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The Canadian Agriculture Weather Prognosticator

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World Weather At A Glance

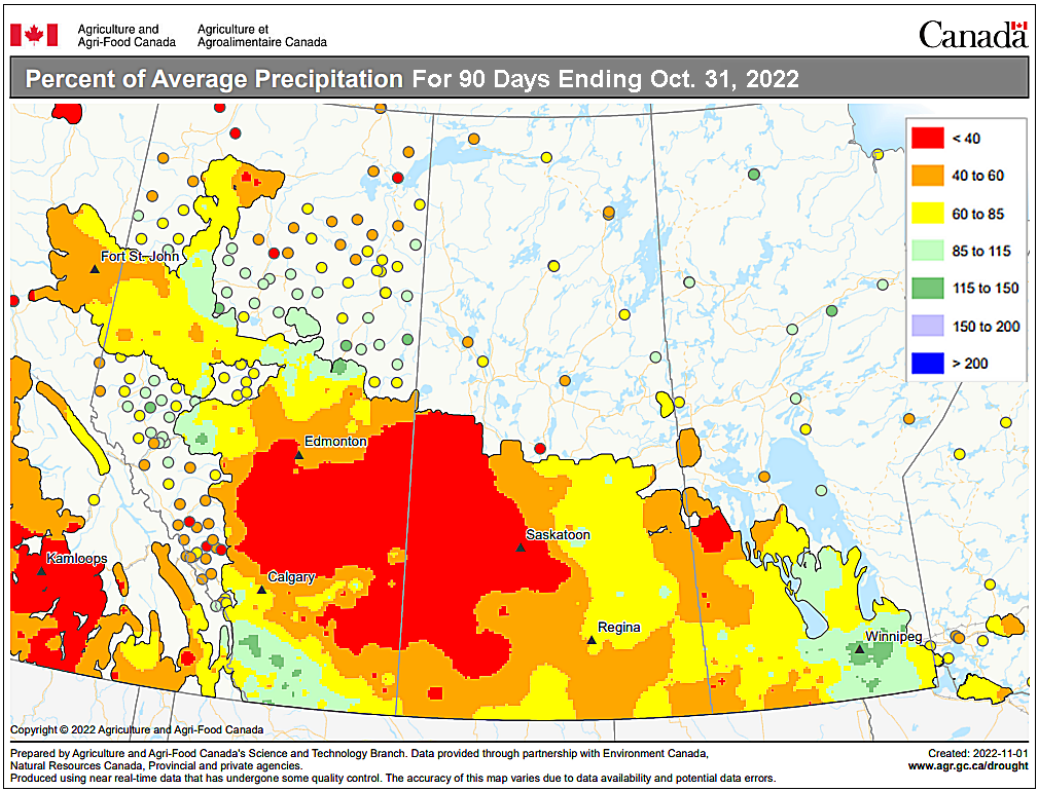
- Dryness in Europe remains deep in the soil, but winter crops were planted and have established. Crop moisture is minimal in the lower Danube River Basin, parts of Spain and southern France.
- China's Yangtze River Basin rapeseed region is still drier than usual and winter crops may not establish well this autumn without greater rain
- India's winter crop planting is advancing well and summer crop harvesting is also proceeding relatively well.
- Eastern Australia moisture excesses are likely to abate in the next week to ten days inducing better crop conditions for wheat, barley and canola maturation and eventual harvesting, but the dry bias must hold
- Argentina drought remains
- Some U.S. hard red winter wheat areas are too dry

Early November Weather Colder, Unsettled

The rain and snow event of late October impacting far southern Alberta and southern into eastern Saskatchewan was the most significant precipitation event noted in that region in months and the moisture was such a blessing. Drought remains in the region and there is a huge need for additional precipitation—not only in those areas, but in a huge part of the Prairies.

The greatest news this prognosticator brings to the Prairies is the fact that over the next ten days there will be three storm systems impacting the region and further relief from dryness will result. Unfortunately, the relief will come in the form of snow and that will create some travel issues.

