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# The Canadian Agriculture Weather Prognosticator

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## *World Weather At A Glance*

- Heat and dryness that impacted Russia's southeastern New Lands and northern Kazakhstan wheat and sunseed area has been eased
- Europe has many areas of dryness that is stressing crops, but it is not as severe as that of 2022.
- India's monsoon has been performing better than many had feared
- El Nino's influence on the world has not been very serious—at least not so far
- Australia's winter crops are favorably established, though rain is still needed in Queensland.
- China is driest in central and western Inner Mongolia impacting spring wheat, sunseed, sugarbeets and some corn; most of the nation is doing well with rain
- U.S. drought was eased recently, though the upper Midwest and northern Plains remain a concern

## Excuses Don't Help When Rain Fails

Field conditions deteriorated in a large part of the Prairies over the past few weeks and rain has failed to evolve. It is too late for many crops to recover and those that can are likely to miss out on some of the most important rain of the season next week.

The previous prognosticator suggested a changing weather pattern would occur in the second half of July bringing rain to many areas that had been suffering from expanding and persistent dryness. Watching the computer forecast models this week has been nothing less than frustrating, but the advertised rain event for mid-week next week was the event World Weather, Inc. was looking for to bring the relief so long advertised, but the system is much farther to the north than expected.

The more northward shift in the rain event is a byproduct of a stronger ridge of high pressure that will be allowed to evolve over the western United States over the coming two weeks. That stronger ridge is the byproduct of failed monsoonal rainfall coming northward out of Mexico. Without the moisture flux into the Rocky Mountain region it will be much easier for a ridge of high pressure to evolve and be stronger than expected.

The late spring and early summer ridge position that was over the western U.S. Midwest and eastern Great Plains was perfectly located to induce dryness in the U.S. Corn and Soybean Belt while rain fell frequently in the Plains. That scenario fit well with the spring and early summer outlook and provided plenty of support for the expectation for rain to develop in the Prairies during July and August.

What was not expected was the combined impact of the ridge being farther east and an El Nino induced delay in the start of monsoon moisture coming into the southwestern U.S. This delay in monsoon moisture flux allowed the western U.S. to heat up a little quicker and dry out rapidly.

A new ridge of high pressure is expected to build up over the interior western United States this weekend and because of the dryness over the west it is going find great comfort in being in that position. Enough rain has fallen frequently in the U.S. Central Plains and to some degree over the Midwest to leave the ridge much happier over the western U.S. where there is no moisture.

As noted before ridges of high pressure are much happier over areas with no soil moisture and the western U.S. is the best place for that right now. Unfortunately, the Prairies are also quite dry and that too will help the ridge of high pressure be strong for a while in late July. As a result there is going to be more ridge building in the Prairies late this weekend and early next week sending our most important rain event of the season to the north and leaving some of the driest areas too dry.

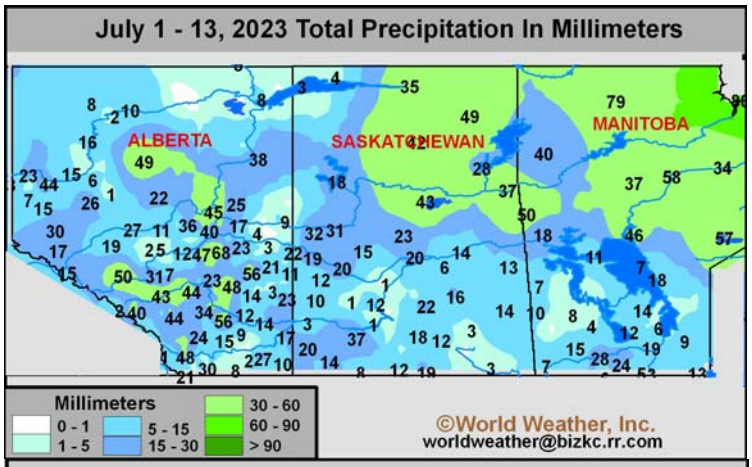
The ridge will briefly weaken during mid-week as a part of the Prairies get rain, but it will be back and when it does it will bring the heat with it and that will lead us into a very threatening environment with our crops becoming more seriously stressed. The returning heat will raise the need for soil moisture and crops that were on hold during the cool weather will become seriously distressed.

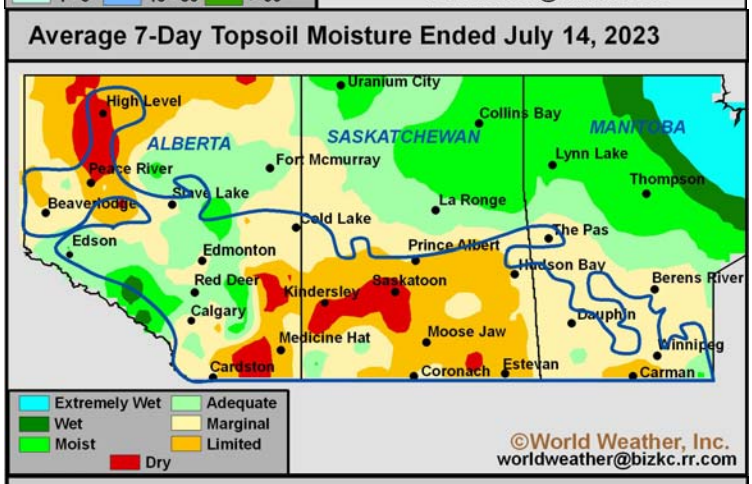
# High Pressure To Bring Back The Heat, Cut Production

