

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday September 7, 2018



September started out this week with mild temperatures and only a few scattered rainstorms. Streamflows dropped slowly and crop water use stayed above average. Next week will have temperatures in the high 60s to low 70s with a mix of sun and thunderstorms. Crop water use will be about 1 inch next week for mature crops. Long-range forecasts predict mostly above average temperatures and below average rainfall for the rest of the growing season.

General irrigation suggestions for the entire season are presented on the last page of this report. Use these to look ahead and plan or to compare with what you're doing now. If you have questions or comment please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).



WEATHER -MIX OF SUN AND THUNDERSTORMS

Scattered storms this past week left only a trace of rain on most local croplands. Next week looks pleasant with a mix of sunny skies and scattered thunderstorms with mild temperatures reaching into the high 60s and low 70s. The 30-day forecast suggests above normal temperatures and normal rainfall. The 90-day forecast says above average temperatures and below average rainfall.



CROP WATER USE - FALLING TO AVERAGE

Crop water use continued above average at about 1 inch last week. It should be similar next week with similar weather predicted. The table and chart on Page 2 summarize the entire irrigation season. This year started out with low crop water use then climbed above average with hot weather in July and August (100F+). It remains above average although not as high as last year when very hot weather persisted throughout September.



WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	1.1	0.9 (0.8 – 1.1)	22.4
PASTURE	0.9	0.8 (0.7 – 0.9)	18.3
SPRING GRAINS	0.5	0.2 (0.1 – 0.3)	18.2
WINTER WHEAT	0.1	0.1 (0.0 – 0.1)	15.9
LAWNS	1.0	0.9 (0.8 – 1.1)	21.1
RAIN (Average across drainage croplands)	T	T	6.9
EFFECTIVE RAIN	0	0	5.1

¹Expected water use (range if weather becomes cooler or hotter than expected)

²Beginning April 1 – note in 2010-13 we started our seasonal total on May 1 but since then we include April

BLACKFOOT 2018 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

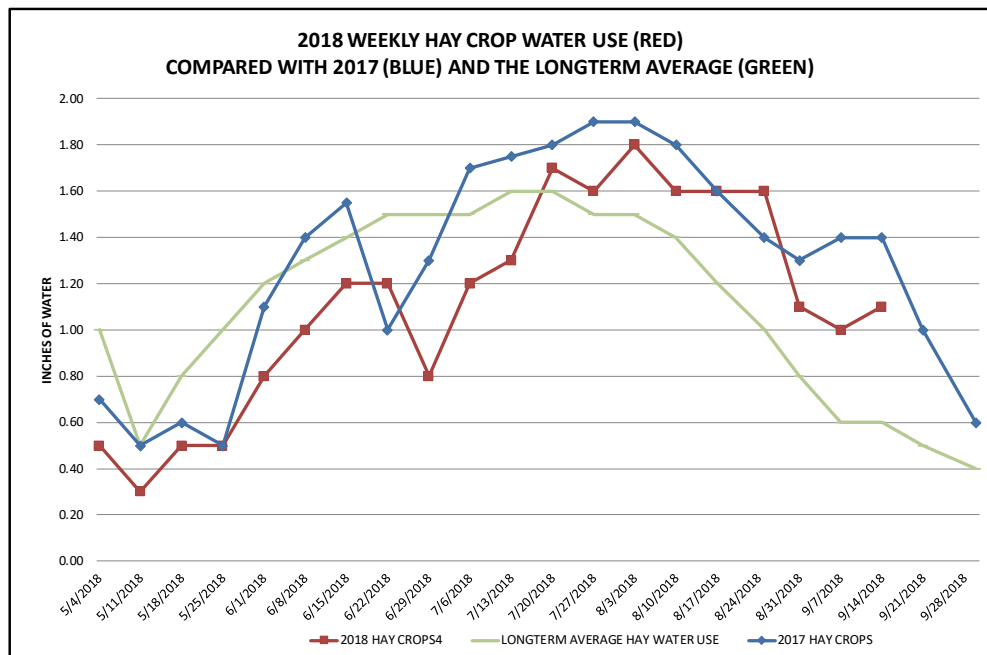
WEEK ENDING	RAIN ¹	2018 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE POTENTIAL CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
APRIL	1.50	0.50	0.40	0.10	0.10	0.50	0.50	1.00	1.50	0.50
5/4/2018	0.50	0.30	0.20	0.10	0.10	0.30	0.30	0.50	0.80	0.30
5/11/2018	0.50	0.50	0.40	0.10	0.10	0.50	0.50	0.80	1.00	0.50
5/18/2018	0.50	0.50	0.40	0.10	0.10	0.50	0.50	1.00	1.10	0.60
5/25/2018	0.25	0.80	0.70	0.30	0.10	0.80	0.80	1.20	1.30	0.80
6/1/2018	0.75	1.00	0.90	0.50	0.30	1.10	1.00	1.30	1.40	0.90
6/8/2018	0.20	1.20	1.00	0.80	0.50	1.30	1.10	1.40	1.50	1.00
6/15/2018	0.50	1.20	1.00	0.90	0.70	1.30	1.10	1.50	1.70	1.00
6/22/2018	1.25	0.80	0.70	0.80	0.60	1.00	0.80	1.50	1.90	1.10
6/29/2018	0.25	1.20	1.00	1.20	0.90	1.30	1.10	1.50	2.00	1.20
7/6/2018	0.01	1.30	1.00	1.50	1.20	1.50	1.20	1.60	2.10	1.30
7/13/2018	0.01	1.70	1.30	2.00	1.80	1.80	1.60	1.60	2.00	1.20
7/20/2018	0.01	1.60	1.30	1.90	1.90	1.90	1.50	1.50	2.00	1.20
7/27/2018	0.01	1.80	1.50	2.00	2.00	1.00	1.70	1.50	2.20	1.10
8/3/2018	0.01	1.60	1.30	1.70	1.90	0.50	1.50	1.40	1.70	1.00
8/10/2018	0.01	1.60	1.30	1.60	1.80	0.25	1.50	1.20	1.50	0.90
8/17/2018	0.01	1.60	1.30	1.40	1.60	0.10	1.50	1.00	1.30	0.70
8/24/2018	0.50	1.10	0.90	0.80	1.10	0.10	1.00	0.80	1.00	0.50
8/31/2018	0.20	1.00	0.80	0.25	0.50	0.10	0.90	0.60	0.80	0.40
9/7/2018	0.01	1.10	0.90	0.10	0.25	0.10	1.00	0.60	0.70	0.30
9/14/2018								0.50	0.70	0.30
9/21/2018								0.40	0.60	0.20
9/30/2018								0.40	0.60	0.20
TOTAL	6.98	22.40	18.30	18.15	17.55	15.95	21.10	24.80	31.40	17.20

