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The Canadian Agriculture Weather Prognosticator

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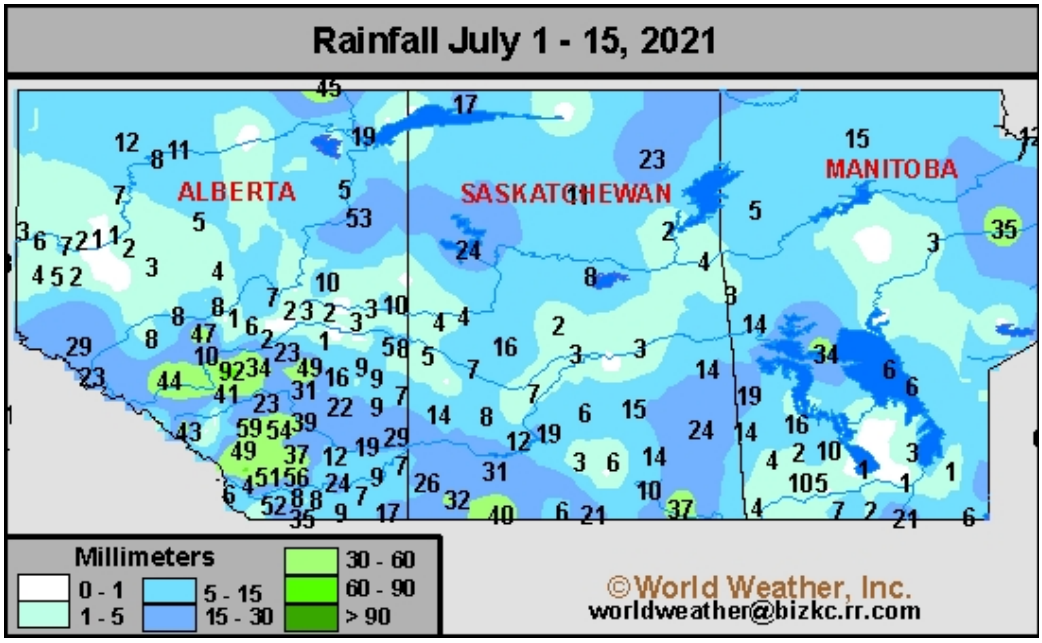
World Weather At A Glance

- Northern U.S. Plains drought is a mere extension of Canada's drought impacting the far northern Plains
- Production cuts will be substantial from the far northern Plains into Canada's Prairies
- Central and southeast U.S. Corn and Soybean Belt weather has been nearly ideal this year with huge yield potentials for a part of the region.
- Western Russia and southeastern Europe has dried out recently, but rain is forthcoming and should turn crops around
- China has been getting too much rain recently and flooding has impacted a portion of its summer crops
- India's monsoon is not performing well , but it should improve soon.
- Australia winter crops establishing well
- La Nina will make a comeback late this year

Another 30 Days Of Status Quo Weather

What a rough summer, so far! We have reached the halfway mark and have not much more than stress to show for it. However, a short term bout of improved weather did bring a little relief to crops near the Front Range of mountains in southwestern Alberta. Most of that rain occurred between Highway 36 and the Front Range between 11 Highway and Calgary.

Some of the rainfall in the southwestern Prairies ranged from 23 to 59 millimeters with Leedale reporting 92 mm. Crop areas to the east received 9 to 31 millimeters which was welcome, but not quite enough to carry crop development for very long. Some of the rain from southwestern Alberta did reach into southwestern Saskatchewan, but it skipped some very important cropland in the far south of Alberta in doing so. Val Marie received 40mm of rain and a few other areas south of the Number One Highway in southwestern Saskatchewan receive slightly more than 25mm.



Another narrow band of significant rain fell from the Estevan and Weyburn areas northeast toward Hudson Bay, SK and Swan River, MB where 14-37 millimeters of rain fell in the first half of this month. The majority of other areas in the Prairies failed to get anywhere near as much rain and much of the moisture that did occur did not last long.

Strong evaporation rates resulting from above to well above average temperatures evaporated much of the moisture soon after it fell, although there was a short term bout of

Another 30 Days Of Status Quo Weather (continued from page 1)

benefit for crops in each region.

