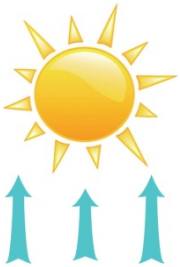
BLACKFOOT CHALLENGE
WEEKLY IRRIGATION REPORT
Friday July 11 2014

Hot weather continued last week producing ideal growing conditions if irrigated. Crop water use should peak over the next week or so at over 1 ½ inches. Soil moisture dropped considerably last week 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 – HOT AND DRY

Most Blackfoot drainage croplands received no rain this past week with temperatures reaching into the 90s in most areas. Next week should see similar hot conditions with little or no rain. The 30 and 90 day forecasts still suggest normal temperatures and above normal rainfall.

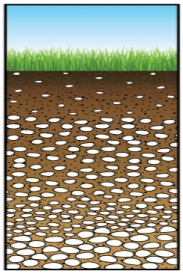


CROP WATER USE – HIGHEST OF THE SEASON

Crop water use was high this last week and should peak over the next week or so at between 1 ½ and 2 inches. Crop water use should continue to be high for the remainder of July and into August. See the table and chart on Page 3 for more details.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS[1]	SEASON TOTAL[2]
HAY CROPS	**1.7**	**1.7** (1.5 - 1.8)	12.0
PASTURE	**1.5**	**1.5** (1.3 -1.6)	10.5
SPRING GRAINS (5-15 planting)	**1.8**	**1.8** (1.6 - 1.9)	8.9
WINTER WHEAT	**1.4**	**1.3** (1.2 - 1.4)	12.6
LAWNS	**1.6**	**1.6** (1.4 -1.7)	11.3

[1]Expected water use (range if weather becomes cooler or hotter than expected)
[2]Beginning May 1 - season start date



SOIL MOISTURE – DROPPING FAST WITH HIGH CROP USE

Soil moisture levels dropped by 1 ½ inches or more this week due to high crop water use. Crop water use slows as soil moisture gets low. Remember to fill up the soil before cutting and then getting back with water quickly to reduce crop stress and boost production.

WEEKLY TIPS

BUILD UP SOIL MOISTURE BEFORE CUTTING!

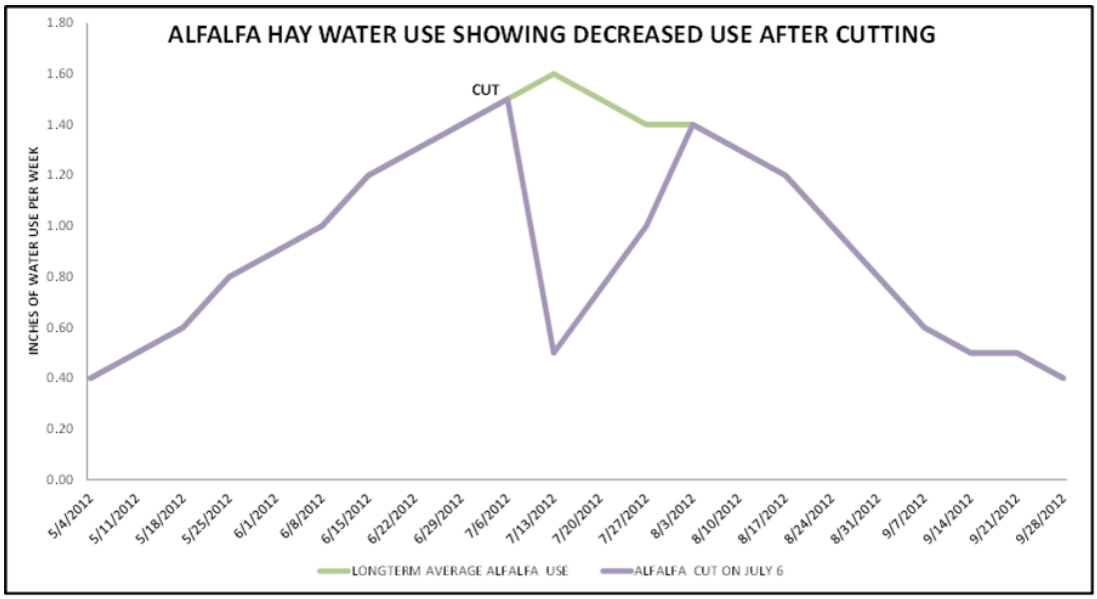
The highest stress period for hay crops is at cutting (imagine someone cutting your head off – you would be stressed too). Try to store up soil moisture before cutting, leave time between irrigating and cutting to let the surface soil dry so equipment does not rut or compact the soil, then get back across the cut field as soon as possible. Stress indicators for alfalfa include a bluish-green color followed by wilted leaves. If you want to build up your soil moisture, you will need to apply **more** than the 1 ½ – 2 inches crops are using each week. This is difficult during the hottest weeks but is easier when crop water use drops following cutting (see discussion below).

