



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

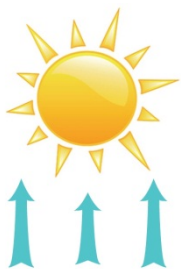
Friday July 8, 2016

Crop water use continued to be high last week with most crops using about 1½ inches. Seasonal weather is again forecast for most of next week so crop water use should be similar. Drought conditions are expected to develop by mid-July so dust off those drought management plans and be ready. The last page of this report is a summary of recommendations for the entire irrigation season.



WEATHER - CONTINUED WARM

Mostly dry, warm conditions dominated last week. The coming week will have more of the same. The 30 and 90 forecasts indicate above normal temperatures and below normal rainfall.



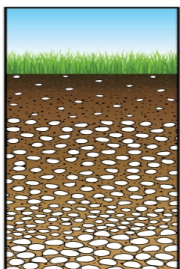
CROP WATER USE - INCREASING NEXT WEEK

Seasonal warm and dry weather resulted in average crop water use last week. Most crops used about 1½ inches. It will be similar next week. Most or all of the winter wheat has been harvested throughout the drainage but any still in the field will continue to use up whatever soil moisture remains. Crop water use was above average throughout April then below average in May and has bounced around average ever since (chart page 3).

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	1.6	1.5 (1.4 - 1.7)	15.0
PASTURE	1.4	1.4 (1.3 - 1.6)	13.4
SPRING GRAINS - EARLY PLANTED	1.7	1.6 (1.5 - 1.7)	12.1
WINTER WHEAT -AWAITING HARVET	0.5	0.5 (0.3 - 0.5)	13.7
LAWNS	1.6	1.5 (1.4 - 1.7)	14.2

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 - STILL TIME TO FILL IT UP

Right now you should either be pouring it on because the crop is still growing well or shutting down to let the soil dry for harvest.

WEEKLY TIPS

Maturing Small Grain Crops

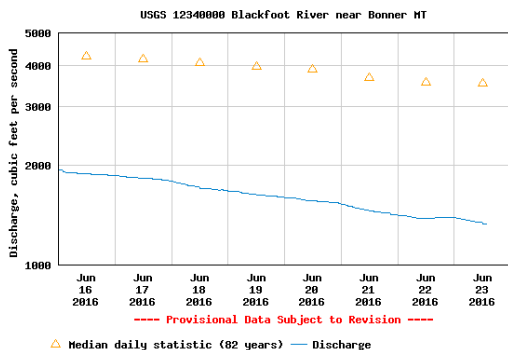
Many folks throughout the drainage grow small grain crops to use as hay. Most harvest when the crop matures and it's convenient. But if you plan to harvest the grain you need to pay a little closer attention to your final irrigations. Stop irrigating small grains when kernels are developed to your satisfaction (hard dough stage) and there is an inch or so of soil moisture left to resist shriveling. Really hot weather sometimes requires additional soil moisture.

Crop Water Use and Haying

Scientists have discovered that cutting your head off causes stress for plants just like it does for humans.

- If you plan to keep your current hay crop plants for next year you should water them once after cutting even if you don't plan a second cutting or pasture.
- If you plan to do something different next season you can turn off the pump or headgate and leave the streamflow for the fish and boaters.
- If you plan for fall pasture or a second cutting, irrigate as close to cutting as possible, leave enough time for the surface to dry, cut your hay then get back across the field as quickly as possible. Alfalfa is especially susceptible to harvest stress but grasses also recover much better with water.

DROUGHT 2016!



The Blackfoot River at Bonner continues to drop and is now flowing at less than 1/3 of average. You can check current flow conditions at:

http://waterdata.usgs.gov/nwis/uv?site_no=12340000

Low flows and predictions of hot dry weather in the 30 and 90 day weather forecasts suggest that drought plans will be implemented soon.

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.

