BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

Friday September 6, 2024

We had another smoky, warm week without significant rain. Next week will start hot and dry then turn cool with showers. **Crop water use was about 1 inch and will be similar next week.** Blackfoot River flows remain near 400 CFS - far below normal. Flows have had help from irrigators implementing drought plans and from very small and localized rainstorms. Driving throughout the watershed lately it's obvious that irrigators are sacrificing peak crop production to help maintain streamflows - thanks to all those irrigators! Please send us any ideas or questions to include with these reports. We will respond and share them with everyone.

CHANGING WEATHER

It was a warm, smoky week with little or no rain on Blackfoot watershed croplands. There were a few very localized scattered showers. It will start out hot and dry over the weekend then turn much cooler with some showers by weeks end. Highs will start in the 80s and 90s then drop into the 60s with lows in the 40s. The 30-day forecast says below average rainfall and above average temperatures. The 60-day forecast says average rainfall and above average temperatures.

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

CROP WATER USE – NEAR AVERAGE THIS WEEK AND NEXT

Crop water use was slightly above average this last week due to hot dry weather but should go down to average with cooler weather predicted next week. **Most crops used about 1 inch of water this week and will use about the same next week**.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL[1]	NEXT 7 DAYS DAILY AVE[2]	SEASON TOTAL[3]
HAY CROPS	**1.2**	**1.0**	.14	24.9
PASTURE	**1.0**	**0.9**	.13	21.5
SPRING GRAINS	**0.5**	**0.2**	.03	19.9
WINTER WHEAT	**0.0**	**0.0**	.00	20.1
LAWNS	**1.1**	**1.0**	.14	24.5

[1]Expected water use over the next week (range if weather becomes cooler or hotter than expected)
[2]Expected average daily water use over the next week (compare this with your soil moisture content)
[3]Beginning 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)

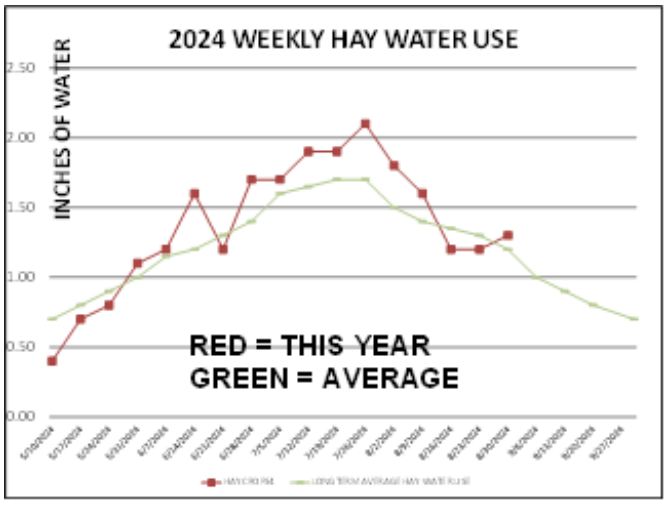
	RAIN[1]	2024 WEEKLY POTENTIAL CROP WATER USE[2]						AVERAGE WEEKLY CROP WATER USE[3]		
WEEK ENDING	RAIN	HAY CROPS[4]	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
APRIL	0.50	0.25	0.25			0.25	0.25			
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	0.25	1.20	1.10	1.00	0.90	1.30	1.20	1.30	1.90	0.90
6/28/2024	0.10	1.70	1.40	1.60	1.40	1.80	1.60	1.40	2.00	1.00
7/5/2024	0.01	1.70	1.40	1.70	1.70	1.90	1.60	1.60	2.10	1.10
7/12/2024	0.01	1.90	1.60	2.10	2.10	2.10	1.80	1.65	2.20	1.10
7/19/2024	0.00	1.90	1.60	2.10	2.10	2.10	1.80	1.70	2.20	1.10
7/26/2024	0.25	2.10	1.80	2.50	2.50	1.80	2.00	1.70	2.20	1.10
8/2/2024	0.25	1.80	1.50	1.80	2.10	1.30	1.70	1.50	2.20	1.00
8/9/2024	0.50	1.60	1.30	1.00	1.60	0.70	1.50	1.40	2.20	1.00
8/16/2024	0.40	1.20	1.00	0.50	1.20	0.20	1.20	1.35	2.00	0.90
8/23/2024	0.30	1.20	1.00	0.00	1.10	0.00	1.10	1.30	2.00	0.90
8/30/2024	0.10	1.30	1.10	0.00	0.70	0.00	1.20	1.20	1.80	0.90
9/6/2024	0.01	1.20	1.00	0.00	0.50	0.00	1.10	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	4.39	24.85	21.45	16.90	19.90	20.05	24.45	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)

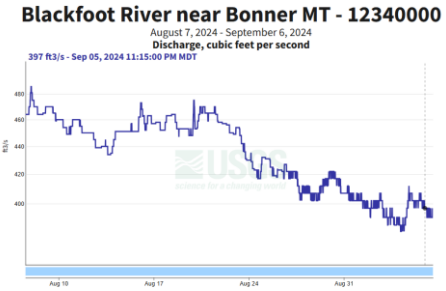
[2] **This years** potential water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Varies across watershed.

[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.



STREAMFLOWS STILL VERY LOW



Blackfoot River flows continue to bounce around 400 CFS with small increases from very localized rainstorms and irrigation shutoffs. There is still no large rain event forecast that could boost us out of drought conditions. Today the flow at Bonner is 397 CFS compared to an average of 665 CFS for this date. The highest flow on this date was 1,380 CFS in 1899 while the lowest was 329 CFS in 1988. Weather predictions for the next 30 days are for below average rainfall and above average temperatures so streamflows will continue well below average.

SOIL HEALTH, CLIMATE CHANGE AND POLLUTION

Soil health relies upon and is often measured by the number and diversity of soil organisms. This includes everything from earthworms, nematodes and centipedes to fungi, bacteria and viruses. It is this population of soil inhabitants that converts organic matter and minerals into forms plants can use.

Climate change may affect soil organisms over time, but the most immediate threat remains pollution. Pesticides and heavy metals have been the most common soil pollutants affecting soil organisms. More recent concerns are microplastics, pharmaceuticals and persistent chemicals.

Blackfoot watershed croplands are fortunate in this regard because:

- we don't grow crops that use pesticides, fungicides, etc.
- we don't have windborne heavy metal sources (nearby upwind smelters)
- we don't apply municipal sewage wastes (may have heavy metals or pharmaceuticals)
- we don't apply materials containing extra microplastics or persistent chemicals

MAINTAINING LAKE LEVELS WITH DRIP IRRIGATION

In recent years, the Great Salt Lake has suffered low inflows causing low water levels and exposing huge areas of dry lakebed. Huge dust storms have blanketed the area from Ogden to Provo. Unfortunately, the dry lakebed contains a range of toxic metals as well as more inert dust particles which threaten the health of millions along the Wasatch front.

A state program is helping farmers convert from flood to drip irrigation and leave more water for the lake. One Utah tomato farmer reports dropping his water use to 60 Gallons per minute from his allotted 1200 GPM while getting much better production. That extra water flows into the Great Salt Lake. Since 80% of water use in Utah goes to crops, both state and private funding sources are focused on improving irrigation efficiency. This will help ensure water for future development and for maintaining lake levels. Yes, improving irrigation can directly improve the environment for all.

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, streamflows and drought conditions.
- 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- 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.