



# BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

Friday June 6, 2014

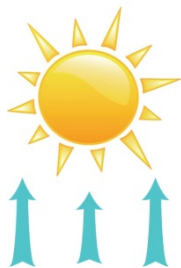
The weather is warming and crop water use is accelerating quickly as the heart of the growing period approaches. Temperatures were normal and little or no rain fell this week across local croplands. Most flood and sprinkler systems are running throughout the drainage. Sites not yet irrigated have mostly dried out except in the lower subsoil. Crop water use will continue to increase this week to high levels (1.5 inches per week for many crops). The last page of this report is a condensed summary of recommendations for the entire season. Work towards these goals for best results and check out our irrigation guide for more details at:

<http://blackfootchallenge.org/Articles/wp-content/uploads/2013/06/BFIrrigationGuideFinalv3.0.pdf>



## WEATHER - WARMING BUT NORMAL

A mix of cool and warm temperatures this past week will give way to warmer and drier conditions. Most croplands across the drainage received a trace of rain this week with a few sites getting up to ¼ inch. Little or no rain is expected next week. The 30 day forecast indicates below normal temperatures and above normal rainfall. The 90 day forecast indicates below normal temperatures and average rainfall.



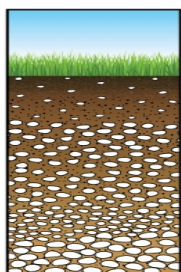
## CROP WATER USE - HIGH

Crop water use continued to increase this last week due to slightly warmer temperatures, low humidity and intermittent wind. Crop water use will be high next week due to warmer temperatures and no rain. See the table and chart on Page 3 for more details.

<b>WATER USE IN INCHES</b>	<b>LAST 7 DAYS</b>	<b>NEXT 7 DAYS<sup>1</sup></b>	<b>SEASON TOTAL<sup>2</sup></b>
<b>HAY CROPS</b>	<b>1.2</b>	<b>1.3</b> (1.0 - 1.5)	<b>5.2</b>
<b>PASTURE</b>	<b>1.1</b>	<b>1.2</b> (0.9 - 1.4)	<b>4.6</b>
<b>SPRING GRAINS (5-15 planting)</b>	<b>0.75</b>	<b>0.9</b> (0.8 - 1.1)	<b>1.9</b>
<b>WINTER WHEAT</b>	<b>1.3</b>	<b>1.5</b> (1.2 - 1.6)	<b>5.7</b>
<b>LAWNS</b>	<b>1.1</b>	<b>1.3</b> (0.9 - 1.4)	<b>4.9</b>

<sup>1</sup>Expected water use (range if weather becomes cooler or hotter than expected)

<sup>2</sup>Beginning May 1 - season start date



## SOIL MOISTURE - MOSTLY EXHAUSTED UNLESS IRRIGATED

Soil moisture continued to drop this week due to little rain, warmer temperatures and corresponding good crop growth. Most soils in the lower drainage have little moisture left except in the lower subsoil. Some soils in the upper drainage have slightly more subsoil moisture but all are dry in the topsoil layer unless irrigated. Irrigators should add extra water while it is available to both meet crop use and fill up the soil.

## WEEKLY TIPS

### **NOW IS THE TIME TO POUR ON THE WATER!**

Whether you practice careful irrigation scheduling all year, or have a more casual attitude towards irrigation - **now is the time to get the biggest bang for your efforts!** Now is the time to pour on the water in amounts that match the actual crop water use. For the next 4-6 weeks before cutting, alfalfa will use 1 ½ – 2 inches during hot weeks and 1 – 1 ½ inches during cool weeks. For maximum production, 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. These weekly reports indicate how much each crop actually uses in the Blackfoot drainage each week.

### **Take Advantage of High Water to Fill Up Your Soil**

While high water is available, apply what the crop needs each week (1-1.5 inches per week right now) and also fill up your soil. Soils hold 1-2 inches of water per foot so a 3-foot root zone for hay crops will hold 3-6 inches. Check your soil moisture with a shovel or soil probe until the soil appears moist throughout.

