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The Canadian Agriculture Weather Prognosticator

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World Weather At A Glance

- Europe's drought was eased during September, but there are still many areas in the west and southeast that are still too dry
- Western Russia and Ukraine soil moisture was greatly improved for wheat emergence and establishment in September
- China's Yangtze River Basin Drought Continues to be significant impacting rice, but threatening winter rapeseed planting
- India's Monsoon performed very well in 2022 producing 6% more than the usual rain
- Argentina is still dealing with a La Nina biased drought
- Eastern Australia is facing a wet finish to the wheat, barley and canola season
- U.S. harvest weather looking good
- Brazil rainy season begins well

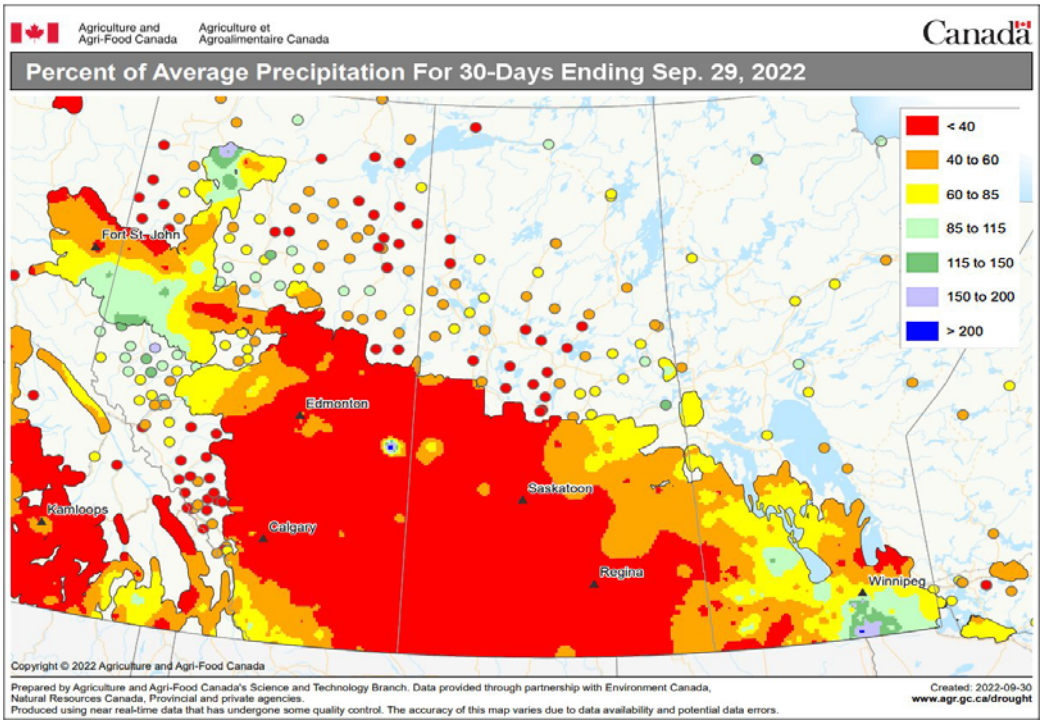
Dry Bias Raises More Fear For 2023

Weather across the Prairies in September was very warm and dry biased. High temperatures in the drought region of central through southwestern parts of Saskatchewan and southern through east-central Alberta soared to the lower 30s Celsius this week for three days in a row. Extreme highs reached 35! That is amazing, but a little scary too because it reflects the very dry situation across the region.

Some areas in the southwestern Prairies have just finished their sixth year of drought and what a struggle it has been. Despite what the media might tell you this is not a "climate" change that will prevail forever. No, this is short term anomalous weather that is no different than the multiple years of drought in Australia, the western United States and South Africa that occur periodically.

It has been six years, but just prior to this series of dry years the same region was complaining about too much moisture and these trends will continue to cycle through. But it certainly does wear on one's patience and wallet.

In the short history of recorded weather this has been one of the longest dry-biased periods, so, lets hope we are at the end of this string of bad crop years. The sad part about the situation is that the odds are not favoring a serious fix for the moisture deficits during October or early November. The driest areas in the Prairies are destined to keep the notable moisture deficits into the coming cold season.



