



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

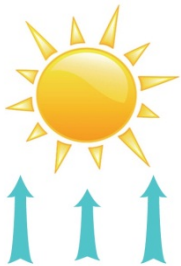
Friday May 15, 2015

Those were not UFOs that you may have seen this week in the sky, they are called **raindrops!** Unfortunately, only scattered showers fell with little contribution to soil moisture. Showers are again predicted for the coming week, but no deluge. **Crop water use continues at about 1 inch per week** - significantly above average (Chart Page 3). Soil moisture levels are near exhaustion in many fields not yet irrigated. The good news is that irrigated crops are responding well due to warm temperatures. Remember that our last drought (2013) produced excellent crops for those who took advantage of warm early season conditions and poured on water in May and June. Recent cool, cloudy days are great for filling up soil profiles with abundant early season water. Keep topping them off according to weekly crop water use. 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 is on the Challenge website.



WEATHER-WARM WITH "SHOWERS", DROUGHT IS LIKELY

Warm temperatures and scattered light showers continued this last week across Blackfoot drainage croplands. More of the same is expected next week. The 30 and 90 day forecasts indicate above normal temperatures and normal rainfall.



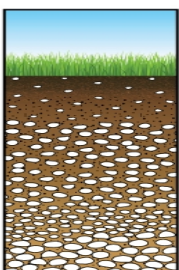
CROP WATER USE - MODERATE (HIGHER THAN NORMAL)

Crop water use was higher than normal again this last week due to warm temperatures and dry conditions. It will be about 1 inch again next week with warm temperatures and continuing possible showers. The table and chart on Page 6 are updated each week to show water use throughout the season.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	1.1	1.2 (0.8 - 1.3)	3.9
PASTURE	0.9	1.0 (0.8 - 1.2)	3.8
SPRING GRAINS (planted May1)	0.25	0.5 (0.4 - 0.6)	0.5
WINTER WHEAT	1.2	1.3 (1.0 - 1.4)	4.7
LAWNS	1.1	1.2 (0.8 - 1.3)	4.1

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 - TIME TO FILL IT UP!

Soil moisture is near exhaustion on most non-irrigated croplands in the Blackfoot drainage. Without rainfall, new plantings may need light frequent irrigations to ensure good germination and emergence. Established plants may remain green waiting for rainfall or irrigation but will not put on significant growth without water. These conditions are very similar to 2013, our last drought year.

WEEKLY TIPS

THE THEME SO FAR FOR 2015 IS TO IRRIGATE EARLY AND WELL WHILE WATER SUPPLIES LAST AND GROWING CONDITIONS ARE GOOD.

Not Sure How Much Water to Apply?

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. Right now it will take 3-5 inches to fill up local good soils that have not been irrigated plus an inch for crop water use each week. Sandy and rocky soils will take 1-3 inches plus an inch for crop water use each week.

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.

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.

Drought in 2015?

Drought is already here across Blackfoot croplands. Soil moisture is near exhaustion in most fields with established crops. Rainfall and snowpack are well below normal and the latest water supply forecast suggests worsening drought conditions ahead. Water Supply Forecasts are available on the Challenge Website (<http://blackfootchallenge.org/Articles/?p=1589>).

Here are some examples for reducing water use taken from our irrigation guide which has more detail and is available at: <http://blackfootchallenge.org/Articles/wp-content/uploads/2013/06/BFIrrigationGuideFinalv3.0.pdf>

- Fill Up Your Soil - NOW - at the Beginning of the Season and Try to Keep it Near Full
- Rotate Irrigation Systems During Low River Flows
- Save Water for Critical Growth Periods
- Reduce Irrigated Acreage
- Concentrate Your Efforts on the First Cutting
- Apply More Water At Each Application
- Practice Irrigation Scheduling
- Improve Irrigation System Performance

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	2015 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	0.50	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								1.00	1.10	0.70
5/29/2015								1.20	1.20	0.80
6/5/2015								1.30	1.30	0.90
6/12/2015								1.40	1.50	1.00
6/19/2015								1.50	1.70	1.10
6/26/2015								1.50	1.90	1.10
7/3/2015								1.50	2.00	1.20
7/10/2015								1.60	2.10	1.30
7/17/2015								1.60	2.00	1.20
7/24/2015								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	0.62	3.90	3.80	0.50	0.00	4.70	4.10	24.40	30.50	17.00

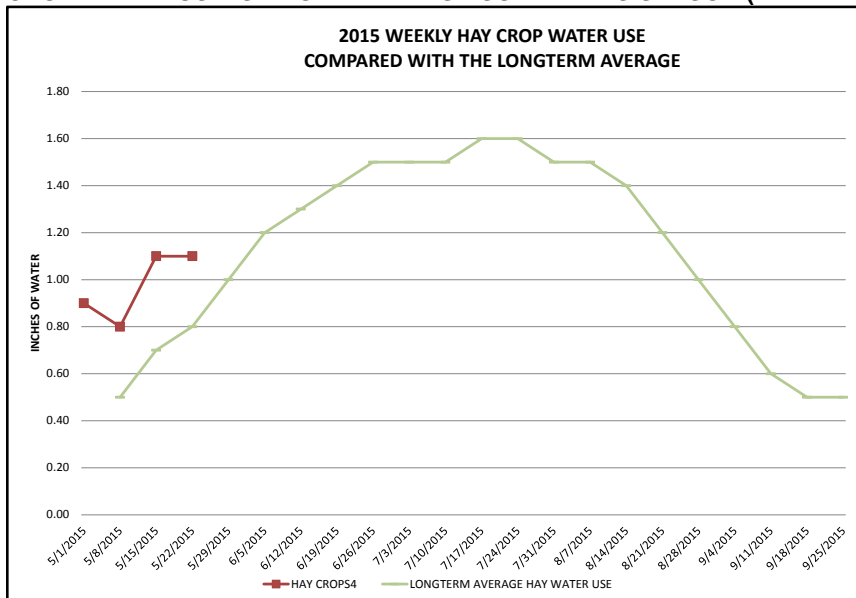
¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-May and Sept, 0.15-June and August, 0.2-July)

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.

CROP WATER USE IS ABOVE AVERAGE SO FAR THIS SEASON (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 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.