

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday July 5, 2019



It was another relatively cool week in the Blackfoot Drainage with some sunny, warm weather changing to cool and cloudy by the day or hour. Croplands mostly had ¼ to ½ inch of rain. Next week starts with thunderstorms but clears to sunny ski by mid-week with temperatures in the upper 80s. Crop growth looks good and crop water use remained below average at about 1 ¼ inches this week. All crops will use more next week with warmer, sunny weather. Cool, thunderstorm weather is great to irrigate effectively (get more water into the soil) so build some reserve ahead of cutting. On the other hand, if you don't plan on pasture or another cutting, water once after harvest and put away your irrigating shoes. The late season flows will thank you (not to mention the fish and floaters). The Blackfoot River flow is dropping fast and late season drought is possible.

These reports, provide weekly summaries of weather, crop water use and soil moisture conditions plus tips for irrigation, soil health and crops. Hints for the entire irrigation season are on the last page. For other irrigation information please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).

WEATHER - THUNDERSTORMS THEN SUNNY & WARM



Cool weather persisted most of this week and scattered thunderstorms left very irregular rainfall amounts, mostly between ¼ and ½ inch total. Next week will start with thunderstorms and end warm and sunny with temperatures in the high 80s. The 30- day predictions are for average temperatures and rainfall while the 90-day predictions are for above average temperatures and average rainfall.



CROP WATER USE - BELOW AVERAGE FOR THE SECOND WEEK!

Crop water use increased a bit this week (1 - 1.3 inches) but remained below average due to cool weather. Water use will increase next week with warmer temperatures but will decrease by 2/3 in fields just cut. The table below provides a quick summary of crop water use last week and an estimate for next week. The table and chart on Page 2 summarize the entire irrigation season and compare it with average, hot and cool conditions so you can plan ahead.

¹Expected water



WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.2	1.3 (1.3 - 1.4)	.19	11.6
PASTURE	1.0	1.1 (1.0 - 1.3)	.16	10.4
SPRING GRAINS	1.3	1.4 (1.2 - 1.5)	.20	7.5
WINTER WHEAT	1.3	1.4 (1.3 - 1.6)	.20	12.6
LAWNS	1.1	1.2 (1.1 - 1.4)	.17	11.3

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

BLACKFOOT 2019 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

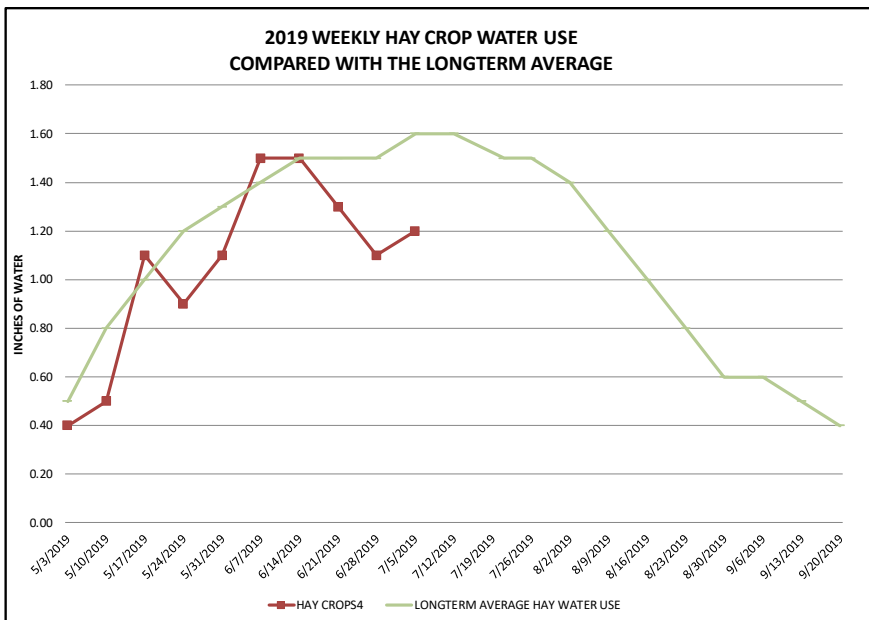
WEEK ENDING	RAIN ¹	2019 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE POTENTIAL CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/3/2019	0.30	0.40	0.50	0.10	0.10	0.40	0.50	0.50	0.80	0.30
5/10/2019	0.30	0.50	0.40	0.10	0.10	0.50	0.50	0.80	1.00	0.50
5/17/2019	0.40	1.10	0.90	0.10	0.10	1.10	1.00	1.00	1.10	0.60
5/24/2019	0.10	0.90	0.80	0.20	0.10	1.00	0.90	1.20	1.30	0.80
5/31/2019	0.75	1.10	0.90	0.50	0.20	1.20	1.00	1.30	1.40	0.90
6/7/2019	0.30	1.50	1.30	1.00	0.60	1.60	1.40	1.40	1.50	1.00
6/14/2019	0.50	1.50	1.40	1.50	1.10	1.70	1.50	1.50	1.70	1.00
6/21/2019	0.10	1.30	1.10	1.40	1.20	1.50	1.20	1.50	1.90	1.10
6/28/2019	0.10	1.10	0.90	1.20	1.10	1.20	1.00	1.50	2.00	1.10
7/5/2019	0.40	1.20	1.00	1.30	1.20	1.30	1.10	1.60	2.10	1.30
7/12/2019								1.60	2.00	1.20
7/21/2019								1.50	2.00	1.20
7/26/2019								1.50	2.20	1.10
8/2/2019								1.40	1.70	1.00
8/9/2019								1.20	1.50	0.90
8/16/2019								1.00	1.30	0.70
8/23/2019								0.80	1.00	0.50
8/30/2019								0.60	0.80	0.40
9/6/2019								0.60	0.70	0.30
9/13/2019								0.50	0.70	0.30
9/20/2019								0.40	0.60	0.20
9/30/2019								0.40	0.60	0.20
TOTAL	4.75	11.60	10.40	7.50	5.90	12.60	11.30	24.80	31.40	17.10

