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The Canadian Agriculture Weather Prognosticator

Volume XV, Issue VI | http://www.worldweather.cc | July 4, 2023

World Weather At A Glance

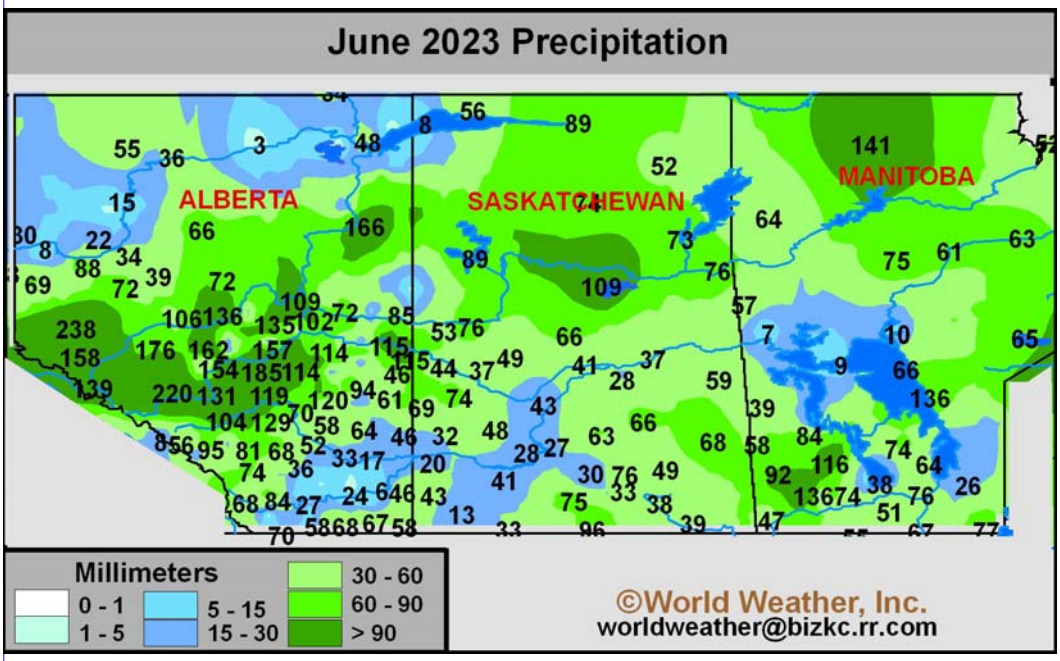
- U.S. Midwest drought was eased in the past week, although dryness is not over. Corn pollination will be much more successful than previously feared, but ears are small and production will be down . A disaster has been avoided. Soybean growth will now become aggressive.
- Drought is prevailing in Mexico, western Canada, Spain and Argentina as well as Inner Mongolia
- Brazil's Safrinha corn harvest is advancing well with good yields
- Parts of Europe and Russia's southeastern New Lands along with Kazakhstan are too dry
- India's monsoon has begun to perform more normally
- Southeast Asia crops are performing sufficiently for now, but will trend drier later this year
- Australia's winter crops are well established in the south and improving in the north

Where Is The Promised Rain???

Faltering rain is back in the headlines as Canada's Prairies miss out on some important rain during June. Crop failings have been reported from some of the driest areas in the Alberta and Saskatchewan, although the biggest complaint is the rapid decline in crop conditions that has occurred in recent weeks.

Many areas in the Prairies were off to a better start this year until May hit which was promised to be the hottest and driest month and it certainly lived up to that expectation. June was supposed to be a month of transition bringing more unsettled conditions to the Prairies and a better opportunity for rain. However, no one expected the southwest U.S. monsoon and Gulf of Mexico to be closed off as a moisture source for North America for as long as it was. Drought in both Canada and the U.S. Midwest worsened quickly during June as seasonal warming occurred without a good moisture source.

Dryness in North America became quite serious by the third week of June, but then the Gulf of Mexico opened up as a moisture source briefly for the U.S. farmer and significant rain occurred in the final week of June. The unfortunate part of the situation for Canada was that cooler air had already dropped from Canada into the U.S. when the gulf moisture was flowing northward and the frontal boundary separating mild to cool air from warm and moist air was already in the lower U.S. Midwest when the gulf moisture became available. That frontal boundary prevented the moisture from streaming farther to the north and it acted as a trigger mechanism to induce significant rainfall from Nebraska, South Dakota and northern Kansas



Where Is the Promised Rain??? (continued from page 1)

into Ohio and Kentucky. Areas to the north were left dry; including the majority of the Prairies.

As of the writing of this prognosticator (July 4), drought conditions were prevailing in the northern U.S. Midwest and across an ever increasing part of the Canada Prairies. The trend for drying in the Prairies was not only a byproduct of the frontal boundary in the U.S. and limited Gulf of Mexico moisture flowing northward, but also by a failed start to the southwest monsoon flow in United States and poor moisture flux from the U.S. Pacific Northwest. It is rare for these three moisture sources to be blocked from Canada at the same time, but that is the state we are in today.