REMEMBER TO LET THE SURFACE SOIL DRY OUT BEFORE HARVEST!

Remember to stop irrigating and let the surface soil dry before harvest. The surface layer of sandy soils may dry out in a few days but clayey soils may take 7-10 days. Irrigate as close to harvest as possible and then getting back across the field quickly. Even if you do not go for a second cutting or pasture, apply at least one irrigation after cutting to help plants recover.

CROP WATER USE DECREASES WITH CUTTING

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.



Growing Season Rainfall Still Under-Average but River Flows Now Average

Blackfoot streamflow dropped from above-average all season down to average this week. Conditions remain good making irrigators, fish, and boaters happily optimistic. The Blackfoot River at Bonner is flowing at about 1990 CFS which is average for this date. The record low for this date was 547 CFS in 1977 and the record high 8,050 CFS in 1899.

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

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

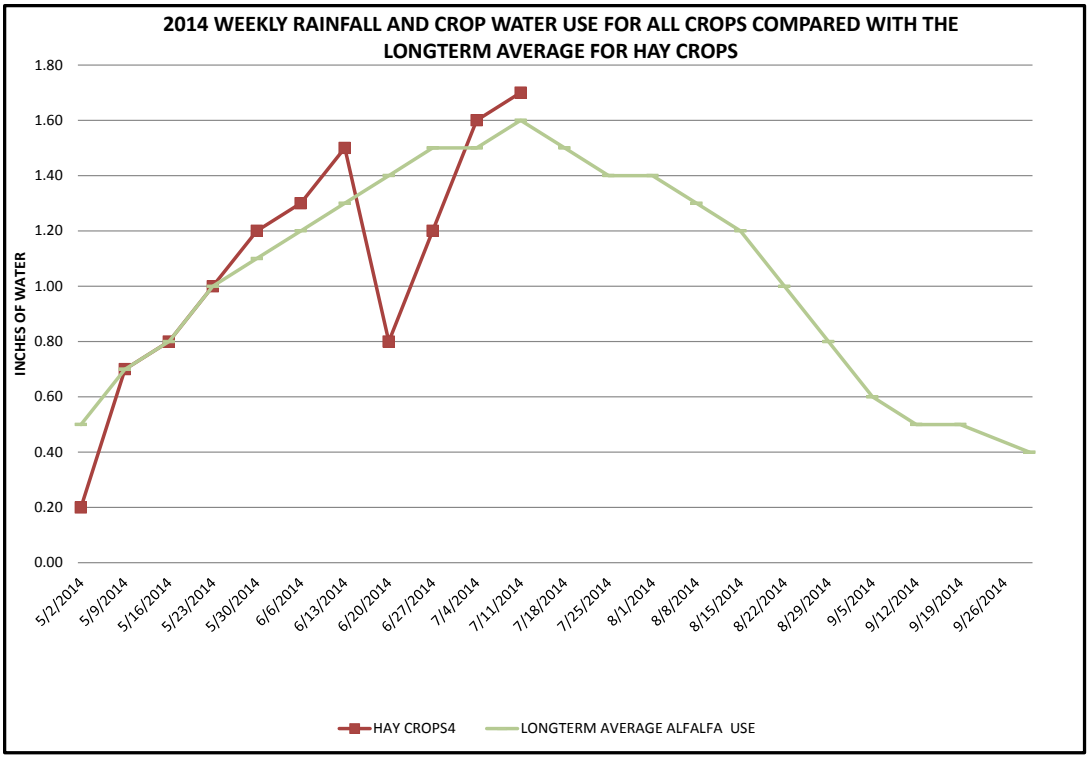
	RAIN[1]	2013 WEEKLY POTENTIAL CROP WATER USE[2]						AVERAGE POTENTIAL CROP WATER USE[3]		
	RAIN	HAY CROPS[4]	PASTURE	SPRING GRAINS 5-15 START	SPRING GRAINS 5-30 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE ALFALFA USE	HOT WEEK ALFALFA HAY WATER USE	COOL WEEK ALFALFA HAY WATER USE
5/2/2014	0.10	0.20	0.20	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								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
TOTAL	**3.35**	**12.00**	**10.45**	**8.90**	**5.95**	**12.55**	**11.30**	**23.20**	**29.90**	**16.60**

[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] Maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free.

[3] Average water use for each crop each week based on 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.



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.