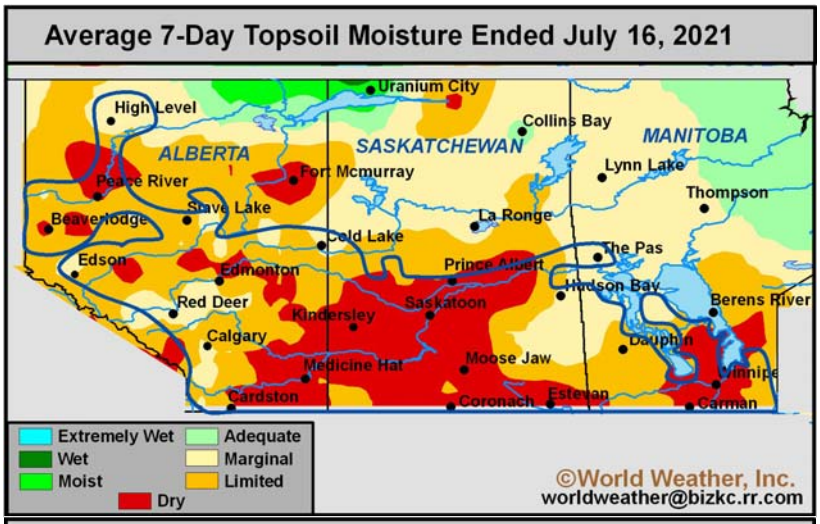
Soil moisture in early July was rated quite favorably in western, central and northern Alberta, but a period of hot and dry weather that came along in the second week of the month was quick to deplete soil moisture. At the time of this writing soil moisture was rated short to very short across a huge part of the Prairies, including these former wet-biased areas in Alberta. The reason for such a quick dry down was unusually warm to hot temperatures that occurred earlier this month.

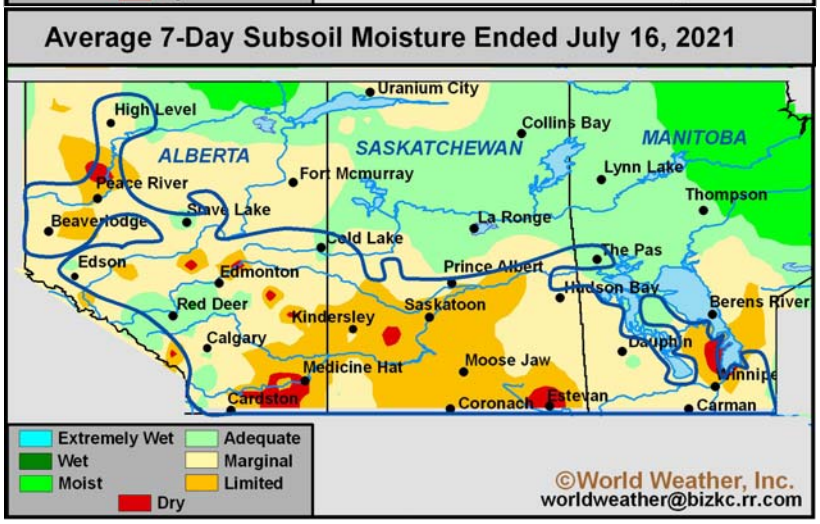
The firing up of thunderstorms along the Front Range is encouraging since there is not much influx of moisture into the Prairies. The rain implies that rain will still be possible during periods of weakness in the prevailing high pressure ridge or when the ridge shifts farther to the east as it is predicted to do in the next week or two.

In the meantime, much of the prairies has been negatively impacted by the summer weather pattern and its leading player—the strong ridge of high pressure. This is the time of year when the jet stream is traditionally weakest and usually far to the north.

It will be very hard for the ridge of high pressure to break down or move completely out of its favored position in the middle of North America for at least a few more weeks. The earliest that a notable change can take place is likely to be in the second half of August and if there is a notable change it may only last briefly allowing the old pattern to return once again after a brief break.

World Weather, Inc. believes that the ridge of high pressure is very much alive and will go through periods of contraction (inhaling) and expansion (exhaling) over the next few weeks and there will be some periodic movement from west to east and then back to the west again. The ridge axis will rarely be over Alberta and the time it spends over Manitoba should be relatively limited as well, but the mere fact the ridge of high pressure will waver mostly between these two invisible barrios suggests central and southern Saskatchewan has the greatest potential to continue at the core of this drought. The hottest temperatures and poorest rainfall will impact the central and southern parts of Saskatchewan. That does not mean problems will not also be present in other parts of the Prairies, but it does imply there could be some very short term bouts of relief that will impact the far wester, extreme northern and far eastern parts of the Prairies from time to time.





The official forecast for the coming 30 days will keep most of the significant rain near the Front Range of mountains in southwestern Alberta, but some rain may extend off to the northeast across northwestern Saskatchewan. Some rain will also occur across far northern agricultural areas of Saskatchewan and northernmost and easternmost Manitoba.

Temperatures will be most anomalously high in this same region and in a part of east-central and southeastern Alberta.

At noted previously the best potential for a meaningful change in weather across the Prairies will likely come as seasonal cooling begins. That will force the ridge of high pressure to retreat to the south and reduce some of the "blocking" that has been and will continue to occur for a while. Seasonal changes will also help to energize the jet stream so that more storms will come to the U.S. Pacific Northwest during late August and especially September raising the potential for moisture to feed into the region while temperatures are cooling in the north and still warm in the south.

Weather Outlook Through Early September

The first 30 days of the two-month forecast is basically a status quo outlook for the Prairies. A ridge of high pressure will dominate the heart of North America resulting in a continuing struggle with significant dryness and warmer than usual temperatures in southeastern Alberta, central and southern Saskatchewan and southwestern Manitoba The additional stress on crops and livestock will continue to pressure production lower.