### **No Drought in Sight**

The outlook remains good for irrigation water this season. The Blackfoot River at Bonner is flowing about 7500 CFS compared with an average of 6080 for this date. The record low for this date was 1440 CFS in 1977 and the record high 17,700 CFS in 1953.

### **You!**

You are the source of ideas for our weekly tips. It is your questions and comments over the years that tell us what to talk about. We try to blend timely reminders of important irrigation subjects everyone should know with answers to the specific questions you bring up. So share your curiosity with your neighbors by telling us what you want to hear about.

### **Check Your Soil Moisture Yourself**

It's not rocket science to determine how much moisture is in your soil. Dig up a chunk or use a soil probe and take a look. If it looks dry it has no water. If you can see shiny water it is near its moisture holding capacity (full). The simplest way to irrigation schedule is simply to look at your soil and keep it above 50% of its water holding capacity. See page 4 or call Barry for assistance.

### **Roots**

Irrigate deeply at least once during the irrigation season to moisten the entire root zone and promote deep root growth. If you allow the soil to dry out and then only apply 1 inch at a time, you will only moisten the top 6-8 inches. Check for deep moisture penetration with a soil probe or shovel. Roots don't go hunting for soil moisture, they follow it. Moisten the soil from the surface down to lead them to a larger volume of soil.

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](mailto:barry@landandwaterconsulting.net)