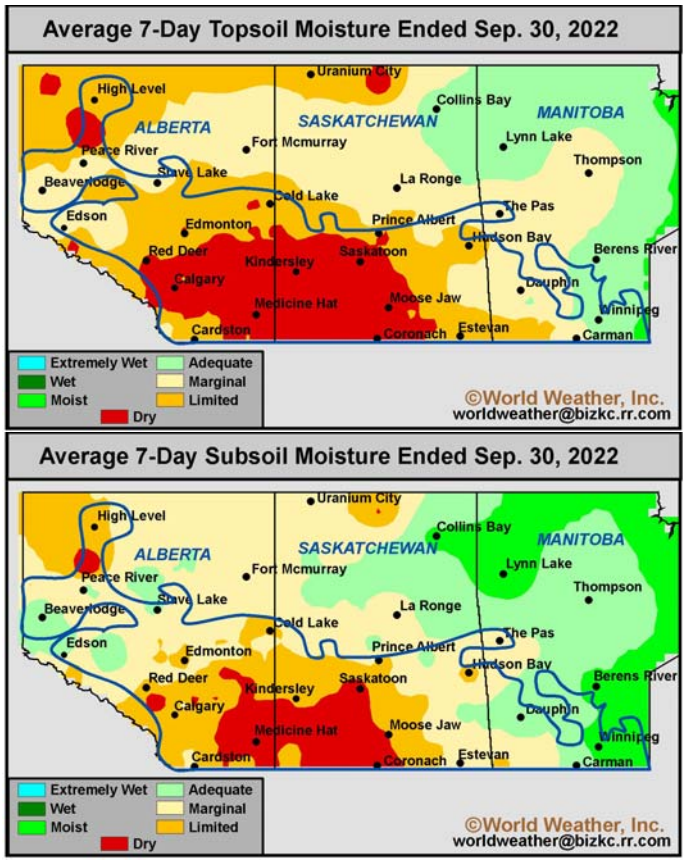
Dry Bias Raises More Fear For 2023 (continued from page 1)

Now that may sound like a terrible thing, but there is potential for some improving winter precipitation. If we can freeze the ground without much moisture in it and then have an active snow season the snow will have a much better chance to melt into the ground without running off so much in the spring and we could come into spring in better shape than what is feared today.

That may not make much sense to you, but dry soil that freezes has many tiny air pockets between soil particles. Normally, when moisture is in the soil there is no open space between soil particles because it is filled with moisture and when wet soil freezes up in the winter there is no breathing and there is no way to get moisture to penetrate the frost.

Dry soil will accept moisture from melting snow because the moisture from melting snow gets into the minute air pockets in the soil and will accomplish two things. Frist, the water in spring that gets into dry soil will actually warm the soil slightly and as the soil warms up more of the open space between soil particles deeper in the soil warm up and open up to accept more moisture and the percolation process will successfully bring melting snow down into the ground a little easier than if there is a significant layer of frost in the ground acting as a barrier for snowmelt to get into the ground.

With all of that said, obviously it would be best that we get significant moisture to fall before the ground freezes up, but if don't there is still hope because of the possible active snowfall season could still bring some beneficial moisture to the soil when the snow melts.



As you will see later in this prognosticator, October is not going to be a good precipitation month and temperatures will continue warmer than usual. That implies that the good harvest conditions that evolved in September will be perpetuated through October and possibly into the first days of November. That would not be too bad since there is always a risk of getting rained or snowed out of the late harvest leaving crops in the field over winter or creating quality issues

Perhaps we can get all of the harvest completed before there is much precipitation. That would please most folks, but the winter hibernation for most farmers would be far more comfortable if there is moisture in the soil before everything turns white and cold.

The bottom line to all of this gibberish is that no one should feel hopeless if we go through a few more weeks of warm and dry biased weather. There are ways that we can still get moisture in the soil by spring and the potential does exist for some change.

La Nina is expected to break down in the first quarter of 2023. Until that happens the warm and dry scenario playing out today will continue into early November and then the bottom will fall out of our temperature regime and it will suddenly get very cold. Late November and December may be rough with bouts of bitter cold, but during that period of time some significant snow will accumulate in southwestern and far southern Alberta and in southwestern Saskatchewan.

