

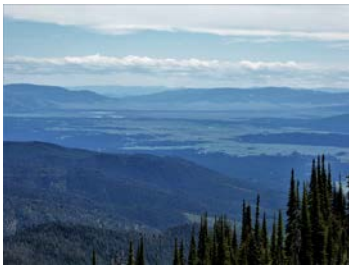


BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday June 2, 2017

Crops had another great week of growth fueled by warm, sunny weather. Those with good soil moisture and/or timely irrigation saw foliage almost explode. Sprinklers are on throughout the drainage and *now is the time to make hay* so pour it on! Fill up your crops root zone and add enough for weekly crop use. It may take a week or so to catch up but do it soon or it may not be possible if it gets hot. Soil moisture dropped substantially again this week (unless irrigated). For a condensed overview of suggestions for the entire irrigation season see the last page of this report. Please contact Jennifer Schoonen - Blackfoot River Steward (406-360-6445) for more information on this and other Challenge programs.



WEATHER - WARMTH CONTINUES

It was another week of warm and mostly dry conditions. Many areas had ¼ inch of rain and a few spots had up to ¾ inch, all mainly during one brief downpour on Thursday. Warm, sunny conditions next week will be interrupted only by scattered clouds and occasional rain. The 30-day forecast indicates normal temperatures and above average rainfall. The 90-day forecast indicates above normal temperatures and normal rainfall.



CROP WATER USE - UP TO NORMAL

Crop water use increased dramatically this week due to warmer, drier and clearer conditions. Crop water use was slightly above average (table and chart page 3). It will be warm and sunny for most of the coming week so expect continued good crop growth from well-watered plants. A **daily forecast of average crop water use** column has been added to the table below³ so you can easily calculate how long an irrigation will last (ie. You put on 1 inch which at a pivot efficiency of 80% is 0.8 inches divided by 0.2 inches per day for hay means it will only take 2 days to use up half of it and 4 to use it all). Ideally you will get back around to this spot in 2 days, 4 at the latest. If you have stored soil moisture you also consider it in your calculations. Remember that these are water amounts needed to maximize production when nothing else is limiting. Your goals and situation may be met using much less water.

WATER USE IN INCHES	LAST 7 DAYS	NEXT 7 DAYS¹	SEASON TOTAL²	DAILY FORECAST³
HAY CROPS	1.3	1.4 (1.3 - 1.6)	4.8	.20
PASTURE	1.1	1.3 (1.2 - 1.5)	4.6	.18
SPRING GRAINS	0.4	0.6 (0.5 - 0.8)	1.2	.02
WINTER WHEAT	1.4	1.5 (1.1 - 1.7)	5.5	.22
LAWNS	1.3	1.4 (1.3 - 1.6)	5.0	.20

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

³Predicted average daily crop water use over the next week.



SOIL MOISTURE - DROPPED QUICKLY AGAIN

Cropland soil moisture levels again dropped this week due to continued hot, dry weather. Most sites with hay, pasture or winter wheat crops saw almost 1½ inches of soil moisture use. Now is the time to fill up your soil root zone while water supplies are plentiful and crop water use has not yet reached its peak. See the *Weekly Tips* below for more info.



When is your soil full? Soil near 50% of its water holding capacity soil forms a ball when squeezed but leaves only a little moisture on the hand (top photo). Soil near 100% of its water holding capacity forms a ball and leaves your hand moist (bottom photo). Call anytime if you have questions about evaluating your soil moisture content and irrigation options.

Look in front of your pivot and behind to get a better idea of what soils look like when near 100% of water holding capacity. Walking around the pivot gives you a good idea how quickly the surface soil dries after irrigation.

WEEKLY TIPS



Water Supply and Streamflows

Blackfoot streamflow predictions for May-July are for 120% of normal so water should be available throughout the main irrigation season. Current Blackfoot river flow is about 8,000 CFS at Bonner compared with an average flow of 5,850 CFS. The lowest flow on this date was 1,380 CFS in 1977 and the highest was 15,300 CFS in 1972.

REMEMBER - JUNE CROP WATER USE IS 6-8 INCHES!

June is the main growing season for all local crops and the time to pour on the water! The best thing irrigators can do for both crops and the general water situation is to irrigate well now and be prepared to cut back if stream flows fall too low. So far, it looks like we will not experience drought conditions this year for a welcome change. Hay and pasture crops will use 6-8 inches in June and small grains 5-8 inches. Know your soil water holding capacity and crop water use so you don't over-irrigate – or just monitor and stop irrigating when water has penetrated your entire crop root zone (2-3 feet).

