



BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

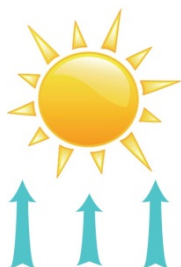
Friday May 2, 2014

Welcome back to the Blackfoot Challenge Weekly Irrigation Report. Please contact Jennifer Schoonen (406-360-6445) our new Blackfoot River Steward for more information on this and other Challenge programs. Once again we will provide weekly summaries of weather, crop water use and soil moisture conditions as well as tips for irrigation and production. These weekly summaries are based on our work with individual irrigators throughout the drainage monitoring weather and soil moisture conditions. The last page of this report is an overview of the entire season with our recommendations for getting the most from your irrigation. Work towards these goals for best results.



WEATHER - COOL AND MOIST, NO DROUGHT IN SIGHT

Cool temperatures and little rain persisted throughout most of April. Cool temperatures and scattered rain are expected this week. The 30 day forecast indicates below normal temperatures and above normal rainfall. The main effect of rainy weather is that the lower temperatures and higher humidity *reduces crop water use*. It is during this cool, rainy weather that you can take advantage of lower crop water use to fill up your soil to its full water holding capacity.



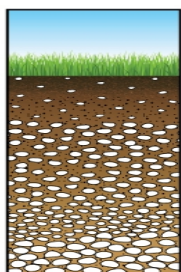
CROP WATER USE - LOW TO MODERATE

Crop water use was low this last week due to cool temperatures and early growth conditions. Crop water use will again be relatively low next week due to cool, moist weather. See the table and chart on Page 3 for more details.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²
HAY CROPS	0.6	0.7 (0.6 -0.9)	1.0
PASTURE	0.5	0.6 (0.5 -0.8)	1.3
SPRING GRAINS	0.0	0.0 (0.0 -0.0)	0.0
WINTER WHEAT	0.7	0.8 (0.7 -0.9)	1.5
LAWNS	0.7	0.8 (0.7 -0.9)	1.5

¹Expected water use (range if weather becomes cooler or hotter than expected)

²Beginning May 1 - season start date



SOIL MOISTURE - ABOUT AVERAGE FOR THIS TIME OF YEAR

Soil moisture conditions going into this growing season are slightly above average but not nearly as high as the mountain snowpack suggests. Observations of soil moisture across the drainage this week revealed that most sites had about 50% of their water holding capacity in the surface foot of soil and 50-75% in the second and third foot. This compares with 25-50% at this time last year. Although snowpack is at very high levels (157% of normal), soil moisture in the valley bottom is more affected by weather in March and April following snowmelt. If March-April weather is cool and wet, soil moisture will remain high until May when rapid crop growth begins. If weather is warm and dry, evaporation and limited plant transpiration will dry out the surface soil. In most recent years, local soils have had about 50% of their water holding capacity on May 1. This means, irrigators must add extra water in May to fill up the soil.

WEEKLY TIPS

Irrigation Information from the Blackfoot Challenge:

- Weekly irrigation reports for all basin irrigators – Available by email and on the Challenge website (you are reading an example now)
- Blackfoot Irrigation Guide – Available on the Challenge website
- Irrigation Information Handouts - Available on the Challenge website
- Irrigation Workshops
- Irrigation Consultant – Available by phone and email for irrigation questions

Use This Info To:

- Compare weekly crop water use with how much you irrigate
- Learn your soil water holding capacity – mostly 1 - 2 inches per foot
- Know your critical crop periods – June for most crops
- Know dry soil from moist
- Know how deeply your irrigation penetrates – 1 inch only goes ½ to ¾ foot deep
- Identify options for drought years – especially irrigate early while its available
- Apply the right amount of water at the right time to achieve your goals.

Drought in 2014?

It appears that drought is not going to be a concern this year (*had this been a true drought emergency you would have been instructed to tune into the Blackfoot Challenge Drought Emergency Network*). This means you don't need to rush to get a crop grown before river flows drop. Based on current snowpack levels and predicted weather conditions, it is likely that streamflows will remain at good levels throughout the summer. However, things can change and we will keep you informed. It is still a good practice to fill up your soil and keep it up in case of equipment failure or other problems.

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 ¼ inches per week. Applying more than this amount will add to soil moisture storage. Soils will hold 1-2 inches per foot or 3-6 inches in a three-foot root zone. Filling up your soil gives you extra for when it get hot and dry as well as helping to develop a deep root system. Irrigate and 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. This will require adding 2-4 inches of water in addition to the amount used by the crop. The Blackfoot Challenge Irrigation Guide shows how to determine your soil moisture holding capacity and current moisture level.

