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The Canadian Agriculture Weather Prognosticator

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Ontario And Quebec

Degree-day accumulations may be a little light in Ontario and Quebec corn and soybean production areas. Crop development has been mostly very good this summer and yield potentials are suspected of being high.

WORLD WEATHER ISSUES

- Eastern Australia continues to deal with dryness, but some temporary relief is expected Friday and Saturday
- Western Europe is not quite as dry as it once was and it has been cooler, but drought is not over
- Eastern Ukraine and the middle and latter Volga River Basin in Russia have been trending too dry recently threatening late season crops
- U.S. Midwest weather has been very good this year and another record large grain and oilseed crop is possible
- Central China is drying out
- NW India received some very important rainfall in the past week easing long term dryness

Mid-September Coolness???

Three waves of coolness have occurred this month impacting various parts of the Prairies. Several reports of soft frost and a couple of very light freezes were reported during these cool periods. The impact on crops was mostly minimal, but it has many folks scared over the prospects of a more significant frost or freeze event in the next few weeks.

Early season crops are already being harvested in much of the drought impacted region of the Prairies, but there are some areas that still have very green crops. One of those areas is in western and northern Alberta where crops need warm weather through mid-September to escape a significant threat of damage if significant frost or freezes occurred anytime before then.

There are a few other areas in the Prairies that would also be negatively impacted by frost or freezes in the next few weeks. Most of the late season soybean, flax and some corn might be negatively impacted along with Alberta's crops. Many of the late season crops vulnerable to the cold are in the southeastern corner of the Prairies.

The frost reported earlier this month occurred within days of some incredibly hot weather. Temperatures peaked out in the 30s and lower 40s Celsius earlier this month and just a few days later they were flirting with 0C.

The crazy range of temperatures is the direct result of drought and in any year in which dryness is an issue similar conditions will result. Air that is lacking moisture will heat and cool much faster than air that is full of moisture. That is why the foggy nights are rarely very cold and the afternoon temperatures on a foggy day have a tough time changing much. That contrasts with the diurnal temperature changes earlier this month that often ranged from upper single digits in the mornings to the lower and middle 30s in the afternoons.

The fear is that these same temperature ranges might occur into September and if that happens any moderately cool airmass will have the potential for dropping temperatures below freezing. That raises some concern for those producers in the Prairies that still have green crops.

Weather conditions in the next few weeks will change just enough to possibly spare the green crops from damaging cool conditions—at least through the first one-third of September.

That does not mean temperatures will not be cool for the next few weeks. Some cooling is expected this weekend into early next week and if the Prairies escape damaging frost and freezes during that period of time—which is likely– crops may be able to get into the second week of September without a serious threat.

The key to the next three weeks of weather is going to be focused on two factors. The first is relatively humidity and the second is the position of a high pressure ridge expected in the United States.

Drought remains widespread in the Prairies. Dry soil and recent limited atmospheric moisture has been minimal and that has kept relative humidity (a measurement of moisture in the atmosphere) very low. An unsettled weather pattern is expected to evolve in the Prairies over

Mid-September Coolness??? (continued from page 1)

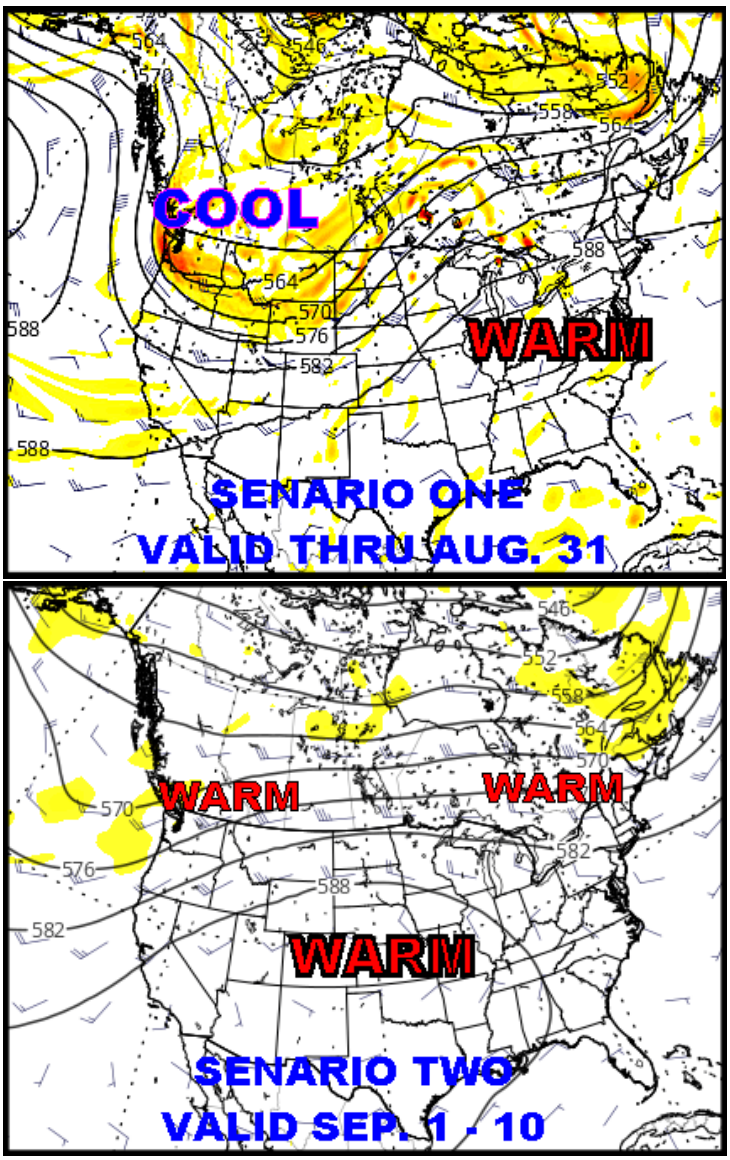
the coming weekend and next week. That unsettled pattern will bring frequent weather disturbances across the region and each event will bring a little moisture to the region. The moisture will come as isolated to scattered showers. Any precipitation that falls in the region will help to moisten the atmosphere after the topsoil is briefly moistened. The evaporation of recently fallen rain back into the air is one way that the atmosphere moistens. Another way, of course, is to bring in large weather systems from the Pacific Ocean or northern U.S. that would bring moisture into the region.

