BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

Sunday June 12, 2020

Blackfoot croplands in the lower drainage had about ½ inch of rain this week while some in the upper drainage reported over 2 inches. Crop water use dropped to below average with most crops using about 1 inch due to cooler, wet weather. Next weeks crop water use should increase slightly towards average. Surface soil moisture in the upper drainage saw a net gain due to more rain than crop water use. Rainfall kept Blackfoot River flows slightly above average. Drought conditions and water restrictions remain possible due to warm/dry weather expected in July-September.

We provide weekly summaries of weather, crop water use and soil moisture conditions as well as tips for irrigation, soil health and crop production. A condensed overview of suggestions for the entire irrigation season is presented on the last page of this report. Use it to look ahead and plan or to compare what you're doing now. If you would like other information please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).

WEATHER – COOL AND WET

Last week Blackfoot croplands had ½ inch of rain in the lower drainage and over 2 inches in the upper drainage. Next week will begin and end with highs near 70 but highs will dip into the 50s midweek. I'm ready to give up predicting rainfall amounts after the variation we saw recently. Keep in mind that the rainfall values in the charts below are an average for the drainage and you should trust your own rain gauge for your location. The 30-day forecast says above average temperatures and rainfall. The 90-day forecast says above average temperatures and below average rainfall.

CROP WATER USE – BELOW AVERAGE LAST WEEK AND NEXT

Last week crop water use dropped far below average due to cool, wet weather with most crops using about 1 inch. Water use will increase only slightly next week as temperatures remain below normal. The table below provides a quick summary of crop water use this last week and an estimate for next week. The table and chart on Page 2 summarize the entire irrigation season and compare it with average, hot and cool conditions so you can plan ahead.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL[1]	NEXT 7 DAYS DAILY AVE[2]	SEASON TOTAL[3]
HAY CROPS	**1.0**	**1.2** (1.1 - 1.4)	.17	6.9
PASTURE	**0.9**	**1.1** (1.0 - 1.3)	.16	6.1
SPRING GRAINS	**1.0**	**1.3** (1.2 - 1.5)	.16	3.3
WINTER WHEAT	**1.1**	**1.3** (1.2 - 1.5)	.21	7.5
LAWNS	**1.0**	**1.2** (1.1 - 1.4)	.17	6.8

[1]Expected water use over the next week (range if weather becomes cooler or hotter than expected)
[2]Expected average daily water use over the next week (compare this with your soil moisture content)
[3]Beginning April 1 – note in 2010-13 we started our seasonal total on May 1 but since include April

BLACKFOOT 2020 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

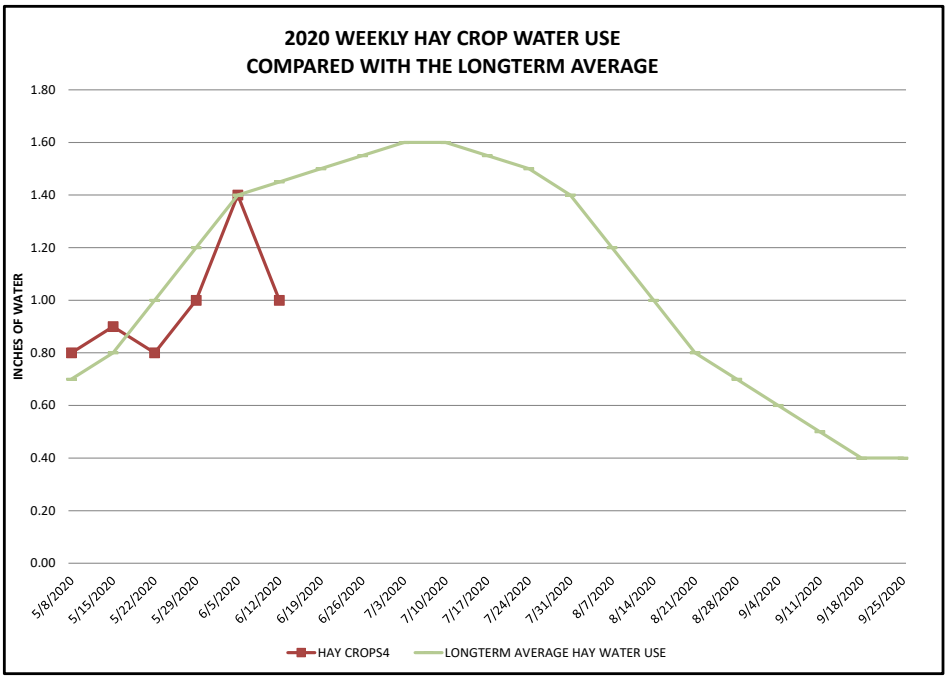
	RAIN[1]	2020 WEEKLY POTENTIAL CROP WATER USE[2]						AVERAGE WEEKLY CROP WATER USE[3]		
WEEK ENDING	RAIN	HAY CROPS[4]	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/8/2020	0.01	0.80	0.70	0.10	0.10	0.90	0.90	0.70	1.00	0.30
5/15/2020	0.30	0.90	0.80	0.10	0.10	0.90	0.90	0.80	1.10	0.50
5/22/2020	1.25	0.80	0.70	0.30	0.20	0.80	0.80	1.00	1.20	0.60
5/29/2020	0.10	1.00	0.80	0.70	0.40	1.20	0.90	1.20	1.30	0.80
6/5/2020	1.00	1.40	1.20	1.00	0.70	1.50	1.30	1.40	1.50	1.00
6/12/2020	1.00	1.00	0.90	1.00	0.90	1.10	1.00	1.45	1.70	1.00
6/19/2020								1.50	1.90	1.10
6/26/2020								1.55	2.00	1.10
7/3/2020								1.60	2.10	1.30
7/10/2020								1.60	2.00	1.20
7/17/2020								1.55	2.00	1.20
7/24/2020								1.50	2.20	1.10
7/31/2020								1.40	2.20	1.10
8/7/2020								1.20	1.50	0.90
8/14/2020								1.00	1.30	0.70
8/21/2020								0.80	1.20	0.60
8/28/2020								0.70	1.10	0.50
9/4/2020								0.60	1.00	0.40
9/11/2020								0.50	0.90	0.40
9/18/2020								0.40	0.70	0.30
9/25/2020								0.40	0.70	0.30
TOTAL	**4.91**	**6.90**	**6.10**	**3.30**	**2.50**	**7.50**	**6.80**	**22.85**	**30.60**	**16.40**