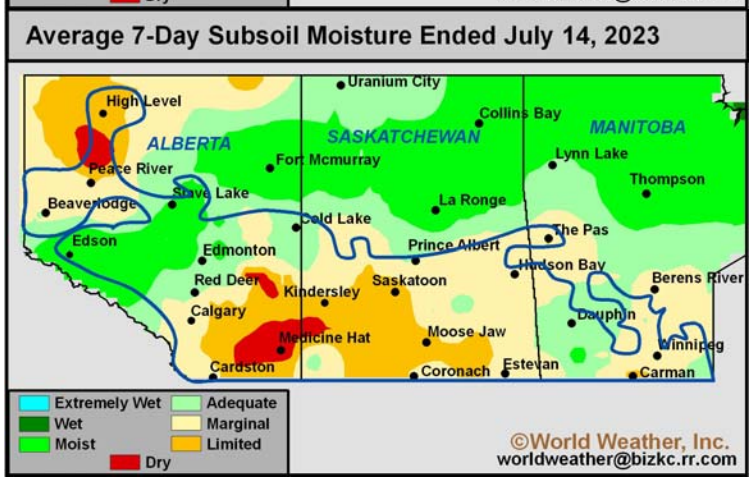
Canada's Prairies weather has been deteriorating east of central Alberta and especially in Saskatchewan in recent weeks. Cool temperatures have helped to keep crops viable and if a significant rain were to fall immediately crop production would likely turn around relatively well; however, the outlook is for drier and warmer weather especially in Saskatchewan after the middle part of next week and that is going to lead to accelerated yield and production cuts for most late season crops if the mid-week rain event proves inadequate in bolstering soil moisture as it may.

Central, western and northern Alberta crop areas have received the greatest and most frequent rainfall this growing season. There have been some pockets of favorable rainfall in other parts of the Prairies, although it has been quite blotchy with the majority of crop areas in recent weeks failing to get enough rain to bolster soil moisture for any great length of time. Net drying has been occurring, despite some cooler than usual weather in the most recent past week to ten days.

A multi-year drought has been impacting portions of Canada's Prairies and the summer of 2023 was hoped to be a time of transition in which rain would finally fall. That expectation was to come only after a very harsh month of May and June that was supposed to be a month of transition setting the stage for improved weather in July and August. The upper air wind flow pattern (jet stream) has followed the expected pattern relatively well at least through June 25, but there has been little to no moisture feeding into the Prairies and this has allowed the worst of the drought to expand east out of southern and east-central Alberta and west-central Saskatchewan through nearly all other areas in Saskatchewan. Manitoba has been drying down as well. Many areas have reported less than 0.75 inch so far this month with several locations either staying dry or getting minimal amounts of moisture.




Prior to this month the most serious part of the drought had been in southern and east-central Alberta and a part of west-central and interior southwestern Saskatchewan. Some of these crop areas have struggled with drought for seven years, although many producers in the region managed to produce better than expected crops in some of those years because of timely rain and/or lingering subsoil moisture. Nevertheless, rainfall was well below average. Some of this year's crops in the driest areas were facing a very serious situation where there was no subsoil moisture in reserve leaving crop development success totally up to timely rain.

The spring started out okay with a few bouts of needed moisture that supported planting in the drought region in the southwestern Prairies. The biggest dryness problem at that time was in the southwestern Prairies and most other areas either had favorable soil moisture or were getting enough timely precipitation to support planting.

The month of May was expected to be and turned out to be a very harsh month of weather with temperatures well above normal and lit-

# High Pressure To Bring Back Heat (continued from page 2)

tle to no rain. That returned some serious dryness to the original drought stricken region in southern and east-central Alberta and west-central and interior southwestern Saskatchewan. Conditions grew worse for crop development and then some timely showers occurred that reduced the crop stress for a little while.

June was expected to be a month of transition in which some timely rain would fall to begin stimulating improved crop development. That expectation seemed to be evolving well in early June, but in late June the pattern turned drier. Most of the rainfall that occurred in the Prairies during the spring was lighter than usual, although beneficial. The pattern was obviously lacking a good moisture feed.