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.





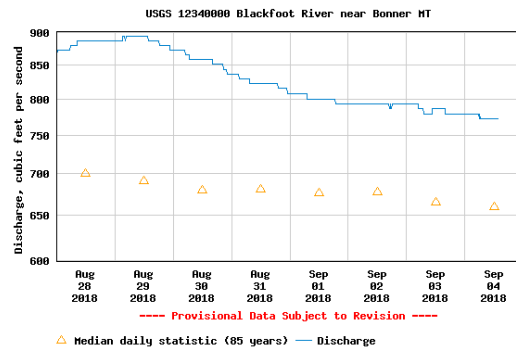
SOIL MOISTURE - WAITING FOR FALL RAINS

Most soil moisture that's out there now has come from recent irrigation. Most folks who are still irrigating are cutting back to about what crops use each week and not trying to boost soil moisture. Crops, especially grasses slow down their water use as days shorten. They will take advantage of whatever water is available until temperatures drop.

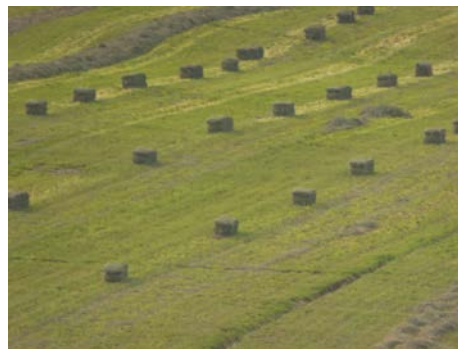
WEEKLY TIPS

Streamflows

Blackfoot River flows dropped slowly and steadily this week. The river above Bonner is flowing at about 770 CFS which is slightly above average (670 CFS). The highest level recorded for this date was about 1,460 (1899) and the lowest about 325 (1988). Flows may increase with wetter weather predicted for next week.



2018 will be remembered for great harvests so take a few photos, save your seed, fertilizer, soil test and bale count records for future reference. Great Job Folks!



Soil Health Learning Opportunities

There are lots of interesting opportunities to learn about soil health including farm tours, classroom and seminar sessions and field trips.

NATIONAL TRADE SHOWS AND SEMINARS

Many private, nonprofit, university and government groups offer seminars and meetings. One example is the Soil Health Institute which has an industry-wide tradeshow and seminar series that provide overviews of products and services related to soil health. <http://soilhealthu.net/>

SOIL HEALTH VACATIONS

For those needing a vacation for their own health as well as the soil - consider including a seminar during your trip to New Zealand or Australia. These two countries have emphasized soil health for decades and some of the best experts in the world offer short and long courses.

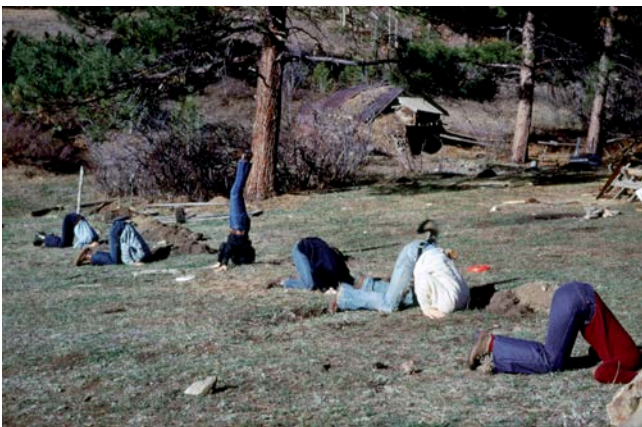
LAKE COUNTY FIELD TOURS

Closer to home, attend field tours coordinated by the Lake County Conservation District and Lake County NRCS staffs. Hundreds of acres of cover crops were planted this year in Lake County and you can see the result for yourself. I will provide final details next week for October tours.

They also plan a fencing seminar (wire not swords) as part of intensive grazing management.

CRACK THE BOOKS (SEARCH THE WEB)

There is a world of information out there so don't hesitate to switch over from searching for that new fly rod or tractor to soil health. Sites like those offered by MSU Extension are a great place to start: <http://landresources.montana.edu/soilfertility/presentations.html>



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 DESIRED MATURITY, 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.