



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

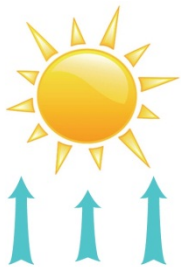
Friday May 27, 2016

Wow a real rainstorm! Most of the drainage had an inch of rain or a little more this week which actually boosted soil moisture. Showers will continue into next week then clear and warm. Folks who irrigated this week had almost all of it go into the soil for later crop use. Crop water use was way below normal this week (1 inch/week) and crop growth is still ahead of schedule. Crop water use will be slightly higher next week due to warming weather. The last page of this report is a summary of recommendations for the entire irrigation season.



WEATHER - COOL WITH SHOWERS

It's rare these days to get an inch of rain on local croplands! For a change, croplands in the lower drainage had the highest amounts. Showers and cooler temperatures will continue next week. The 30 day forecast indicates above average temperatures and rainfall. The 90 forecast indicates above normal temperatures and below normal rainfall.



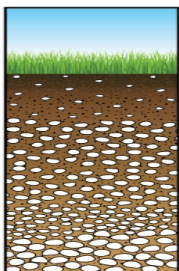
CROP WATER USE - LOW LAST WEEK, NOW INCREASING

Crop water use was far below normal this last week due to cool temperatures and a lot of rain. It will increase next week with initial cool temperatures and scattered showers warming into clear weather late in the week.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	0.6	0.8 (0.7 - 1.0)	4.8
PASTURE	0.5	0.7 (0.6 - 0.9)	4.2
SPRING GRAINS (planted May 1)	0.3	0.5 (0.4 - 0.7)	2.1
WINTER WHEAT	0.7	0.9 (0.8 - 1.2)	5.6
LAWNS	0.6	0.8 (0.7 - 1.0)	4.4

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 - NOW KEEP IT UP!

Cropland soil moisture had a one-inch boost this week but remember that crop water use ate up more than half of that even during these cool conditions. One inch is also small compared with the 4-6 inches most local soil can store in a hay or pasture root zone (3 feet). This was a great week for irrigating to increase stored soil moisture. Many fields observed this week were at their full water holding capacities due to on-going recent irrigation. Good job – now you can relax a little for the holiday but then keep it up!

WEEKLY TIPS

Not Sure How Much Water to Apply or When to Stop Irrigating?

JUST LOOK! It's not rocket science, check your soil moisture with a soil probe or shovel until the soil is moist to a depth of 3 feet for hay and pasture crops or 2 feet for annual crops. If it looks and feels moist – you're good. If it's dusty and dry – keep irrigating. Remember that your crop is using about an inch a week and you need to add that too (more in hot weather). Once your soil is moist to 3 feet you have 3-6 inches of stored soil moisture (sand/rocky-clay soils). Compare this storage to crop water use to see how long it will last. Production is best when the root zone is kept half full or more.

How Much Water Are You Really Putting On?!

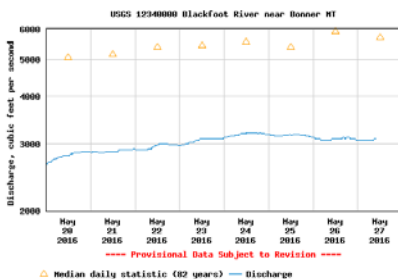
In over half of our irrigation system tests, less water was being applied than thought. Low pressure, worn parts, obstructions, improper computer setup and many other reasons have been identified. You can easily check your application against your chart by setting out 4-6 rain gauges or straight-walled containers under one of the middle spans of a pivot or 5-10 cans under a wheel line. More info on setting up tests is available in our irrigation guide on the Challenge web site.

Remember - your application is further reduced by evaporation from crop and soil surfaces. This can be as little as 1/10 inch in cool weather and bare soil or more than 1/4 inch in hot, windy weather with a fully developed crop canopy. It is only the water that gets into the soil that actually grows your crop.

Now You Filled Up Your Soil – Relax a Little But Keep Moisture Levels High

If you took advantage of recent cool/moist weather to fill up your soil, you are now sitting on 2-4 weeks of crop water use. You can use this time as a breather to catch up on other crises around the ranch or you can just keep topping off your soil moisture supply. Next week crop water use for hay and pasture will be below 1 inch but then will increase to 1-1½ inches per week. If your soil is now full, you only need to add the amount the crop uses each week (see page 1).

DROUGHT 2016?



Drought concerns were eased somewhat this week after significant rainfall boosted Blackfoot River flows. Today's flow is about 3,100 cfs versus an average of 6,100 cfs. The low flow for this date was 1,120 cfs in 1941 and the high was 14,600 cfs in 1899. Hopefully this pattern will persist and reduce drought/fire concerns.

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
APRIL	0.70	1.50	1.25	0.75	0.75	1.75	1.25	1.00	1.50	0.50
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								1.30	1.30	0.90
6/10/2016								1.40	1.50	1.00
6/17/2016								1.50	1.70	1.10
6/24/2016								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	2.21	4.80	4.15	2.05	1.75	5.55	4.35	24.80	31.10	17.30

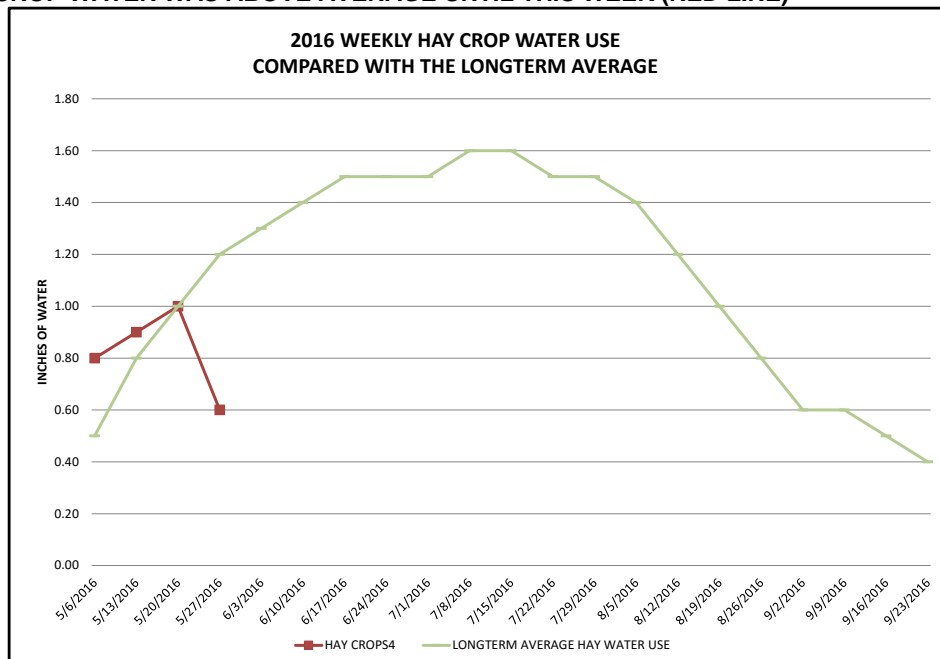
¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-April, May and Sept, 0.15-June and August, 0.2-July)

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 ABOVE AVERAGE UNTIL 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.