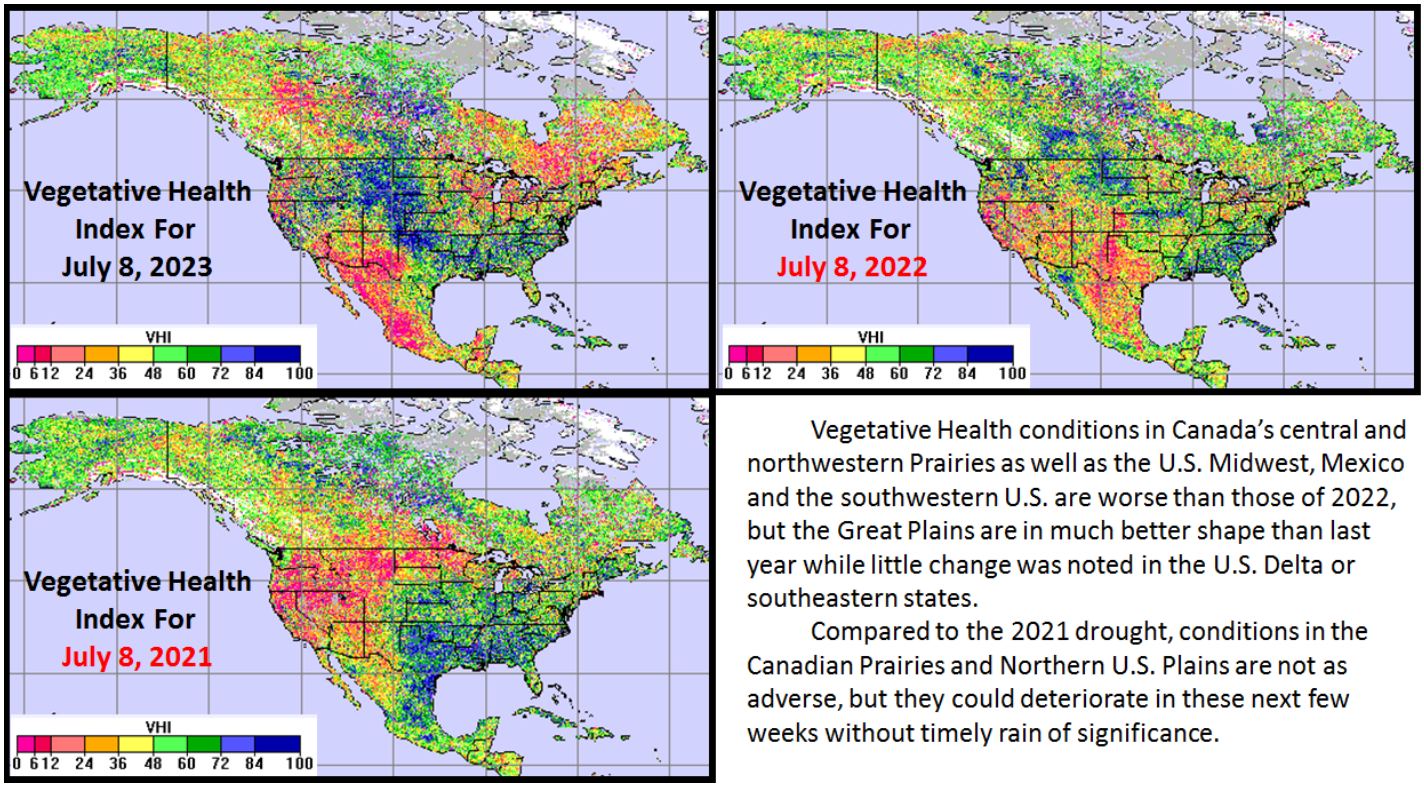
World Weather, Inc. was looking for the negative phase of Pacific Decadal Oscillation to produce a well-developed trough of low pressure in western North America during the summer that would draw monsoon moisture from the southwestern United States into the Rocky Mountains. A ridge of high pressure was expected in the U.S. Plains to further support the moisture flux into Canada. Much of this scenario came together relatively well until late June and early July.

The southwest monsoon failed to develop initially in Mexico and the moisture flux coming north out of that country into the southwestern United States failed to evolve. The moisture flux was critical for getting improved rainfall into Canada under this year's prevailing weather pattern. That moisture flow is still absent today and the most recent computer forecast models have suggested the monsoon will develop, but is likely to take another week to do so and when it evolves the moisture flow will not be allowed to reach very far to the north because of a high pressure ridge that will be over the western parts of North America.

The moisture flux problem was the first sign of failing rainfall for the Prairies, but the ridge of high pressure being misplaced to the west was the second unexpected event. The high pressure ridge was too far the to the west and too strong for moisture to advance northward into Canada and its position being much farther west than expected has sent storm systems into Canada's Prairies much farther to the west and north missing much of Saskatchewan, southeastern Alberta and portions of Manitoba.

Meanwhile, moisture stress in crop areas across the Prairies has been expanding. Notably dry soil has expanded out of southern and east-central Alberta across much of Saskatchewan and time is quickly running out for significant rain to fall. Most crop development slowed or stalled in these past few weeks because of the drying environment.

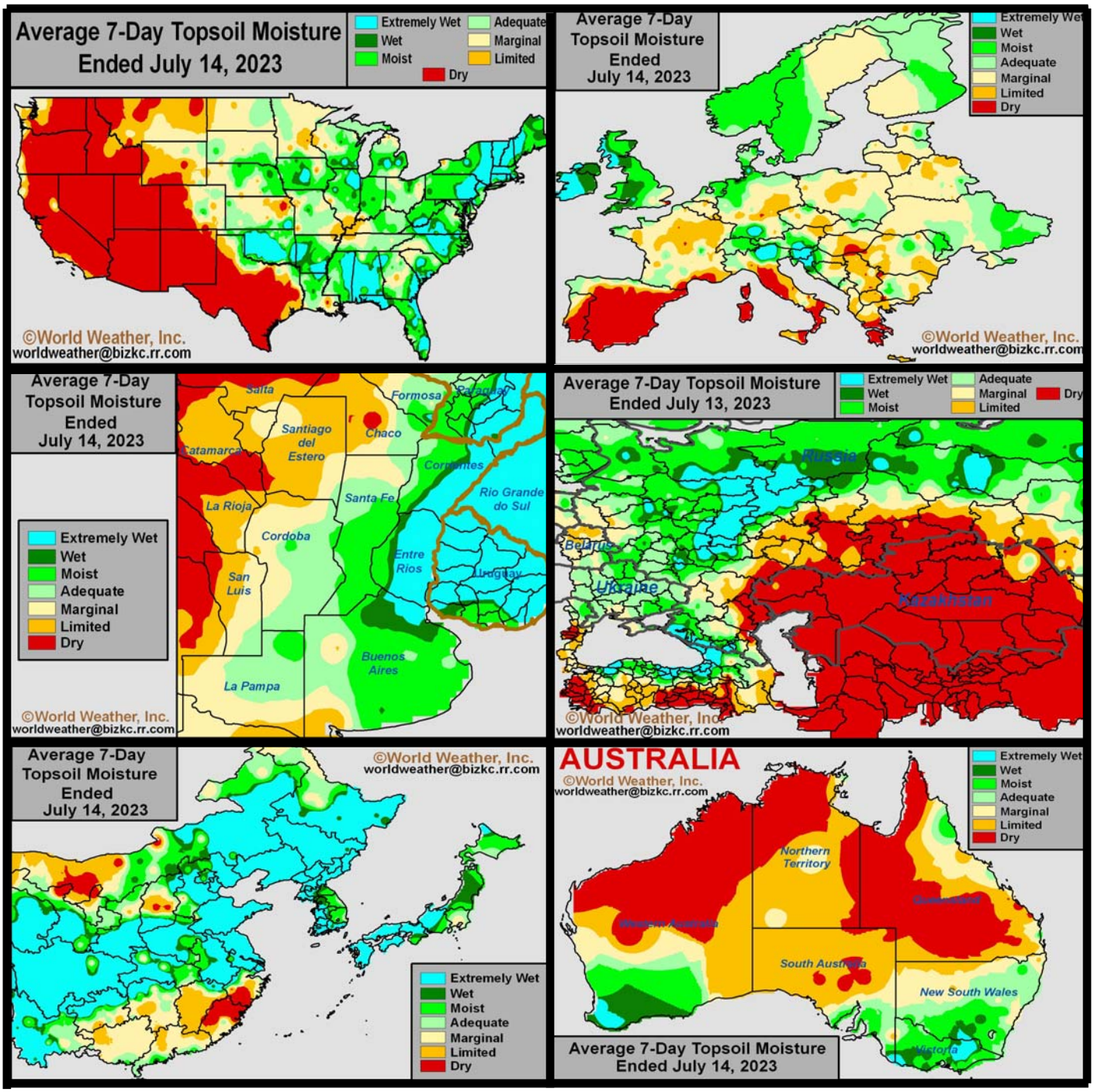
Cool temperatures have been the saving grace for the Prairies in the past week to ten days. The absence of significantly warm weather has helped crops stay viable while they wait for significant rain. However, time is running out for significant rain. (CONTINUED ON PAGE 6)