No big storm systems are anticipated for the Prairies in the next few weeks, but many small disturbances are expected. It is possible that just enough of a boost in humidity will take place to reduce the diurnal temperatures changes. If that is successfully accomplished it may be harder for the next few cool air masses to bring down temperatures enough to cause frost or freezes.

Weather patterns in this coming week to ten days will not only bring in some higher relative humidity, but will induce periods of cloud cover. Even though the atmosphere will be cooling down this weekend and for a while next week increased humidity and cloud cover may help hold up the temperatures. The one weather feature that can come along and greatly change this situation is a cool high pressure center.

If a cool surface high pressure center settles into the Prairies it would likely clear out the skies, reduce humidity and allow temperatures to tumble more significantly. A close watch on the atmosphere is needed in the next week to nearly ten days to make sure there are no significantly strong surface high pressure systems coming into the region. If there are none the odds will be high that no damaging cold will occur through the end of next week.

If the Prairies are frost free through the end of next week another weather pattern change is expected to occur that should further minimalize the potential for cold weather in the region. That change is the building of high pressure aloft over the central United States. If the high pressure ridge evolves as advertised in some of the computer forecast models the cool air we are dealing with in this coming week to ten days will be forced to retreat back to the north and warmer air will then dominate the Prairies for another week to ten days.



The next time that the ridge of high pressure in the United States either breaks down or shifts to the east will be the next time that frost and freezes will be possible in the Prairies once again. The two scenario maps shown on this page reflect weather conditions in the coming ten days (scenario one) and the pattern for the following ten days (scenario two). As long as these two patterns occur as advertised with no significant high pressure system at the surface in this first ten days the Prairies should make it through the first ten days of September without damaging cold.

All bets will be off for the middle and latter parts of September for continued warm weather. Frost and freezes are quite likely at that point, but most of today's immature crops will have developed far enough bye then to avoid serious damage if cold occurs as expected.

Forecasters will be watching these two ten-day patterns closely for signs of failure, but if the everything goes according to plan immature crops have 20 days of development ahead. However, it will get chilly for a while this weekend into mid-week next week. Cooling should occur quickly if and when the early September high pressure ridge breaks down.

Late September, October May Trend Wetter

Late September and October will be the most favored period for improved precipitation across the Prairies. But, with that said, there is still some potential that areas in eastern Alberta and western Saskatchewan may continue to experience below average amount of moisture. If that is the case, these are the areas that will need to be closely monitored in the spring for limited soil moisture to start the 2019 growing season.

