



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

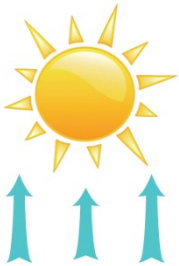
Friday Sept 18, 2015

Cooler weather again kept crop water use low this week to about $\frac{3}{4}$ inch for all crops. Potential crop water use should be slightly higher next week due to warmer, sunnier weather. Blackfoot River flows are creeping upward with a little rain and further declines in irrigation. A condensed overview of the entire irrigation season is presented on the last page of this report as a reminder to plan ahead. More information about irrigation and drought is available on the Challenge website.



WEATHER - WARMING

Croplands throughout the drainage mostly had $\frac{1}{4}$ to $\frac{1}{2}$ inches of rain last week and cool temperatures. Warmer temperatures and sunny skies are predicted for next week. The 30 day forecast suggests normal temperatures and above normal rainfall. The 90 day forecast says above normal temps and normal rainfall.



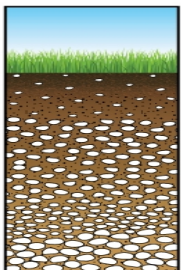
CROP WATER USE - STEADY

Potential crop water use is holding fairly steady at $\frac{3}{4}$ to 1 inch a week which should continue until temperatures drop significantly. The table and chart on Page 3 illustrate crop water use throughout the whole season.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS ¹	SEASON TOTAL ²
HAY CROPS	0.8	0.9 (0.6 – 0.9)	27.5
PASTURE	0.7	0.7 (0.5 – 0.8)	23.1
SPRING GRAINS (planted May1)	0.0	0.0 (0.0 - 0.0)	19.1
WINTER WHEAT	0.0	0.0 (0.0 - 0.0)	18.2
LAWNS	0.8	0.8 (0.6 – 0.9)	26.2

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 now include April



SOIL MOISTURE - HOPING FOR RAIN!

Soil moisture will now fluctuate with fall rains if any should come in significant amounts. If you have water available, alfalfa is the local crop most affected by drought and light or infrequent irrigation will help keep plants alive.

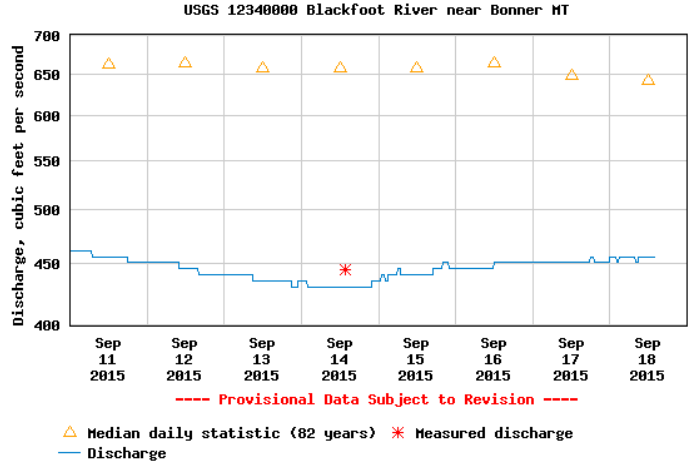
WEEKLY TIPS

DROUGHT 2015

The Blackfoot River flow trend is finally upward and should continue that way unless warm, dry conditions return.

Flow today is about 456 CFS. The average is 649 with a range of 373 to 1250 for this date.

Limiting irrigation will continue to have a significant effect on maintaining and increasing flows.



LATE FALL IRRIGATION - AS IF THERE WERE ANY WATER THIS YEAR

Questions come up each fall about the value of fall irrigation. In most cases, I suggest applying irrigation only as needed in the fall to meet crop water use. And this is only if you are still actively growing hay, pasture or new plantings.

I am not a big believer in fall irrigation as a way to store soil moisture and promote spring crop growth. It is likely that in most years any moisture stored in the surface soil will be lost to evaporation before active growth starts in the spring. Only soil moisture in the deeper soil layers will likely be preserved long enough to contribute to crop growth.

So if it is easy, inexpensive, doesn't dewater a critical stream section, doesn't create other problems, then maybe there are situations where fall irrigation is at least not more effort than its value. Otherwise, give it up and take a break till next year!

BE FLEXIBLE, NEXT YEAR WILL BE TOTALLY DIFFERENT

If you think you discovered the perfect formula for irrigation or most other issues around the place, rest assured that it will be totally different next year. Two of the last three years were drought years. The year before, it snowed into June. Whatever you choose to plan for, plan to be flexible and adapt to an ever changing and more challenging world. We will continue to try and keep you informed of the latest conditions and the need for early irrigation especially at the start of the next growing season.