The Peace River region and far western Alberta will be far enough removed from the ridge of high pressure to experience a more normal temperature regime.

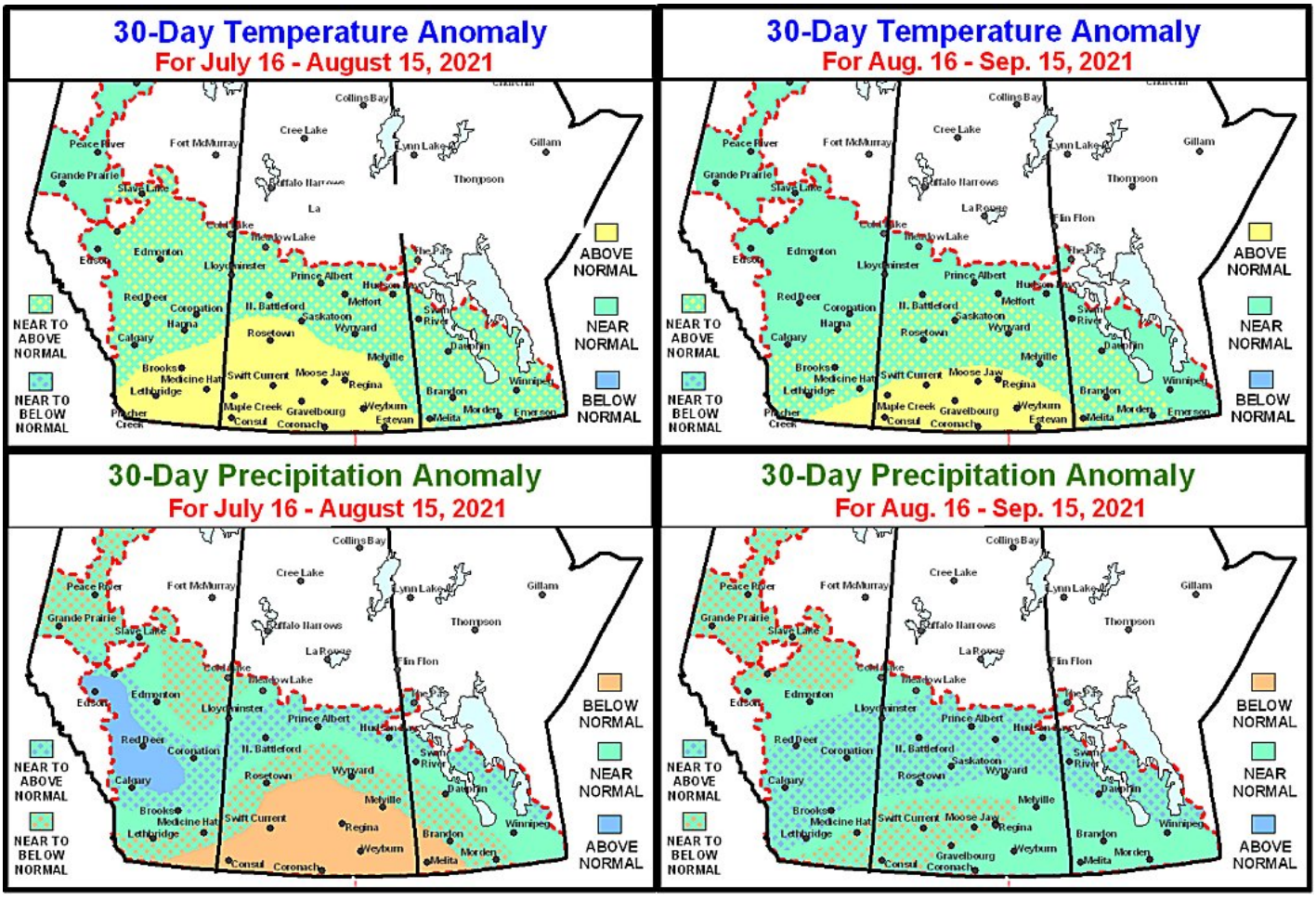
The greatest precipitation during the coming 30 days will occur along the Front Range of mountains in southwestern Alberta similar to that of late June and early July. There will also be a region of near to slightly greater than usual rain that extends from central Alberta to northwestern most Saskatchewan.

A few other areas along the northern fringes of Saskatchewan and Manitoba's crop regions will see near to above average rainfall, as well. However, it will be a struggle to get very many areas to see greater than usual rainfall.