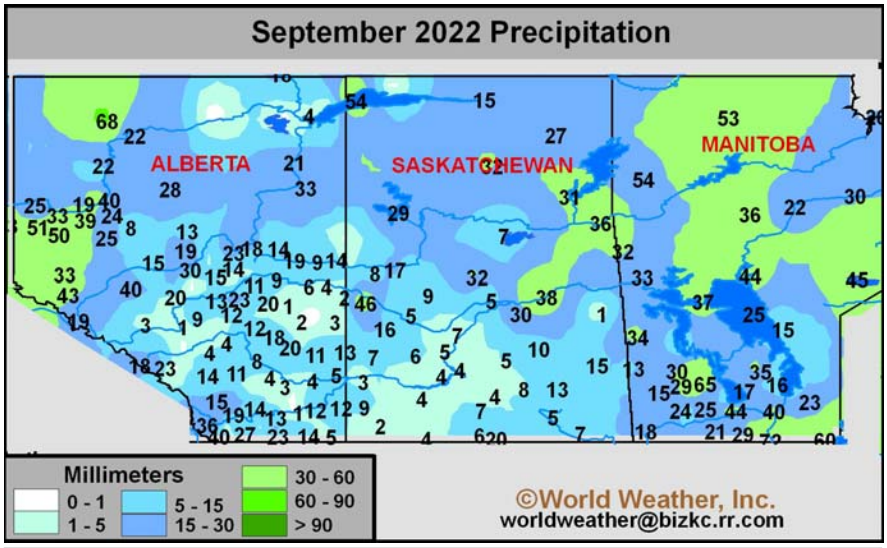
The most interesting part of our winter will be when La Nina breaks. The 18-year cycle is promoting a strong northwesterly flow of air over eastern Canada not western Canada. So, once La Nina starts abating the cold air in the Prairies will shift to the east and we will begin seeing warmer conditions. Alternating periods of warm and cool weather should bring more precipitation to many areas in the Prairies in the form of snow and we should end up having more snow to melt in the spring than we have seen in recent years.

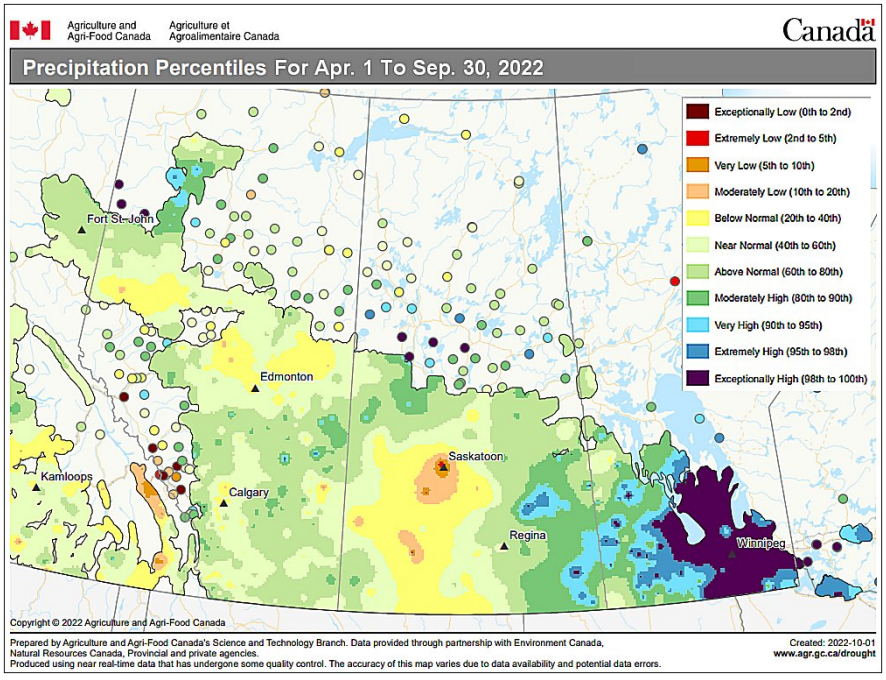
Not all of the Prairies will be involved with the wetter scenario as you will see later in this newsletter, but many of the driest areas will have "opportunity" to get some significant snow. This change will be closely tied to the abating La Nina. If it does not go away then it will be much more difficult to get changes to take place and we could come into spring with another year of worry over planting moisture.

Southern Manitoba Still Feeling Impact Of Wet Bias

Two areas in the Prairies were not included in the drier bias during September. Portions of southern Manitoba and a part of the southern Peace River region were areas that bucked the drier than usual trend in September. These areas were wetter biased.

In the case of south-central and southeastern Manitoba, the wet bias exacerbated the delay in crop maturation and harvesting that was brought on by some amazingly wet biased spring weather. The early growing season precipitation that soaked Manitoba and eastern most parts of Saskatchewan saved those areas from another year of drought, but it also caused significant delay in getting this year's crops planted. That delay has kept much pressure on crops in the region, first over the fear of frost and freeze damage and then over the fear of a wet harvest.





Manitoba has had more cool weather in recent weeks than other areas in the Prairies. There have also been some notable bouts of rain that delayed harvest progress. Some of those delays were quite frustrating and there have been some negative impacts on immature crops because of both the cold and wet bias.