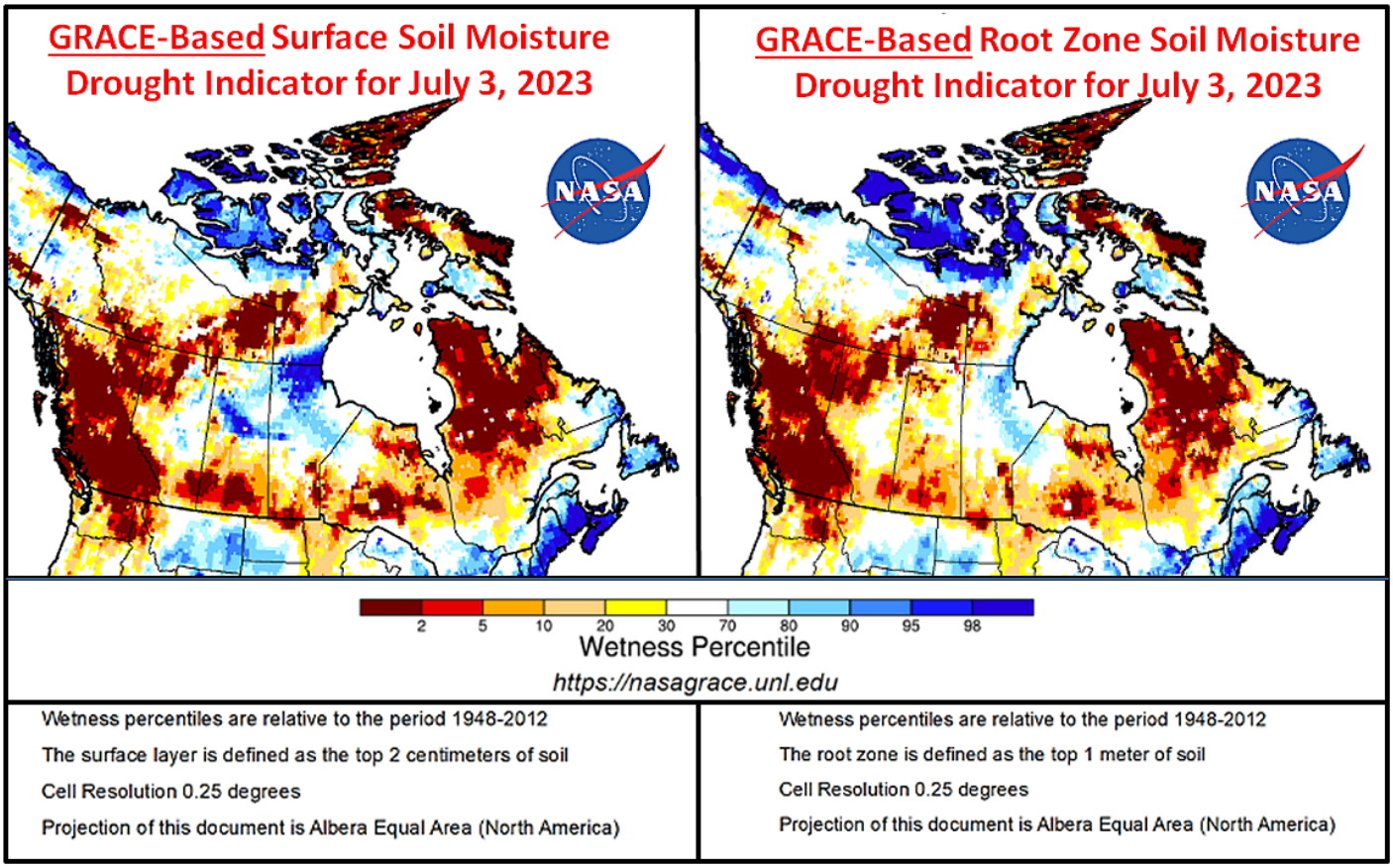
Drought in the southwestern Prairies is already in its seventh year, but other parts of the Prairies were expected to see change in June and especially in July and August that would result in more favorable soil moisture. There was always some concern that the rain would arrive late, but the situation today is of greater concern because of limited rainfall potential for another ten days across most of the Prairies.

The upper air wind flow pattern in May and June verified well with the expectations for summer 2023 and because of that not all hope has been lost for rain to evolve, but changes have to occur immediately to save some of the yield potential in the Prairies.

All the Prairies need is a moisture feed. There is enough atmospheric temperature contrast aloft and at the surface to support showers and thunderstorms, but without a moisture source precipitation cannot occur in a significant manner. The negative phase of Pacific Decadal Oscillation is still present and so is the weak ridge of high pressure that is expected to dominate the balance of summer in the United States. Weather systems should start coming into the Pacific Northwest soon and march over the top of the high pressure ridge in the U.S. that will extend north of the border in the Prairies periodically.

There are signs that the U.S. southwest monsoon will evolve next week and if a deep enough trough of low pressure can develop over the western United States that moisture feed will be drawn northward to benefit crops in at least a part of the Prairies. That was the original plan and that is still the expectation for later in July and August, but until the moisture feed develops it cannot rain significantly.

It is very frustrating for all of us to see the potential for rain and not get it. This situation is just another reminder that we are not in control of our environment and those who think we can change the weather are fooling themselves. It is time for some serious prayer once again.



Early Half Of July Offers No Change In Prairies

Despite encouraging words from the page one article, there is no sign of a weather change coming in the next ten days. The Prairies will continue to experience declining crop conditions as the trend remains dry.

The succession of cool air masses lined up to move through the Prairies over the coming week will prevent any moisture flux into the region. A northwesterly flow of air aloft will see to it that frontal systems move frequently from north to south through the Prairies during the next seven to ten days keeping any moisture from the United States from getting into the northern Midwest, northern Plains or Canada's Prairies.

Temperatures will be cooler than usual in the eastern Prairies for at least another week with some warming expected near mid-month. The western Prairies will already be experiencing some warming this weekend and it will continue next week with near to above normal temperatures likely. Some of the warmer air in the western Prairies will advance to the east next week, although it will probably hold off until late in the week.