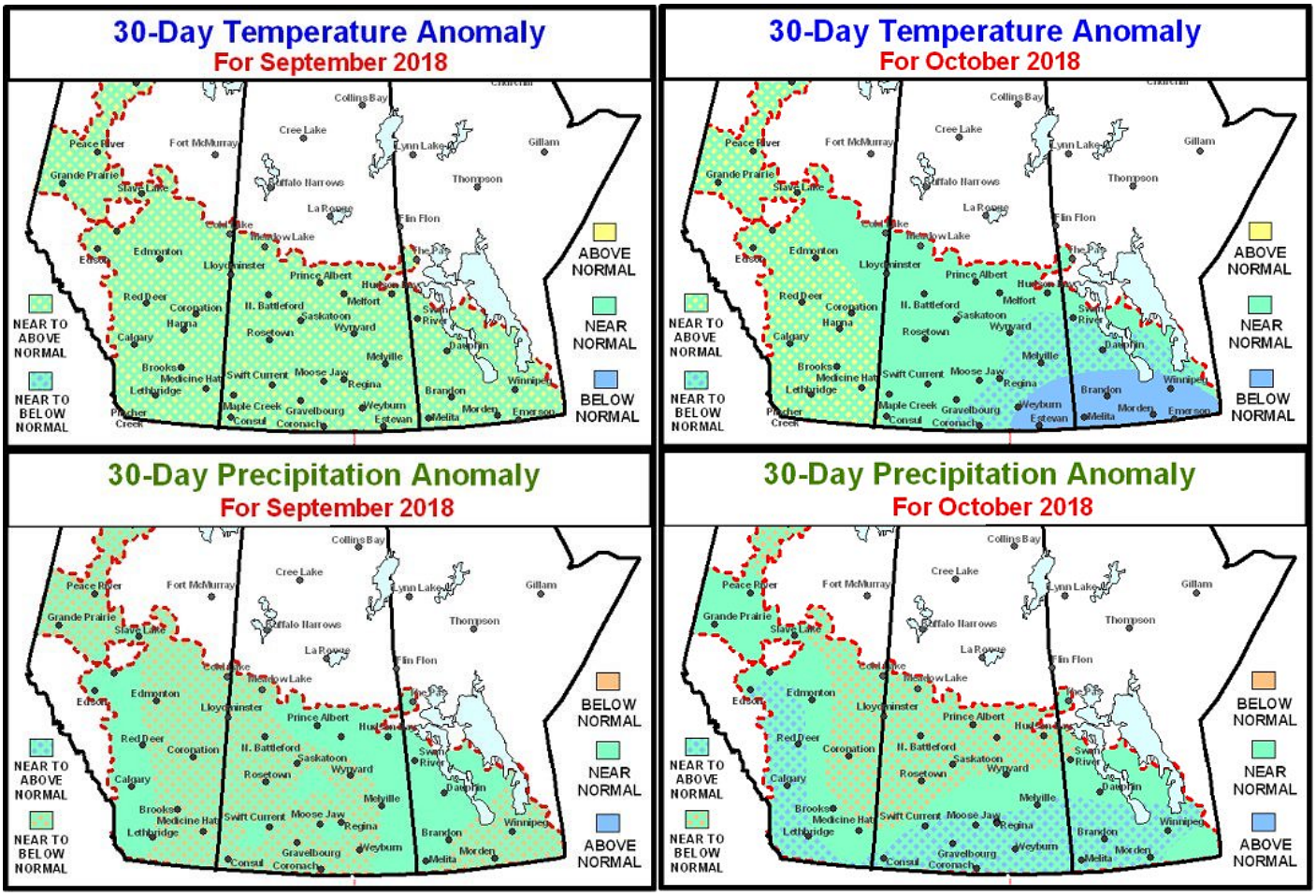
Even through some improved precipitation is advertised for late September and October that does not mean nor should it be implied that subsoil moisture will be restored. The reality is that some moisture may be put back into the topsoil, but subsoil moisture will remain quite low.

The weather expected this autumn will be most favorable for some needed rain to fall after the first frost and freezes occur in mid– to late-September. Once the cool air has settled in at least one time over much of the Prairies the stage will be set for alternating periods of warmer and cooler weather that should help stimulate some periodic rainfall and perhaps a little early season snow. The moisture—like last year—will be extremely important in setting the stage for a least some moisture for planting 2019 crops in case winter precipitation is below average.

