



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

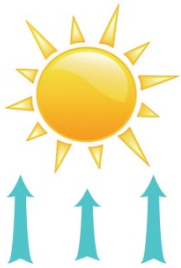
Friday May 8, 2015

Only scattered showers fell this week with little or no contribution to soil moisture. The coming week has predictions for showers but not the needed deluge. Crop water use continues to be about 1 inch per week which is significantly above average (Chart on Page 3). Soil moisture levels are very low in fields not yet irrigated. Conditions are looking similar to 2013, our last drought year. Now is the time to fill up soil profiles and then keep topping them off according to weekly crop water use. This lets you store water for breakdowns, distractions and low streamflows. A condensed overview of the entire irrigation season is presented on the last page of this report as a reminder to plan ahead. Call anytime with comments or questions.



WEATHER-WARM AND MOSTLY DRY, DROUGHT IS LIKELY

This irrigation season continues warm and dry and with the likelihood of drought conditions developing. Warm temperatures and only scattered light showers occurred this last week across Blackfoot drainage croplands. Warm temperatures are expected next week with the possibility of showers but no large rain event. The 30 and 90 day forecasts indicate above normal temperatures and normal rainfall.



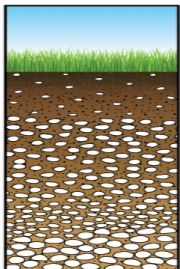
CROP WATER USE - MODERATE (HIGHER THAN NORMAL)

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 possible showers. Crop water use continues higher than average for the season. 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	1.2	1.2 (0.8 - 1.3)	2.8
PASTURE	1.0	1.1 (0.7 - 1.2)	2.9
SPRING GRAINS (planted May1)	0.25	0.25 (0.2 - 0.3)	0.5
WINTER WHEAT	1.1	1.2 (0.8 - 1.3)	3.5
LAWNS	1.2	1.2 (0.8 - 1.3)	3.1

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 - LOW TO START THE SEASON

This week most local soil moisture levels were only 10-35% of their moisture holding capacity. Most soils that have not yet been irrigated had only 1-2 inches of soil moisture. This is similar to conditions at the start of 2013, our last drought year. We expect winter snowmelt and spring rains fill up our soils but there's a lot of soil moisture loss in March and April before the main growing season starts.

WEEKLY TIPS

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

Time to Fill Up Your Soil and Keep Moisture Levels High. May is the easiest time to fill up your soil moisture holding capacity, before crop water use gets high. For the next few weeks, crop water use for hay and pasture will be 1 - 1 ½ inches per week. Applying more than this amount will add to soil moisture storage. 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. These are ballpark figures to give you an idea of how much water to apply and are based on hay or pasture crops (3 foot root zone). You can figure out more accurately how much water you need to apply using guides in last weeks report or in the irrigation guide posted on the Challenge website. We also have an excellent NRCS guide available for estimating soil moisture. Call Barry anytime you have a question or want some hands-on training in soil moisture estimating.

Still 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.

Roots

Irrigate deeply at the start of the irrigation season to promote deep root growth. Irrigate new crops deeply after they are established to moisten the entire root zone and lead your roots to deeper depths. Roots don't "go looking" for moisture, they follow it.

Drought in 2015?

As far as early season conditions go – we are already in a drought. Rainfall could increase significantly but this is not in current predictions. We will keep you updated as the season progresses. Here are some options for reducing water use taken from our irrigation guide which has more detail and is available on the Blackfoot Challenge website:

- **Fill Up Your Soil 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**
- **Grow Your Crop During Cooler Periods**
- **Apply More Water At Each Application**
- **Plant Crops That Use Less Water**
- **Practice Irrigation Scheduling**
- **Improve Irrigation System Performance**
- **Plan For a Lower Yield and Reduce Other Crop Inputs to Match**
- **Be More Flexible With Changing Seasonal and Year-to-Year Conditions**

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 5-15 START	SPRING GRAINS 5-30 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	0.00	0.00	1.10	0.90	0.50	0.80	0.20
5/8/2015	0.01	1.10	1.00	0.00	0.00	1.20	1.10	0.70	0.90	0.30
5/15/2015								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	0.52	2.80	2.90	0.00	0.00	3.50	3.10	24.40	30.50	17.00

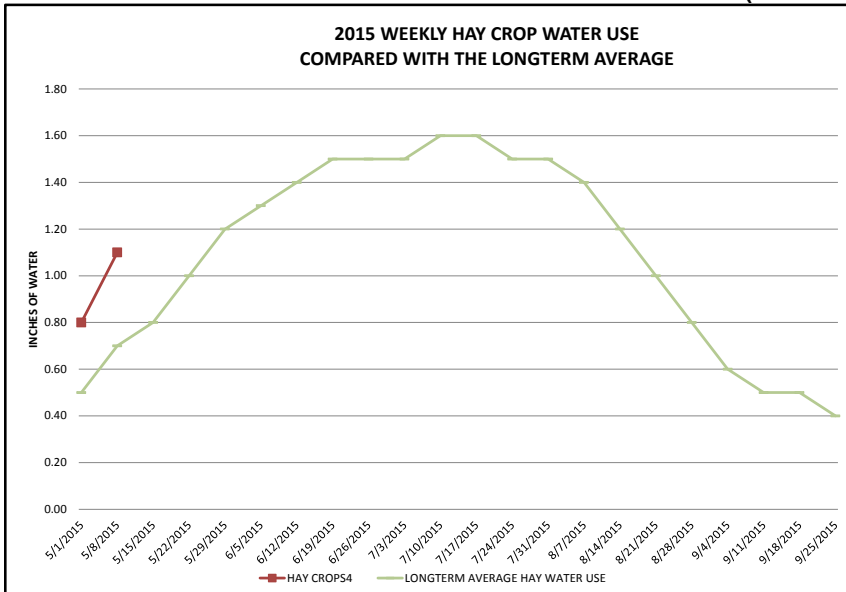
¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-May and Sept, 0.15-June and August, 0.2-July)

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.