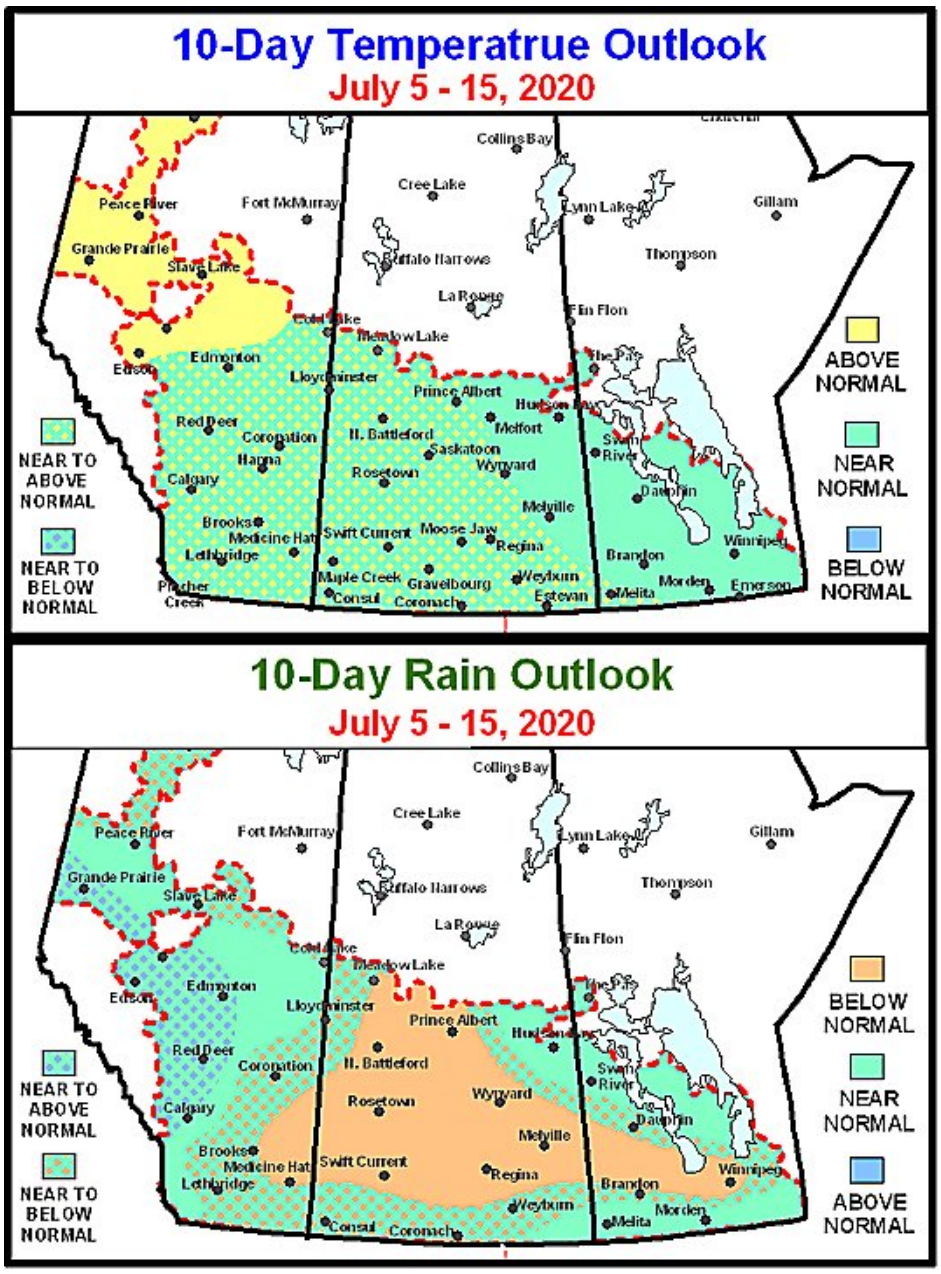
Rain prospects will be greatest west of the Highway Two corridor from Calgary to Edmonton and farther north to Athabasca. The area that has been wettest this season so far has been from Calgary to Edmonton and westward through Whitecourt and Fox Creek to Grande Prairie, Grande Cache, Jasper and Edson. These areas will not receive any heavy rain during the coming ten days, but they will receive the greatest rainfall for the period maintaining adequate to abundant soil moisture.

A large part of the central Prairies will be drier than usual. Totally dry weather is not expected throughout the region, but many areas will not get enough rain to counter evaporation even with temperatures a little milder than usual. Concern will be rising over low soil moisture and crop stress from eastern and far southern Alberta through the heart of Saskatchewan and into the interior southern portions of Manitoba.

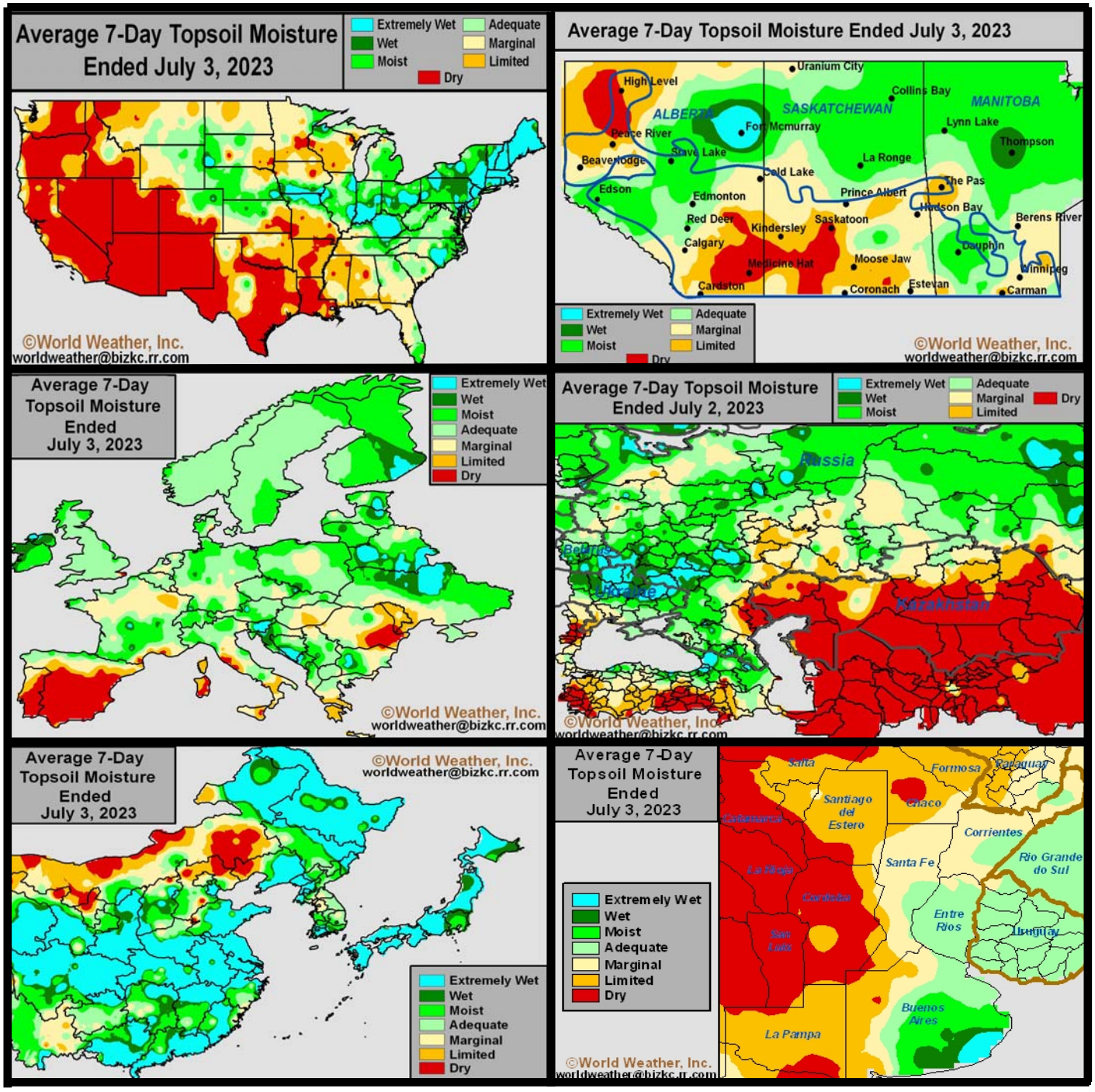
Remember that below normal rainfall does not suggest no rain, but in this case the below average amounts will not go over very well with so much of the Prairies drying out at a relatively accelerated pace.