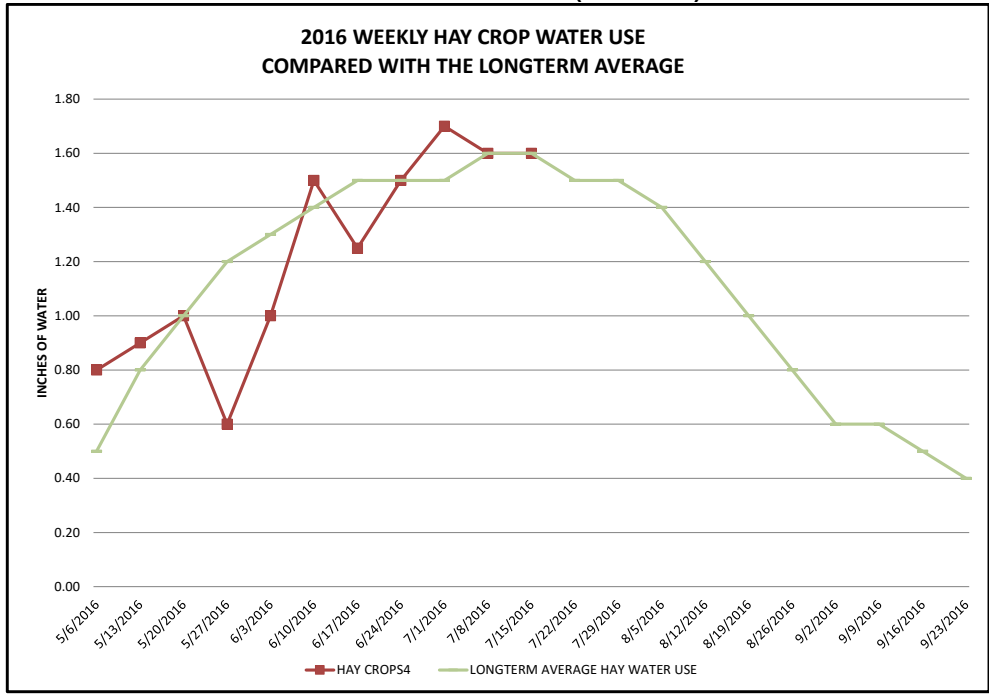
For further information contact Jennifer Schoonen, Blackfoot Challenge Water Steward, 406-360-6445 or Barry Dutton, Professional Soil Scientist, 406-240-7798 barry@landandwaterconsulting.net

BLACKFOOT 2016 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

	RAIN ¹	2016 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	
5/6/2016	0.20	0.80	0.70	0.25	0.25	0.90	0.70	0.50	0.80	0.20	
5/13/2016	0.30	0.90	0.80	0.25	0.25	1.10	0.80	0.80	1.00	0.50	
5/20/2016	0.01	1.00	0.90	0.50	0.25	1.10	1.00	1.00	1.10	0.70	
5/27/2016	1.00	0.60	0.50	0.30	0.25	0.70	0.60	1.20	1.20	0.80	
6/3/2016	0.20	1.00	0.90	0.70	0.40	1.10	1.00	1.30	1.30	0.90	
6/10/2016	0.10	1.50	1.40	1.25	0.70	1.60	1.50	1.40	1.50	1.00	
6/17/2016	0.20	1.25	1.20	1.30	0.70	1.40	1.20	1.50	1.70	1.10	
6/24/2016	0.10	1.50	1.40	1.60	1.20	1.50	1.50	1.50	1.90	1.10	
7/1/2016	0.01	1.70	1.50	1.80	1.80	1.10	1.60	1.50	2.00	1.20	
7/8/2016	0.01	1.60	1.40	1.70	1.70	0.90	1.50	1.60	2.10	1.30	
7/15/2016	0.01	1.60	1.40	1.70	1.70	0.50	1.50	1.60	2.00	1.20	
7/22/2016								1.50	1.90	1.20	
7/29/2016								1.50	2.20	1.10	
8/5/2016								1.40	1.70	1.00	
8/12/2016								1.20	1.50	0.90	
8/19/2016								1.00	1.30	0.70	
8/26/2016								0.80	1.00	0.50	
9/2/2016								0.60	0.80	0.40	
9/9/2016								0.60	0.70	0.30	
9/16/2016								0.50	0.70	0.30	
9/23/2016								0.40	0.60	0.20	
9/30/2016								0.40	0.60	0.20	
TOTAL	2.84	14.95	13.35	12.10	9.95	13.65	14.15	24.80	31.10	17.30	

¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-April,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 slightly across the drainage.
³ Longterm average water use for each crop each week based on long-term historic data.
⁴ Hay Crop water use is reduced by approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.

CROP WATER WAS AVERAGE AGAIN THIS WEEK (RED LINE)



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 soil moisture conditions and weather predictions then plan for irrigation and 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 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.