For more information contact Jennifer Schoonen, Blackfoot Challenge Water Steward, 406-360-6445 or Barry Dutton, Professional Soil Scientist, 406-240-7798 barry@landandwaterconsulting.net

BLACKFOOT 2015 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

	RAIN ¹	2015 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	0.50	0.90	1.00	0.00	0.00	1.20	1.10			
5/1/2015	0.01	0.80	0.90	0.10	0.00	1.10	0.90	0.50	0.80	0.20
5/8/2015	0.01	1.10	1.00	0.20	0.00	1.20	1.10	0.70	0.90	0.30
5/15/2015	0.10	1.10	0.90	0.20	0.00	1.20	1.00	0.80	1.00	0.50
5/22/2015	0.25	0.80	0.60	0.25	0.20	0.90	0.80	1.00	1.10	0.70
5/29/2015	0.25	1.10	0.80	0.40	0.30	1.20	1.00	1.20	1.20	0.80
6/5/2015	0.50	0.90	0.80	0.50	0.40	1.00	0.90	1.30	1.30	0.90
6/12/2015	0.00	1.60	1.40	1.10	0.90	1.60	1.50	1.40	1.50	1.00
6/19/2015	0.00	1.60	1.40	1.50	1.25	1.70	1.50	1.50	1.70	1.10
6/26/2015	0.00	1.60	1.30	1.70	1.60	1.70	1.50	1.50	1.90	1.10
7/3/2015	0.00	1.70	1.40	1.80	1.80	1.80	1.60	1.50	2.00	1.20
7/10/2015	0.00	1.70	1.40	1.80	1.80	1.80	1.60	1.60	2.10	1.30
7/17/2015	0.01	1.40	1.10	1.50	1.50	1.00	1.30	1.60	2.00	1.20
7/24/2015	0.01	1.50	1.20	1.60	1.60	0.50	1.40	1.50	1.90	
7/31/2015	0.50	1.30	1.10	1.40	1.40	0.25	1.20	1.50	2.20	1.10
8/7/2015	0.01	1.60	1.30	1.70	1.70	0.00	1.50	1.40	1.70	1.00
8/14/2015	0.01	1.50	1.20	1.60	1.70	0.00	1.40	1.20	1.50	0.90
8/21/2015	0.10	1.40	1.10	1.00	1.00	0.00	1.30	1.00	1.30	0.70
8/28/2015	0.01	1.40	1.10	0.50	0.50	0.00	1.20	0.80	1.00	0.50
9/4/2015	0.50	1.00	0.80	0.25	0.25	0.00	0.90	0.60	0.80	0.40
9/11/2015	0.50	0.70	0.60	0.00	0.00	0.00	0.70	0.50	0.70	0.30
9/18/2015	0.30	0.80	0.70	0.00	0.00	0.00	0.80	0.50	0.70	0.30
9/25/2015								0.40	0.60	0.20
9/30/2015								0.40	0.60	0.20
TOTAL	3.57	27.50	23.10	19.10	17.90	18.15	26.20	24.40	30.50	15.90

¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-May and Sept, 0.15-June and August, 0.2-July)

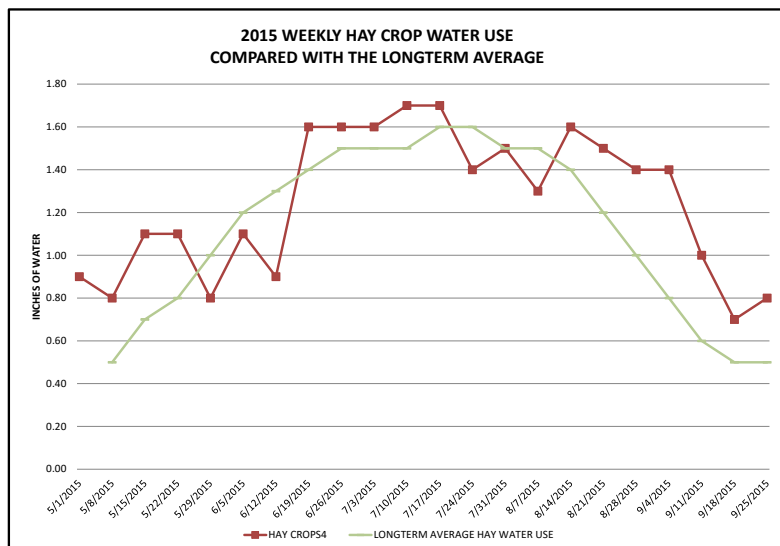
² This years maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Will vary across the drainage.

³ Average water use for each crop each week based on long-term historic data.

⁴ Hay Crop water use should be reduced by approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.

2015 CROP WATER USE (RED LINE)

**STARTED OUT ABOVE AVERAGE,
DROPPED BELOW AVERAGE FOR 3 WEEKS,
SHOT UP ABOVE AVERAGE FOR 5 WEEKS,
BOUNCED AROUND AVERAGE THEN WENT
ABOVER AVERAGE AGAIN
(GREEN LINE = LONG TERM AVERAGE)**



ABOVE

THE BLACKFOOT DRAINAGE IRRIGATION SEASON IN BRIEF

This is a summary of general activities and recommendations with more detail provided throughout our irrigation guide.

APRIL – GET READY AND PLAN YOUR IRRIGATION STRATEGY!

- Get your irrigation system ready – perform maintenance and test system.
- Evaluate weather conditions and predictions then plan for 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 (May 1) 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.
- Stop irrigating small grains at the milk to soft dough stage but be sure there are 1- 2 inches of soil moisture left at this stage to prevent kernels from shrinking.

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.



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.