



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

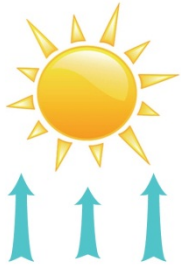
Friday Sept 4, 2015

A hot, smoky summer changed to cool, moist fall weather this week including some snow-capped peaks. The weekly **potential crop water use dropped accordingly to 1 inch or less for all crops**. Potential crop water use should be similar next week. Blackfoot River flows have finally started coming up with rainfall and less 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 - MUCH COOLER BUT WARMING

The weather this last week was a much-needed break from hot and smoky to cool and wet. Most croplands in the lower drainage saw at least ½ inch of rain while parts of the upper drainage saw 1 ½ inches. Cool and wet weather will give way to sunny and warmer conditions this next week. The 30 day forecast suggests normal temperatures and above normal rainfall. The 90 day forecast says above normal temps and normal rainfall.



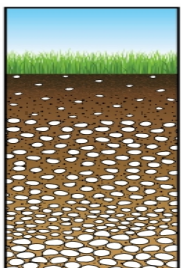
CROP WATER DECLINES WITH COOL WEATHER

Potential crop water use dropped this week with cooler weather but was still above average this week. Most crops used 1 inch or slightly less and will use about the same or a little more next week as temperatures warm. The table and chart on Page 3 illustrate crop water use throughout the whole season.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	1.0	1.1 (1.0 - 1.3)	26.0
PASTURE	0.8	0.9 (0.8 - 1.0)	21.8
SPRING GRAINS (planted May1)	0.25	0.0 (.0 - .25)	19.1
WINTER WHEAT	0.0	0.0 (0.0 - 0.0)	18.2
LAWNS	0.9	1.0 (0.9 - 1.2)	24.7

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



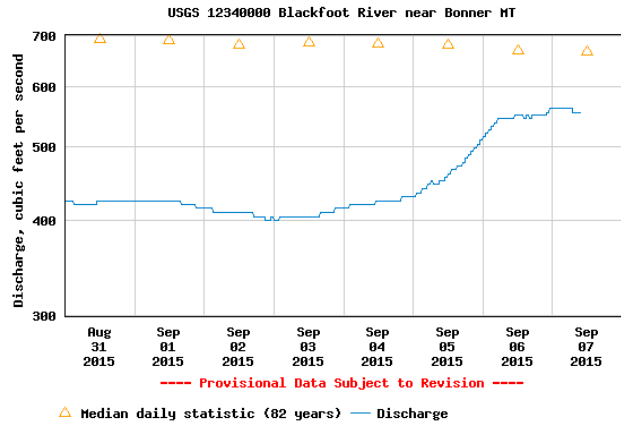
SOIL MOISTURE

Boosting soil moisture will have to wait for fall rains for most folks. If you have water available, alfalfa is the local crop most affected by drought and light or infrequent irrigation will help keep plants alive. Cutting back on irrigation will slow hay and pasture growth but healthy plants will not die. Grasses are specifically adapted to drought.

WEEKLY TIPS

DROUGHT 2015

On Friday, the Blackfoot River at Bonner started an upward trend from near-historic low flows. Hopefully this is the start of a more moist period that will ensure an end to drought and fire concerns. However, sunny skies and warmer temperatures are predicted for this coming week so anything could happen.



DO DROUGHT IMPACTS GO BEYOND OUR BORDERS?

A recent New York Times article claims that all Americans contribute to drought by what they eat using California produce as an example. There has also been criticism of shipping California hay to China containing millions of acre-feet of water.

You can read the entire article by pasting the following address into your web browser:

<http://nyti.ms/1BeT82i>

CROP

APPROXIMATE GALLONS OF WATER NEEDED TO PRODUCE

Rice (1oz)	7
Almond (1)	1
Avocado (1)	50
Melon (1)	50
Egg (1)	18
Orange (1)	20-75
Beef (1oz)	50
Olive (1)	.75
Bread (1 slice)	3
Strawberry	.25
Apple (1)	5
Onion (1)	8
Blueberry (1)	.04

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	0.75	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	0.30
9/18/2015								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	3.02	26.00	21.80	19.10	17.90	18.15	24.70	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)

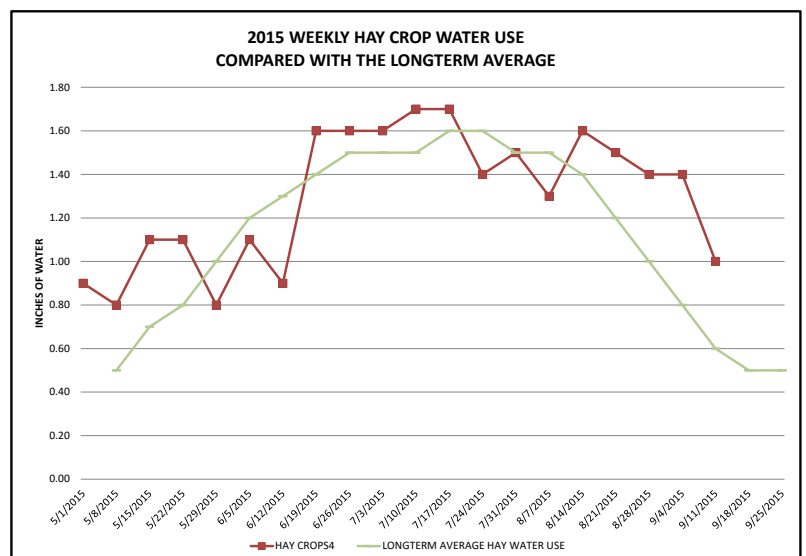
STARTED OUT ABOVE AVERAGE,

DROPPED BELOW AVERAGE FOR 3 WEEKS,

SHOT UP ABOVE AVERAGE FOR 5 WEEKS,

BOUNCED AROUND AVERAGE THEN WENT ABOVE AVERAGE AGAIN

(GREEN LINE = LONG TERM AVERAGE)



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.