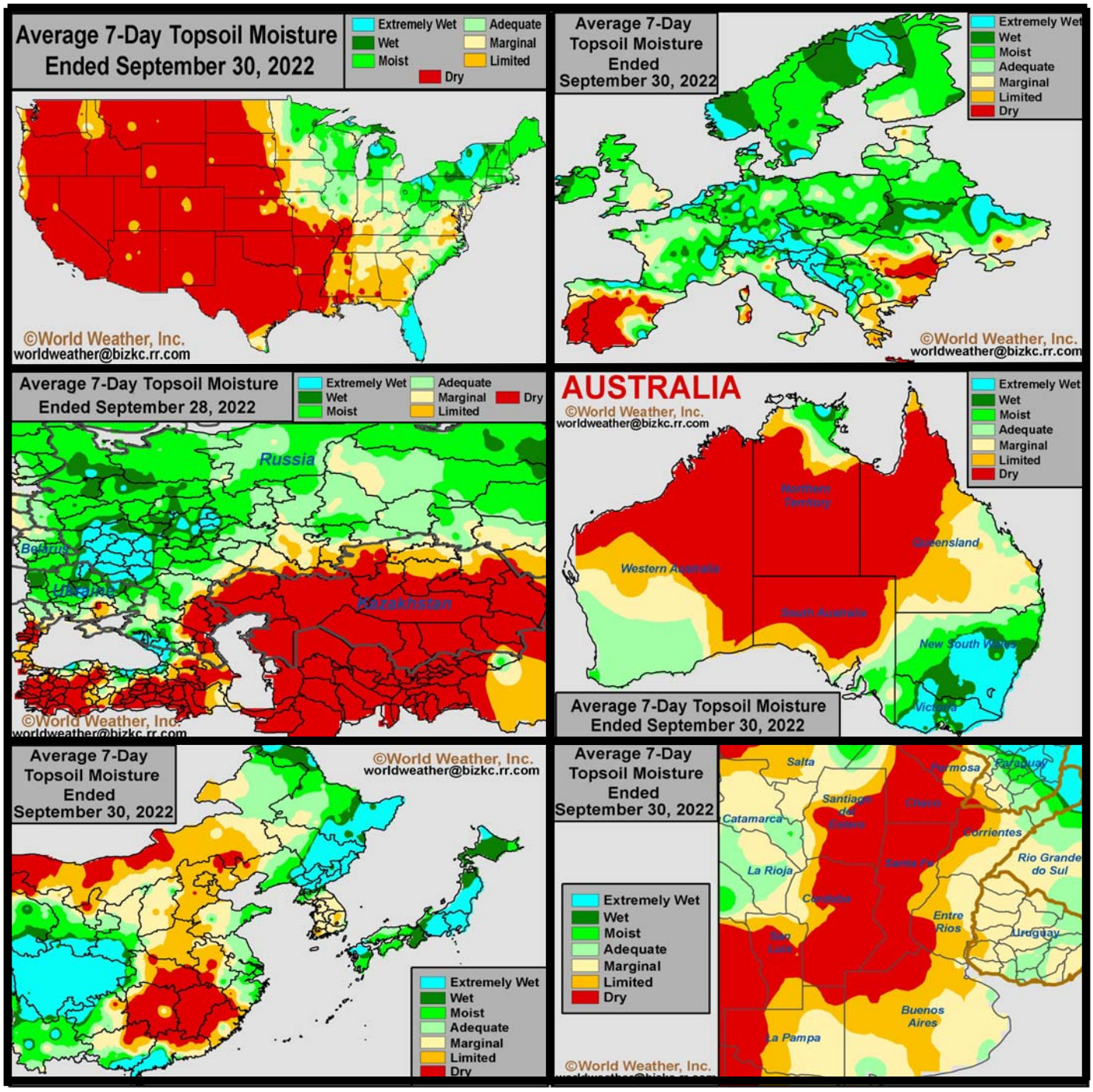
No big soakings of rain are expected in the southeastern Prairies over the next few weeks, but there will still be some annoying small weather systems that will disrupt farming activity and frustrate producers. Seasonal cooling is expected as well and that in combination with the weak weather systems will keep field progress running a little slow. But, progress is expected and despite the frustration crop conditions should hang in there relatively well.

The Peace River region, especially in the south, also dealt with an abundance of early season rainfall and more recently some wetter and cooler biased conditions as well. Similar to southern Manitoba there are some crop areas in the northwest of Alberta that would benefit greatly from an extended period of drier and warmer weather. The region has a better chance of seeing their prayers answered than southern Manitoba, although both regions will have enough favorable weather to get the harvest completed without much weather related issue. Unlike southern Manitoba rainfall in the Peace River region during the heart of summer was more limited at times and some net drying occurred helping crops develop a little faster and get to autumn in a little better shape than some crops in southern Manitoba.

The Slave Lake, Swan Hills and southern Peace River region experienced a little more moisture than desired in September , but the situation could have been much worse and still could be if there is not a bout of drier and warmer weather. World Weather, Inc. is expecting improved, although not perfect, weather in October and the job will get completed.

