



# BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

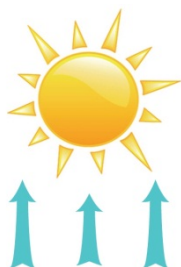
Friday August 22, 2014

Scattered thunderstorms with cooler temperatures and showers dominated last week. More of the same is predicted for next week signaling a dramatic seasonal shift that is a month earlier than in recent years. Crop water has dropped with the change in weather to about 1 inch per week for hay and pasture crops or lower if just cut. Haying reduces crop water use by about 2/3 the first week and 1/3 the next. Get water back onto cut fields as soon as possible to revive plants, stimulate regrowth and reduce weed infestation. Cooler weather and cutting has reduced crop water use making it a great time to boost soil moisture for pasture or other additional crop growth. The last page of this report is a condensed summary of recommendations for the entire season.



## WEATHER - COOLER, MIX OF THUNDERSTORMS AND SUNNY

In a repeat of last week, most Blackfoot drainage croplands received a little rain often in spectacular but short downpours. Most sites accumulated less than ¼ inch with about 1/3 inch at Lincoln. Temperatures were cooler with most highs in the 70s. Next week looks like more of the same. The 30 and 90 day forecasts still suggest normal temperatures and above normal rainfall.



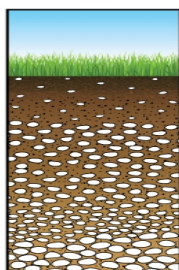
## CROP WATER USE - REDUCED WITH COOLER WEATHER

Crop water dropped this last week due to cooler weather. Crop water use should generally continue to decline for the remainder of the growing season. 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>1.1</b>	<b>1.1</b> (1.0 - 1.2)	<b>21.0</b>
<b>PASTURE</b>	<b>0.8</b>	<b>0.8</b> (0.7 -1.0)	<b>18.0</b>
<b>SPRING GRAINS</b>	<b>0.1</b>	<b>0.0 Mature</b>	<b>16.2</b>
<b>WINTER WHEAT</b>	<b>0.0 Mature</b>	<b>0.0 Mature</b>	<b>14.1</b>
<b>LAWNS</b>	<b>1.0</b>	<b>1.0</b> (0.9 -1.1)	<b>19.8</b>

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

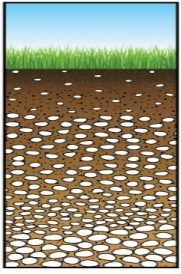
<sup>2</sup>Beginning May 1 - season start date



## SOIL MOISTURE - LOW UNLESS IRRIGATED

Soil moisture levels again dropped by about 1 inch this week due to moderate crop water use. Crop water use slows as soil moisture gets low.

## WEEKLY TIPS



### **TAKE ADVANTAGE OF COOLER WEATHER TO BUILD UP SOIL MOISTURE**

We often joke about only irrigating at night when evaporation is lower and more goes into the soil for crop use. That would be nice but not practical with current irrigation systems. However, you can think of cooler/moister weather in the same way. Periods of cool, wet weather are predicted for the start and finish of this next week. Crop water use will drop from over 1.5 inches/week to less than 1 inch (less than ½ inch for just-cut hay). If you're done, you're done. But if you want more pasture, a second cutting or are re-planting – cooler weather lets you store up soil moisture. This week pasture is predicted to use up to 0.8 inches of water. Most local cropland soils hold 4-6 inches of water in a pasture root zone (3 feet). Extra stored soil moisture helps you get through periods of higher crop water use, equipment breakdowns or other distractions.

### **HAY CROPS ARE RECOVERING FROM CUTTING**

Hay crops are most stressed at cutting (try having your head cut off) and recent hot weather added more stress. Cooler temperatures and a little rainfall this week reduced stress but most fields should still be irrigated once after cutting if possible. Crop water use decreases with cutting by approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third. This is the best time to increase soil moisture while crop use is reduced. Since less gets used by the crop, more goes into soil storage.

### **WHEN TO STOP IRRIGATING GRAINS - HEY DUDE, YOU'RE DONE!**

Irrigation has ceased for most small grains throughout the drainage. Hot weather required extra irrigation in many fields to maintain plump kernels. Recent thunderstorms, cooler temperatures and a little rainfall helped reduce shriveling.

### **NO DROUGHT IN SIGHT - RIVER NEAR AVERAGE - DROUGHT PLANNERS RELIEVED!**

Blackfoot streamflow is slightly above average this week due to recent thunderstorms throughout the drainage. It looks like drought discussions will not need to come out of the closet this season and we can let those drought plans collect a season of well-deserved dust. The Blackfoot River at Bonner is flowing at about 780 CFS today which is just above the 750 average. The highest flow on this date was 1680 (1899) and the lowest flow was 365 (1941).