The snow will precede much colder temperatures and that is actually great news because the snow will fall before the cold and that will put a blanket of insulation over the soil leaving frost development in the soil to a minimum during the ten days of colder weather forthcoming. If snow can stay on the ground until spring the potential will be higher that as the snow melts the moisture from it will slowly seep into the soil raising moisture reserves for planting and crop use in the spring. That is a very important feature and one that is desperately needed for those fields that have become com-

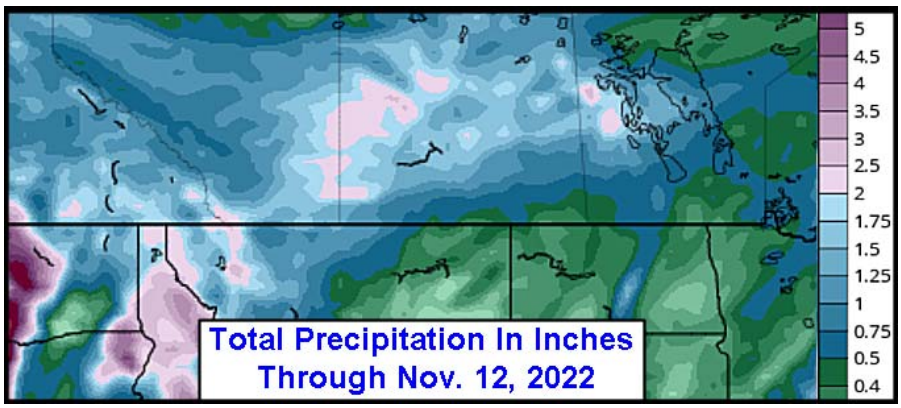


Early November Weather Colder, Unsettled (continued from page 1)

pletely void of usable moisture.

The coming ten days of precipitation will not set the stage for a lengthy period of similar conditions, but it is a very positive sign that one of the patterns that will impact the Prairies periodically during the winter is one like that which is going to occur over the next ten days. Most of the time this winter the pattern will not be as conducive for significant precipitation, but there will be moments in which more snow will accumulate.

The first half of November will bring three weather events to the Prairies. The first is already under way at the time of this writing and it will leave behind a swath of snow from eastern and southern Alberta into west-central, northwestern and north-central Saskatchewan. Moisture totals in the region will vary from 5 to 20 millimeters with a few greater amounts, although the moisture will be tied up in the snow until it melts. Other areas in the Prairies will not be impacted much by this first storm system.



A second weather disturbance is expected to move from western Alberta across Saskatchewan and into Manitoba this weekend and Monday. Unfortunately, for this weather system moisture in the atmosphere will be more limited because of a storm moving through the heart of the U.S. blocking Gulf of Mexico moisture from reaching the Prairies in large quantities. Nevertheless, snow will fall and moisture totals will vary from a trace to 4 millimeters in southern Saskatchewan and across Alberta while central and northeastern Saskatchewan and northern Manitoba receive 5 to 15 millimeters of moisture.

By Tuesday of next week, snow will be on the ground in much of western, southern and eastern Alberta, western, central and northern Saskatchewan and northern Manitoba. There will not be much snow in north-central Alberta or near the U.S. border across most of the southern Prairies.

The last storm system to impact the Prairies will be the largest and it will come northward from the United States allowing snow and some rain and freezing rain to impact most of the Prairies. Moisture totals from this event which should occur Tuesday into Thursday of next week will vary from 4 to 15 millimeters with a few areas in the north to get more than 25 millimeters.

Snowfall from each of these storm systems will be significant and should set the stage for winter to settle in a little more permanently relative to past bouts of snow and cold conditions. La Nina is still in control of the world's weather to a large degree and that usually comes with a colder bias in late autumn and early winter across western Canada. Every La Nina is different and because this event is expected to weaken considerably from December through February there will be a change coming during the second half of winter that will bring warmer weather and a better chance for more precipitation.

There will still be bouts of snow and some rain and freezing rain at times in late November and December as well as over the next ten days, but the intensity and significance of the precipitation will likely back off for a while.

