BLACKFOOT CHALLENGE WEEKLY IRRIGATION REPORT

Friday August 30, 2019

A little rain this week left ¼ inch of rain across many local croplands but some locations had none. Blackfoot River flows continue to decline quickly and are at critical levels. Next week will be sunny and warm again with little or no rain. Crop water use remained above-average this week at about 1 inch for most crops and has been decreasing slowly.

Blackfoot River flows at Bonner are below the 700 CFS trigger level and drought plans are being implemented throughout the drainage (see page 3 for drought options). Lots of sprinklers came back on last week when it rained but it will take a monsoon to overcome dropping river levels so please turn off unless you really need water for new plantings.

These reports, provide weekly summaries of weather, crop water use and soil moisture conditions plus tips for irrigation, soil health and crops. Hints for the entire irrigation season are on the last page. For other irrigation information please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).

WEATHER – SUNNY & VERY WARM AGAIN

Most croplands throughout the drainage had about ¼ inch of rain last week. A few had up to ½ inch but some folks had none. Next week will again have mostly sunny skies and warm temperatures. The 30-day and 90-day predictions predict above average temperatures and average rainfall. We continue to avoid wildfire smoke.

CROP WATER USE – STILL ABOVE AVERAGE

Crop water use continued above average this week with hay crops, pasture and lawns using about 1 inch. Most annual crops including small grains have been harvested and water use has ended. Conditions will be similar next week. The table below provides a quick summary of crop water use last week and an estimate for next week. The table and chart on Page 2 summarize the entire irrigation season. Crop water use the week after cutting is only about 1/3 of the uncut crop potential. The second week it is about 2/3 of potential and back to normal by the third week.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS TOTAL[1]	NEXT 7 DAYS DAILY AVE[2]	SEASON TOTAL[3]
HAY CROPS	**1.1**	**1.1** (0.9 - 1.3)	.16	22.7
PASTURE	**0.9**	**0.9** (0.7 - 1.1)	.13	19.2
SPRING GRAINS	**0.1**	**0.1** (0.1 – 0.1)	.04	17.0
WINTER WHEAT	**0.1**	**0.1** (0.1 - 0.1)	.01	16.8
LAWNS	**1.0**	**1.0** (0.8 - 1.2)	.14	21.6

[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

BLACKFOOT 2019 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

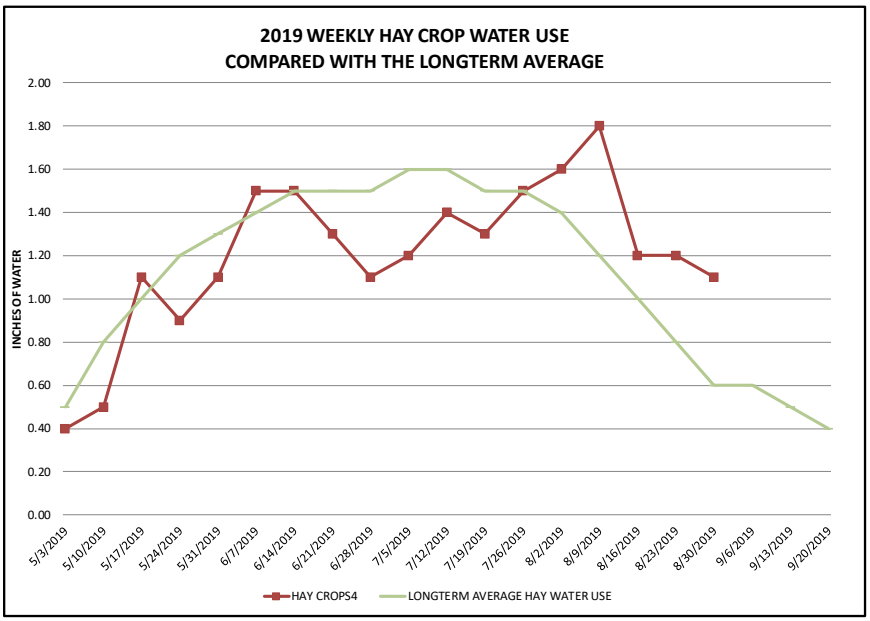
	RAIN[1]	2019 WEEKLY POTENTIAL CROP WATER USE[2]						AVERAGE POTENTIAL CROP WATER USE[3]		
WEEK ENDING	RAIN	HAY CROPS[4]	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/3/2019	0.30	0.40	0.50	0.10	0.10	0.40	0.50	0.50	0.80	0.30
5/10/2019	0.30	0.50	0.40	0.10	0.10	0.50	0.50	0.80	1.00	0.50
5/17/2019	0.40	1.10	0.90	0.10	0.10	1.10	1.00	1.00	1.10	0.60
5/24/2019	0.10	0.90	0.80	0.20	0.10	1.00	0.90	1.20	1.30	0.80
5/31/2019	0.75	1.10	0.90	0.50	0.20	1.20	1.00	1.30	1.40	0.90
6/7/2019	0.30	1.50	1.30	1.00	0.60	1.60	1.40	1.40	1.50	1.00
6/14/2019	0.50	1.50	1.40	1.50	1.10	1.70	1.50	1.50	1.70	1.00
6/21/2019	0.10	1.30	1.10	1.40	1.20	1.50	1.20	1.50	1.90	1.10
6/28/2019	0.10	1.10	0.90	1.20	1.10	1.20	1.00	1.50	2.00	1.10
7/5/2019	0.40	1.20	1.00	1.30	1.20	1.30	1.10	1.60	2.10	1.30
7/12/2019	0.25	1.40	1.10	1.50	1.50	1.50	1.30	1.60	2.00	1.20
7/19/2019	0.50	1.30	1.00	1.40	1.40	1.00	1.20	1.50	2.00	1.20
7/26/2019	0.01	1.50	1.20	1.70	1.70	0.75	1.40	1.50	2.20	1.10
8/2/2019	0.01	1.60	1.30	1.80	1.80	0.50	1.50	1.40	1.70	1.00
8/9/2019	0.10	1.80	1.40	1.50	2.00	0.10	1.70	1.20	1.50	0.90
8/16/2019	0.40	1.20	0.90	1.00	1.25	0.10	1.10	1.00	1.30	0.70
8/23/2019	0.20	1.20	1.00	0.50	0.50	0.10	1.10	0.80	1.00	0.50
8/30/2019	0.20	1.10	0.90	0.10	0.10	0.10	1.00	0.60	0.80	0.40
9/6/2019								0.60	0.70	0.30
9/13/2019								0.50	0.70	0.30
9/20/2019								0.40	0.60	0.20
9/30/2019								0.40	0.60	0.20
TOTAL	**6.42**	**22.70**	**19.20**	**17.00**	**16.15**	**16.75**	**21.60**	**24.80**	**31.40**	**17.10**

