



# BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

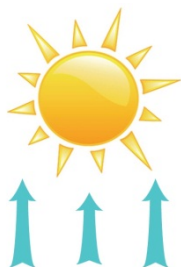
Friday June 27, 2014

It was the best of times this week as a little more rain fell on local crops and warm temperatures produced ideal growing conditions. A weekend of scattered showers should give way to sunshine next week through the 4<sup>th</sup>. Crop water use will continue to rise into the 1¼ to 1½ inch range next week for all crops. Crop water use exceeded rainfall this past week so soil moisture dropped unless irrigated. 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 - A LITTLE RAIN, GOOD GROWING CONDITIONS

Blackfoot drainage croplands received a little more rain this past week with most areas getting ½ inch and some over ¾ inch. This brings June rainfall up near normal for the month but growing season rainfall is still below normal since April and May were so dry. A mix of warm weather and scattered clouds are expected next week. The 30 and 90 day forecasts indicate normal temperatures and above normal rainfall.



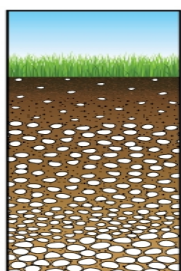
## CROP WATER USE - HIGH

Crop water use increased this last week due to less rainfall, warmer temperatures, and accelerating crop growth. Crop water use should continue to be high for the remainder of the growing season, peaking in July. 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>1.4</b> (1.2 - 1.6)	8.7
<b>PASTURE</b>	<b>1.0</b>	<b>1.2</b> (1.2 - 1.5)	7.6
<b>SPRING GRAINS (5-15 planting)</b>	<b>1.4</b>	<b>1.5</b> (1.2 - 1.6)	5.4
<b>WINTER WHEAT</b>	<b>1.4</b>	<b>1.5</b> (1.2 - 1.6)	9.7
<b>LAWNS</b>	<b>1.1</b>	<b>1.3</b> (1.2 - 1.6)	8.2

<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 - DROPPING FAST WITH HIGH CROP USE

No - that ½-¾ inch of rain last week didn't add anything to soil moisture. Crop water use was much higher at 1-1½ inches. However, the cooler temperatures and higher humidity made any irrigation applications more effective at boosting soil moisture. Remember that filling up your soil now while water is available gives you flexibility later. Start planning for filling up the soil before cutting and then getting back with water quickly to reduce crop stress and boost production.

## WEEKLY TIPS

### **A Few Good Numbers**

As life gets more hectic in the irrigation world this time of year, we try to trim away the frills and highlight the facts, the most important facts, and nothing but the facts that make a real difference. So here are a few important numbers for every Blackfoot irrigator to know:

**1 – 2 INCHES** The amount of water a foot of soil will hold (sandy=1, loamy=1.5, clayey=2).

**1 – 1½ INCHES** The amount of water a crop uses during cooler and warmer weeks throughout the main growing season.

**0.2 INCHES** The average crop water use per day during the main growing season.

These numbers can be used to estimate your soil moisture status and when you need to irrigate next. Remember that actually looking at the soil to confirm your calculation is the best way to make irrigation decisions. If the surface soil looks dry – irrigate. If it looks moist throughout the first foot or two - feel good about shutting down if you choose, or cutting back to match crop water use.

### **Ready, Set, Grow! - 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. This is the time when every dollar spent to irrigate will return many in crop yield.

### **Growing Season Rainfall Still Under-Average but River Flows Above-Average**

Snowpack and streamflow conditions remain good making irrigators, fish, and boaters happily optimistic. The Blackfoot River at Bonner is flowing about 4500 CFS compared with an average of 3540 for this date. The record low for this date was 683 CFS in 1977 and the record high 13,200 CFS in 1899.

## **CRITICAL IRRIGATION PERIODS FOR CROPS**

### **Alfalfa and Grass Hay - Cut and Irrigate Again As Soon As Possible**

The highest stress period for hay crops is at cutting (imagine someone cutting your head off – you would be stressed too). Try to store up soil moisture before cutting, leave time between irrigating and cutting to let the surface soil dry so equipment does not rut or compact the soil, then get back across the cut field as soon as possible. Stress indicators for alfalfa include a bluish-green color followed by wilted leaves.