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)

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.





SOIL MOISTURE - ONLY WHERE THERE IS IRRIGATION

Soil moisture dropped by about 1 ¼ inches this week unless you had significant rain or irrigated. These cooler days are a great time to boost soil moisture to get you through cutting. But you must add more than the

crop is using (1 to 1 ½ inches per week). Surprisingly, there is still some soil moisture in the 3 foot zone of most fields if they have good soils (non-rockpile). Even many dryland fields have some deep moisture left. Most native plants have persisted past their normal flowering dates.

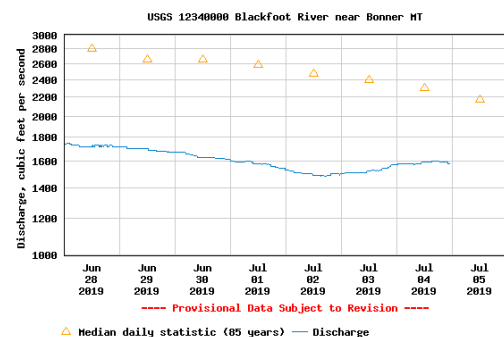


Cool days are perfect for effective irrigation that gets most of the water in the soil.

STREAMFLOWS AND DROUGHT 2019?

The Blackfoot river flow at Bonner held fairly steady this week. Today it is about **1600 CFS** which is **2/3 of average** (2600 CFS). The Highest flow on this date was 10,100 (1899) and the lowest was 612 CFS (1977).

Late season drought conditions are possible and drought managers are having insomnia symptoms. Predictions for the next 90 days are for average rainfall and above average temperatures. Irrigate while you can.



WATER BEFORE CUTTING AND AFTER IF YOU CAN!

Cutting is the highest stress period for irrigated hay crops so water deep before cutting and get back across as quick as possible if you can. This is especially important for alfalfa but even grass hay will recover noticeably better if there is some available water following harvest. By now water is mostly used up in the lower soil layers (2 and 3 foot) and it takes an effort to boost it (applying more than the weekly crop water use).

Irrigating right after cutting is important to help plants recover. It is also a time when most of the applied water goes into the soil since there are less crop leaves to intercept and evaporate it.

Crop water use drops by about 2/3 the week after cutting and 1/3 the second week before recovering to full water use as the plants fill out in about 3 weeks.

On the other hand, if you don't plan for pasture or another cutting, water once and put away your irrigating shoes. The late season flows will thank you (not to mention the fish and floaters).



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. Some years you better start up now.



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.