Vegetative Health conditions in Canada's central and northwestern Prairies as well as the U.S. Midwest, Mexico and the southwestern U.S. are worse than those of 2022, but the Great Plains are in much better shape than last year while little change was noted in the U.S. Delta or southeastern states.

Compared to the 2021 drought, conditions in the Canadian Prairies and Northern U.S. Plains are not as adverse, but they could deteriorate in these next few weeks without timely rain of significance.

# Selected Weather Images From Around The World




Europe soil moisture is limited and crop stress has become a concern once again. Temperatures will be hot this weekend and then should cool next week, but precipitation will be slow to resume for a while. Argentina received some welcome rain earlier this week improving wheat planting and establishment moisture and easing dryness, but the nation's crop region will see ten more days of drying now. U.S. soil moisture improved greatly in late June and early July and has not been as seriously dry since then, although more rain is needed. Drying in the western U.S. is now favoring more ridge building over that area which may threaten the western and north-central states with more drying along with Canada's southern Prairies. China weather has been mostly good in key crop areas. There is need for rain in far southern and northwestern China, but the main grain and oilseed areas are doing well. Australia's southern wheat, barley and canola crops are well established, but rain is needed in Queensland.

# A Skeptical Outlook For Better August Rain

The more the weather changes the more it remains the same. The forecasts recently have only been good for about two weeks at a time. There is still potential for change in August, but as most of you have already guessed we are stuck in a rut and the odds are good that the August weather will turn drier in future prognosticators once again.

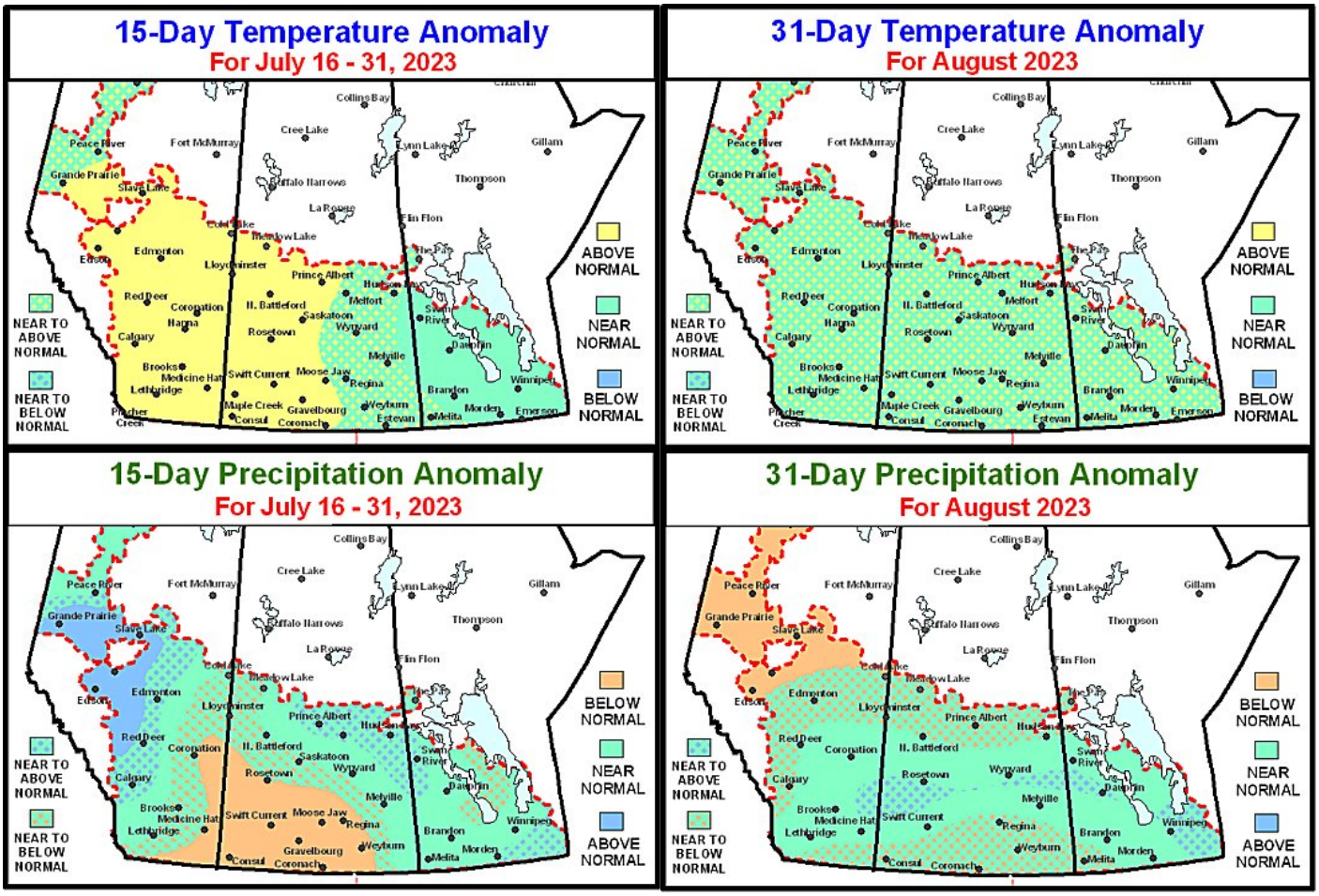
The ridge of high pressure impacting the Prairies in late July will have a large amplitude making it difficult to avoid the hot and dry weather that is expected. In August, the outlook suggests the ridge should flatten out with a return of cooler weather possible in the second half of the month. That return of cooler weather raises the potential for some rain, but most of us are not going to hold our breath this time around. We have already about suffocated by holding our breath and the by the time wet get to August harvesting will be well under way for the failed crops and some of better developed crops will be pushed faster to the finish line by the warm weather coming up in late July.

