



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

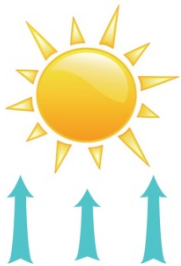
Friday May 22, 2015

Relatively cool temperatures kept **crop water use below 1 inch per week** – slightly below average for mid-May (Chart Page 3). Scattered showers produced about ¼ inch for most cropland areas. It was therefore a good week to boost soil moisture levels and those who kept the sprinklers on made progress. The question has become whether there is a good reason to turn water off, especially sprinklers. Even flood irrigators on their “usual” schedule should look closely at soil moisture conditions weekly and adjust as needed. Plan to have crop root zones full before low streamflows trigger water restrictions and drought plans. These reports will now discuss irrigation and water quality topics so let us know what interests **you**. If you have a pet problem or an award-winning solution please let us know so we can share it. 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 available on the Challenge website.



WEATHER - COOL LAST WEEK BUT WARMING NOW

Cooler temperatures and scattered light showers dominated this last week across Blackfoot drainage croplands. Warmer temperatures and scattered light showers are expected next week. The 30 and 90 day forecasts continue to indicate above normal temperatures and normal rainfall. Low streamflows are predicted to continue.



CROP WATER USE - MODERATE (LOWER THAN NORMAL)

Crop water use was under 1 inch for all crops last week - slightly lower than normal - due to cool temperatures and scattered showers (higher humidity). It will be about 1 inch next week with warming temperatures and continuing possible showers. The table and chart on Page 6 illustrate crop water use throughout the whole season.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	0.8	1.1 (0.8 - 1.3)	4.7
PASTURE	0.6	1.0 (0.8 - 1.2)	4.4
SPRING GRAINS (planted May1)	0.25	0.5 (0.4 - 0.6)	0.75
WINTER WHEAT	0.9	1.2 (1.0 - 1.4)	5.6
LAWNS	0.8	1.1 (0.8 - 1.3)	4.9

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!

Cool temperatures and low crop water use made it easier to increase soil moisture last week with irrigation. With little rainfall, most new plantings have needed light irrigations to ensure good germination and emergence. Don't be fooled by green plants that are just sitting there waiting for rainfall or irrigation but not growing much. They need water - so irrigate if you can.

WEEKLY TIPS

Irrigate Early and Well While Water Supplies Last

The message remains the same. Whether you get your weather predictions from satellites or the spots on toads, all indications suggest increasing drought conditions. The best thing irrigators can do for their crops and basin-wide water supply is to irrigate well now and be prepared to cut back when streamflows fall to critical levels.

It's not rocket science, check your soil moisture with a soil probe or shovel and irrigate 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. This applies to both sprinkler and flood systems. Many flood irrigators will be surprised how quickly soils dry out after irrigating – just look!

Irrigation and Water Quality

Our main focus in irrigation is usually with **water quantity** - how much to apply, how much soils hold and how much crops use. We really focus on quantity in drought years like this one. But irrigators, like everyone else, have an important role in water quality throughout the watershed. Blackfoot irrigators are lucky not to have the salt, selenium, industrial pollutants and other problems found in irrigation waters elsewhere. Our surface and ground waters are pure and wholesome for watering crops without treatment. Good land management will keep our water clean.

Water quality issues have been identified throughout the Blackfoot Drainage with sediment, nutrients and temperature the most common concerns. Irrigators and other agriculturalists are identified among those most affecting water quality along with foresters, home-owners, mines, wastewater plants, road departments and others. Each week we will illustrate common water quality issues in irrigation and how they apply to the Blackfoot drainage. We will attempt to identify solutions that emphasize common sense and available resources. Let us know about your pet peeves or share your great solutions! We promise to steal them and spread them around.

Irrigation can affect water quality in *small ways over time* or **big ways right now!** We will discuss the small, slow effects of erosion over time or the slow accumulation and leaching of nutrients over time. But we will also discuss those exciting, dramatic, “oh sh%#\$!” events that send the entire ditch flow over the bank, down the newly forming gulley and into the spring creek with more sediment than your wife cleaned out of your son's room last year. Look forward to exciting tales of water quality!

Drought in 2015

OK, I know, enough with the drought talk! But to keep up-to-date *Water Supply Forecasts* are available on the Challenge Website (<http://blackfootchallenge.org/Articles/?p=1589>). Here are some hints for reducing water use taken from our irrigation guide that has more detail and is available at: <http://blackfootchallenge.org/Articles/wp-content/uploads/2013/06/BFIrrigationGuideFinalv3.0.pdf>

- Fill Up Your Soil - NOW - and Try to Keep it Near Full
- Apply More Water At Each Application
- Improve Irrigation System Performance
- Save Water for Critical Growth Periods

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	0.25	0.80	0.60	0.25	0.40	0.90	0.80	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	0.87	4.70	4.40	0.75	0.40	5.60	4.90	24.40	30.50	17.00

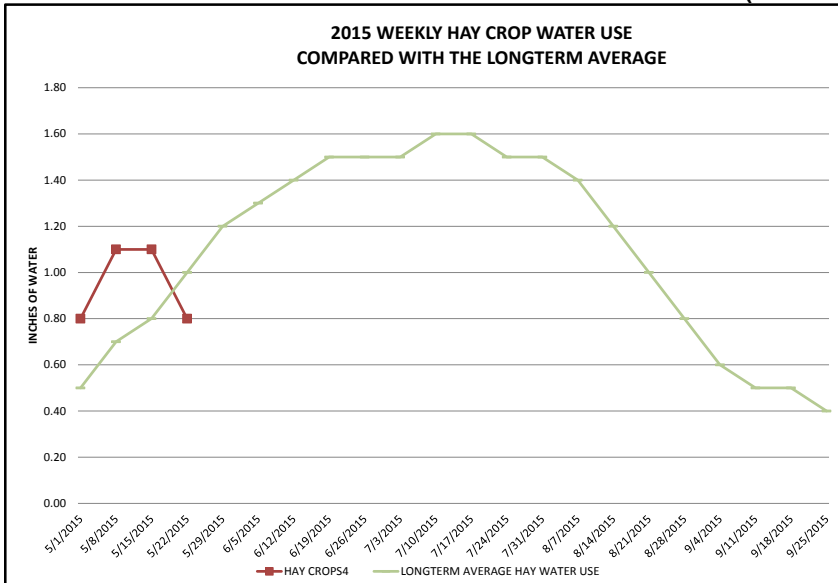
¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-May and Sept, 0.15-June and August, 0.2-July)

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.