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)**

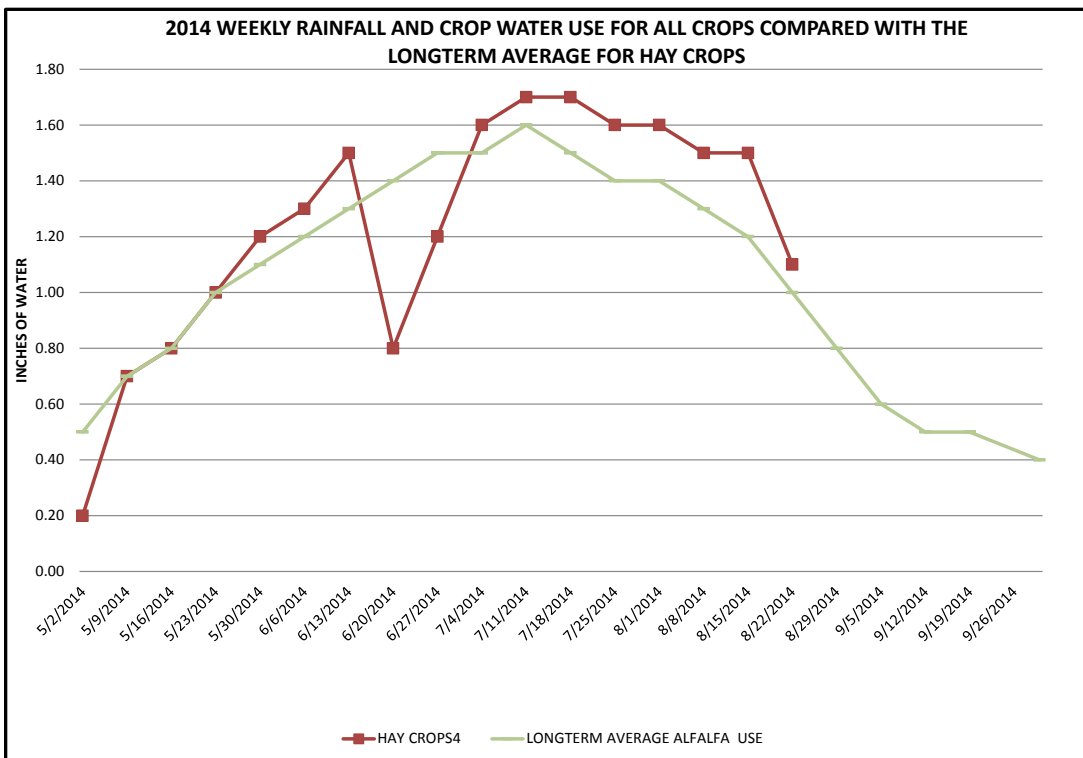
	RAIN <sup>1</sup>	2013 WEEKLY POTENTIAL CROP WATER USE <sup>2</sup>						AVERAGE POTENTIAL CROP WATER USE <sup>3</sup>		
		HAY CROPS <sup>4</sup>	PASTURE	SPRING GRAINS 5-15 START	SPRING GRAINS 5-30 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE ALFALFA USE	HOT WEEK ALFALFA HAY WATER USE	COOL WEEK ALFALFA 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	0.10	1.60	1.40	1.75	1.50	1.50	1.50	1.50	2.00	1.20
7/11/2014	0.00	1.70	1.50	1.80	1.80	1.40	1.60	1.60	2.10	1.30
7/18/2014	0.00	1.70	1.50	2.00	2.00	0.80	1.60	1.50	2.00	1.20
7/25/2014	0.20	1.60	1.30	1.70	1.70	0.50	1.50	1.40	1.90	1.10
8/1/2014	0.10	1.60	1.40	1.50	1.50	0.25	1.50	1.40	2.20	1.10
8/8/2014	0.10	1.50	1.30	1.50	1.50	0.00	1.50	1.30	1.70	1.00
8/15/2014	0.10	1.50	1.20	0.50	0.50	0.00	1.40	1.20	1.50	0.90
8/22/2014	0.20	1.10	0.80	0.10	0.10	0.00	1.00	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>4.05</b>	<b>21.00</b>	<b>17.95</b>	<b>16.20</b>	<b>13.25</b>	<b>14.10</b>	<b>19.80</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> This years maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Will vary slightly across the drainage.

<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.