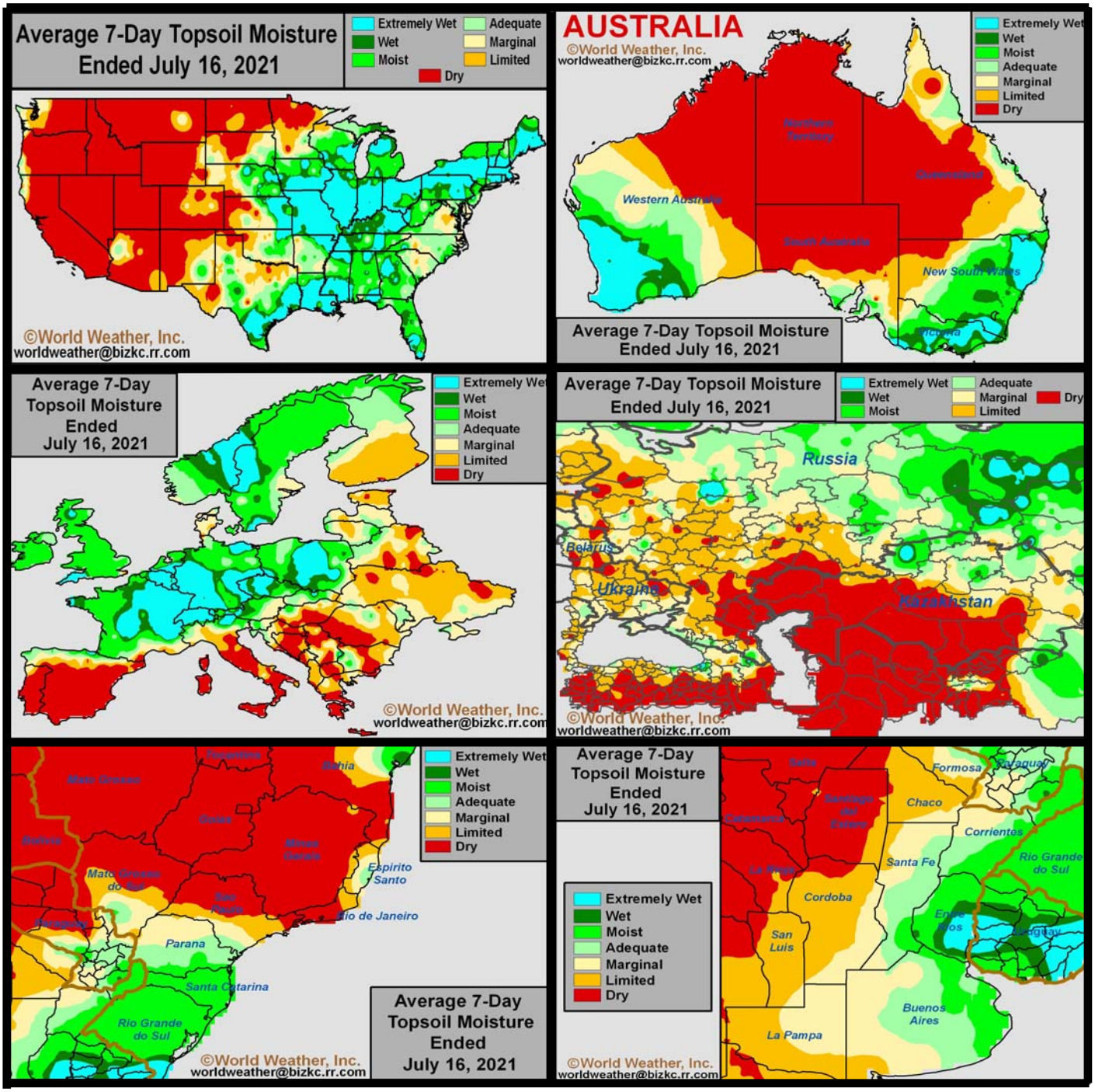
August 16 to September 15 will bring some early seasonal changes to the atmosphere. Cooling will be possible in late August in eastern parts of the Prairies that may bring a temporary chill to Manitoba and southeastern Saskatchewan. That may be followed by another bout of warming in early September. Temperatures during this 30-day period will be warmer than usual in the southern Prairies, despite the brief bout of cooling. What is most important, though, is the fact that cooling will be starting and the jet stream will become more active bringing opportunities for rain to push into the Prairies from the U.S. Pacific Northwest.

The combination of cooler air to the north, lingering warm air in the southern Prairies and a moisture flux into the region should help to begin pushing a little rain into the Prairies again Sep. 16 to Oct. 15. The precipitation will be greatest in the west and north, but all areas will have some potential for at least a little improved rainfall.

There is still some potential for a further delay in the weather change. A developing La Nina, an active finish to the U.S. tropical cyclone season and cooling water off the west coast of North America could all induce a drier and warmer bias in September.