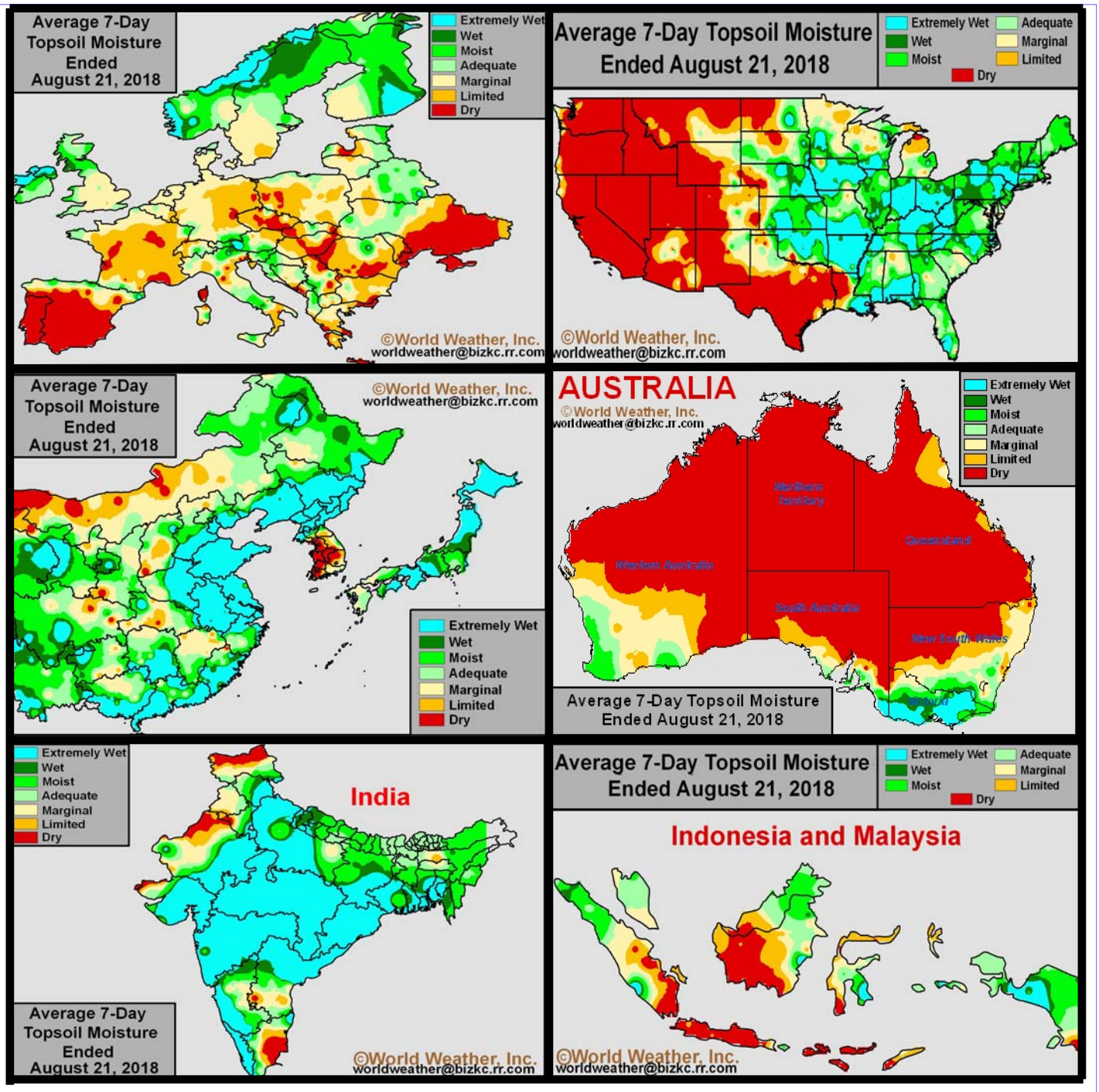
El Nino is predicted for the winter 2018-19 and if it is traditional the Prairies will experience below average precipitation and warmer than usual temperatures. That may not bode well for deep snow cover to help soak into the ground during the spring snow melt season. But, every El Nino is a little different and there is always hope for surprisingly beneficial moisture.

September temperatures are still expected to be warmer than usual, although there may be some periodic cooling in the middle to latter part of the month. The warm weather bias in September will occur while rainfall is mostly near to below average which does not offer much chance for improved soil moisture except late in the month when the greater amounts of rain are most likely.

October weather is expected to be cooler than usual in the eastern Prairies and warmer biased in Alberta. Precipitation in October will be near to above average along the front range of the Alberta mountains as high pressure systems move from northwest to southeast through the Prairies. Near to above average moisture will also occur in the southeastern Prairies due to storm systems expected in the northern U.S. Plains.



