



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

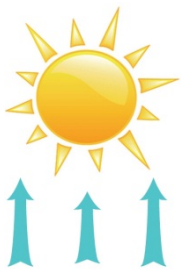
Friday July 24, 2015

Warm weather with scattered clouds and a few thundershowers continued last week producing moderate **potential crop water use (1-1 ½ inches)**. Similar conditions are expected next week. Despite interruptions for a few showers, haying is progressing quickly across the drainage. Blackfoot River flows have dropped below 700 CFS and drought plans are getting attention. Hoot Owl fishing restrictions are in effect from 2pm to midnight. A condensed overview of the entire irrigation season is presented on the last page of this report as a reminder to plan ahead. More information about irrigation and drought is available on the Challenge website.



WEATHER - COOLER LAST WEEK AND NEXT

Warm weather continued with cloudier conditions and scattered thunderstorms. A few spots had short intense rain and some hail but little total rainfall. Similar conditions are expected next week with the potential for showers early in the week and hot temperatures at the end of the week. The 30 and 90 day forecasts continue suggesting above normal temperatures and below normal to normal rainfall. Local streamflows are approaching record low levels.



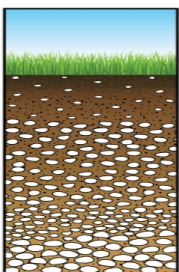
HIGH CROP WATER USE CONTINUES

Crop water use continued at 1 - 1 ½ inches for all crops last week which is average for this time of year. It will be about the same next week. Crop water use drops by about 2/3 the first week after cutting hay crops and about 1/3 the second week. The table and chart on Page 3 illustrate crop water use throughout the whole season.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	1.5	1.3 (1.1 - 1.5)	17.8
PASTURE	1.2	1.0 (0.9 - 1.2)	15.2
SPRING GRAINS (planted May1)	1.6	1.4 (1.2 - 1.6)	12.7
WINTER WHEAT	0.5	0.25 (0.0 - 0.5)	17.9
LAWNS	1.4	1.5 (1.3 - 1.7)	17.2

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

You may have cut your hay or are waiting for grain to dry and are through irrigating. If so, congratulations! You may also be recharging soil moisture after your first cutting. Harvest stresses plants, especially alfalfa and a post-cut irrigation is optimum. If you have water available this is the best time to recharge since crop water use is reduced by cutting and more water goes into the soil.

WEEKLY TIPS

Crop Water Use and Haying

Scientists have discovered that cutting your head off causes stress for plants just like it does for humans. These suggestions are based on the idea that you actually have water.

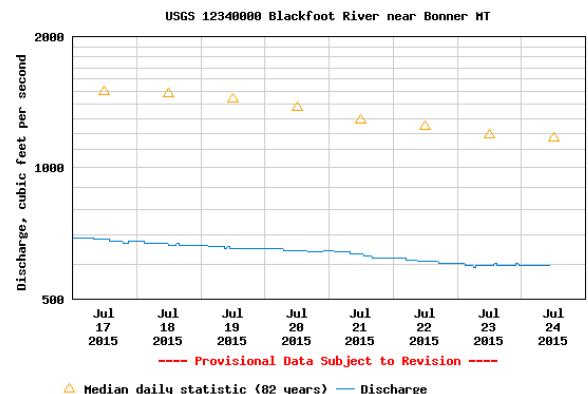
- If you plan to keep your current hay crop plants for next year you should water them once after cutting even if you don't plan a second cutting or pasture.
- If you plan to do something different next season you can turn off the pump or headgate and leave the streamflow for the fish.
- If you plan 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.

Maturing Small Grain Crops

Weather the past two weeks has been great for maturing small grain crops – warm but not too hot. 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. Those growing small grains for hay crops or rotation options may not be as concerned with kernel conditions and stop irrigating when convenient for other considerations.

Drought in 2015

Irrigators and drought managers worldwide are weighing options. Local streamflows are approaching record low levels and could exceed them this year. Everything you can do to reduce water use is greatly appreciated by fish, boaters, water quality concerns and all your fellow water users from here to the Pacific Ocean. Thank our good fortune to live at the top of a water-rich drainage system. Millions of acres of croplands worldwide will not produce anything this year due to drought.