Total snowfall during by the end of next week, Nov. 12, will likely vary from 3 to 10 inches (7-25 cm) in portions of Alberta while 2 to 5 inches (5-13 cm) occurs along the U.S. border from southeastern Saskatchewan into southern Manitoba. The greatest snow depths are expected from eastern Alberta through west-central and northwestern Saskatchewan to northwestern Manitoba where 10 to 20 inches (25-50cm) is possible and locally more.

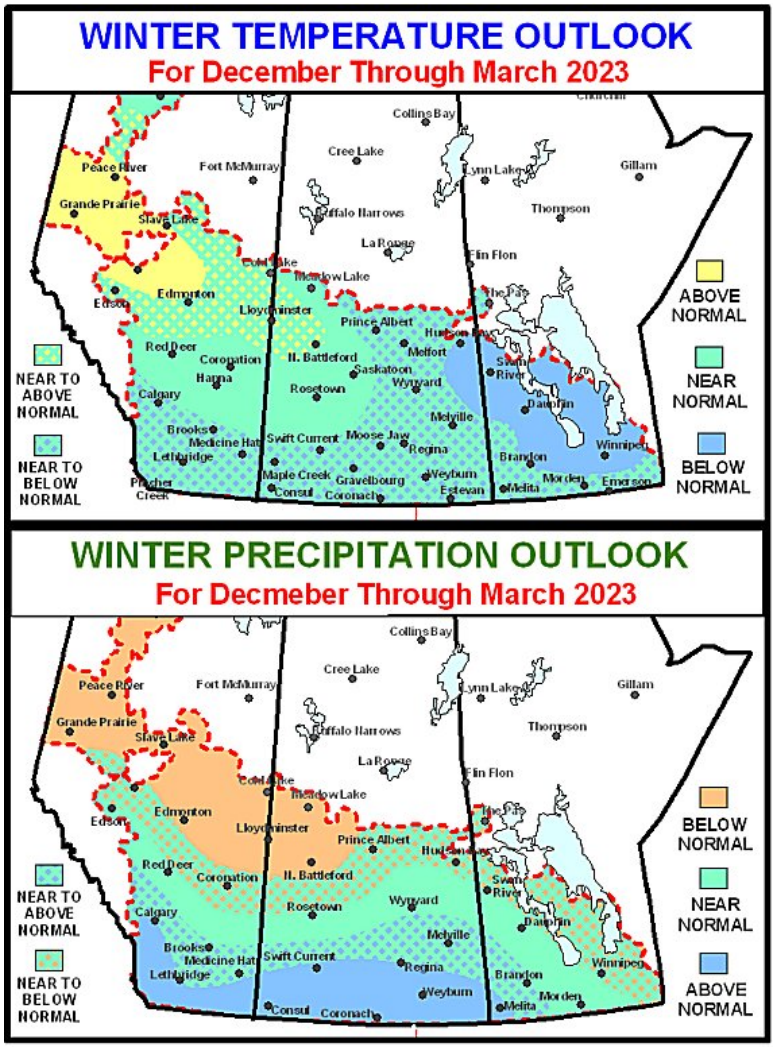
The storm next week is still questionable as to how significant and widespread it will be. The odds are relatively good that the system will be weaker and shifted farther to the east in future forecast model runs which should shift the greatest snow a little more to the east than described here. But it may not matter much where the greatest snow falls as long as precipitation is widespread in some of the driest areas.

World Weather, Inc. would not be surprised to see the snowy pattern change over the next few days, but confidence is high that three storms will impact the Prairies and that at least some moisture will fall in the majority of crop country. Some areas will be wetter than others. Once the bitter cold settles into the Prairies it will become much more difficult to get big snows like this again for a while and the moisture content in new snow events will be much lower as temperatures get colder.

Late Winter Outlook Could Bring Greater Moisture

The weakening trend in La Nina will have much to say about weather in the Prairies during the winter and early spring of 2022-23. Bouts of snow and rain like that of this coming week will be rare, but occasional breaks in the La Nina pattern should provide "opportunities" for moisture to fall across the Prairies.