[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) (This rainfall figure is an average across all Blackfoot croplands - use your own rain gauge for better accuracy)

[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 drops approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.



Remember to Check Your Soil Moisture

SOIL MOISTURE – UP WITH RAIN IN UPPER DRAINAGE

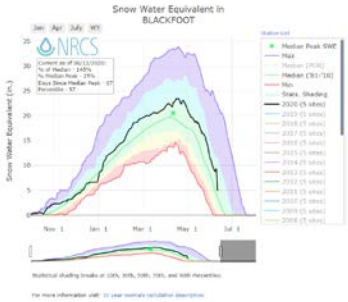
Soil moisture across the upper drainage had a boost this week wherever rain exceeded crop water use. Crop use was about 1 inch for most crops and some sites reported over 2 inches of rain. Those who continued to irrigate boosted soil moisture even more. The lower drainage had only about ½ inch and soil moisture dropped.

Soil near 100% of its water holding forms a ball when squeezed and leaves the hand moist. Water is visible on the surface of the soil and the hand as a shiny surface. Bouncing the soil in the hand usually brings water to the surface. Soil near 75% of its water holding capacity also forms a ball and leaves the hand moist but no actual water is visible on the hand or soil when bounced.

WEEKLY TIPS

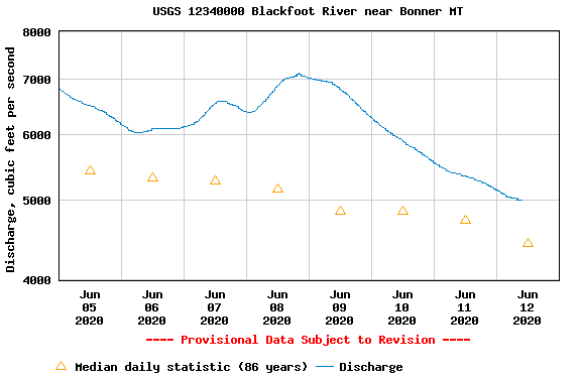
Water Supply Still Looks Good

The Blackfoot drainage water supply remains above average today according to the NRCS web site. There was even a little snow at the highest elevations this week. The forecast for later in the season still calls for above average temperatures and below average rainfall suggesting that water supply shortages may occur later in the season. However, the Blackfoot drainage has not shown up as a concern on the drought monitor yet.



Blackfoot River Flow Dropping Towards Average Conditions

TODAY:	**5,000 CFS**
AVERAGE:	**5,160**
HIGHEST:	**14,400 (2011)**
LOWEST:	**1,180 (1987)**



River flows continued to fall closer to average this week. Rain events caused big flow increases early in the week. Most of this rain fell in the upper drainage and some as snow on mountaintops. Flows should remain near average through June but are likely to drop significantly later in the season.

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

THE BLACKFOOT DRAINAGE IRRIGATION SEASON IN BRIEF

This is a summary of general activities and recommendations for the whole season (more detail in the 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. Small grains harvested for seed are usually irrigated up to the milk to soft dough stage but be sure soil moisture remains to prevent kernel shriveling. Small grains for forage are often harvested earlier when plants are less dry and seeds soft.

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. Stop irrigating if you can.

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.