



BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

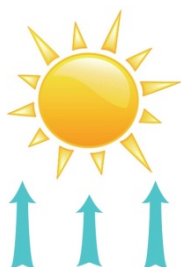
Friday August 29, 2014

The week started with significant rainfall, mostly ½-1 inch across Blackfoot drainage croplands. Scattered thunderstorms are predicted for next week and much cooler temperatures. Crop water use dropped to under 1 inch for hay crops last week and should be similar next week. Cooler weather and cutting has reduced crop water use making it a great time to boost soil moisture for pasture or other additional crop growth. A full soil can get you through the rest of the season if temperatures remain cool. The last page of this report is a condensed summary of recommendations for the entire season.



WEATHER - COOLER, MIX OF THUNDERSTORMS AND SUNNY

Blackfoot drainage croplands received substantial rain last weekend (mostly Friday-Saturday). Most sites had ½-1 inch with scattered reports of more. Temperatures were cooler with most highs in the 60s and 70s. Next week looks like cooler temperatures and less rainfall. The 30 and 90 day forecasts still suggest normal temperatures and above normal rainfall.



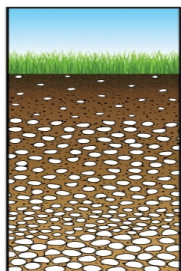
CROP WATER USE - REDUCED WITH COOLER WEATHER

Crop water dropped this last week due to cooler weather. Crop water use should generally continue to decline for the remainder of the growing season. 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	0.9	0.9 (0.8 - 1.0)	21.9
PASTURE	0.7	0.7 (0.6 - 0.8)	18.7
SPRING GRAINS	0.0 Mature	0.0 Mature	16.2
WINTER WHEAT	0.0 Mature	0.0 Mature	14.1
LAWNS	0.8	0.8 (0.7 -1.0)	21.0

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

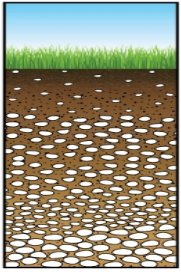
²Beginning May 1 - season start date



SOIL MOISTURE - LOW UNLESS IRRIGATED

Soil moisture levels dropped only slightly this week since most areas received almost as much rain as the crop used. Crop water use slows as soil moisture gets low.

WEEKLY TIPS



TAKE ADVANTAGE OF COOLER WEATHER TO BUILD UP SOIL MOISTURE

If you're done irrigating, you're done. But if you want more pasture, a second cutting or are re-planting – cooler weather lets you store up soil moisture. We often joke about only irrigating at night when evaporation is lower and more goes into the soil for crop use. That would be nice but not practical with current irrigation systems. However, you can think of cooler/moister weather in the same way. Periods of cool, wet weather are predicted this next week. Crop water use will drop to less than 1 inch (less than ½ inch for just-cut hay). Most local cropland soils hold 4-6 inches of water in a hay/pasture root zone (3 feet). Extra stored soil moisture helps you get through periods of higher crop water use, equipment breakdowns or other distractions. Fill up now and it may last the rest of the season.

HAY CROPS ARE RECOVERING FROM CUTTING

Hay crops are most stressed at cutting (try having your head cut off) and recent hot weather added more stress. Cooler temperatures and a little rainfall this week reduced stress but most fields should still be irrigated once after cutting if possible. Crop water use decreases with cutting by approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third. This is the best time to increase soil moisture while crop use is reduced. Since less gets used by the crop, more goes into soil storage.

NO DROUGHT IN SIGHT - RIVER NEAR AVERAGE - DROUGHT PLANNERS RELIEVED!

Blackfoot streamflow is again slightly above average this week due to recent rainfall throughout the drainage. It looks like drought discussions will not need to come out of the closet this season and we can let those drought plans collect a season of well-deserved dust. The Blackfoot River at Bonner is flowing at about 765 CFS today which is just above the 710 average. The highest flow on this date was 1580 (1899) and the lowest flow was 341 (1988).

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)