Overall for the Prairies, weather this year was far from ideal and presented many challenges, but the region as a whole managed to get through it and the finish will be successful. Next year hopefully will be better for those who have had their faith stretched the most.

Selected Weather Images From Around The World



Drought in the central and western United States, southeastern China and Argentina continues with little reason to expect change for a while; however, the change of seasons under way does provide some hope for change in time. La Nina continues to prevail and the most recent data suggests it will continue into the first quarter of 2023. That may leave dryness in the U.S. central and southern Plains, California and the southwestern parts of the nation and could leave the Delta and southeastern states in a drier mode for spring 2023. In China, dryness may be partially eased in early October, but La Nina will make the far southeast of the nation drier biased until spring. For Argentina, the driest conditions should shift to the southeast by late October and early November. In the meantime, Australia crops are in nearly ideal condition, although New South Wales and Victoria have been wet and will stay wet through the harvest season raising a quality issue. Europe and western Russia have turned wetter after recent dryness.

October Drier, Warmer Biased; Some Change In Nov.

La Nina's recent strength will see to it that weather in the Prairies does not change much in October or the early part of November. A notable lack of moisture is expected with temperatures frequently above normal will prevail during much of this time.

The environment will be extremely good for expediting harvest progress across the Prairies; including those areas that have been behind in fieldwork because of wet weather earlier this year and again during a part of September. Manitoba and southern parts of the Peace River region as well as neighboring areas of northwestern Alberta will benefit most from the drier and warmer bias.

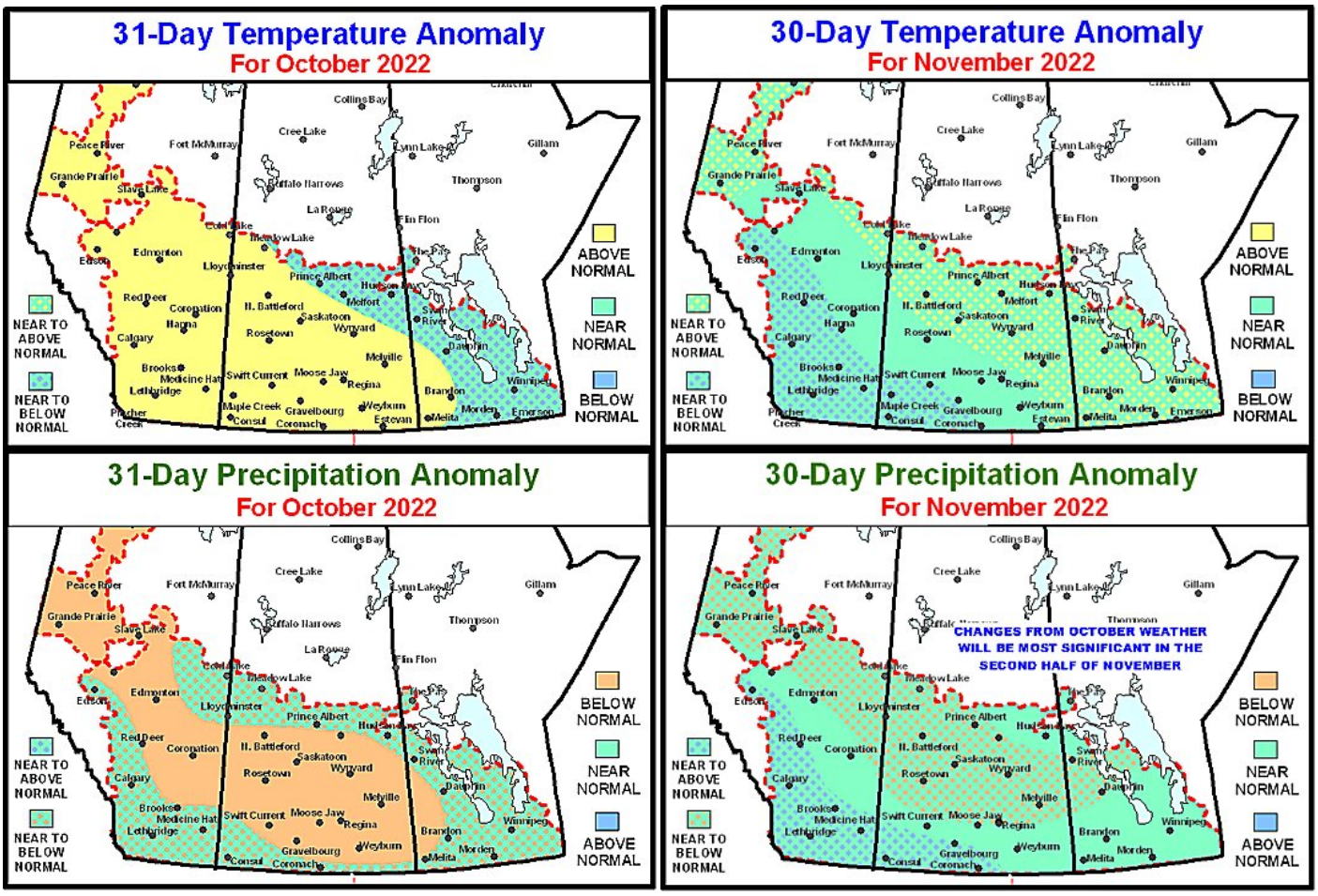
Absolute dryness is unlikely, but most rain events will be brief and light enough to shorten disruptions to fieldwork. Unfortunately, the drier and warmer bias will also perpetuate the large moisture deficits that are prevailing in the central through southwestern parts of the Prairies. It is becoming less likely that moisture replenishment will occur prior to the winter freeze.

