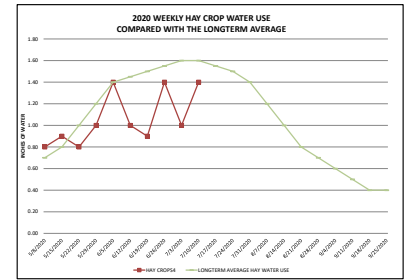


BLACKFOOT CHALLENGE

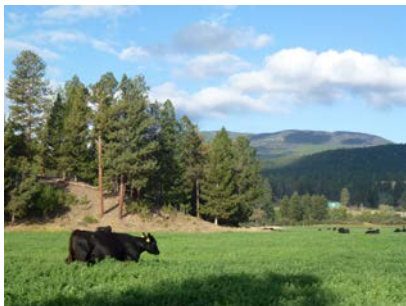
WEEKLY IRRIGATION REPORT

Friday July 10, 2020



The graph at the right, and a larger version on page 2, say it all for this year of below average crop water use. This and abundant rainfall have produced some great crops with less effort for most irrigators. A change this week to less rain and more sun should continue and provide perfect haying weather. Crop water use last week and next is about 1 ½ inches but is reduced by cutting. Soil moisture will drop now by the amount crops use unless there is substantial rain. Blackfoot River flows are now close to average at about 2000 CFS (Bonner) and should continue to fall this week.

We provide weekly summaries of weather, crop water use and soil moisture conditions as well as tips for irrigation, soil health and crop production. A condensed overview of suggestions for the entire irrigation season is presented on the last page of this report. Use it to look ahead and plan or to compare what you're doing now. If you would like other information please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).



WEATHER - SUNNY WITH SCATTERED THUNDER

Blackfoot croplands had a trace of rain last week and next week looks the same except for localized thunderstorms. If you can dodge the thunderstorms, next week will be good haying weather with temperatures in the 70s for highs and 40s for lows. The 30-day forecast has changed to **below average temperatures** and average rainfall. The 90-day forecast says above average temperatures and average rainfall.

CROP WATER USE - UP THIS WEEK & NEXT BUT STILL BELOW AVERAGE

Crop water use has been on a roller coaster this year (see chart page 2) but is back up closer to average last week and next. With warmer, drier weather this week, most crops about 1 ½ inches and use will be similar next week. Remember, water use drops by 2/3 the week after cutting and by 1/3 the following week. Try to irrigate as soon as possible. The table below provides a quick summary of crop water use this 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.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	1.4	1.4 (1.3 - 1.6)	.20	11.6
PASTURE	1.1	1.1 (1.0 - 1.4)	.16	9.9
SPRING GRAINS	1.5	1.5 (1.4 - 1.7)	.23	8.6
WINTER WHEAT	1.4	1.4 (1.2 - 1.5)	.20	12.8
LAWNS	1.2	1.2 (1.1 - 1.5)	.18	11.0

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

BLACKFOOT 2020 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

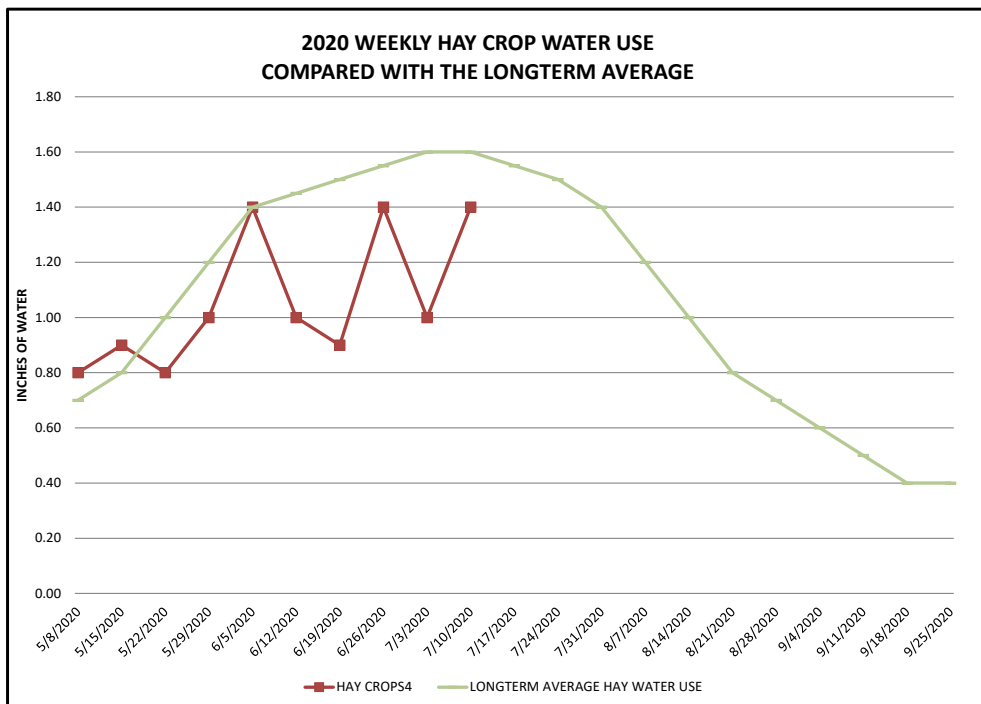
WEEK ENDING	RAIN ¹	2020 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/8/2020	0.01	0.80	0.70	0.10	0.10	0.90	0.90	0.70	1.00	0.30
5/15/2020	0.30	0.90	0.80	0.10	0.10	0.90	0.90	0.80	1.10	0.50
5/22/2020	1.25	0.80	0.70	0.30	0.20	0.80	0.80	1.00	1.20	0.60
5/29/2020	0.10	1.00	0.80	0.70	0.40	1.20	0.90	1.20	1.30	0.80
6/5/2020	1.00	1.40	1.20	1.00	0.70	1.50	1.30	1.40	1.50	1.00
6/12/2020	1.00	1.00	0.90	1.00	0.90	1.10	1.00	1.45	1.70	1.00
6/19/2020	0.25	0.90	0.70	0.90	0.90	1.00	0.80	1.50	1.90	1.10
6/26/2020	0.25	1.40	1.20	1.70	1.70	1.70	1.30	1.55	2.00	1.10
7/3/2020	1.00	1.00	0.80	1.20	1.20	1.20	0.90	1.60	2.10	1.30
7/10/2020	0.01	1.40	1.10	1.50	1.50	1.40	1.20	1.60	2.00	1.20
7/17/2020								1.55	2.00	1.20
7/24/2020								1.50	2.20	1.10
7/31/2020								1.40	2.20	1.10
8/7/2020								1.20	1.50	0.90
8/14/2020								1.00	1.30	0.70
8/21/2020								0.80	1.20	0.60
8/28/2020								0.70	1.10	0.50
9/4/2020								0.60	1.00	0.40
9/11/2020								0.50	0.90	0.40
9/18/2020								0.40	0.70	0.30
9/25/2020								0.40	0.70	0.30
TOTAL	6.42	11.60	9.90	8.60	7.80	12.80	11.00	22.85	30.60	16.40