Temperatures in these next two weeks of July will start off cooler than usual especially in the eastern Prairies. That will last through mid-week next week and then late next week through the end of the month is when most of the heat is expected. Alberta will already be heating up during mid-week next week and because it gets a head start on the warmth the average temperatures there and in western Saskatchewan will be most anomalously warm.

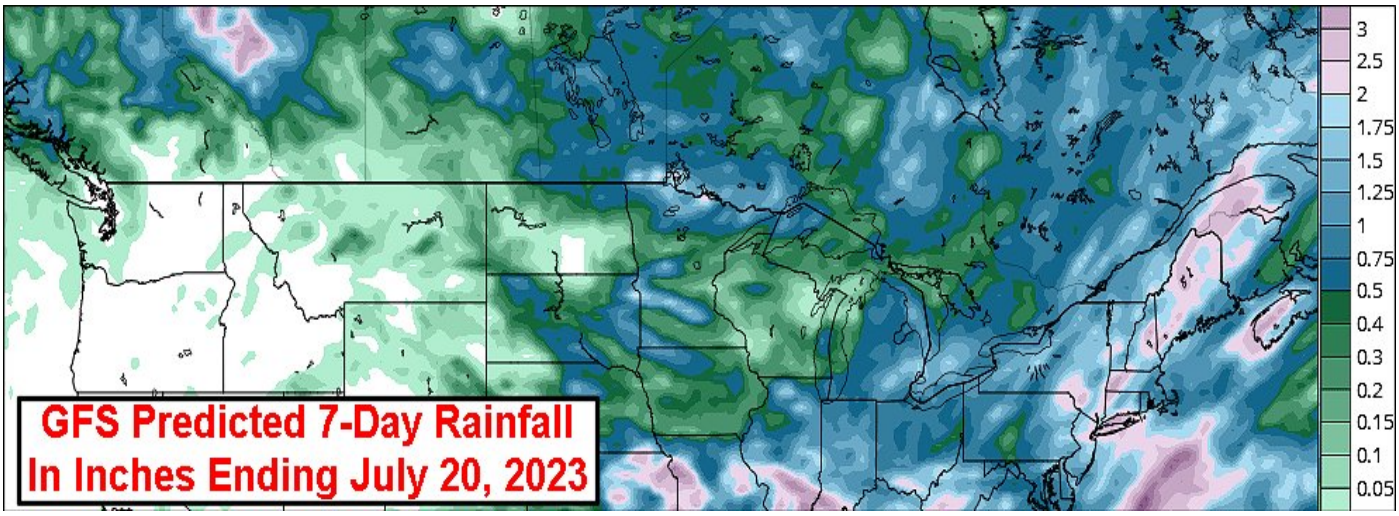
Eastern parts of the Prairies will be last to warm up and the temperatures in late July will not be as anomalously warm as those to the west resulting in a more "normal" average in temperatures for the balance of this month. As noted in previous pages in this prognosticator rainfall will be greatest in western Alberta and from north-central through northeastern Saskatchewan into east-central Saskatchewan and western and southern Manitoba.

August rainfall should be greatest over the peak of the high pressure ridge. The amounts advertised are likely overdone and the placement of the greatest precipitation will have to be shifted according to how the high pressure ridge is orientated.

There is still much doubt over whether a moisture feed will be available for the Prairies in August and because of that the near to above normal rainfall may be just another dream or the byproduct breathing too much smoke earlier this season. A close watch on weather developments is warranted for signs of further change.



# High Pressure To Bring Back The Heat (continued from page 3)




Temperatures will trend warmer late this weekend into early next week as the first of two high pressure ridges move into the Prairies. The warmer weather and lack of soil moisture will immediately induce serious crop stress for many of the areas noted above experiencing the drier bias.