Research is still under way for the Prairies in regard to the late winter and spring outlook. The upper air wind flow pattern in North America does not favor an abundance of moisture this winter. The pattern actually suppresses the moisture potential, but the weakening of La Nina will help put weakness in the jet stream pattern allowing other weather patterns to burst through the western North America high pressure ridge periodically like this coming week to offer a little precipitation. The southern Prairies will be most favored for the moisture, but please remember that "normal" precipitation during the winter is not very much. There only needs to be one or two storm systems of greater size than usual to push moisture totals above normal.



Above normal precipitation during the winter is unlikely to end drought, but as noted in the Page One article, the lack of frost in the ground ahead of this week's snow should help allow the moisture from melting snow to reach into the soil farther than usual as long as frost is still limited when the spring thaw arrives.

La Nina traditionally produces colder than usual winters in western Canada and the northwestern and north-central United States. However, if this year's La Nina is going to be steadily weakening from December through February the odds are rising that the "La Nina Pattern" will not be as dominating in the second half of winter. That should bring warmer air into the Prairies at times and that alone will raise the potential for a little more precipitation at times.

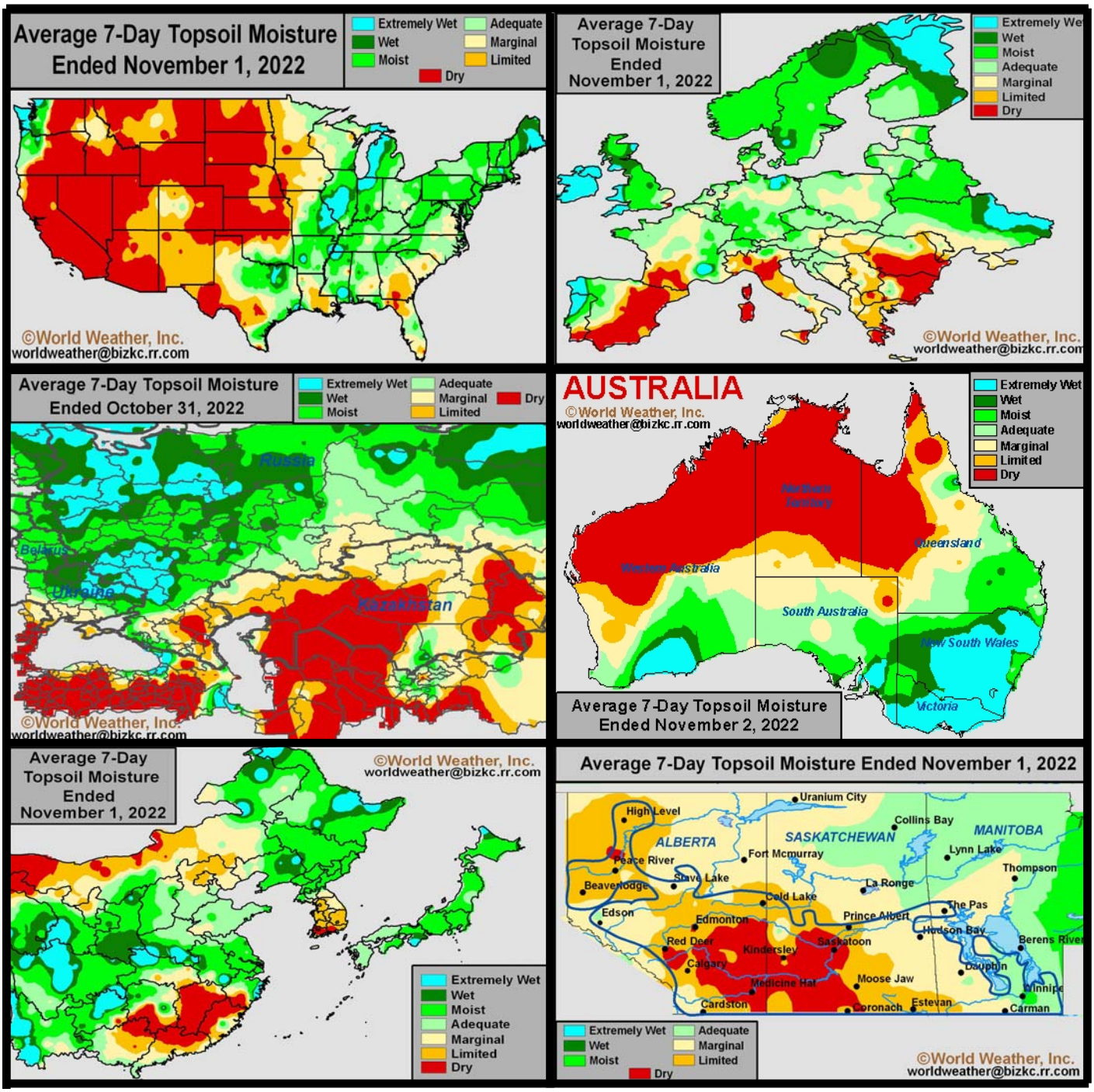
The coldest part of winter is likely to be in November and December—at least in the western Prairies. The cold will shift to the east in January and especially February and March allowing the west to turn warmer biased and that will help bring more moisture holding potential in the atmosphere. Snow and rain potentials will be higher when cold air masses come through the Prairies and condense out the atmospheric moisture that is acquired and held while the air is warmer biased.