Roots

Consider irrigating deeply at the start of the irrigation season to promote deep root growth. If you allow the soil to dry out and then only apply 1 inch at a time, you will only moisten the top 6-8 inches. This means your crop is looking for all its moisture and nutrients in this thin soil layer. Irrigate new crops deeply after they are established to moisten the entire root zone.

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 2014 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

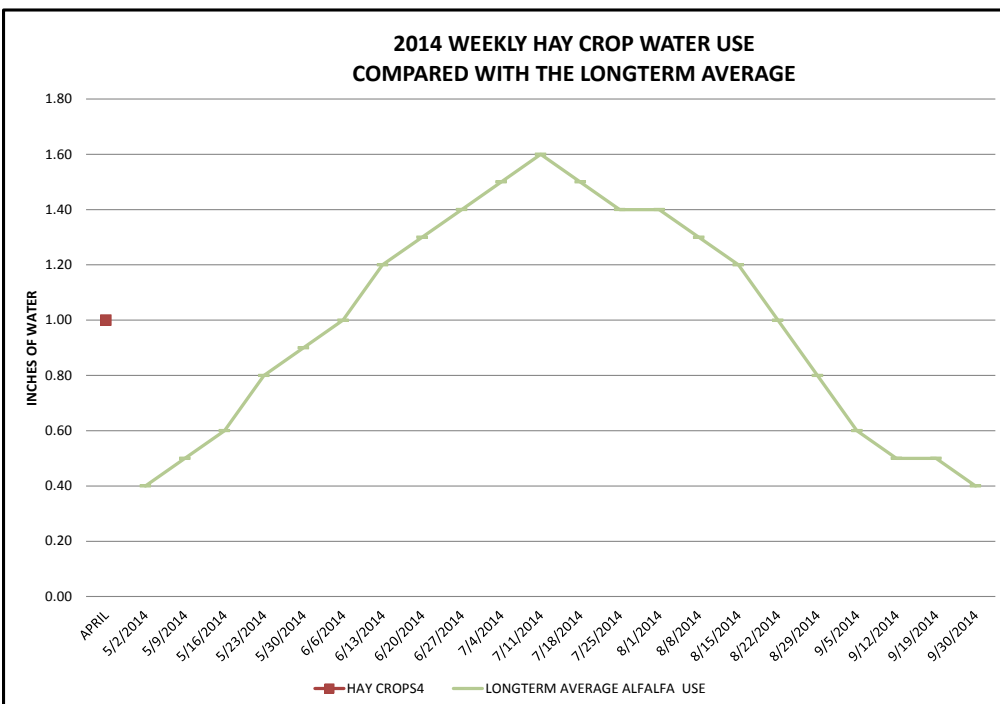
	RAIN ¹	2013 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE POTENTIAL CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE ALFALFA USE	HOT WEEK ALFALFA HAY WATER USE	COOL WEEK ALFALFA HAY WATER USE
APRIL	1.00	1.00	1.20	0.00	0.00	1.50	1.50			
5/2/2014								0.40	0.60	0.20
5/9/2014								0.50	0.70	0.30
5/16/2014								0.60	0.80	0.40
5/23/2014								0.80	1.00	0.60
5/30/2014								0.90	1.20	0.80
6/6/2014								1.00	1.30	0.90
6/13/2014								1.20	1.50	1.00
6/20/2014								1.30	1.70	1.10
6/27/2014								1.40	1.90	1.10
7/4/2014								1.50	2.00	1.20
7/11/2014								1.60	2.10	1.30
7/18/2014								1.50	2.00	1.20
7/25/2014								1.40	1.90	1.10
8/1/2014								1.40	2.20	1.10
8/8/2014								1.30	1.70	1.00
8/15/2014								1.20	1.50	0.90
8/22/2014								1.00	1.30	0.70
8/29/2014								0.80	1.00	0.50
9/5/2014								0.60	0.80	0.40
9/12/2014								0.50	0.70	0.30
9/19/2014								0.50	0.70	0.30
9/30/2014								0.40	0.60	0.20
TOTAL	1.00	1.00	1.20	0.00	0.00	1.50	1.50	21.80	29.20	16.60

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 Maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free.

³ Average water use for each crop each week based on 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.



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.