Selected Weather Images From Around The World

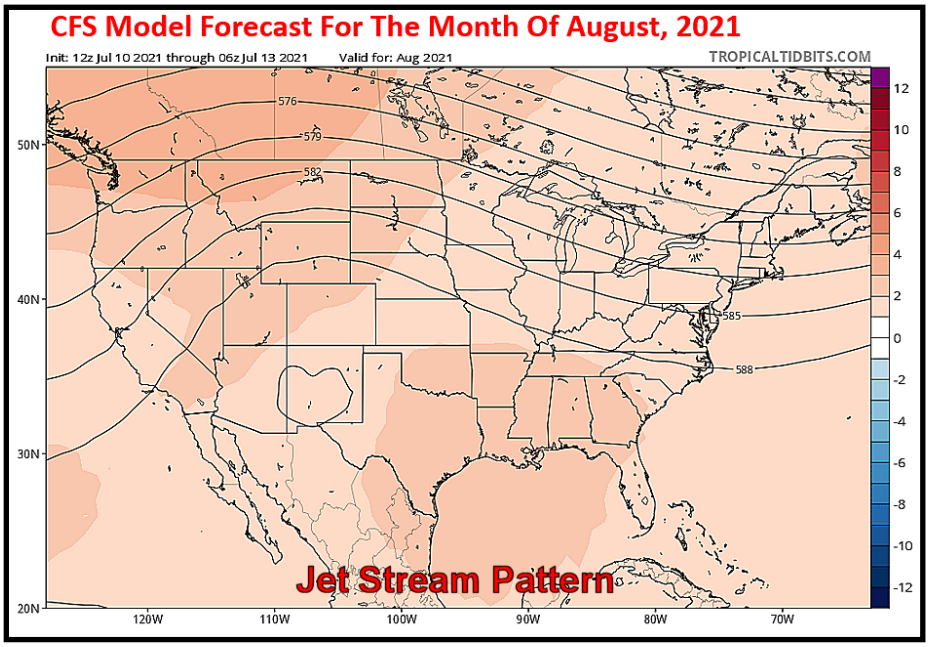


U.S. soil moisture is still rated favorably in a huge portion of the production region, but dryness is still a serious concern in the northern Plains and upper Midwest just as it is in Canada's Prairies. Another area of interest because of dryness is in Russia where much of the west has experienced net drying conditions recently. Subsoil moisture is still favorable and rain is in the forecast for Russia, Ukraine and Belarus which should restore favorable soil conditions before there is any decline in production. Southeastern Europe has also been drier biased recently and crop moisture and heat stress have impacted unirrigated crops, but similar to that of western Russia there is likely to be well-timed rainfall in the next ten days bringing back more favorable crop development. Some production cut may result in southeastern Europe, but the losses should be low as long as it does not get too dry again. In South America, winter crops are performing well, but there is need for rain in western Argentina wheat areas where it is a little dry.

Late Season Coolness Possible In Eastern Prairies

Despite the current forecast for high pressure to be over the heart of the Prairies during the coming 30 days, the ridge is expected to be far enough to the west for long enough during August to send a shot or two of colder air southward out of the arctic into eastern North America.

This potential has been suggested by the World Weather, Inc. Trend Model which has suggested a cooler than usual bias for the eastern United States during August. If the air remains dry over the eastern Canada Prairies and upper U.S. Midwest and there is a potential for cool air masses to move into the region there will be some potential for surprisingly cold temperatures. If this potential comes to fruition the greatest temperature anomaly will be over the eastern U.S. Midwest and parts of southern Ontario. However, there is also some potential that a shot of cold air could move over the top of the ridge and impact parts of Manitoba and extreme eastern Saskatchewan in late August.



The odds of a threatening cold airmass impacting the eastern Prairies briefly in August are low, but it cannot be completely ruled out. Without significant moisture in the eastern Prairies over the next few weeks the air will remain very dry when the first autumn cool airmass passes through Manitoba and eastern Saskatchewan. If conditions were just right there would be some potential for threatening cold to evolve briefly to possibly induce a little frost.

Most likely the prevailing drought will not only support a faster fall in temperatures during bouts of cold, but crop development may be more advanced than usual because of the heat and dryness this summer. If that is the case crops may be mature much earlier than usual and might not be impacted by any early season frost or freeze.

Warming is expected in the Prairies during early September which would delay a more significant frost event until later in September, but if La Nina evolves by that time the potential for getting cold earlier than usual may diminish because La Nina events tend to promote a warm and dry bias during September and October.

Overall, the bottom line for the Prairies in regard to early season frost and freezes is only a very low risk. There is a repeating 45-day cycle that may support the late August cooling, but if the cycle repeats one more time the next supportive period for notable coolness might not occur until late September or early October.

The latest data suggests only a weak threat of frost and freezes in late August. The orientation of the ridge of high pressure in August will have much to say about that frost and freeze risk. The more amplified the ridge becomes during the month the more cold air will be pushed down the front of the ridge. A high amplitude sharp ridge would bring a chance for crop damaging cold, but a more broad-based ridge like that of this summer and like that expected in August (shown on this page) would result in a low potential for crop damaging cold.

Alberta temperatures should be a little more mild to warm in August and early September than those of the eastern Prairies because of a southwesterly flow of air aloft over western parts of the continent. Such conditions will bring somewhat warmer and more moist air into the western Prairies reducing the risk of crop damaging cold and lowering the potential for drought busting rainfall.

There is actually more potential for the U.S. Midwest to experience notably cool biased weather over a couple of weeks in late August than there is for the eastern Prairies to experience such conditions. However, there is no reason to expect crop damaging cold in the states. The most likely influence, though would be the return of below average temperatures that might slow late season crop development.