A quick-moving weather system will bring a chance for showers to the Prairies Tuesday and Wednesday of next week, but just like many other storm systems this spring and summer the system will not have much moisture to work with and resulting rainfall is expected to be a disappointment for many areas. The moisture will be greatest in western and northern Alberta and northern and far eastern Saskatchewan and portions of Manitoba leaving other areas with little to no rain. Rainfall is expected to vary from 0.25 to 0.75 inch with a few amounts over 1.00 inch except in western, central and northern Alberta where 0.50 to 1.50 inches and local totals over 2.00 inches are likely. There may also be a few areas in Manitoba that will get some significant rain of upwards to 1.00 inch or possibly a little more. The worry for Canada's Prairies crop production is far greater in the heart of Saskatchewan than in other areas.

After the quick storm system passes during mid-week next week, a larger and more persistent ridge of high pressure is expected to evolve over the Prairies. This will return very warm to hot temperatures to the region late next week and into the following weekend resulting in another bout of significant crop stress. This time the heat and dryness will occur with virtually no moisture to feed crops that are already stressed by limited soil moisture. In just a few days of 80- and 90-degree Fahrenheit (27-37C) heat, crop conditions in Saskatchewan will deteriorate at a time when the demand for moisture during reproduction is normally highest and as a result crops that have been on hold waiting for rain will begin to burn up in the heat and dryness.

Losses in wheat, barley, canola, lentils and other crops have already occurred in the original drought region of southern and east-central Alberta and west-central into interior southern Saskatchewan. But, with the coming changes in the Prairies over the balance of July a much larger percentage of Saskatchewan production will be vulnerable to cuts in production. Saskatchewan is extremely important for Canada's wheat, barley, canola and lentil production. In recent years there has also been an increase in corn and soybean acreage and all of this will be at risk of significant production cuts if the weather scenario noted above plays out as it may.

Portions of Manitoba will also be caught up into the stressful drier and warmer scenario and some yield loss is expected there as well. Manitoba's losses will not be as great as those in Saskatchewan or southern and east-central Alberta.

The best production from Canada's Prairies is expected to come from western and northern Alberta, a few areas in northwestern and east-central Saskatchewan and in parts of Manitoba. Most other areas will experience some notable yield and production cuts. There is still potential for better rain, but it is feared that the improvement will come too late for this year's crops and it could ultimately interfere with harvesting.

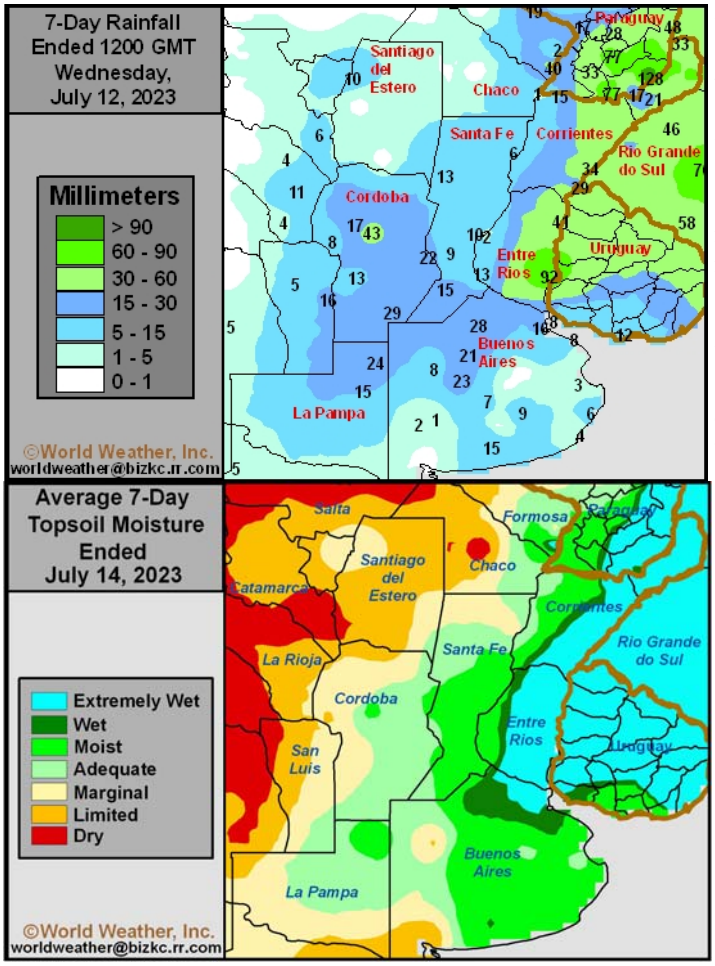
Despite the expected losses, farmers in the Prairies would likely welcome a wet autumn once the realization of lost production occurs for this year. A wet autumn would be helpful in preparing fields for 2024 planting especially in the face of an El Nino event that will likely make the winter drier and warmer biased. If autumn rain does not occur significantly drought could easily last through winter raising concern about planting moisture in 2024.

# Argentina Rain To Improve Wheat Establishment

Beneficial rain fell in Argentina's wheat production region this week. The rain helped improve short-term establishment and growth, though Cordoba, Santa Fe, western Buenos Aires, and neighboring areas need additional rain to fix the moisture deficits and support long-term crop development. Dry weather is expected to resume Thursday and last for ten days.

Planting and emergence will advance more aggressively because of this week's moisture and the coming dry weather will be great for advancing late summer crop harvesting.

Soil moisture has been improved because of this week's rain, but only in the topsoil and there is still a big need for more rain in the previously driest areas of west-central and southwestern Argentina. Northwestern parts of the nation were not impacted by this week's rain and soil conditions are still quite dry, although those are minor wheat production areas. Soil moisture in western wheat areas is now rated marginally adequate to slightly short. Much more rain will be needed to get the moisture profile back to normal, but this week's precipitation was welcome and quite helpful.