November will be a month of transition for the Prairies. The middle and more likely the end of the month will turn much colder. Much like the flipping of a light switch, the weather is expected to turn much colder. Exactly when this will occur has not yet been determined, but it is likely and December will be a full month of that change.

November's weather change will also bring precipitation into the Prairies. The most significant precipitation, though, will occur along the front range of mountains in Alberta and in southern Alberta as well as neighboring areas of both Montana and southwestern Saskatchewan. Much of the precipitation will occur as snow and it will likely come with very little notice. Winter will arrive suddenly, but when it does it may bring snow to portions of the Prairies without having a significant amount of frost in the ground and that could be a benefit for the region next spring as the snow melts.

La Nina patterns usually do not bring much precipitation to the central or northwestern Prairies and that will be the case in November as we transition into the new pattern. These areas, however, will have potential for better late winter and early spring precipitation which could set the stage for a better moisture profile for some areas later in 2023.

December will be cold biased like late November and the precipitation pattern may not change much.

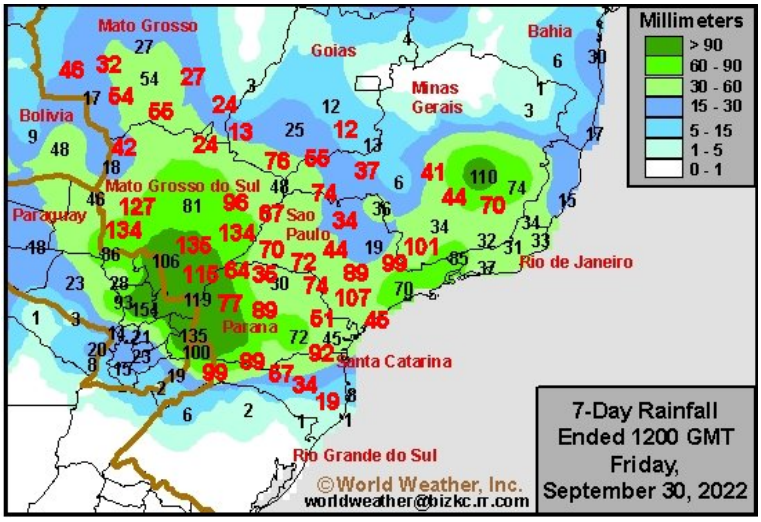


Brazil Rainy Season Begins Well; Parana Too Wet

Favorable weather and greater than normal planted acreage will lead to a record amount of wheat harvested this season in Brazil. Parana and Rio Grande do Sul remain the top producers in the country while several neighboring states have planted more than usual.

Wheat is in varying stages of development and maturation with some of the crop being harvested in Parana, Sao Paulo and areas farther north while the crop in Rio Grande do Sul is reproducing and filling.

Recent rainfall may have impacted wheat quality in Parana and neighboring locations where periods of significant rain were noted during the past week and more is on the way. First-season corn planting is underway, too, while a few pockets of soybean planting have begun. Prospects for early corn and soybeans are good and will remain that way for two weeks.



Parana and portions of Santa Catarina into Sao Paulo, Mato Grosso do Sul, Mato Grosso, southern Goias, and the southern half of Minas Gerais saw waves of rain during the past week. Moisture totals for the seven-day period ending Sep. 30 ranged from 0.95 to 3.50 inches with local amounts to 5.31 inches in western Parana, southern Mato Grosso do Sul, eastern Sao Paulo, and Minas Gerais. Central Goias received up to 0.47 inch of rain while parts of Bahia and northern Rio Grande do Sul received up to 0.24 inch. The rest of northeastern Brazil and Rio Grande do Sul was dry.

