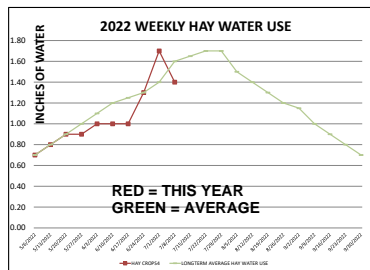
BLACKFOOT RIVER FLOWS AT BONNER STREAMGAUGE

2022 STREAMFLOW 2,620 CFS
(Above average through mid-July)

2021 STREAMFLOW 1,370 CFS
(Below average through mid-July)



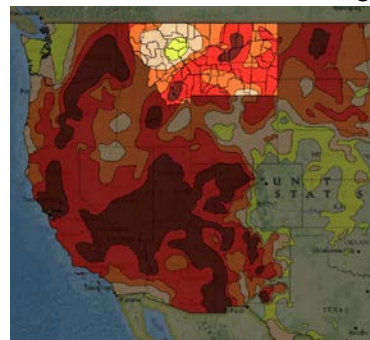
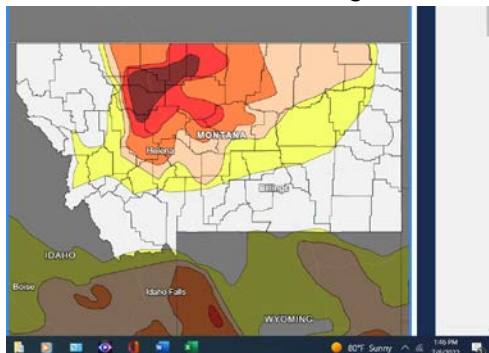
CROP WATER USE – Below average in 2022 and Above average in 2021



DROUGHT

2022: Half of State is Drought-free

2021: All of state is in Drought



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 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.