The U.S. northern Plains, like the south-central Prairies, will have a low risk of early season frost and freezes because of lingering warmth from the ridge of high pressure.

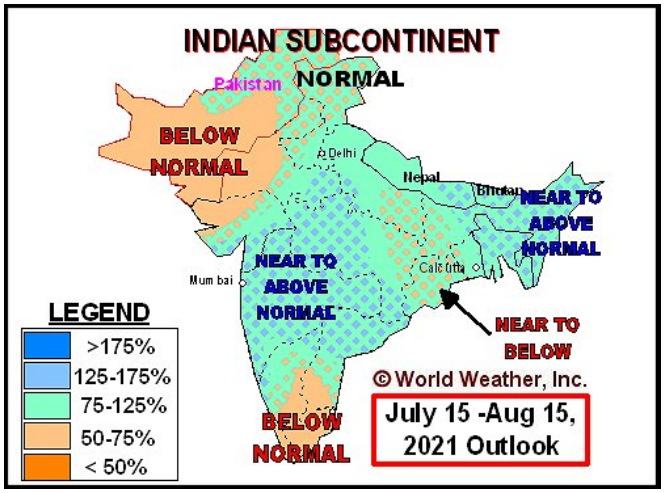
India To See Improved Rainfall Soon

Some monsoonal rain returned to eastern and northern India in recent days after an extended period of drier than normal weather. Punjab, Haryana, and much of western and northern Rajasthan only received light to moderate amounts of rain that were unable to significantly improve the moisture profile. These areas will again have opportunities for rain this week that will continue to erase a minor amount of dryness and support a marginally better environment for crop establishment and growth. However, additional rain will be needed to completely fix moisture deficits. The remaining portions of India will see a good mix of monsoonal rain and sunshine this week. There will be plenty of moisture to maintain aggressive growth in most locations.

A large portion of Rajasthan, Punjab, Haryana, and western Madhya Pradesh have been drier than normal so far this monsoon season. A few locations received up to 125% of normal rainfall from June 1 – 15, though most areas received 29-78% of normal precipitation. Pockets in eastern Maharashtra, southern Chhattisgarh, eastern Odisha, and the Eastern States also received below normal rainfall. The remaining production areas in India received near to above normal rainfall. Many areas in Bihar, Jharkhand, Tamil Nadu, and southern Andhra Pradesh received 105-247% of normal rainfall with pockets in Tamil Nadu and southwestern Andhra Pradesh that received up to 580% of normal rain.

Western and northern Rajasthan into Punjab, Haryana, northern Madhya Pradesh, and central Uttar Pradesh have short to very short soil moisture despite recent rainfall. Daytime highs in these areas often peaked near or above 100 degrees Fahrenheit and promoted aggressive drying between rain events. Other areas in Rajasthan and neighboring locations received enough rain to bolster topsoil moisture, though there is still a shortage of moisture at subsoil levels. The remaining portions of India generally have adequate to excessive amounts of moisture.

Planting as a whole is behind last year, primarily due to the extended period of drier than normal weather in the last half of June and first few days in July for western and northern India and portions of central India. As of July 8, the area of rice that was planted was at 11.5 million hectares, down from 12.6 million for this time last year. The area of cotton planted was 8.6 million, down dorm 10.5 million last year. Soybean planting was at 8.2 million hectares, down from 9.2 million last year. Sugarcane and pulse planting was near last year's levels.



Although planting and establishment are behind normal in many areas, the recent uptick in rain for portions of western and northern India will likely support more aggressive fieldwork in coming days. Southern, eastern, and much of central India have received enough rain to support aggressive establishment and growth in recent weeks.

Monsoonal rain will evolve on a frequent basis for western and northern India this week. Rainfall for these areas will range from 2.00 to 6.00 inches and locally . Much of northern India into eastern Rajasthan, western Madhya Pradesh, and the remaining portions of Gujarat will receive 1.50 to 4.00 inches of rain, though many areas in Himachal Pradesh and northern Uttar Pradesh will receive more than 6.00 inches of rain. Other areas in Rajasthan will only receive 0.25 to 1.50 inches of rain with drier pockets.

Moisture deficits will persist in portions of Rajasthan through early next week. The rain that falls will marginally improve short-term crop conditions, though the environment will remain far from ideal. Northern India and most other areas in western India will see soil moisture increase by the beginning of next week. Crop development conditions will either improve or remain favorable.

The remaining production areas in India will see a good mix of monsoonal rain and sunshine this week.

For the next 30 days rainfall in India will be below average in northern Gujarat, northern and western Rajasthan and much of southern Pakistan. Rainfall will also be less than usual in the far south part of India. Near to below-average precipitation is also expected in Punjab, Haryana Himachal Pradesh and from much of Odisha and western West Bengal to southern Uttar Pradesh. Most other areas in the nation will receive near to above average precipitation.