The cooler air present in the Prairies today will not last forever and when the next wave of warming begins (this weekend into next week) crop stress will evolve quickly because of the poor moisture environment.

There is potential that when the last of the cool air begins to abate from the Prairies near mid-month that a moisture feed from the U.S. will evolve and storms coming into the northwestern U.S. could bring rain to at least a part of the Prairies, but we must be careful not to over sell the change because the pattern right now is very much "stagnant" and not likely easily changed.



Selected Weather Images From Around The World



Canada's Prairie drought expanded to the east during late June with poor soil moisture in much of Saskatchewan as well as southern and eastern Alberta and now developing in the Peace River Region as well. Rain later this month and in August will be extremely important. Europe weather has improved recently, though pockets of dryness are prevailing. Ukraine, western and northern Russia, the Baltic States and Belarus have good soil moisture for normal crop development, but some dryness remains in the southeastern Russia New Lands and northern Kazakhstan. Argentina is still dealing will poor soil moisture and drought conditions in many areas, but especially in the west where wheat has not established well. China's moisture profile is mostly good, although there is some dryness in Inner Mongolia. Brazil's harvest weather in Safrinha corn and cotton areas from Mato Grosso to Sao Paulo and Parana has advanced well with little change likely. India's monsoon rainfall has improved.

Greater Rainfall Still Expected in Late Summer

Expectations of an improving rainfall environment remain for late this summer. As noted previously in this prognosticator, the upper air wind flow pattern is occurring as advertised and rain should begin to fall just as soon as a moisture feed arrives in the Prairies. Hopefully the wait will not be much longer.

A weak ridge of high pressure is expected to be over the central United States that will extend into Canada periodically, but retreat periodically as well. This frequently changing pattern should provide support for periodic rainfall. Obviously, there will have to be an improved moisture source for the central parts of North America and that should evolve later this month.

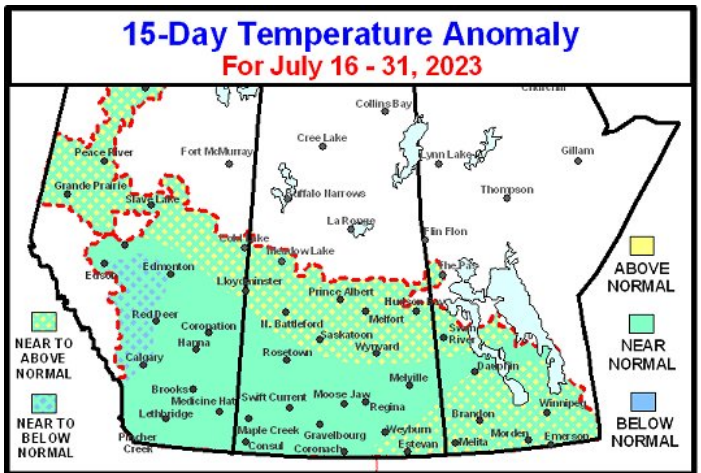
The Gulf of Mexico should open as a moisture source for the eastern half of North America during the second half of summer. That moisture feed should help raise the potential for rain in the Midwest and southeastern Canada's Prairies.

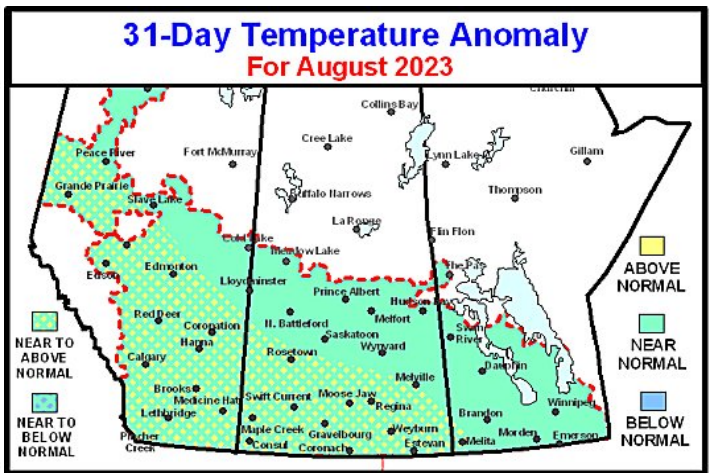
Another source of moisture will come from the southwest U.S. monsoon. That flow pattern brings moisture northward from Mexico and spreads it into the U.S. Rocky Mountains. Sometimes, the southwest monsoon brings the moisture into Canada and the northern U.S. Plains and sometimes the moisture feeds through the central Plains and into the Midwest.