Average temperatures for the entire winter will be a little warmer than usual in northern Alberta and northwestern Saskatchewan while colder than usual in southern and eastern parts of the Prairies. Precipitation is expected to be greatest near and south of Highway One from southern Alberta to southwestern Manitoba. The heart of the Prairies could end up with a normal to slightly greater than usual precipitation bias, but confidence in the forecast is low until it becomes better understood what will happen to La Nina and when.

A below average precipitation bias is expected in the Peace River region of Alberta and from there through northern and central parts of the province and into northwestern Saskatchewan. A part of northeastern Saskatchewan and northern and eastern Manitoba may also have a slight drier biased pattern for the winter.

Always remember that while it is nice to get snow to accumulate significantly across the Prairies during winter, once the ground freezes up melting snow in the early spring will largely be runoff. That is why World Weather, Inc. is pleased that the coming week of snow will accumulate while soil temperatures are warm which may limit the frost layer in the spring as long as the snow sticks around through the entire winter.

Selected Weather Images From Around The World



Canada's central and western Prairies and the western United States continue to represent one of the driest region's in the world relative to normal. That is why the coming week of snow and rain in the Prairies is so very important. Dryness in the U.S. Midwest and a part of the southern Plains has been relieved recently, but low water levels on the navigable rivers and poor runoff potential in coming weeks will maintain a poor environment for barge freight movement and that will keep transportation costs high for U.S. crops waiting to be shipped to the Gulf of Mexico. China still has a region of notable dryness in the southeast and the area does include a portion of the nation's rapeseed country. Significant rain must fall in southern China to get rapeseed planted and established. Australia's greatest problem of late has been too much moisture in the east, but weather conditions are changing and the region should firm up over the next ten days. In Europe, dryness remains in the southeast and southwest.

