

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Thursday September 30, 2021



It was a mild end to the irrigation season this last two weeks with a little rain and a little frost. There is still little rain in the forecast with pleasant temperatures and frost across the drainage. Crop water use dropped below 1 inch per week and perennial crops are going dormant. Stream flows remain low.

CROP WATER USE - ABOVE AVERAGE LAST WEEK AND BELOW NEXT

This past week crop water use was above average due to warm temperatures and little rain. **Crops used under 1 inch of water and this will continue to drop quickly as crops go dormant.** The table below provides a quick summary of crop water use this last week and a season total.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL¹	NEXT 7 DAYS DAILY AVE²	SEASON TOTAL³
HAY CROPS	0.8			28.0
PASTURE	0.5			23.0
SPRING GRAINS	0.0			22.0
WINTER WHEAT	0.0			16.0
LAWNS	0.7			27.0



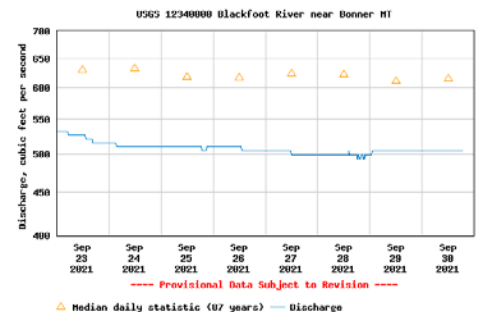
¹Expected water use over the next week (range if weather becomes cooler or hotter than expected)

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 Stream Flow Holding Steady at 504 CFS

Today's flow was 504 CFS compared with an average of 633 CFS. The highest flow recorded on this date was 1,200 CFS in 1965 while the lowest flow was 375 CFS in 1994. **Drought Plan measures seem to have slowed the downward trend keeping flows at about 500 CFS.** Water temperatures remain mostly in the 50s making life slightly easier for fish. However, low stream flows mean fish are crowded into less space and easier to catch.



To Irrigate or Not to Irrigate - That is the Question

Fall irrigation is an important practice for many producers, including during drought periods. Healthy plants this fall can mean better production next season, especially on grass hay crops. These producers suffer more than most when asked to reduce irrigation to maintain stream flows. It's important to balance crop and fish concerns - reducing irrigation diversions by rotating fields and other methods but not ceasing irrigation entirely. Alfalfa growers may want to cease irrigation to allow plants to store root reserves and go dormant before a killing frost. Blackfoot irrigators continue to experiment with this delicate balance in the hopes of finding the best practices for crops, fish and the landscape we love.

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.

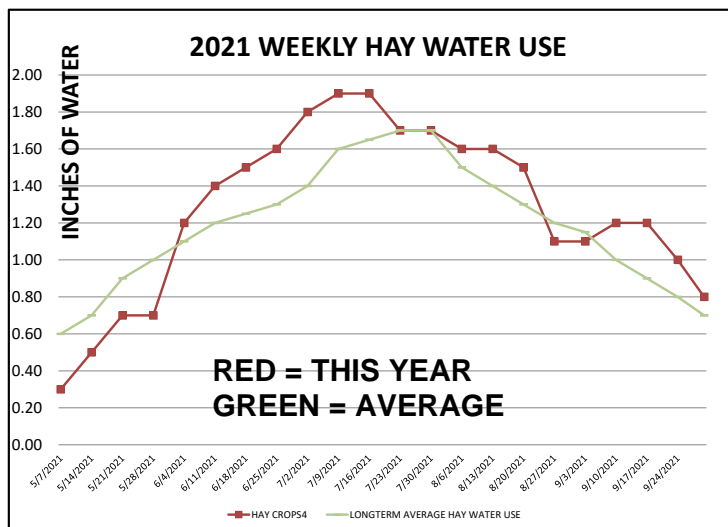
BLACKFOOT 2021 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)										
WEEK ENDING	RAIN ¹	2021 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE WEEKLY CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/7/2021	0.40	0.30	0.40	0.00	0.00	0.50	0.50	0.60	1.00	0.30
5/14/2021	0.20	0.50	0.50	0.10	0.00	0.70	0.70	0.70	1.10	0.40
5/21/2021	0.50	0.70	0.60	0.30	0.10	0.80	0.80	0.90	1.20	0.50
5/28/2021	2.00	0.70	0.60	0.60	0.20	0.80	0.70	1.00	1.30	0.50
6/4/2021	0.10	1.20	1.00	0.90	0.60	1.30	1.20	1.10	1.50	0.60
6/11/2021	0.10	1.40	1.20	1.10	0.80	1.50	1.30	1.20	1.70	0.70
6/18/2021	0.20	1.50	1.30	1.40	1.10	1.60	1.40	1.25	1.90	0.70
6/25/2021	0.20	1.60	1.40	1.60	1.40	1.70	1.50	1.30	2.00	0.80
7/2/2021	0.10	1.80	1.50	1.90	1.70	1.90	1.70	1.40	2.00	0.90
7/9/2021	0.01	1.90	1.60	2.00	2.00	2.00	1.90	1.60	2.10	1.00
7/16/2021	0.01	1.90	1.60	2.00	2.00	1.50	1.90	1.65	2.20	1.00
7/23/2021	0.25	1.70	1.40	1.80	1.80	1.00	1.60	1.70	2.20	1.00
7/30/2021	0.01	1.70	1.40	1.90	1.90	0.50	1.60	1.70	2.00	1.00
8/6/2021	0.25	1.60	1.30	1.80	1.80	0.20	1.50	1.50	1.80	0.90
8/13/2021	0.25	1.60	1.30	1.80	1.80	0.00	1.50	1.40	1.70	0.80
8/20/2021	0.25	1.50	1.20	1.50	1.70	0.00	1.40	1.30	1.60	0.80
8/27/2021	0.50	1.10	0.90	0.90	1.20	0.00	1.00	1.20	1.40	0.70
9/3/2021	0.25	1.10	0.80	0.40	0.60	0.00	1.00	1.15	1.40	0.70
9/10/2021	0.01	1.20	0.90	0.00	0.20	0.00	1.10	1.00	1.30	0.60
9/17/2021	0.01	1.20	0.90	0.00	0.00	0.00	1.10	0.90	1.20	0.50
9/24/2021	0.25	1.00	0.70	0.00	0.00	0.00	0.90	0.80	1.10	0.50
9/30/2021	0.20	0.80	0.50	0.00	0.00	0.00	0.70	0.70	1.00	0.40
TOTAL	6.05	28.00	23.00	22.00	20.90	16.00	27.00	26.05	34.70	15.30

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.



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 - IN DROUGHT CONSIDER REDUCING OR ENDING IRRIGATION

- Apply 1 - 2 inches of irrigation per week in August to hay and pasture crops for full production depending on weather and water availability.
- 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. **Make a BC Drought Plan.**



SEPTEMBER – APPLY AS NEEDED IF AVAILABLE & PREPARE FOR WINTER!

- Apply ½ - 1 ½ inches of irrigation per week in September to hay and pasture crops depending on weather but continue cutbacks according to your Drought Plan if necessary. Irrigate new plantings as needed. Prepare the system for winter and an early start next spring.