**BLACKFOOT 2014 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)**

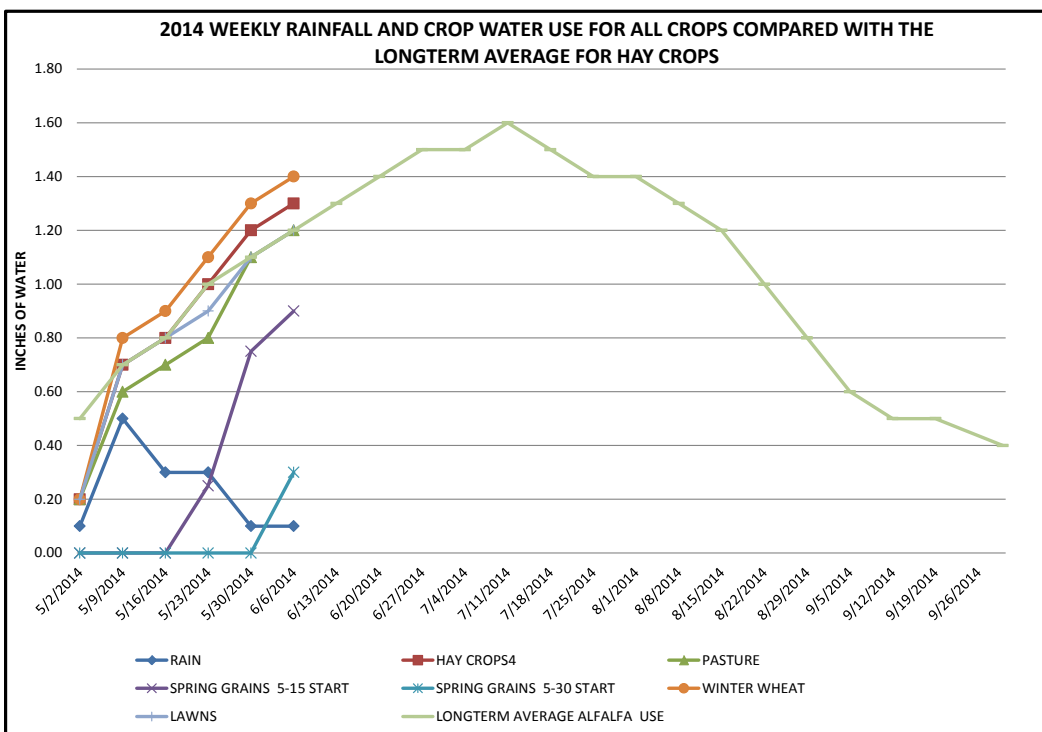
	RAIN <sup>1</sup>	2013 WEEKLY POTENTIAL CROP WATER USE <sup>2</sup>						AVERAGE POTENTIAL CROP WATER USE <sup>3</sup>		
	RAIN	HAY CROPS <sup>4</sup>	PASTURE	SPRING GRAINS 5-15 START	SPRING GRAINS 5-30 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE ALFALFA USE	HOT WEEK ALFALFA HAY WATER USE	COOL WEEK ALFALFA HAY WATER USE
5/2/2014	0.10	0.20	0.20	0.00	0.00	0.20	0.20	0.50	0.80	0.20
5/9/2014	0.50	0.70	0.60	0.00	0.00	0.80	0.70	0.70	0.90	0.30
5/16/2014	0.30	0.80	0.70	0.00	0.00	0.90	0.80	0.80	1.00	0.40
5/23/2014	0.30	1.00	0.80	0.25	0.00	1.10	0.90	1.00	1.10	0.60
5/30/2014	0.10	1.20	1.10	0.75	0.00	1.30	1.10	1.10	1.20	0.80
6/6/2014	0.10	1.30	1.20	0.90	0.30	1.40	1.20	1.20	1.30	0.90
6/13/2014								1.30	1.50	1.00
6/20/2014								1.40	1.70	1.10
6/27/2014								1.50	1.90	1.10
7/4/2014								1.50	2.00	1.20
7/11/2014								1.60	2.10	1.30
7/18/2014								1.50	2.00	1.20
7/25/2014								1.40	1.90	1.10
8/1/2014								1.40	2.20	1.10
8/8/2014								1.30	1.70	1.00
8/15/2014								1.20	1.50	0.90
8/22/2014								1.00	1.30	0.70
8/29/2014								0.80	1.00	0.50
9/5/2014								0.60	0.80	0.40
9/12/2014								0.50	0.70	0.30
9/19/2014								0.50	0.70	0.30
9/30/2014								0.40	0.60	0.20
<b>TOTAL</b>	<b>1.40</b>	<b>5.20</b>	<b>4.60</b>	<b>1.90</b>	<b>0.30</b>	<b>5.70</b>	<b>4.90</b>	<b>23.20</b>	<b>29.90</b>	<b>16.60</b>

<sup>1</sup> 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)

<sup>2</sup> Maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free.

<sup>3</sup> Average water use for each crop each week based on historic data.

<sup>4</sup> 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.



## Appearance of sandy clay loam, loam, and silt loam soils at various soil moisture conditions.

### Available Water Capacity 1.5-2.1 inches/foot

**Percent Available:** Currently available soil moisture as a percent of available water capacity.

**Inches/foot. Available:** Inches of water held in a foot of soil.

#### 0-25 percent available 0- .5 in/ft. available

Dry, soil clods break away easily, no staining on fingers, clods crumble with applied pressure. (Not pictured)



#### 25-50 percent available 0.4-1.0 in/ft. available

Slightly moist, forms a weak ball with rough surfaces, no water staining on fingers, few aggregated soil grains break away.



#### 50-75 percent available .75-1.5 in/ft. available

Moist, forms a ball, very light staining on fingers, darkened color, pliable, forms a weak ribbon between the thumb and forefinger.



#### 75-100 percent available 1.2-2.0 in/ft. available

Wet, forms a ball with well-defined finger marks, light to heavy soil/water coating on fingers, ribbons between thumb and forefinger.

#### 100 percent available 1.5-2.0 in/ft. available (field capacity)

Wet, forms a soft ball, free water appears briefly on soil surface after squeezing or shaking, medium to heavy soil/water coating on fingers. (Not pictured)



## 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.