Early November Wet Bias To Influence Most Of The Month

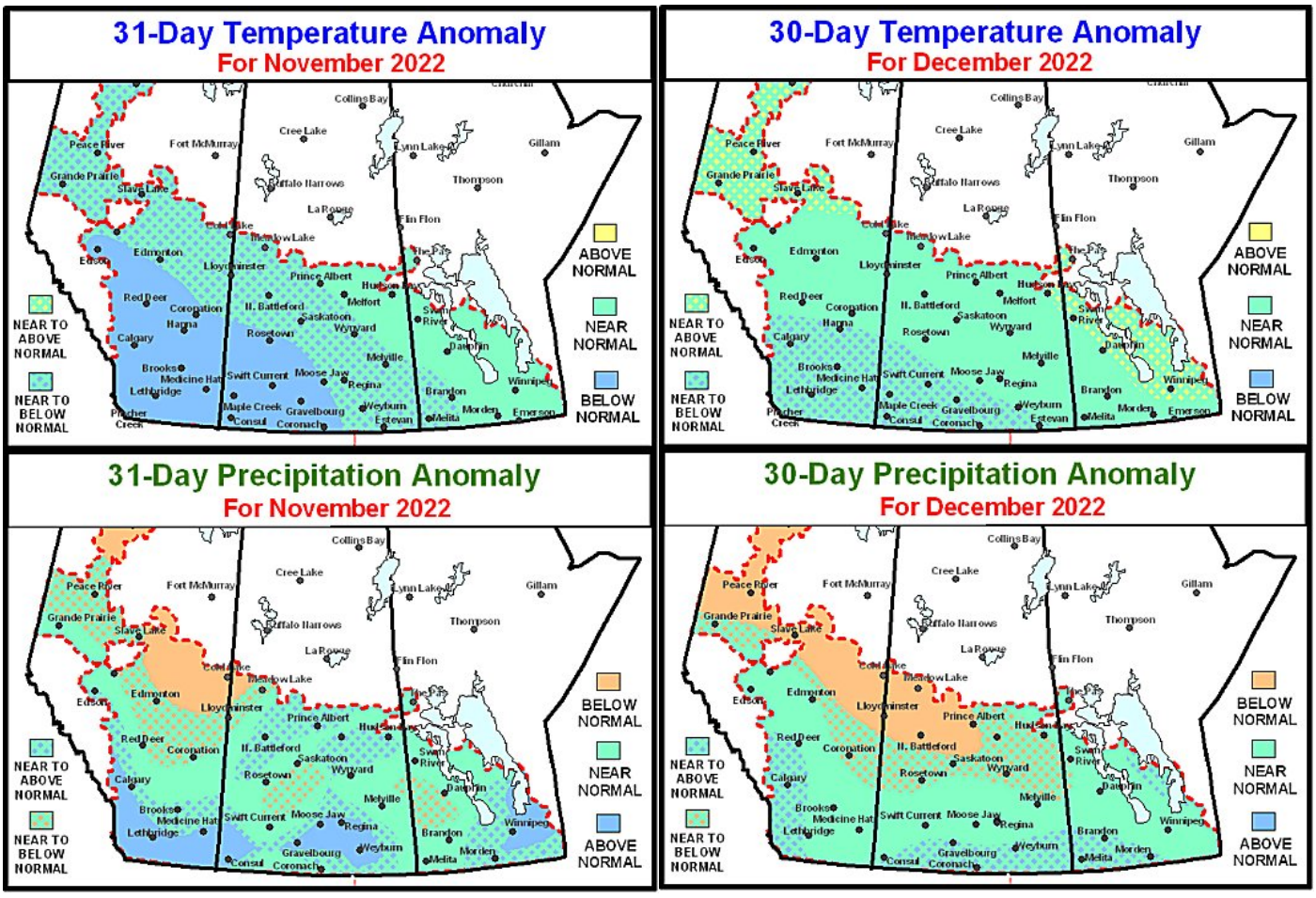
The coming week to ten days of frequent precipitation and significant snowfall will be greater than usual for the first 10 days of this month. The moisture anomaly in many areas will be enough to influence the entire month's precipitation anomaly for many areas in the Prairies. Only northern Alberta will see a drier than usual month of November this year. Most other areas will get enough precipitation to leave the month's total precipitation close to normal or above normal.

There may be a couple of pockets with lighter than usual precipitation outside of northern Alberta—one in central Saskatchewan and the other in west-central Manitoba. The precise locations of these lighter precipitation biased pockets will likely be adjusted by the end of next week after all three weather disturbances expected through Nov. 12 have passed. Weather conditions from Nov. 13-30 will be much more tranquil, although there will be bouts of light precipitation and colder than usual temperatures.

The most unusual cold for November will likely evolve this weekend and last through all of next week. Temperatures will begin to moderate around mid-month and the second half of November will see a couple of other bouts of cold, but most temperatures will be warmer biased. For the month, though, the average temperatures anomaly will be below normal because of the intensity of cold coming up this weekend and next week.