Watch Soil Moisture in New Plantings

With hot, dry conditions continuing, it's important to monitor recent planting for good germination and emergence. It only takes a day or two for the surface few inches of soil to dry out considerably. You may need multiple small irrigations to achieve ideal results.

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 2017 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

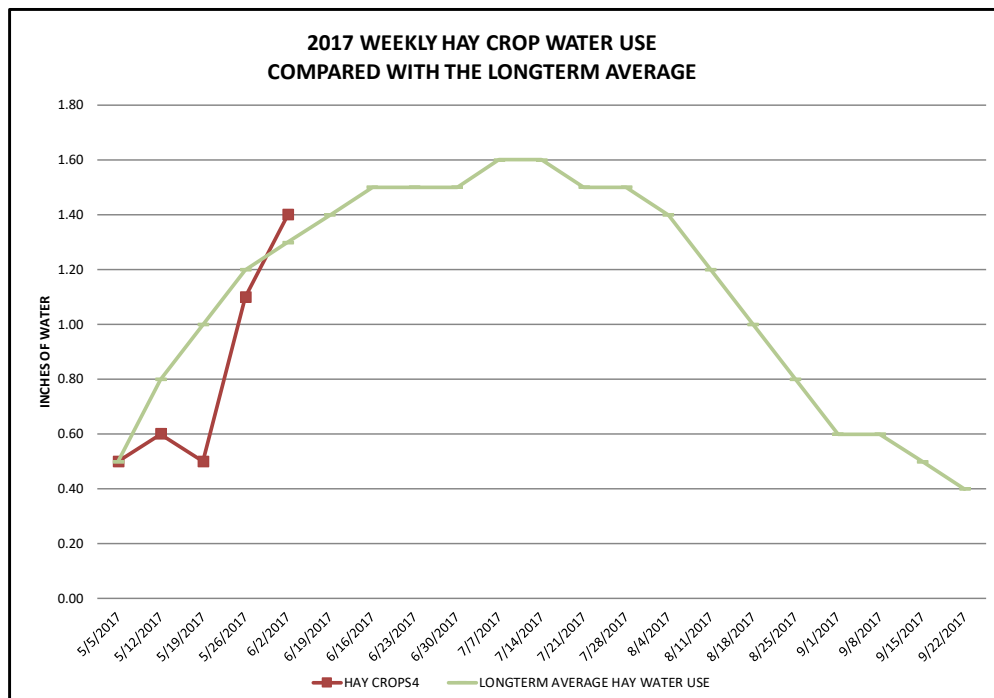
	RAIN ¹	2017 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE POTENTIAL CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-1 START	SPRING GRAINS 5-15 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE HAY WATER USE	HOT WEEK HAY WATER USE	COOL WEEK HAY WATER USE
5/5/2017	0.02	0.50	0.40	0.10	0.10	0.50	0.50	0.50	0.80	0.20
5/12/2017	0.25	0.60	0.70	0.10	0.10	0.90	0.70	0.80	1.00	0.50
5/19/2017	1.00	0.50	0.60	0.10	0.10	0.60	0.50	1.00	1.10	0.60
5/26/2017	0.00	1.10	1.00	0.20	0.10	1.10	1.10	1.20	1.20	0.80
6/2/2017	0.25	1.40	1.30	0.60	0.20	1.50	1.40	1.30	1.30	0.90
6/19/2017								1.40	1.50	1.00
6/16/2017								1.50	1.70	1.10
6/23/2017								1.50	1.90	1.10
6/30/2017								1.50	2.00	1.20
7/7/2017								1.60	2.10	1.30
7/14/2017								1.60	2.00	1.20
7/21/2017								1.50	1.90	1.20
7/28/2017								1.50	2.20	1.10
8/4/2017								1.40	1.70	1.00
8/11/2017								1.20	1.50	0.90
8/18/2017								1.00	1.30	0.70
8/25/2017								0.80	1.00	0.50
9/1/2017								0.60	0.80	0.40
9/8/2017								0.60	0.70	0.30
9/15/2017								0.50	0.70	0.30
9/22/2017								0.40	0.60	0.20
9/29/2017								0.40	0.60	0.20
TOTAL	3.02	4.80	4.60	1.20	0.70	5.50	5.00	24.80	31.10	17.20

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 is 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 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.
- 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.