Selected Weather Images From Around The World

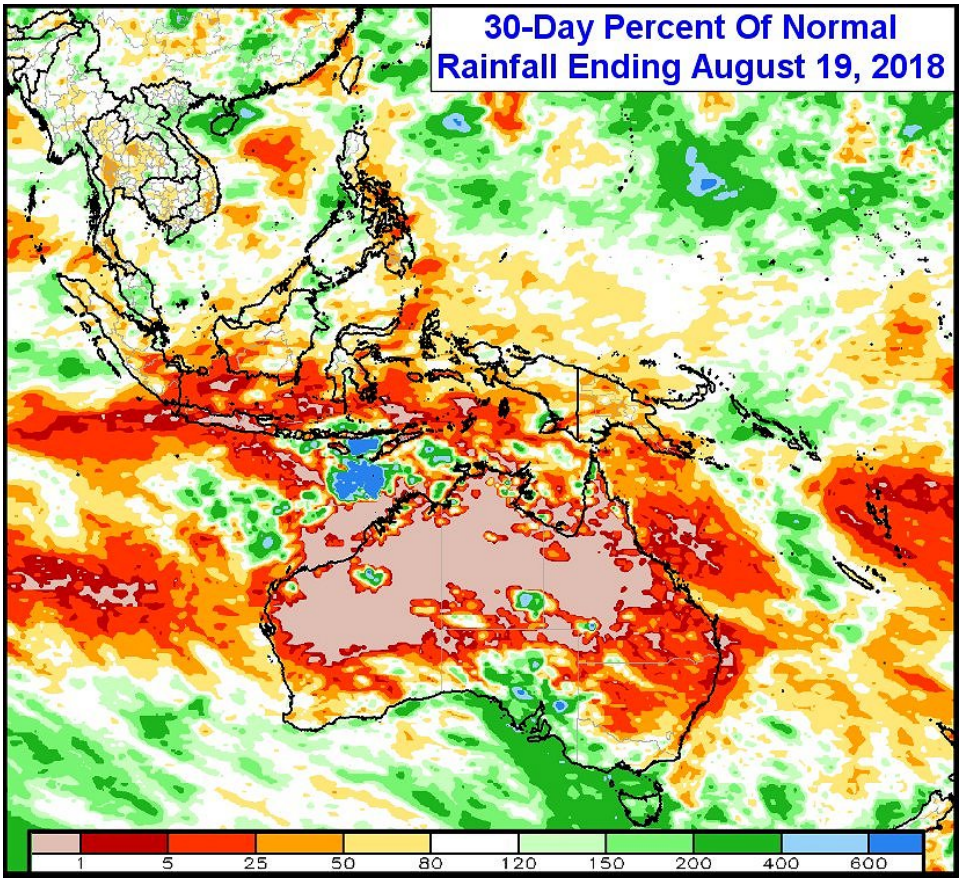


U.S. weather in August improved with well-timed rainfall and seasonable temperatures dominating the month. Dry pockets across the Midwest and Delta have diminished greatly and crop conditions are mostly favorable supporting forecasts of another bumper crop year. India's rainfall improved in August, as well, with most of the grain, oilseed and cotton areas reporting mostly good conditions. Some additional rain is needed in the far northwest and extreme south as well as in the lower Ganges River Basin. Indonesia still has dryness issues threatening rice, corn, tea and other short rooted crops, but oil palm, rubber and coconut production has not been impacted—at least not yet. China's weather has also been mostly good in recent weeks, but a drying trend is under way in central parts of eastern crop areas and rain will be needed in September to support late season crops. Australia's drought in the east remains serious, but some rain will fall late this week. Europe has managed to cool down somewhat, but rainfall remains lacking leaving much of the continent in need of rain for late season summer coarse grain and oilseed crops.

SE Asia, Australia May Get Relief Ahead Of El Nino

The wait for El Nino is on. Most computer forecast models continue to suggest an El Nino event will begin evolving in September and it may be a significant event for a few months during the heart of the Northern Hemisphere winter. 2018 has already been an interesting year for crop weather with drought still under way in Europe, dryness from eastern Ukraine into the Russia's Volga River Basin and in Canada's Prairies.

The most interesting areas of dryness, however, are those of eastern Australia, Indonesia and Malaysia and lighter than usual rainfall in parts of India and the Philippines. These areas of less than usual rainfall in recent weeks have occurred without El Nino and there are no immediate indications of El Nino developing for a while. However, with the prospects of El Nino still looming there is a growing fear that drought could be more serious in the next few months as El Nino evolves if there is no significant relief soon.



World Weather, Inc. believes that some much needed rain will develop erratically in eastern Australia, Indonesia, Malaysia and parts of India in the next few weeks. Most of the rain expected, however, is likely to be lighter than usual. The precipitation will be extremely important since without it the ground in each of these areas could already be too low on moisture long before El Nino begins. El Nino events restrict moisture from reaching each of these areas and at a time when the ground is already dry the situation could lead to some greater production cuts for some crops.

Winter wheat, barley and canola will begin reproducing in September and that adds some pressure to the need for significant rain. Queensland is not nearly as important a player in winter crop production as New South Wales. Queensland produces 3% of the nation's barley and 6% of the nation's wheat in a normal year while no significant canola comes from the state. That contrasts with New South Wales where 20% of the barley, 29% of the wheat and 31% of the canola is produced.

Southern portions of New South Wales wheat, barley and canola production areas were not nearly as dry as the north was in the late April through early August period and crops in those areas will outperform those in the drier northern production areas. It will be of critical importance that rain falls in the next few weeks to support the best yield potentials in Queensland and northern New South Wales.

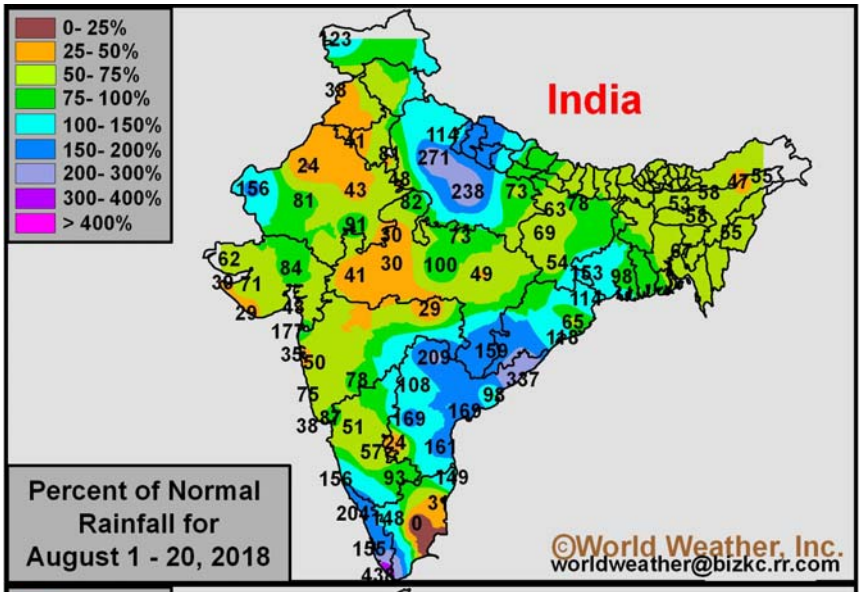
Some rain will fall across east-central Australia's dry region August 23-25 that will bring a little relief, but much more rain is needed to ensure the best possible reproductive conditions in September.