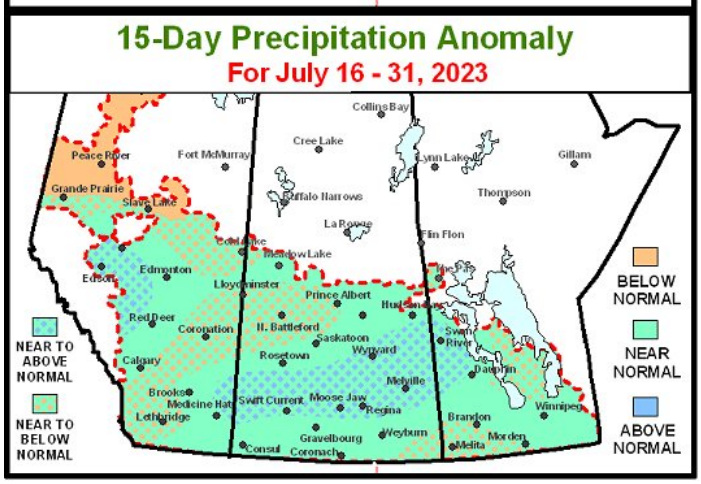
This year's southwest monsoon has been delayed and there is some worry about it being weak and short-lived this summer. If that happens the forecasts for late July and August shown below may prove to be too wet in the Prairies. However, confidence is high that at least some of that moisture will help to support rain in the Prairies and a close watch on the moisture feed is warranted to better determine when the best rainfall will evolve.

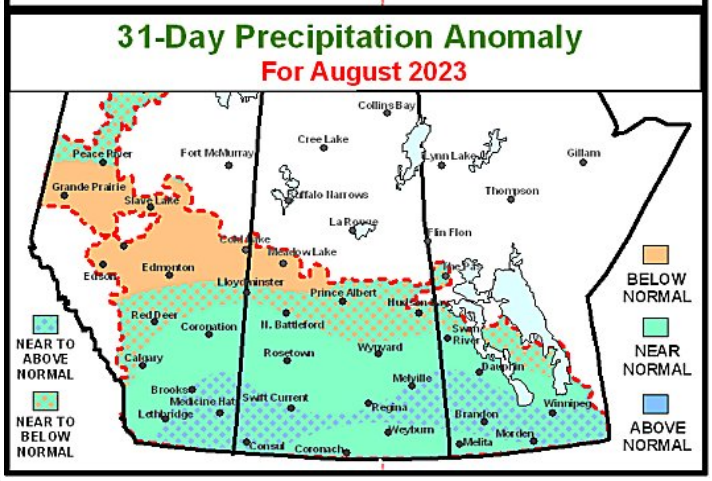
Temperatures in July and August will be mostly in a seasonable range. There is some potential for short term bouts of cooler weather, but some warmer than usual conditions are expected as well. World Weather, Inc. is still a little concerned about the potential for cold weather at the end of August and/or early September and will be investigating that further in the next few weeks.

In the meantime, the hottest part of summer in the Prairie should have already passed, though there will be some short term bouts of warmth later this summer. The heat will not be as anomalous or as persistent as it was earlier this year. Northwestern Alberta has potential to run a little too later dry this summer.









Indian Monsoon Rainfall Improving

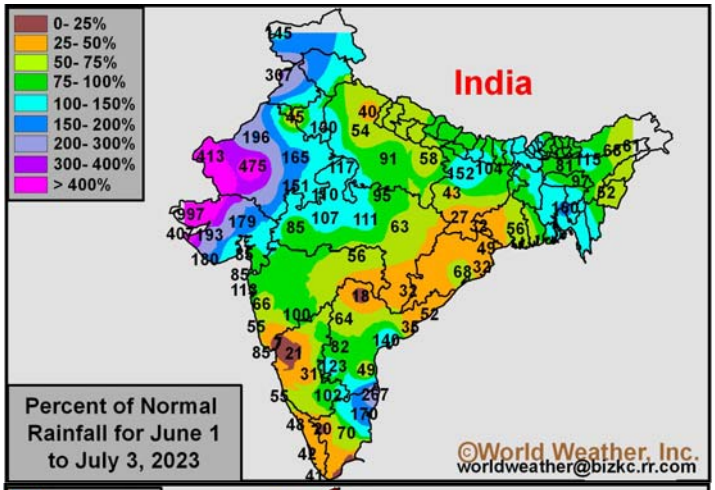
Rainfall has varied significantly since the beginning of the monsoon season in India. Gujarat, Rajasthan, and Punjab reported anywhere from 151-475% of normal rainfall from June 1 – July 3 while portions of Madhya Pradesh, Haryana, Bihar, Bangladesh, northeastern Tamil Nadu, and Andhra Pradesh received 81-170% of normal rain with a small region in northeastern Tamil Nadu reporting 267% of normal. In contrast, the remaining locations received near to below normal rainfall with portions of Kerala, Karnataka, Telangana, Odisha, and Jharkhand receiving less than half of normal.

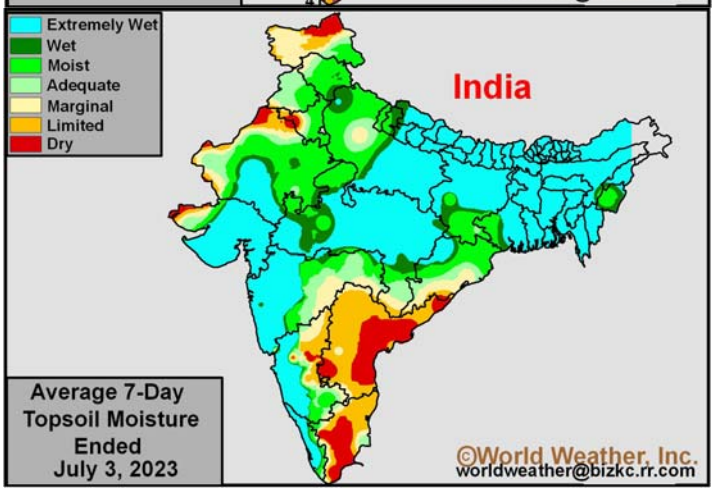
Excessive rainfall has occurred in recent weeks along the west Coast and from Bihar to Bangladesh where flooding resulted. There was also a region in eastern Madhya Pradesh that received too much rain recently.