As of July 6, winter wheat planting was approximately 81.4% complete across Argentina, down 3.8 percentage points from this time last year and down 9 percentage points for the 2018-2022 average. Planting, emergence and establishment has been sluggish this season due to the ongoing drought. Wheat conditions vary across the main production areas with good emergence and establishment occurring in eastern production areas while the west has uneven emergence and poor stands with the most fieldwork left to be completed. La Pampa and western Buenos Aires into Cordoba and Santa Fe still need significant rain to fix the moisture deficits and support ideal long-term crop conditions.

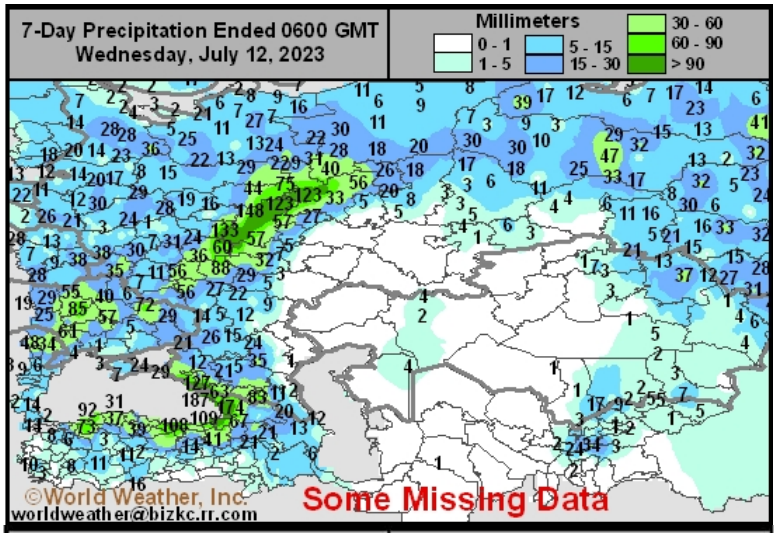
In the meantime, corn harvesting was 66% complete as of July 6, down from 78% this time last year. Sorghum harvesting was 72% done, down from 86% last year. Cotton harvesting was 80% complete, ahead of last year's pace of 74%. Soybean harvesting was virtually complete while peanut harvesting was 96% done. Periods of dry weather will be needed in the near future to maintain good late-season harvesting.

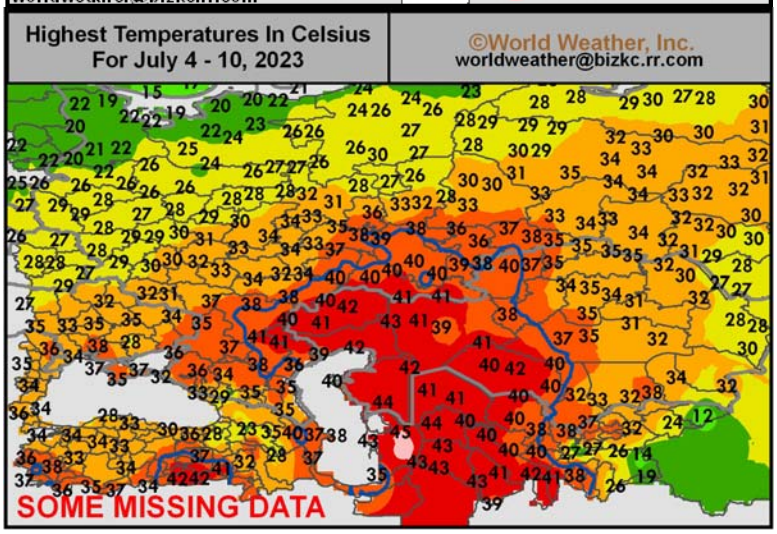
The disturbance that produced rain in portions of Argentina in recent days will promote more precipitation today into early Thursday. Entre Rios, Corrientes, northern Buenos Aires, southern Santa Fe, and southeastern Chaco will receive 0.30 to 1.00 inch of rain with local amounts of 1.00 to 3.00 inches from eastern Entre Rios into Uruguay. Other production areas in Argentina will receive a trace to 0.50 inch with a few greater amounts in northern Santa Fe and neighboring locations. Little to no follow-up rain is expected for the remainder of the coming week. Drier-than-normal weather is then slated for much of Argentina's crop country July 20 – 26.

This week's moisture will continue to support good or improving establishment and development conditions for Argentina during the next several days. However, the lack of follow-up rain will again decrease soil moisture and likely slow growth later this month. The drier weather will be ideal in getting much fieldwork accomplished. There will be a strong need for rain later this month and in August to ensure good stands for aggressive spring crop development.

# Russia Spring Wheat Area To See Relief From Dryness

Russia's eastern New Lands and northern Kazakhstan experienced excessive heat and dryness during the past week. Extreme high temperatures were in the upper 80s and 90s Fahrenheit during much of the past week with extremes of 100 to 110 in the past few days. Sparing wheat and sunseed are produced in the region and this year's crop was already destined to be smaller because of poor rainfall earlier in the season. Two disturbances will bring timely rain and cooler air to the region late this week through much of next week. The change should bring some much needed relief from recent hot and dry conditions. The improved weather may last about ten days before a new bout of warming begins.




Rainfall during the week ending Sunday was not very great in southeastern parts of Russia's New Lands or in northern Kazakhstan. A few showers and thunderstorms were noted, but rainfall was rarely more than 0.40 inch and in light of recent very warm to hot temperatures it was an inadequate amount to counter evaporation resulting in net drying and crop stress.

Highest temperatures during the week ended Tuesday were in the upper 80s and 90s with extremes in the past few days of 100 to 110. Topsoil moisture is short to critically short while subsoil moisture is marginally adequate to very short.

The eastern New Lands and northern Kazakhstan have struggled with dryness periodically during the entire growing season with the planting season and the most recent weeks driest relative to normal. Periodic rain has occurred, but not enough to support ideal conditions for spring wheat, sunseed or other crops. Crop stress has been serious enough to hurt production potentials at times this summer, although there is still time for some improvement. Most crops are reproducing and filling now making the need for rain highest over the next week to ten days.