A similar situation has plagued Indonesia in recent weeks. The nation's archipelago produces sugarcane, coffee, cocoa, corn, rice, rubber, tea and of course a huge amount of the world's palm oil (among other commodities). Portions of Indonesia have received less than half of normal rainfall since mid-July and soil moisture is quite limited in central and southern Sumatra, Java, Sulawesi and western portions of Kalimantan. Short-rooted crops in Indonesia have already experienced some increasing crop stress in recent weeks because of limited rain and seasonably warm temperatures. However, deep-rooted crops like coconut, palm, rubber, pineapple and banana trees have not felt any impact from the dryness because of much better soil moisture down deep into the ground.

The deep-rooted crops in Indone-

SE Asia, Australia May Get Relief (continued from Page 5)

sia, Malaysia and the Philippines would not likely be impacted by significant moisture stress unless dryness lasts for a few months. Developing El Nino events usually do just that. They deplete soil moisture due to restricted rainfall and warm temperatures over multiple months and the impact is usually greatest several months after the dryness begins at a time when subsoil moisture finally becomes significantly restricted. Having dryness already in the soil now raises the potential for production cuts to come earlier in 2019 than would have otherwise occurred had the past few weeks of dryness not evolved.



In the case of India, summer monsoonal rainfall this year has been timely in most of the nation leaving crop moisture favorably rated. However, total rainfall reported since June 1 has been below average from Gujarat through northern Madhya Pradesh to the lower Ganges River Basin. This region produces soybeans, peanuts, rice, corn, sorghum and a small amount of sugarcane. The timeliness of rainfall reported across India so far this summer has been sufficient to support crop development, but if El Nino begins evolving in September there might be a premature withdrawal of seasonal rainfall that could have a negative impact on production if there is no bolstering of soil moisture prior to the start of El Nino evolution.

Weather patterns in each of these important southern Asian and eastern Australia locations during the next few weeks will not be influenced by El Nino. That opens the door of opportunity for more "normal" weather to impact the region for a little while. "Normal" weather might bring timely rainfall to India, Indonesia, Malaysia, the Philippines and eastern Australia. Most likely, "normal", weather will not evolve, but these areas should receive a few very important bouts of rain in the next few weeks that may help ease dryness and support some short term crop development.

The importance of the next few weeks of shower opportunity cannot be overstated. Any rain that falls will have much to say about the overall health of crops and the ability for crops in the region to deal with early season El Nino dryness. An absence of rain or well below average precipitation will lead to greater crop stress and a larger threat to production for many crops grown in southern Asia and eastern Australia whereas timely rain that is periodically quite significant can greatly improve eastern Australia winter grain and oilseed production potential.

In the meantime, mid-latitude droughts in Europe, Ukraine, Russia and Canada will likely be eased as summer winds down and autumn begins. Seasonal cooling of the atmosphere will break down the various blocking weather patterns responsible for dryness in each of these areas. That should bring an end to chronic dryness and raise potential for improving soil moisture. Unfortunately for these mid-latitude locations it is probably too late to fully recover production for summer coarse grain and oilseeds, but the moisture will have much to say about planting conditions for winter wheat, barley and rye.

The latest information suggests El Nino will not begin evolving until mid-September leaving opportunity for some rain

Patches Of Frost Possible Saturday, Tuesday

As noted in the page one story of this prognosticator there is potential that if the Prairies get through the next ten days of cool weather green crops may not be threatened by frost and freezes again until after September 10. With that said it is important to note that cool conditions will evolve this weekend and early next week.

Similar to the three other bouts of cool weather that have occurred this month there is potential for soft frost to occur in portions of northeastern Saskatchewan and Manitoba Saturday and in parts of Alberta and western Saskatchewan Tuesday of next week (August 28). As long as there are no strong surface high pressure centers around the lowest temperatures will slip to the range of 1 to 4 Celsius with a couple of locations possibly dipping near zero.

Without a stronger surface high pressure center in this coming week most of these temperatures will not be cold enough to induce significant frost damage, but the situation needs to be closely monitored.

High pressure systems expected north of Saskatchewan Saturday and in southern Alberta Tuesday should be too weak for seriously cold conditions. Warming is expected later next week.