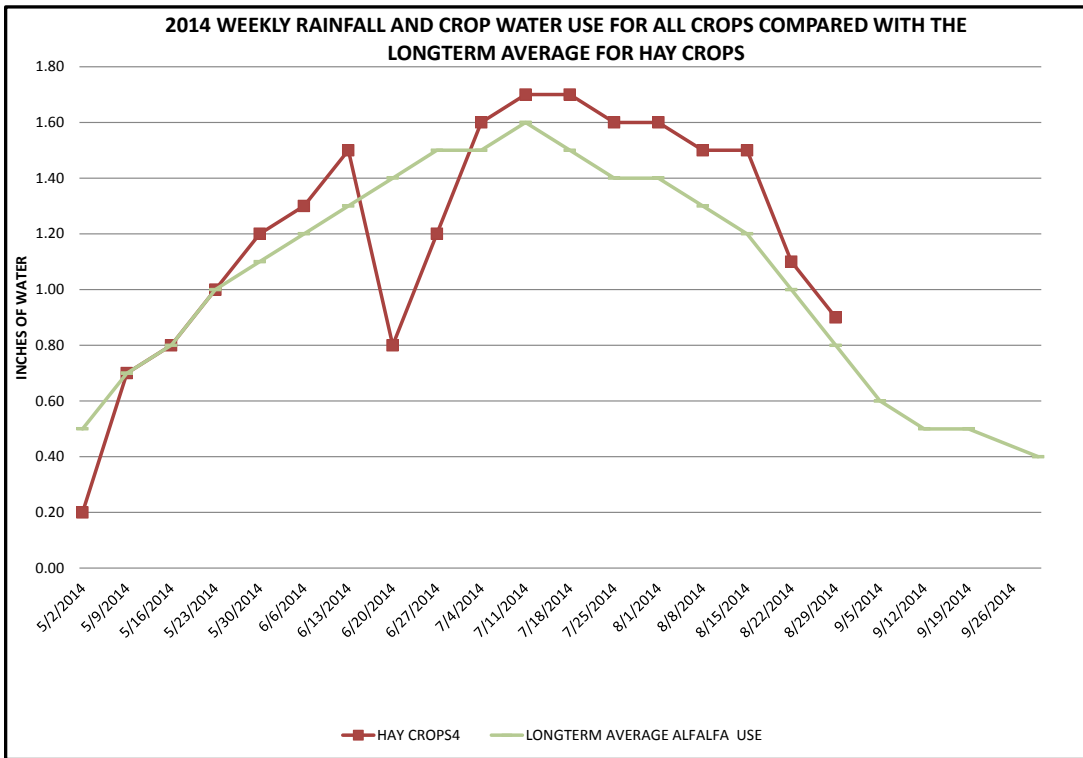
	RAIN ¹	2013 WEEKLY POTENTIAL CROP WATER USE ²						AVERAGE POTENTIAL CROP WATER USE ³		
	RAIN	HAY CROPS ⁴	PASTURE	SPRING GRAINS 5-15 START	SPRING GRAINS 5-30 START	WINTER WHEAT	LAWNS	LONGTERM AVERAGE ALFALFA USE	HOT WEEK ALFALFA HAY WATER USE	COOL WEEK ALFALFA HAY WATER USE
5/2/2014	0.10	0.20	0.20	0.00	0.00	0.20	0.20	0.50	0.80	0.20
5/9/2014	0.50	0.70	0.60	0.00	0.00	0.80	0.70	0.70	0.90	0.30
5/16/2014	0.30	0.80	0.70	0.00	0.00	0.90	0.80	0.80	1.00	0.40
5/23/2014	0.30	1.00	0.80	0.25	0.00	1.10	0.90	1.00	1.10	0.60
5/30/2014	0.10	1.20	1.10	0.75	0.00	1.30	1.10	1.10	1.20	0.80
6/6/2014	0.10	1.30	1.20	0.90	0.30	1.40	1.20	1.20	1.30	0.90
6/13/2014	0.10	1.50	1.25	1.25	0.75	1.75	1.40	1.30	1.50	1.00
6/20/2014	1.25	0.80	0.70	0.80	0.60	0.80	0.80	1.40	1.70	1.10
6/27/2014	0.50	1.20	1.00	1.40	1.00	1.40	1.10	1.50	1.90	1.10
7/4/2014	0.10	1.60	1.40	1.75	1.50	1.50	1.50	1.50	2.00	1.20
7/11/2014	0.00	1.70	1.50	1.80	1.80	1.40	1.60	1.60	2.10	1.30
7/18/2014	0.00	1.70	1.50	2.00	2.00	0.80	1.60	1.50	2.00	1.20
7/25/2014	0.20	1.60	1.30	1.70	1.70	0.50	1.50	1.40	1.90	1.10
8/1/2014	0.10	1.60	1.40	1.50	1.50	0.25	1.50	1.40	2.20	1.10
8/8/2014	0.10	1.50	1.30	1.50	1.50	0.00	1.50	1.30	1.70	1.00
8/15/2014	0.10	1.50	1.20	0.50	0.50	0.00	1.40	1.20	1.50	0.90
8/22/2014	0.20	1.10	0.80	0.10	0.10	0.00	1.00	1.00	1.30	0.70
8/29/2014	0.50	0.90	0.70	0.00	0.00	0.00	0.80	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	4.55	21.90	18.65	16.20	13.25	14.10	20.60	23.20	29.90	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 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 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.