December weather will follow a more traditional La Nina pattern in which a cooler bias will be present in the southwestern Prairies while temperatures elsewhere are a little closer to normal. Precipitation during December will be lighter than usual from the Peace River region in northwestern Alberta through northern Saskatchewan. Most other areas will experience near to above normal precipitation with areas along the front range in Alberta and near the U.S. border wettest relative to normal.

Big storm systems like those expected in this first week of the forecast in Canada's Prairies will be hard to come by during December and January, but that is not unusual. Weather has to be warmer biased during the winter season to generate greater than usual precipitation events. The first half of winter will be a little too cold to support the bigger storms like those of this coming week. However, warming in late winter and early spring could return the larger storm potentials, although World Weather Inc. is not ready to make that an official forecast.



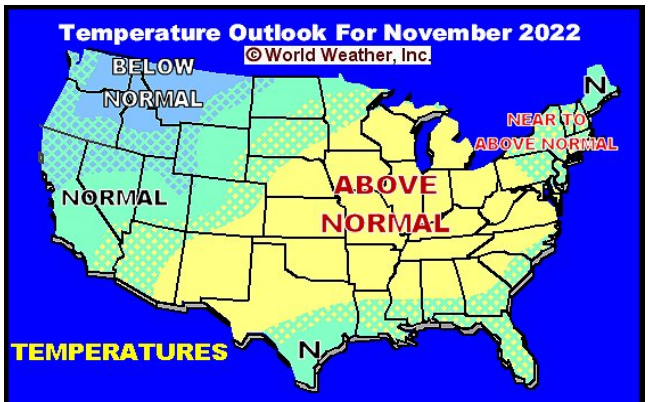
U.S. November, December Weather Outlook

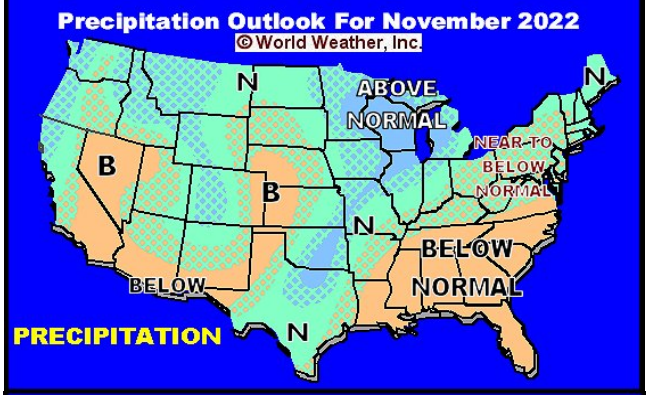
November will be warmer than usual across the U.S. Plains, Midwest, Delta and southeastern states. The only cooler-than-usual weather is expected in the Pacific Northwest and a part of the northwestern Plains. Canada's west will also be colder than usual during the month.

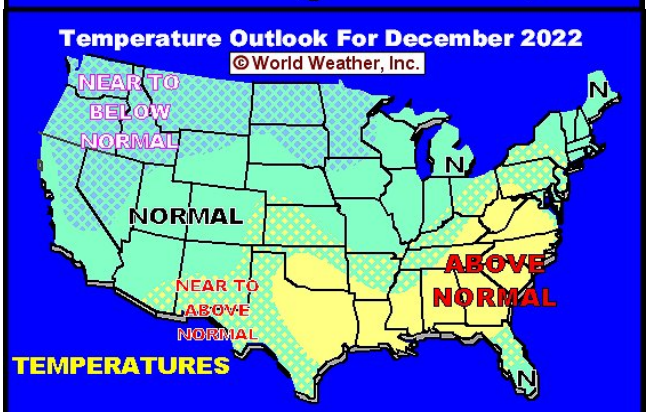
Precipitation in November will follow the typical anomalies associated with La Nina. Wetter biased conditions will occur along the U.S. northern Pacific Coast, in the northern Rocky Mountain region and in a few of the higher elevated areas in Colorado and Wyoming. A narrow band of greater than usual moisture is expected from north-central Texas to the western Great Lakes region, although there is only one notable event in the first half of the month and that occurs this weekend. The remainder of November may not be as wet and that could lead to less precipitation from Texas to Michigan, Wisconsin and Minnesota.