In contrast, moisture shortages are ongoing in Tamil Nadu, Andhra Pradesh, and portions of Odisha, northern Rajasthan, and neighboring areas due to the lack of rain in recent weeks. Other locations have adequate to excessive topsoil moisture while subsoil moisture is highly variable with portions of central and western India reporting a shortage of moisture deep into the ground.

Rainfall during the past week helped support good or improving conditions for establishment and early-season growth in much of eastern, central, western, and northern India. Planting and general fieldwork may have advanced slowly, though producers still had opportunities to get into the fields. Crop prospects are generally favorable despite several locations trending drier than normal so far this season.

Tamil Nadu, Andhra Pradesh, and neighboring areas in southern India remain too dry to support ideal conditions for the sugarcane and other crops produced this time of year. Monsoonal rainfall has been poor for much of the season and the need for rain is high.





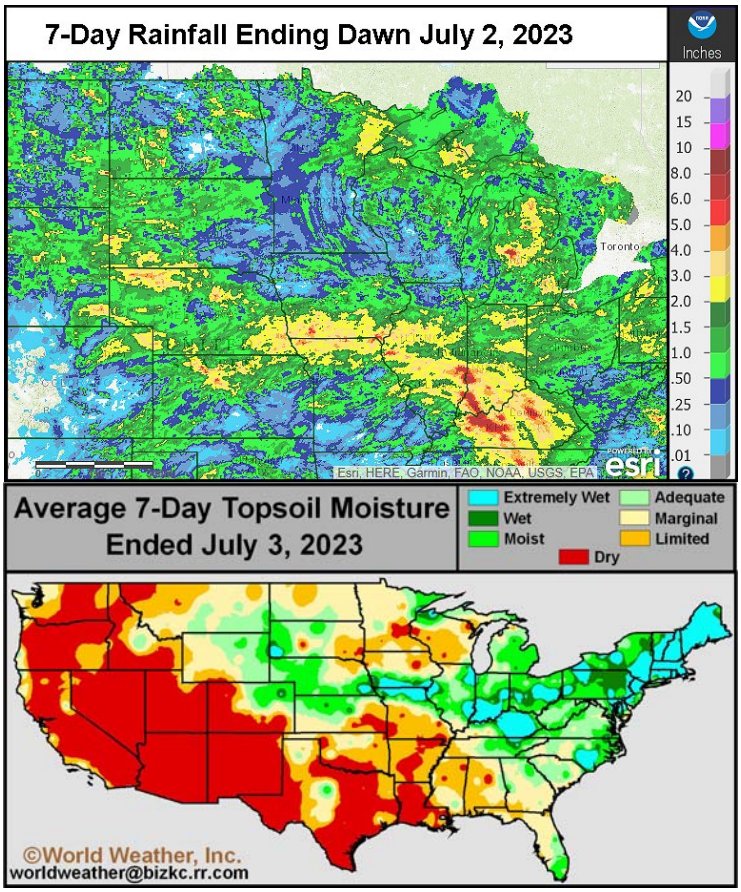
WEATHER OUTLOOK

Southern India will receive varying amounts of rain this week. Kerala and coastal Karnataka will see several waves of rain with totals ranging from 6.00 to 12.00 inches and local amounts of 18.00 inches or more by next Monday morning. Other areas in Karnataka into northern Tamil Nadu will see a good mix of rain and sunshine. These areas will receive 0.50 to 3.00 inches of rain with local amounts of 5.00 inches or more. Tamil Nadu and southern Andhra Pradesh will otherwise only receive light rain with totals ranging from 0.25 to 1.50 inches. Much of southern India outside Kerala and coastal Karnataka may then trend drier biased July 11 – 17. The continued lack of rain will keep the ground dry or critically dry in Tamil Nadu and southern Andhra Pradesh. Development conditions will be less than favorable to poor. Other production areas will have some moisture to support new growth, though the need for timely rain will remain high later in July.

The remaining production areas in India will have several opportunities for monsoonal rain this week. Some of the most widespread and significant rain will occur Wednesday into Saturday as a monsoonal low-pressure center advances over the country. Bangladesh, the Eastern States, Bihar, Odisha, Chhattisgarh, Telangana, Madhya Pradesh, Punjab, Himachal Pradesh, and neighboring areas will receive 2.00 to 6.00 inches of rain with local amounts of 9.00 inches or more by next Monday morning. Other locations will receive 1.00 to 4.00 inches of rain with drier pockets in western Rajasthan. These areas will again have several opportunities for rain July 11 – 17 as well. The environment will either improve or remain favorable for aggressive establishment and growth in the coming weeks due to the periods of rain. Planting and general fieldwork may otherwise advance slowly during the wettest periods.

U.S. Midwest Still Needs Greater Rainfall

Rain fell abundantly during the weekend from portions of Nebraska and northern Kansas through southern Iowa and northern Missouri into central and interior southern Illinois and portions of Indiana to Kentucky and parts of Ohio. The rain and that which fell earlier last week seriously improved topsoil moisture in much of the area described. However, despite how good the rain event was, many areas in the Midwest are still carrying long term moisture deficits. Most of the weekend rain also missed the upper Midwest and that area is still quite dry and would benefit from additional rain. Today's ten-day outlook provides sufficient moisture periodically to further improve crop and field conditions so that corn can finish pollination without as much concern over production cuts and soybean development will aggressively improve.