### **Small Grains**

Irrigation is most effective at the Boot, Bloom and Early heading stages. Stop irrigating at the milk to soft dough stage. It is safest to have an inch or so of soil moisture left when you stop irrigating.

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)**

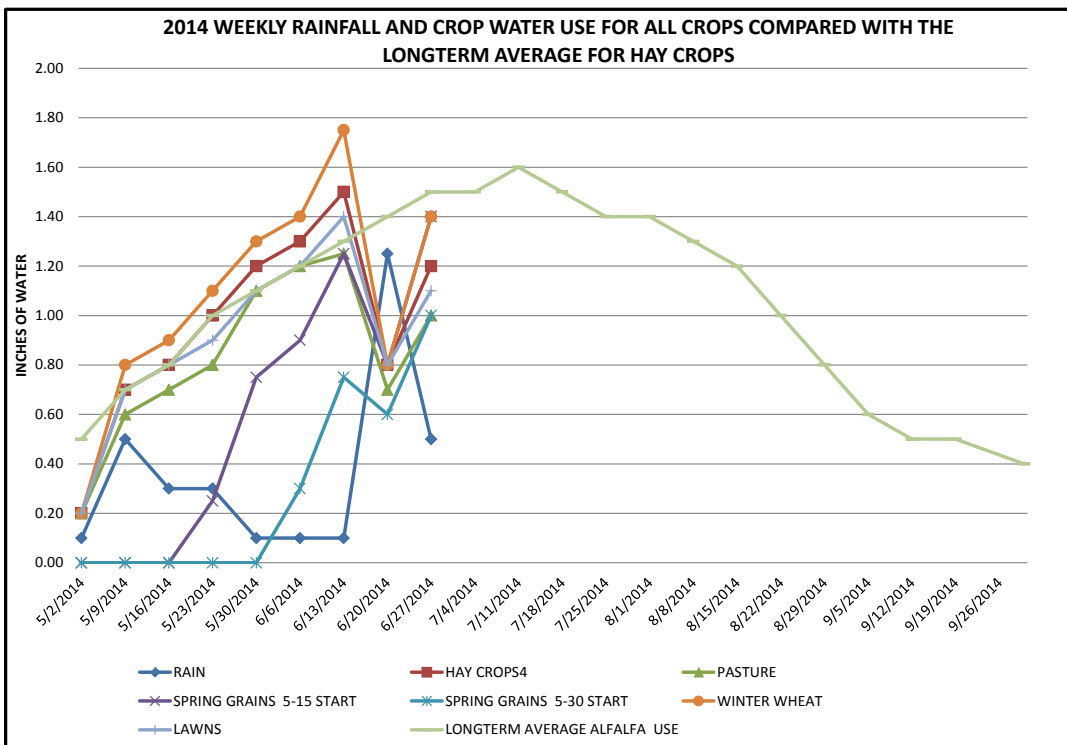
	RAIN <sup>1</sup>	2013 WEEKLY POTENTIAL CROP WATER USE <sup>2</sup>						AVERAGE POTENTIAL CROP WATER USE <sup>3</sup>		
		HAY CROPS <sup>4</sup>	PASTURE	SPRING GRAINS 5-15 START	SPRING GRAINS 5-30 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE ALFALFA USE	HOT WEEK ALFALFA HAY WATER USE	COOL WEEK ALFALFA 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	0.10	1.50	1.25	1.25	0.75	1.75	1.40	1.30	1.50	1.00
6/20/2014	1.25	0.80	0.70	0.80	0.60	0.80	0.80	1.40	1.70	1.10
6/27/2014	0.50	1.20	1.00	1.40	1.00	1.40	1.10	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>3.25</b>	<b>8.70</b>	<b>7.55</b>	<b>5.35</b>	<b>2.65</b>	<b>9.65</b>	<b>8.20</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.



## 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.