



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

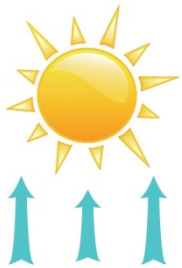
Friday June 24, 2016

It was warmer this last week with only a trace of rain. Crop water use rose back to normal levels due to more seasonal weather with most crops using about 1½ inches. Hot and dry weather is forecast for most of next week so crop water use will increase again to a likely season peak of about 1¾ inches. 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 - MUCH WARMER

Mostly warm, dry conditions dominated last week. The coming week will have much warmer temperatures reaching into the high 80s. The 30 and 90 forecasts indicate above normal temperatures and below normal rainfall.



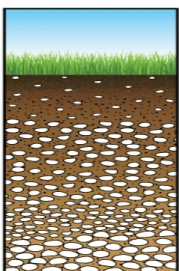
CROP WATER USE - INCREASING NEXT WEEK

More normal weather resulted in average crop water use last week. Most crops used about 1½ inch. It will increase next week with hotter weather conditions perhaps to the season high (about 1¾ inches). Crop water use was above average throughout April then below average in May and has bounced around average in June (chart page 3).

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	1.5	1.6 (1.4 - 1.7)	10.1
PASTURE	1.4	1.5 (1.4 - 1.6)	9.1
SPRING GRAINS - EARLY PLANTED	1.7	1.8 (1.5 - 1.9)	6.9
WINTER WHEAT	1.5	1.4 (1.2 - 1.5)	11.2
LAWNS	1.5	1.5 (1.4 - 1.7)	9.6

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

Rain? Ha! You're dreaming. Cropland soil moisture is now completely dependent on irrigation so get to it.

WEEKLY TIPS

JUNE CROP WATER USE IS 6-8 INCHES!
WEEKLY CROP WATER USE IN JUNE IS 1.2 - 1.8 INCHES.
DAILY CROP WATER USE IN JUNE IS .2 TO .3 INCHES.

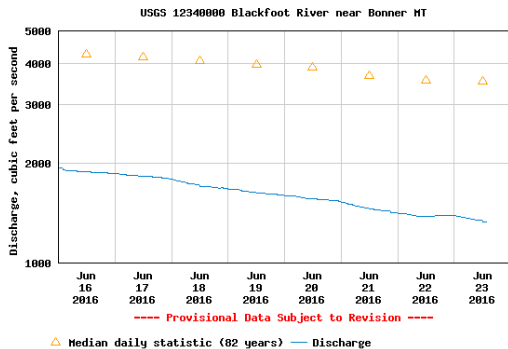
You can add up your moisture loss each day to tell about how long your recent irrigation will last. You can also walk around your pivot backwards and see the daily crop water use. Go to where your pivot was 24 hours ago and you should have .2-.3 inches less water than where the pivot is applying water now. As you go backwards around the pivot the soil should dry out by .2-.3 inches each day in June.

Now Is Still the Month for All Good Irrigators to Pour It On

Yes – I sound like a *broken record* for those of you who know what a record is and what it sounded like with the needle skipping back off a scratch to repeat the same phrase again and again and again. But this is an especially important year to irrigate now in anticipation of drought conditions next month.

June is the main growing season for all local crops and the time to pour on the water! The best thing irrigators can do for their crops and the basin-wide water supply is to irrigate well now and be prepared to cut back when streamflows fall to critical levels.

DROUGHT 2016!



The Blackfoot River at Bonner continues to drop and is now flowing at less than half of average. Today's flow is about 1,330 compared with an average of 4,070 cfs. The low flow for this date was 875 cfs in 1941 and the high was 13,200 cfs in 1899.

Low flows and predictions of hot dry weather in the 30 and 90 day weather forecasts suggest that drought plans will be implemented in July. Unusual rainfall could still change the outlook but no significant storm systems are expected in the near future.

SOIL HEALTH NOTES

The Blackfoot Challenge is participating in local efforts to promote soil health. As a soil scientist I applaud the renewed focus on soil as a living-breathing organism that supplies the water and nutrients our crops depend on. It high time we paid more attention to soil microbiology, soil organic matter, cover/green manure crops and alternative amendments.

Cover crops and green manure crops add organic matter and nitrogen to the soil. Crop mix choices are being tested that could become common in the Blackfoot and two tours are scheduled in Lake County in July. Foust Farms will show results from their new Sodbuster seed drill which they used to plant multiple fields to annual cover crop mixes containing lots of different species (July 13th). The Neimeyer Ranch will show pastures filled with legumes including Red clover, alsike clover, white clover, alfalfa, black medic and birdsfoot trefoil (July 6th). For details contact NRCS employee Ben Montgomery at Ben.montgomery@usda.gov.

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								1.50	2.00	1.20	
7/8/2016								1.60	2.10	1.30	
7/15/2016								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	2.81	10.05	9.05	6.90	4.75	11.15	9.55	24.80	31.10	17.30	

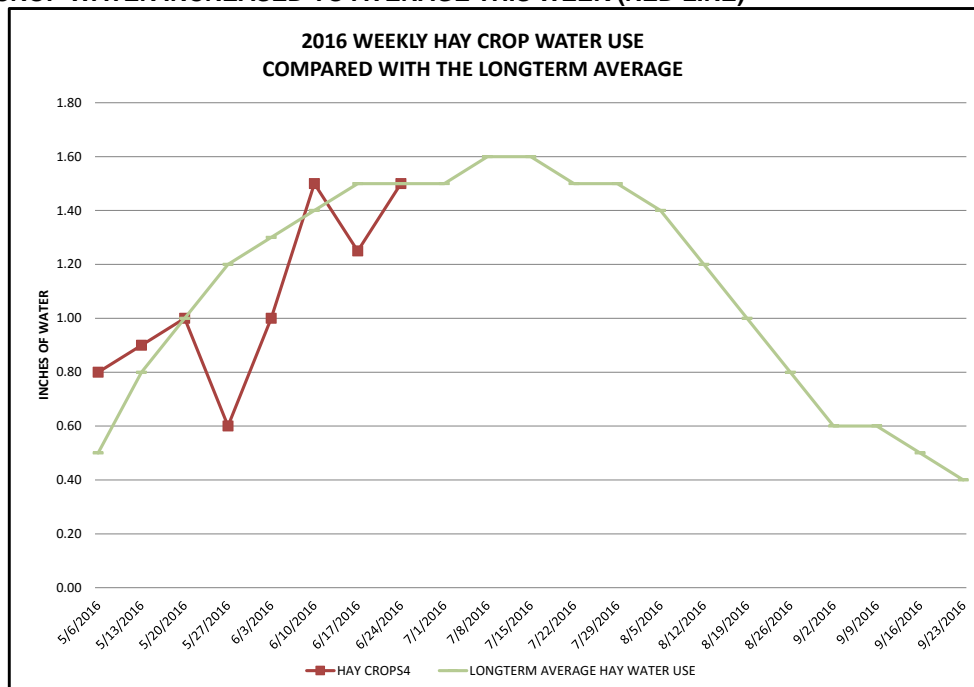
¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-April,May and Sept, 0.15-June and August, 0.2-July)

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 INCREASED TO AVERAGE 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.