Topsoil moisture was rated adequate to surplus in most of the areas noted above that received the greatest rainfall during the weekend and earlier last week. That region includes important summer crop areas from southeastern Nebraska, southern Iowa and northern Missouri through central and interior southern Illinois, to much of Indiana, Ohio and northern and eastern Kentucky. In contrast, topsoil moisture was still rated short to very short from eastern Kansas into central and southeastern Missouri, far southern Illinois, the northern Delta and portions of the Tennessee River Basin. Short to very short topsoil moisture was also prevalent from eastern South Dakota and northeastern Nebraska through portions of southern and central Minnesota to western and southern Wisconsin. A part of eastern Iowa was also quite dry.

Subsoil moisture was still running short to very short in many areas from Missouri, Illinois and western Indiana into Minnesota, eastern South Dakota and eastern Nebraska with an exception of northwestern and central Iowa where significant rain fell earlier in June. Marginally adequate to slightly short subsoil moisture was present elsewhere in the Midwest except Ohio and eastern Kentucky where the moisture profile was rated adequately. It is important to note that the heavier rainfall noted earlier in the weekend is still percolating downward into the soil and improvements in subsoil moisture are sure to evolve later this week.

Huge moisture deficits had accumulated across portions of the Midwest during April, May and June when the heart of the Midwest was notably drier biased. Moisture deficits peaked in the range of 3.00 to more than 9.00 inches which explains why today's Midwest moisture deficits have only been reduced and not eliminated. Additional rain of significance must occur to completely breakdown the drought.

Only Kentucky, southwestern Indiana, and portions of the eastern Dakotas were wetter than normal during the 30-day period ending today. A few counties and parts of counties in southern Iowa, northern Missouri and in interior southern and west-central Illinois were getting the moisture profile back to normal for this 30-day period and the same was true for parts of central Ohio. Rainfall departures from normal for June in other areas of the Midwest Corn and Soybean Belt still range from 1 to 4 inches. Not only is there a moisture deficit remaining for June, but there are deficits from April and May that need to be recovered as well and that is why more rain is needed in the Midwest to end drought conditions. The rain that has fallen, however, has improved corn pollination conditions and will stimulate aggressive new soybean

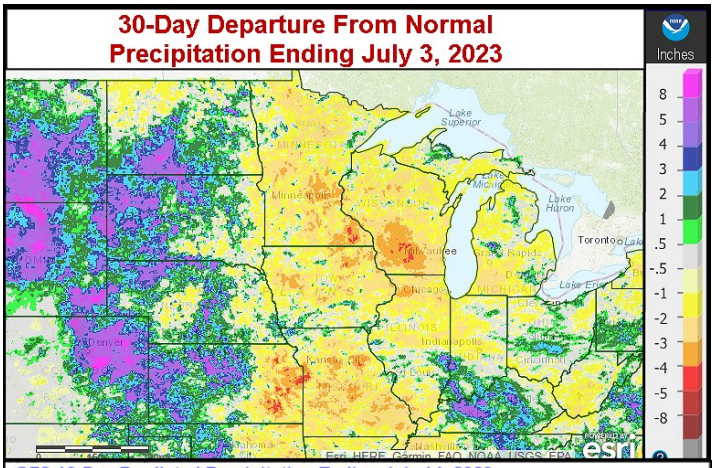
U.S. Midwest Still Needs Greater Rainfall (continued from page 7)

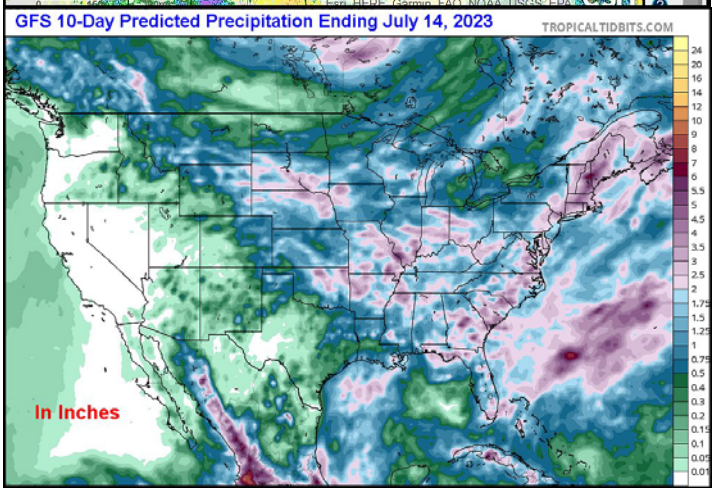
development after a poor start to the growing season for some areas.

Planting of corn and soybeans has come to an end in a large portion of the Midwest. Planted acreage for corn is expected to be 6% greater than last year while soybean planting fell five percentage points.

WEATHER OUTLOOK

An active weather pattern is slated for the Midwest this week. A strong frontal boundary ahead of an upper-level disturbance will slowly advance from west to east across the region today through Wednesday. The band of rain and thunderstorms ahead will generate varying amounts of rain for much of crop country. Light rain will linger in a few locations Thursday. More disturbances will generate rain and isolated thunderstorms Friday and this weekend. Moisture totals by next Monday morning will range from 0.75 to 2.00 inches in most locations with local amounts of 2.00 to more than 4.00 inches from southeastern South Dakota and parts of Nebraska into southern Illinois and southeastern Missouri. Waves of erratic rain are again expected July 11-17, though totals will likely be lower compared to this first week of the outlook.





The temperature profile this week will fluctuate between warm and cool across the Midwest. Highs will initially be in the 80s and lower 90s Fahrenheit today. Highs will again reach the 80s and 90s Tuesday, though many areas in the Dakotas, Minnesota, and immediate neighboring locations will only warm to the 60s and 70s as cooler air reaches the region. The eastern Corn and Soybean Belt will again warm to the 80s and lower 90s Wednesday while highs in the western Corn Belt drop to the 60s and 70s. Highs will generally settle to the 60s and 70s for the remainder of the week in much of the Midwest.