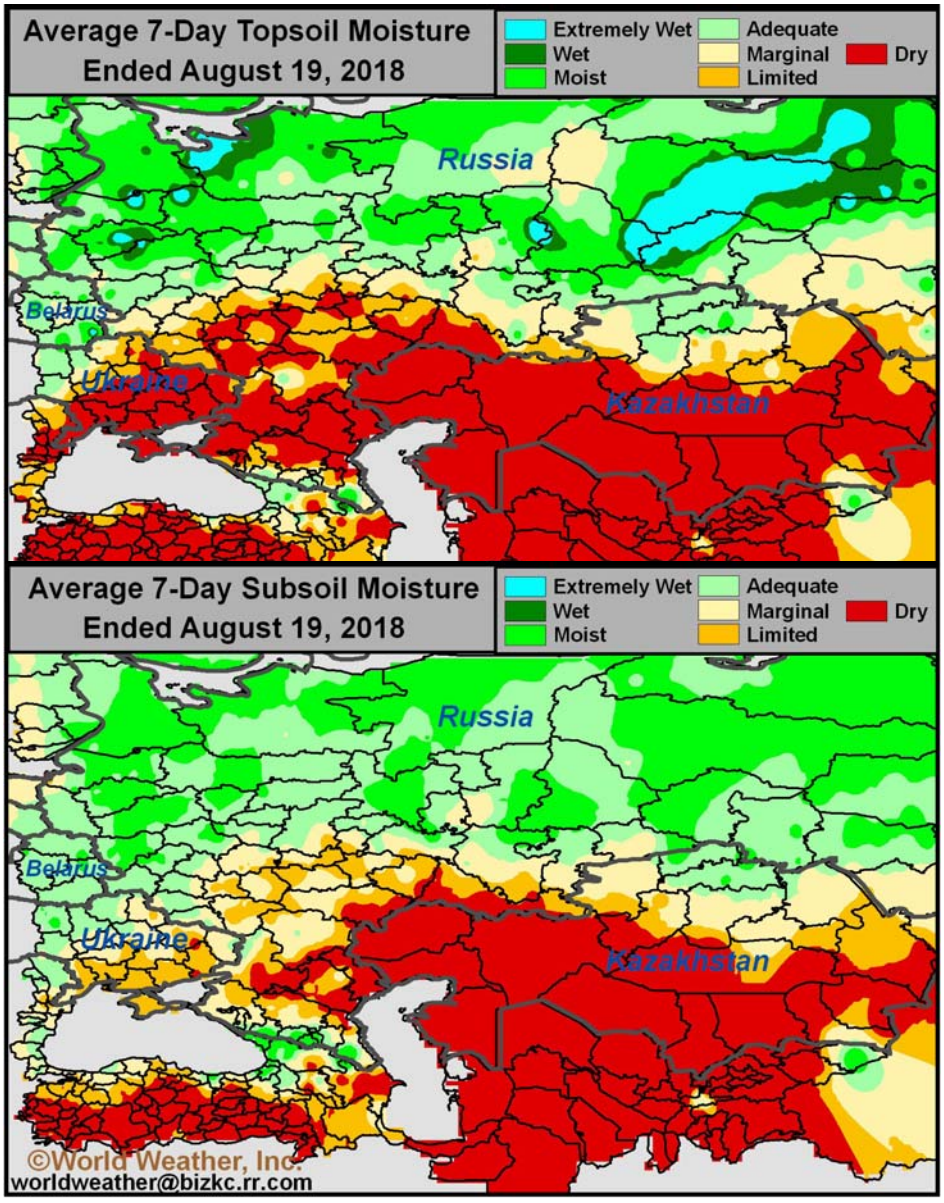
East Ukraine, Southern Russia Dry Down

Drought conditions have returned to southern Russia and the central and eastern portions of Ukraine. These areas were drier biased earlier this summer, but July rainfall and cooler temperatures came along and offered some much needed relief. The environment led to some improvement in corn, sunseed, soybean, potato and sugarbeet crops.

Rainfall this month has been minimal and temperatures have slowly creeped back above average. The persistent warm and dry weather accelerated evaporation rates leading to the depletion of topsoil moisture once again.

Subsoil moisture is only slightly better than that in the topsoil. Crop stress has been slowly increasing and late season crops—like soybeans, sunseed and late season corn—are being negatively impacted. The need for widespread rain is rising every day and without it the stress may be reducing the yield and quality of some late season crops.

Weather conditions are not likely to change greatly in the next ten days to possibly two weeks. Continued restricted rainfall and warm temperatures will maintain crop stress as soil moisture becomes critically short. Temperatures will not be excessively hot, but warm enough to stress crops.