Drought Relief Hints

Here are some options for reducing water use and stream effects. Not everyone is in a position to use these but they will work for many. Let us know your own ideas for dealing with drought. Our full irrigation guide has more detail and is available at: <http://blackfootchallenge.org/Articles/wp-content/uploads/2013/06/BFIrrigationGuideFinalv3.0.pdf>

- Be satisfied with that great first cutting of hay and don't irrigate until streamflows increase
- Be happy with that small grain crop and don't replant until streamflows increase
- Run fewer systems or sprinklers at a time to reduce the amount diverted
- Reduce your irrigated acreage
- Other brilliant ideas you come up with and share

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

BLACKFOOT 2015 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

	RAIN ¹ RAIN	2015 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE POTENTIAL CROP WATER USE ³		
		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
April	0.50	0.90	1.00	0.00	0.00	1.20	1.10			
5/1/2015	0.01	0.80	0.90	0.10	0.00	1.10	0.90	0.50	0.80	0.20
5/8/2015	0.01	1.10	1.00	0.20	0.00	1.20	1.10	0.70	0.90	0.30
5/15/2015	0.10	1.10	0.90	0.20	0.00	1.20	1.00	0.80	1.00	0.50
5/22/2015	0.25	0.80	0.60	0.25	0.20	0.90	0.80	1.00	1.10	0.70
5/29/2015	0.25	1.10	0.80	0.40	0.30	1.20	1.00	1.20	1.20	0.80
6/5/2015	0.50	0.90	0.80	0.50	0.40	1.00	0.90	1.30	1.30	0.90
6/12/2015	0.00	1.60	1.40	1.10	0.90	1.60	1.50	1.40	1.50	1.00
6/19/2015	0.00	1.60	1.40	1.50	1.25	1.70	1.50	1.50	1.70	1.10
6/26/2015	0.00	1.60	1.30	1.70	1.60	1.70	1.50	1.50	1.90	1.10
7/3/2015	0.00	1.70	1.40	1.80	1.80	1.80	1.60	1.50	2.00	1.20
7/10/2015	0.00	1.70	1.40	1.80	1.80	1.80	1.60	1.60	2.10	1.30
7/17/2015	0.01	1.40	1.10	1.50	1.50	1.00	1.30	1.60	2.00	1.20
7/24/2015	0.01	1.50	1.20	1.60	1.60	0.50	1.40	1.50	1.90	1.10
7/31/2015								1.50	2.20	1.10
8/7/2015								1.40	1.70	1.00
8/14/2015								1.20	1.50	0.90
8/21/2015								1.00	1.30	0.70
8/28/2015								0.80	1.00	0.50
9/4/2015								0.60	0.80	0.40
9/11/2015								0.50	0.70	0.30
9/18/2015								0.50	0.70	0.30
9/25/2015								0.40	0.60	0.20
9/30/2015								0.40	0.60	0.20
TOTAL	1.64	17.80	15.20	12.65	11.35	17.90	17.20	24.40	30.50	17.00

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)

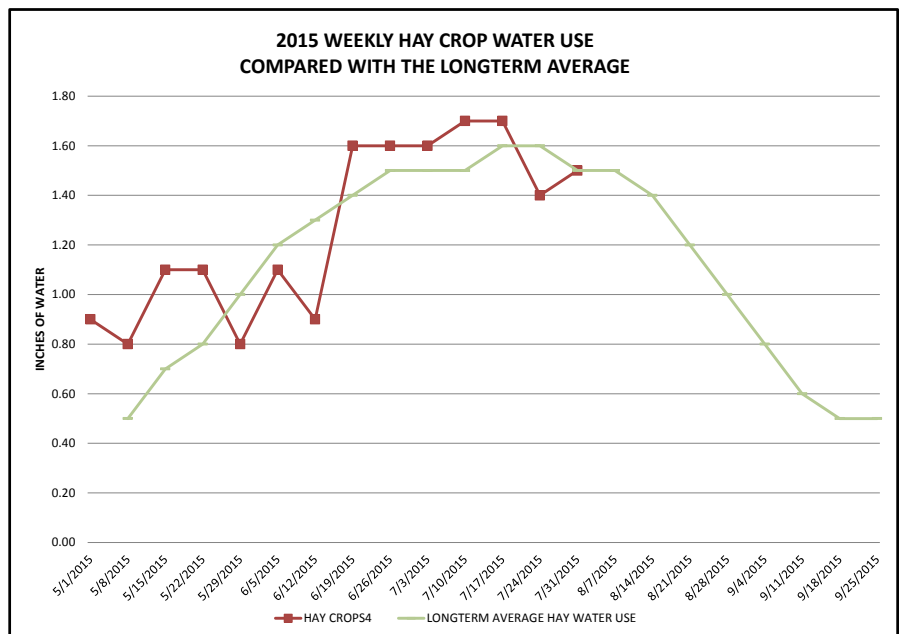
² This years maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Will vary across the drainage.

³ Average water use for each crop each week based on long-term 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.

2015 CROP WATER USE (RED LINE)

STARTED OUT ABOVE AVERAGE,
 DROPPED BELOW AVERAGE FOR 3 WEEKS,
 SHOT UP FOR 5 WEEKS WITH HOT TEMPS,
 COOLED DOWN FOR THE PAST TWO WEEKS
 (GREEN LINE = LONG TERM AVERAGE)



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.