A strong high-pressure ridge will promote mostly dry weather today into Wednesday afternoon for much of the New Lands and northern Kazakhstan. Daytime temperatures will surge well into the 90s with pockets likely warming above 100 degrees. A frontal boundary associated with an upper-atmospheric weather disturbance will then help weaken the ridge and promote some spotty rain for these locations later Wednesday into Thursday. Scattered showers will continue Friday and Saturday as the disturbance passes over the region. Another disturbance could bring additional light and erratic rain early next week. Moisture totals by next Tuesday morning will range from 0.10 to 1.00 inch with locally more in the eastern New Lands.

Hot and dry weather will continue to stress the wheat, sunseed, and other crops today in much of the New Lands and northern Kazakhstan. Rain and cooler weather will help reduce stress potentials for the remainder of the coming week, though the rain that occurs will not significantly bolster soil moisture in the main production areas. Crop conditions will only improve marginally. Additional rain will still be needed later this month to support a better outlook for the spring crops.

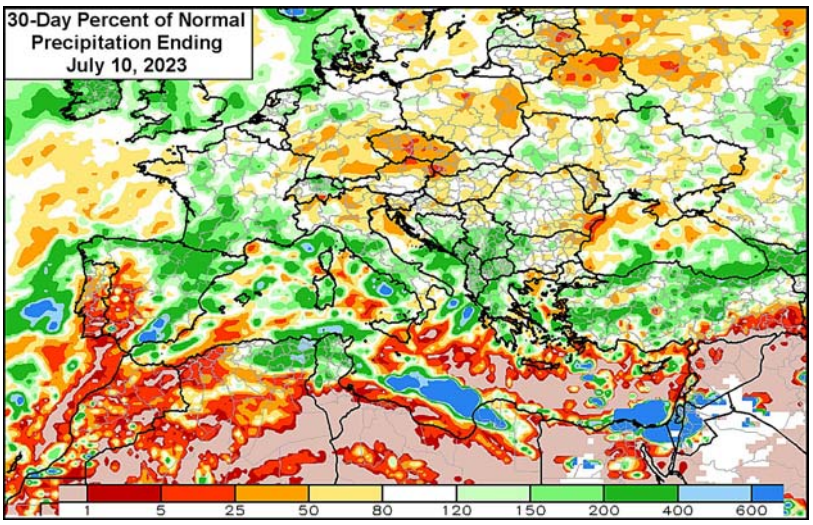
# Europe Dryness Threatens Summer Crop Yields

The Iberian Peninsula and a large portion of France into portions of Germany, Poland, and the Balkans region continues to struggle with dryness. Rainfall has been spotty in recent weeks combined with periods of warmer or much warmer than normal weather. The adverse conditions have impacted development rates and may have already reduced production potentials for some of the grains and oilseeds as well as sugarbeets, potatoes and other crops; however, the dryness is not nearly as serious as that of last year. The United Kingdom and Ireland, along with a band from northern Italy and southern fringes of Germany into portions of Romania, Ukraine, and Belarus will see a good mix of rain and sunshine through the middle of next week. The rain will support good or improving crop conditions. The remaining production areas in Europe will trend drier and warmer than normal.

Temperatures during the past week were generally above normal for much of Europe. Highest temperatures during the July 5 – 11 period were in the upper 80s and 90s Fahrenheit with portions of Spain warming above 100 degrees. Portions of the United Kingdom, the Baltic States, and neighboring areas were no warmer than the 70s.

A large portion of the Iberian Peninsula outside the extreme north continue to have short to very short soil moisture. Many areas in eastern France, central and southern Italy, Poland, and the Balkans region also have short to very short topsoil moisture. The moisture profile in other portions of mainland Europe is adequate to marginally adequate. The United Kingdom and Ireland have the best moisture rated adequate to surplus.

Wetter-than-normal conditions were noted in the United Kingdom and Ireland for the past 30-day period ending July 10. Many areas in Spain and southern France through southern Italy and southeastern Europe also received near to above normal rainfall despite the current moisture shortages, Other locations in Europe received near to below normal rainfall, in part due to a strongly negative phase of North Atlantic Oscillation (NAO).




Dryness continues to be a significant concern for the Iberian Peninsula and portions of France and Germany into Poland and portions of the Balkans. Rainfall has been too light and sporadic to support ideal grain, oilseed, and other crop development especially in light of the warmer than usual weather. Temperatures have not been as extremely hot as they were last year and the impact of heat and dryness on production will not be nearly as significant, but greater rain is still needed to stop the declining production potential.

Temperatures will remain warmer biased for much of Europe through the middle of next week. The Iberian Peninsula, southern France, Italy, and southeastern Europe will warm to the 80s and 90s most days with pockets in Spain warming above 100 degrees. Highs elsewhere will be in the 70s and 80s with many areas warming to the 90s this weekend. Pockets in the United Kingdom and Ireland will also only warm to the 60s.

The combination of limited soil moisture, warm temperatures and restricted or lighter than usual rainfall in the coming week will keep unirrigated crops stressed while reproducing and beginning to fill. This is especially true of corn while soybeans and sunseed have a little more time for improved rainfall to occur before production is reduced. That does not mean crop moisture is not having some adverse impact on crops today, but it does increase the urgency for rain to protect production potentials.

The NAO will gradually trend more neutral during the July 20 – 26 period. This change may help to reduce the heat in central and southern Europe and bring back warmer conditions to northern Europe while rainfall becomes better distributed across the central and northern parts of the continent. The rainfall boost will be welcome, but may still be too light to completely fix the moisture deficits in some of the driest locations.