Recent rainfall significantly bolstered soil moisture in much of center-south and center-west Brazil, Parana, and Santa Catarina. Topsoil moisture is rated adequate to excessive in these locations. Seasonal dryness was still ongoing for northeastern Brazil while some areas in the south were looking for greater rain.

Winter wheat harvesting is at varying stages across Brazil. The small production region in Goias had all of its crop out of the ground while a large majority of the wheat in Minas Gerais and Bahia was also gone as of September 24. Parana had 28% of the wheat harvested while Sao Paulo was 35% done. Very little wheat was harvested in Santa Catarina. Much of the wheat is still developing and maturing in Rio Grande do Sul.

Brazil as a whole is looking at a record wheat harvest this season in part due to favorable weather over the planting and growing season. Planted acreage was also above normal with several areas in the Cerrado region planting more wheat than they normally do. The main concern going forward will be the need for drier weather in the wettest areas of Parana, Sao Paulo, and Santa Catarina. Recent rainfall was enough to potentially impact quality and additional precipitation could increase concerns for quality reductions. Harvesting may advance slowly in the wettest fields as well.

In the meantime, first-season corn planting was 19.3% complete across Brazil as of September 24. Much of the planting has occurred in Rio Grande do Sul, Santa Catarina, and Parana. The remaining production areas have not yet started planting. Soybean planting is a little less than 2% completed (as of Sep. 24) while rice planting was 6.3% done. Early-season establishment and growth conditions have been generally favorable outside the driest areas in Rio Grande do Sul.

Much of Brazil outside Bahia will have opportunities for rain through the end of next week. Scattered showers will evolve in portions of southern and center-south Brazil today and Saturday before shifting to center-south and center-west Brazil Sunday through Tuesday. A strong frontal boundary will then promote more widespread rain later next week. Portions of Mato Grosso do Sul, Parana, Sao Paulo, and southern Minas Gerais will receive 1.00 to 4.00 inches of rain with local amounts of 6.00 inches or more by next Friday morning. The remaining locations will receive 0.75 to 3.00 inches of moisture. Any rain that reaches Bahia will otherwise be too light to counter evaporation or significantly impact long-term soil conditions. A similar weather pattern is slated for the country October 8 – 14 as well.

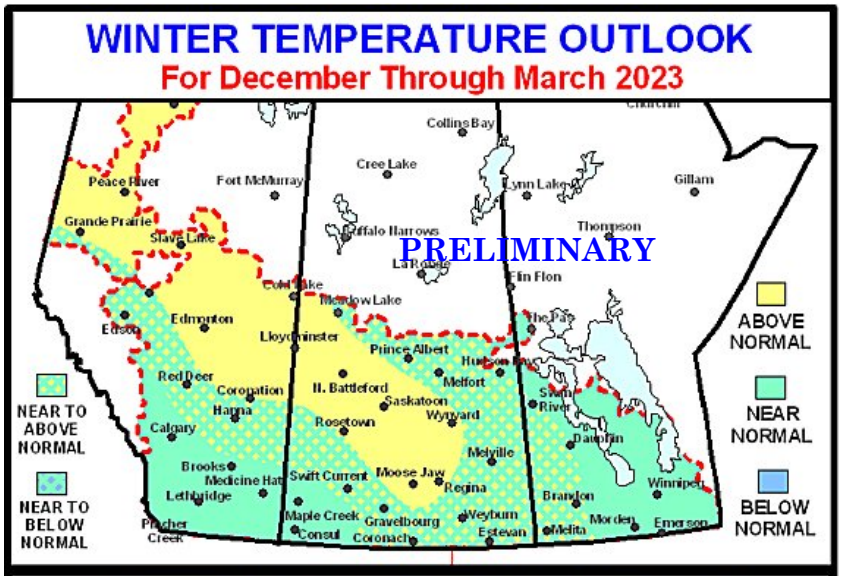
Corn, soybean, and other crop planting will likely advance swiftly around the rain across Brazil during the next two weeks. Establishment and early-season development conditions will either improve or remain favorable for most locations. Winter wheat harvesting will likely begin or continue to advance around the rain in coming weeks, but concern over crop quality will continue to rise in portions of Parana, Sao Paulo, and neighboring areas because of too much moisture.