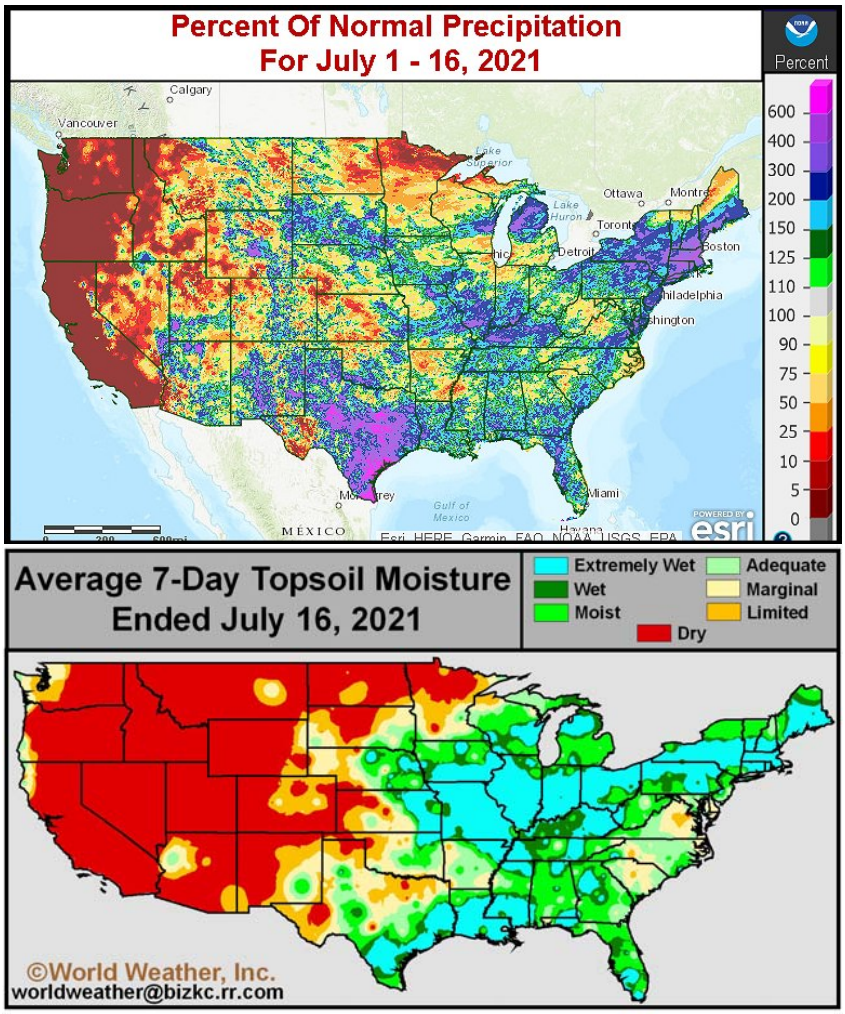
The change in weather will support aggressive cotton, soybean, groundnut, rice, sorghum and other crop development from central and southern Gujarat into southern Rajasthan and northwestern Uttar Pradesh to Maharashtra and Telangana. However, the same pattern may lead to some crop stress in the drier areas to the north.

Dryness To Expand Deeper Into NW U.S. Corn Belt

The first half of July rainfall was greater than usual from South Dakota into the heart of the Midwest and very well mixed with periods of dry weather in the southeastern states as well as parts of the Delta. Weather conditions in the central and eastern Midwest and southeastern states has been well balanced during most of the growing season and rumors are running wild now that some of those production areas will yield extremely well and the same is true for parts of the Delta.

Corn pollination is under way and the next two weeks will likely bring 75-80% of the crop through that process in favorable shape because of abundant soil moisture and some welcome warming that is predicted for parts of the Midwest. Temperatures this month have been cooler biased from Texas to the heart of the Midwest and in both the Delta and southeastern states. Cooler biased weather in July is often a very big plus for U.S. production and the same can be said for August. The question now becomes just what will the outlook be for the next several weeks? Is there good reason to expand dryness enough to bring U.S. production below trend? There is some suggestion that August temperatures will be milder than usual again and rain potentials will be favorable for the eastern Midwest and the southeastern states. How much can we count on the drought in Canada and the northern U.S. Plains to expand into the Midwest?

The latest soil assessment suggests most of the U.S. Corn and Soybean Belt has favorable moisture. Only crop areas in the far northwest are suffering from moisture shortages of significance. Subsoil moisture is still rated poorly in the Dakotas and Minnesota with a few areas in Iowa and Nebraska also experiencing similar conditions. The debate in recent weeks has been over whether conditions in the central and eastern Midwest are good enough to push potential yields high enough to counter potential production cuts in the northwest. It is very hard to look at these soil moisture maps and not conclude that the nation's crops are poised to perform very well.



Certainly crop conditions earlier this growing season were not very good for many areas. But, it has been proven before that weather during pollination is by far more important than weather in the early stages of crop development as long as there has not been extreme drought conditions. Adding to that comment one cannot turn their back on the milder than usual temperatures that have occurred leading up to pollination and the prospects that these conditions will prevail for another week as slow warming begins.