[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)

[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.

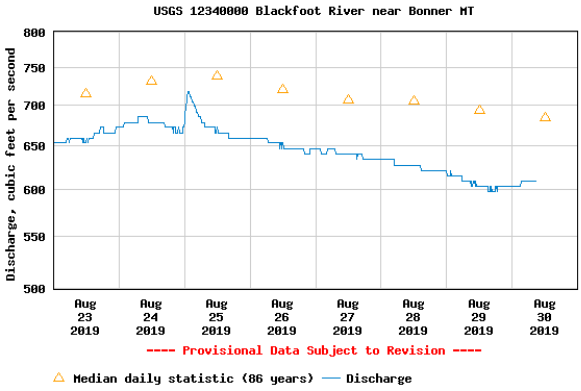
[3] **Longterm average** water use for each crop each week based on long-term historic data.

[4] Hay Crop water use drops approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.



STREAMFLOWS – STILL CRITICAL

The Blackfoot river flow continued to drop this week and remains below the critical 700 CFS level which triggers irrigation restrictions. Todays flow is at 609 CFS compared with an average for this date of 698 CFS. The Highest flow on this date was 1,420 (1899) and the lowest was 334 CFS (1988). Flow increased a very small amount with rain last Sunday then continued to drop. Even lower flows are expected next week.



OPTIONS FOR A DROUGHT YEAR?

- STOP IRRIGATING HAYFIELDS AND PASTURES, GRASSES AND ALFALFA ARE DROUGHT-TOLERANT AND WILL SURVIVE UNTIL FALL RAINS

- IRRIGATE ONCE AFTER CUTTING AND THEN CEASE IRRIGATION.

- IRRIGATE AT NIGHT SO MORE GOES INTO THE SOIL
- IF YOU HAVE MULTIPLE IRRIGATION SYSTEMS – RUN ONLY ONE AT A TIME TO MAINTAIN STREAM FLOWS
- REDUCE YOUR IRRIGATED ACREAGE AND DO A GOOD JOB IRRIGATING ON A SMALLER ACREAGE
- PRACTICE IRRIGATION SCHEDULING
- PLANT NEW CROPS TO IMPROVE SOIL AND STAND CONDITIONS TO HELP SURVIVE FUTURE DROUGHTS

Rapeseed

Sunflower

Safflower

Ryegrass

Peas

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. Some years you better start up now.

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.

SEPTEMBER – APPLY AS NEEDED/AVAILABLE & GET READY FOR SPRING!

- **Stop irrigating if you can during drought periods**
- 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.