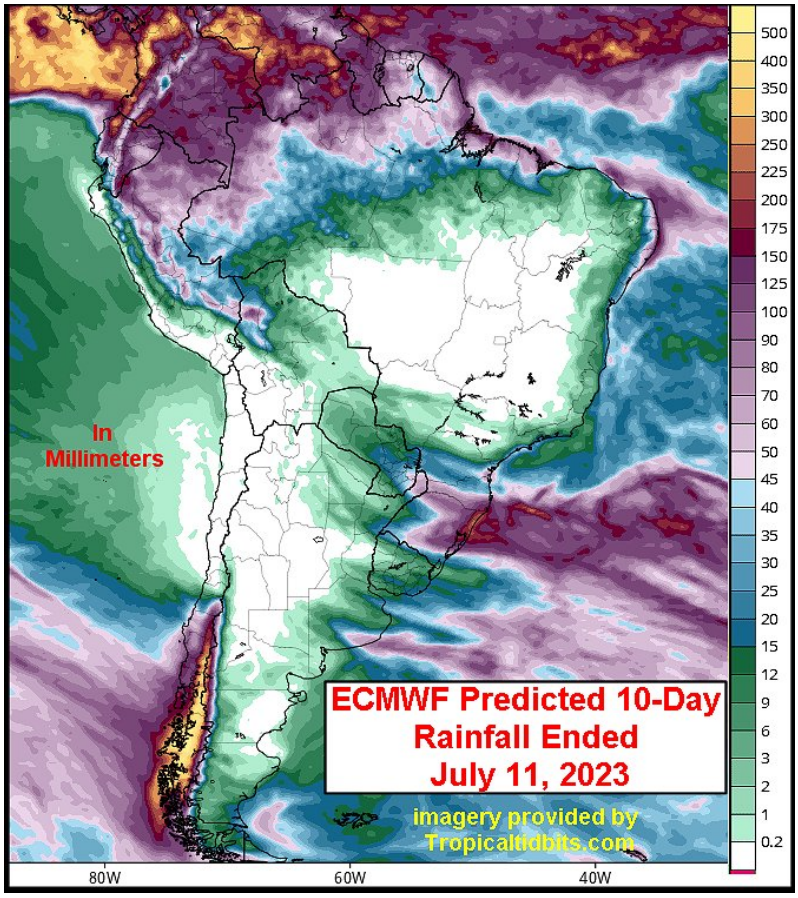
Temperatures will remain mild during the weekend and next Monday before gradually warming during the July 11 – 17 period.

Rainfall this week will be enough to provide additional relief from drought in a large section of the Midwest. Cooler weather will also reduce drying rates later this week and during the weekend conserving soil moisture and helping crops take full advantage of the recent rainfall and that which is coming. Corn and soybean development conditions will either remain favorable or improve during the coming week to ten days. However, there will be some pockets of dryness that will linger and those will need to be closely monitored for potential new crop stress later this month. With that said, the widespread dryness problem that the Midwest experienced in early to mid-June is over and not likely to return anytime soon suggesting corn pollination will conclude favorably, despite smaller ears and lower production. The potential production losses have been notably cut by this past week's rain and additional protection against other serious losses will come with the next week to ten days of additional rain. That does not mean dryness can't return to hurt the corn crop, but getting significant rain during pollination is a huge timely event that has likely thwarted what could have been a disaster had there been no rain through mid-July.

Soybean development will accelerate during the next two weeks with canopies quickly closing as aggressive vegetative development takes place. Follow up rain and warm weather will be needed later this month and in August to induce the best possible soybean production.

Brazil Safrinha Crop Harvest To Continue Without Delay

Safrinha corn and cotton maturation and harvesting advanced well during the past week due to limited rainfall and the same is expected in this coming week. This year's Safrinha corn production will be large with a bumper crop possible. Planting of the winter wheat is ongoing and should wrap up in the coming weeks. The region has ample moisture to support favorable establishment and growth despite many areas receiving little to no rain during the past week. Southern Brazil will only have a few opportunities for light rain through the end of next week. Net drying is expected, though wheat prospects will remain favorable.



Southern Brazil still has adequate amounts of moisture despite many areas receiving little to no rain during the past week. Sao Paulo and Mato Grosso do Sul have marginally adequate to short topsoil moisture, though subsoil moisture is mostly adequate. The remaining production areas are seasonally dry.

Harvesting of Safrinha corn and cotton is underway in portions of Brazil as of June 24, 11% of the corn was harvested, up from 5.3% the previous week and down from 20.4% this time last year. First-season corn harvesting was approximately 94% finished. Cotton harvesting was 4.7% complete. Soybean and other summer grain and oilseed harvesting was generally complete. Timely rain during the planting season and early in the growing season helped support a good environment for the Safrinha corn this season. Production will be high with a record or near-record crop expected.

In the meantime, winter wheat planting in Brazil was 68.8% complete as of June 24, up from 60% the previous week. Approximately 63.7% of the wheat was in the ground this time last year. Santa Catarina had 83% of the wheat in the ground, compared to 27% in Santa Catarina and 50% in Rio Grande do Sul. Planting was complete in center-south and center-west Brazil. The main production areas have had ample moisture so far in the season to support favorable establishment and growth.

Southern Brazil into areas near and along the eastern Brazil coastline will only have a few opportunities for light rain through the end of next week. A disorganized disturbance will initially promote light rain for these locations through the end of the weekend. Areas near the coast will receive minimal precipitation at the beginning and middle of next week while another disturbance brings rain to southern Brazil later Wednesday into Thursday. Moisture totals by next Friday morning will range from 0.10 to 0.50 inch. The remaining locations in Brazil will be mostly dry. Rain potentials will increase for southern Brazil July 8 – 14 and the rain could help improve the moisture profile. Other production areas will remain dry or mostly dry during the second week.

Safrinha corn, first-season corn, and cotton harvesting will persist with few disruptions during the next two weeks in the main production areas. Producers will be able to make significant harvest progress. Winter wheat planting in southern Brazil will also advance swiftly around the periods of rain through the end of next week. The main production areas will still have some moisture to support generally favorable establishment. The boost in rain during the second week of the outlook will also help restore or keep soil moisture at adequate levels in most locations.