Late Season Heat, Dryness Impacts Prairies

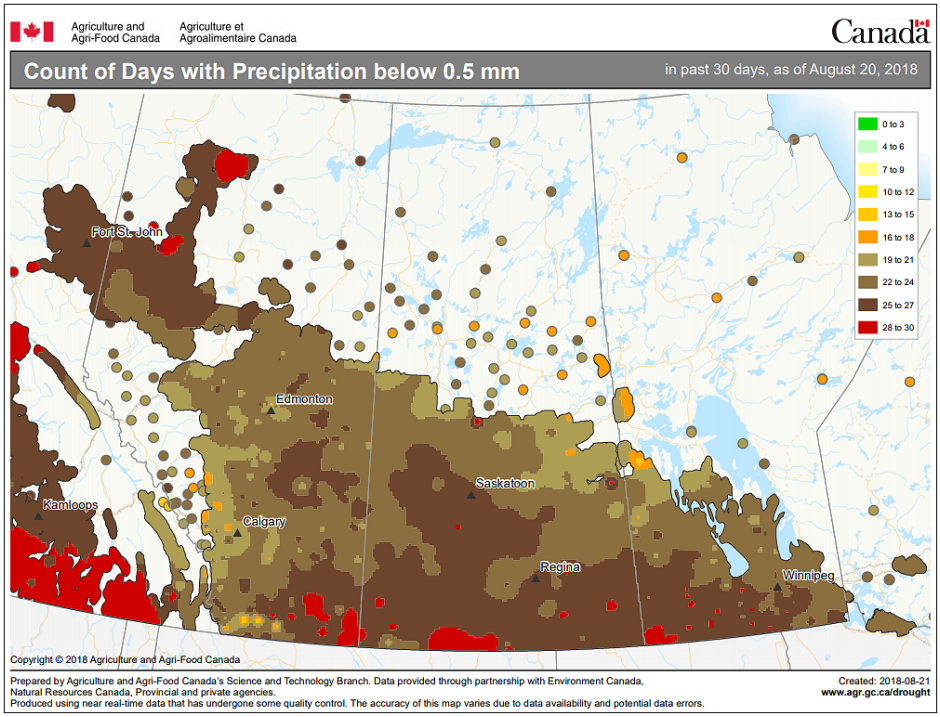
Some areas in the southern and central parts of the Prairies have reported only a few days out of the past 30 days in which rainfall was greater than 0.5 millimeter. Some areas near the U.S. border have been nearly dry.

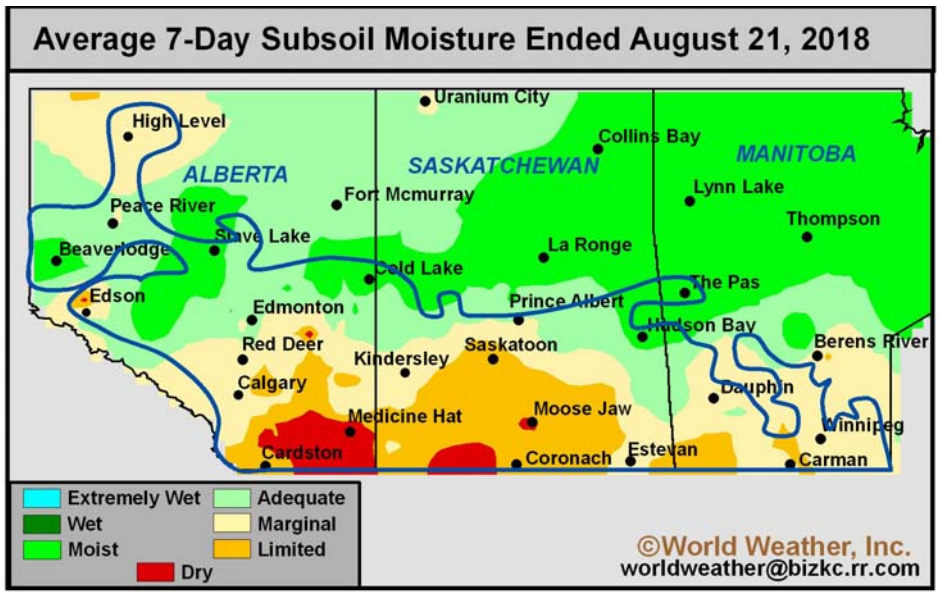
Needless to say, conditions have dried down significantly in the past 30 days. Most of the Prairies has reported well below average precipitation and moisture has taken a dive into the very short category in both the top and subsoil in many areas.

Temperatures earlier this month reached high into the 30s and lower 40s, although more recent readings were closer to average. Rainfall has been minimal in many areas and at this time of year seasonable temperatures still evaporate significant amounts of moisture from the ground when rain fails to evolve.

It is too late for the central and southern Prairies to benefit much from rain. Harvesting is under way and advancing faster than usual which is to be expected in this environment. Some showers will evolve in the next couple of weeks, but they will be brief and light enough to have a minimal impact on field progress.

The only concern might be for the quality of crops lying in the swath, but most areas will not get enough rain to seriously harm cut crops. With that said, western and northern Alberta will be plenty moist over the next ten days as it has been at times this summer. Some areas in northern Saskatchewan will also be impacted with some significant moisture. A few thunderstorms may eventually show up in eastern Saskatchewan and Manitoba in the balance of August, but the moisture will only be a temporary issue for harvesting.





Not shown on this page is the topsoil moisture assessment which is still rated short to very short in nearly all of the Prairies. Subsoil moisture is favorable in the north and far western parts of the Prairies where the most immature crops remain.

The areas shown in green on the subsoil moisture chart likely include many of the most immature crop areas in the Prairies. These areas need dry and warm weather over the next few weeks to finish crop development properly.