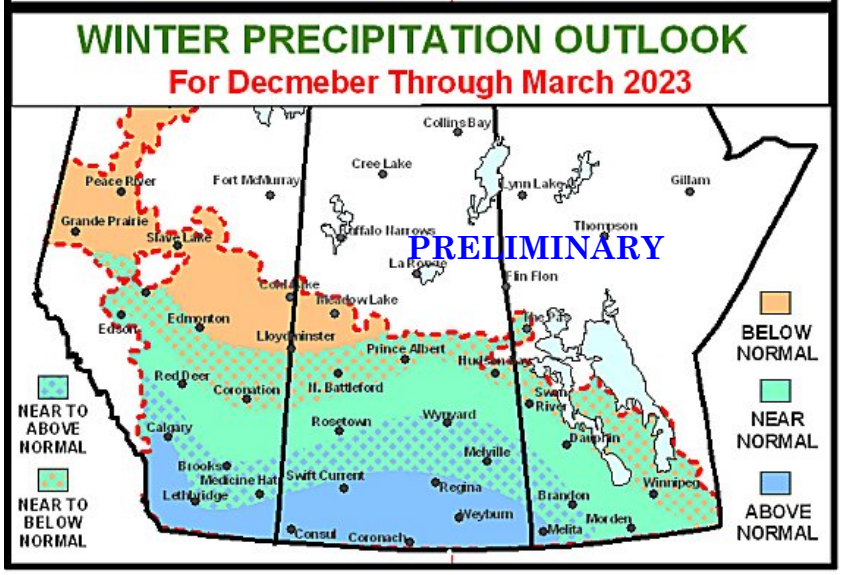
Canada Prairies Preliminary Winter Outlook

If you have been reading this prognosticator from front to back you already know that World Weather, Inc. is not expecting much precipitation relief during the next four to six weeks—at least not enough to restore much subsoil moisture. A little moisture is expected, but it will be lighter than usual and temperatures will be warm.

You are also learning that we anticipate La Nina to influence our winter once again and that there will be quite a transition to colder weather in late November that will prevail in December.

The key to our winter weather will be the weakening and demise of La Nina. Unfortunately, predictions for La Nina continue to be changed making the event longer. The phenomenon is still expected to dissipate during the first quarter of 2023, but it is looking more likely that the process will occur a little later than previously thought and as its demise comes later the forecast for winter gets more tenuous.





<u>If La Nina is going to prevail through the entire winter it might be much like last year with many weeks of bitter cold and restricted snowfall</u>. However, World Weather, Inc. believes the weakening of this event will eventually allow the 18-year weather cycle to become more influential on weather in North America. The second half of winter could see a notable shift in the cold weather out of western Canada and the northwestern United States and into eastern Canada and the eastern U.S. Midwest. If and when this transition takes place the Prairies would likely experience a change in weather that many might celebrate.

First, the biggest change would be a warmer finish to the winter. February and March would not likely be nearly as cold and dry as some of these more recent years have been. There would be a relatively good chance for a warmer finish to the winter and that averages for the entire three month period might end up being near to above normal while eastern Canada is cold biased.

The change toward less dominating cold will not keep us from seeing cold weather, but there will be more frequent alternating periods of warm and cold weather that would likely bring in more frequent opportunities for snowfall. There is a higher potential that snow accumulations will rise above average over a part of the central, southwestern and south-central parts of the Prairies. The increase in snowfall would include some of the more serious drought-stricken areas.

Remember that frost may not be in the ground as significantly as in some winters because of the expected November and December snowfall preceding the coldest air which may lead to better soil moisture improvements in the spring as the snow melts.

U.S. Harvest Weather To Remain Good In October

Weather conditions in September were largely favorable for late season crop filling and maturation across important U.S. grain and oilseed production areas. Too much rain fell in some southern U.S. locations early in the month to cause some delay to farming activity. Cotton and soybean quality damage occurred because of the wet start to the month, but conditions since then have been favorable and they will stay that way through October and early November.

There is concern, though, that Hurricane Ian will induce some damage to cotton fiber quality in this first weekend of the month. The only other concern may be over river levels on the Ohio, Missouri and Mississippi Rivers restricting barge traffic.

Officially, the month of October will be warmer than usual for much of the United States, although the Atlantic Coast States may experience temperatures closer to normal. Rainfall will be greater than usual during the month in the Carolinas, Virginia and neighboring areas, but mostly because of Hurricane Ian this weekend. After that rainfall will be near to below normal. Most of the U.S. Plains, Delta and far western states will experience near to below normal Precipitation during October.

Any precipitation that occurs in the Midwest will be of short duration and should not seriously disrupt farming activity. One of the concerns for the month may end up being the river levels on the Ohio and Mississippi Rivers. This is the time of year when harvesting becomes aggressive and if the river flows drop too much there would be restrictions on barge traffic. World Weather, Inc. does not anticipate any general soaking rain events during the month and so the best forecast for the Ohio, Illinois, Missouri and Mississippi River levels is status quo at best or lower as time moves along.

November will see drier biased weather continue in the high Plains region while the lower Delta and southeastern states become more notably dry biased. Most of the Midwest will see near normal precipitation while the northwestern Plains and a part of the southern Prairies of Canada trend a little wetter.