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.





SOIL MOISTURE - CROPS USE ABOUT 1 ½ INCHES

Soil moisture dropped about 1 ½ inches this week and will again next week unless your location gets a big localized rain storm.

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 shiny surface. Bouncing the soil in the hand usually brings water to the surface. Soil near 75% of its water holding capacity also forms a ball and leaves the hand moist but no actual water is visible on the hand or soil when bounced.

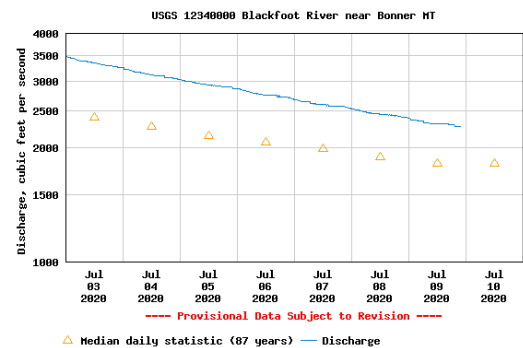


WEEKLY TIPS

Blackfoot River Flow About Normal



TODAY:	2,270 CFS
AVERAGE:	2,120
HIGHEST:	8,790 (1899)
LOWEST:	553 (1977)



Blackfoot River flows continued to drop this week to more normal levels. Perhaps the monsoons are over and we will now experience the hot and dry conditions forecast for the rest of the season. However, a career in weather forecasting would seem to be an increasingly wild choice and not for the faint of heart.

Seasonal and Not So Seasonal Allergies - Can Weeds Really Kill You?

Its haying season again and for some of us it's a mixed blessing. More than 50 million Americans experience allergies each year - the 6th leading cause of chronic illness. Many people develop allergies only later in life including to plants and herbicides. Sometimes symptoms are barely noticeable as uncomfortable feelings, itching or minor breathing changes. But others suffer runny noses, rashes, burning eyes and fatigue. We usually blame the common pollen culprits of cottonwood, pine, timothy, orchardgrass and other plants. Some people react to contact with almost any plant especially early in the season when green and juicy.

But can weeds really kill you or do serious harm? Local allergists estimate about 20% of folks are allergic to knapweed. Reactions range from itching, rashes and hives to finger loss (from pulling without gloves) and anaphylaxis (closing of the airways by swelling). If you think you may be allergic to specific plants including weeds, there is an abundance of information on the web. Here are a few local examples about knapweed. Most of us are concerned with exposure to herbicides but don't realize weeds release harmful chemicals too.

https://missoulian.com/knap-time-for-allergies/image_272fca9-21c6-574c-9dae-c00423873d84.html?utm_medium=social&utm_source=email&utm_campaign=user-share

https://missoulian.com/one-more-reason-to-kill-weeds/article_409286bf-44bf-559a-a35f-2023271b2596.html?utm_medium=social&utm_source=email&utm_campaign=user-share

<https://www.spokesman.com/stories/1997/oct/19/he-knows-use-gloves-if-you-pull-knapweed/>

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 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.