Some computer forecast models suggest only the northern Plains and uppermost Midwest will experience anomalously warm temperatures during the balance of July. Most other areas will warm enough to stimulate more aggressive crop development that will lead to more yield being added rather than being taken away. It looks probable that soil moisture will be

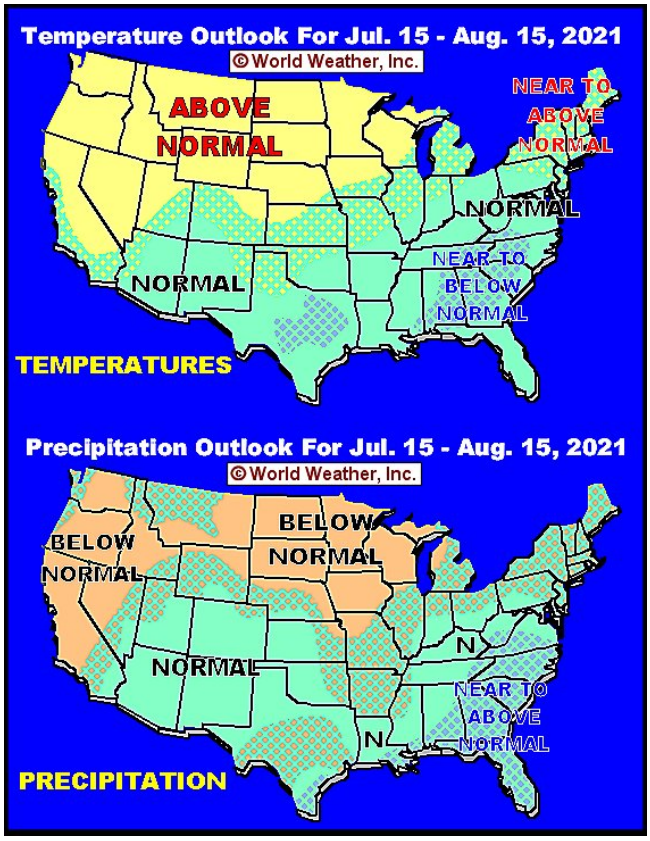
Dryness To Expand In NW U.S. Corn Belt (continued from page 7)

sufficient to support the majority of corn through pollination. So the debate remains over the outlook for late July and August as to whether it will be hot and dry enough to seriously hut corn yields while filling and soybeans while reproducing in the northwest. There is still potential for that.

The next 30 days of weather should be toughest on the northwestern Corn Belt. The second half of July will be warmer biased in the Northern Plains and upper Midwest. Actually, temperatures will be warm biased in most of the Corn Belt, but the northwest will likely be warmest relative to normal. Rainfall is also expected to be below average in the northwestern Corn Belt during the next two weeks and probably for much of the 30-day period as well. However, there will be some opportunity for showers and thunderstorms to develop in the Corn Belt during the first part of August when the high pressure ridge starts to shift back to the west into the high Plains and Rocky Mountains.

The last two weeks of July will bring on a repeating pattern of heat and moisture stress, but in the past this pattern has only lasted about ten days before abating and giving way to milder weather and some periodic rainfall. World Weather, Inc. believes this is the pattern that will be repeating. As a result, July will finish out with a decline in rainfall and soil moisture across portions of the western and northern Midwest that will firm up the ground and return concern about the long term outlook.

However, our Trend Model suggests the ridge of high pressure over the Plains and western Corn Belt in late July will shift back to the west during August restoring a northwesterly flow pattern. Temperatures will likely fall below average in the second half of August for parts of the central and eastern Midwest. These trend changes in August will likely reduce stress across parts of the western Corn Belt, but the weather will still be drier biased which could lead to some expansion of crop stress into Nebraska, Iowa and Wisconsin after being mostly confined to the northern Plains and Minnesota during late July.



None of the eastern Midwest is expected to dry out enough to harm its production potential for corn or soybeans and the Delta and southeastern states will experience similar conditions. A similar pattern occurred in 2003 when most of western North America had drought along with parts of Canada and the northern U.S. Plains. During the summer season the drought pattern failed to change much and dryness that was present in the spring of 2003 was still present in September with the only changes being some expansion of dryness in the northern Plains and upper Midwest and some routine rainfall in the southern Plains, lower Midwest and, Delta and southeastern states. If we continue to parallel 2003 the fate will be the same leaving only the northern Plains and uppermost Midwest with some expansion in dryness potentially between now and September.

The bottom line is that dryness and moisture stress are expected to expand into the northwestern Corn Belt and the northern Plains over the next few weeks. However, getting heat and dryness into the central or eastern parts of the Midwest seems to be unlikely unless some other weather feature kicks in to seriously alter the pattern that is prevailing right now. Confidence is high that good yields in corn and soybeans will occur in the central and eastern Midwest, Delta and southeastern states while the northwest will have the biggest problem with moisture shortages and lower production. Despite market gyrations brought on by drought monger forecasts earlier this year the outlook presented here is mostly unchanged from what World Weather, Inc. presented in February and we do not see any reason to deviate from it.