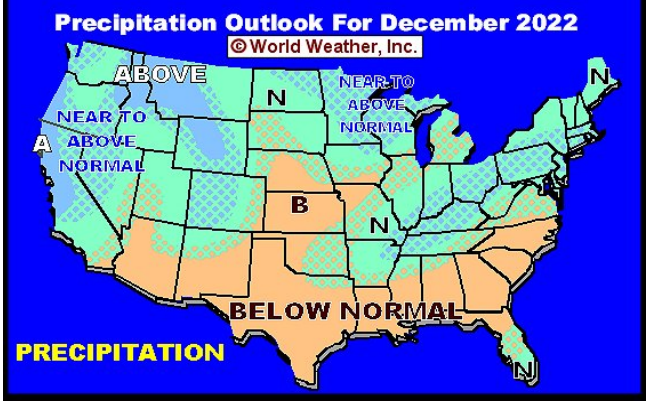
The drier biased trend that has been occurring in the southeastern states recently is expected to perpetuate through November and it will expand to include the Delta crop areas. Dryness will also continue in the high Plains region from western South Dakota and eastern Wyoming through western and central Nebraska and Colorado to West Texas. The southwestern states will be drier biased along with the Great Basin.

December weather will include an expansion of colder biased temperatures from the U.S. Pacific Northwest and western Canada into the northern Plains, eastern Canada's Prairies and into a part of the upper Midwest. The temperatures are not going to be dramatically cold on a persistent basis, but a couple of notable cool waves are expected.









One of the cold surges anticipated in December should drop into the Midwest putting a dent into an otherwise warmer than usual month. The cold could last about ten days with the early to middle part of the month favored.

If the Plains and Midwest cold surge occurs in December there should be some enhanced precipitation across the Ohio River Valley and into a part of the northeastern states. No changes in the below normal rainfall bias in the southern states is expected nor is there much chance for significant moisture in the high Plains region. The only possible exception to that will be as the cold surge moves through the central and eastern states there could be a notable upslope precipitation event that increases precipitation in Colorado, western Nebraska and eastern Wyoming.

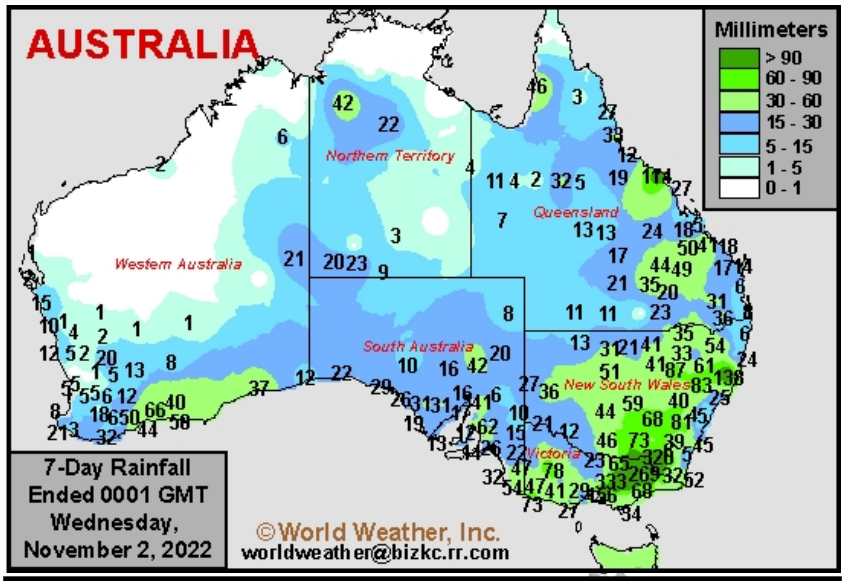
The southern Plains and southeastern states will be the primary region of warmer than usual weather in December. Some cooling is expected as noted above, but it will be of short duration and the impact on agriculture should be low.

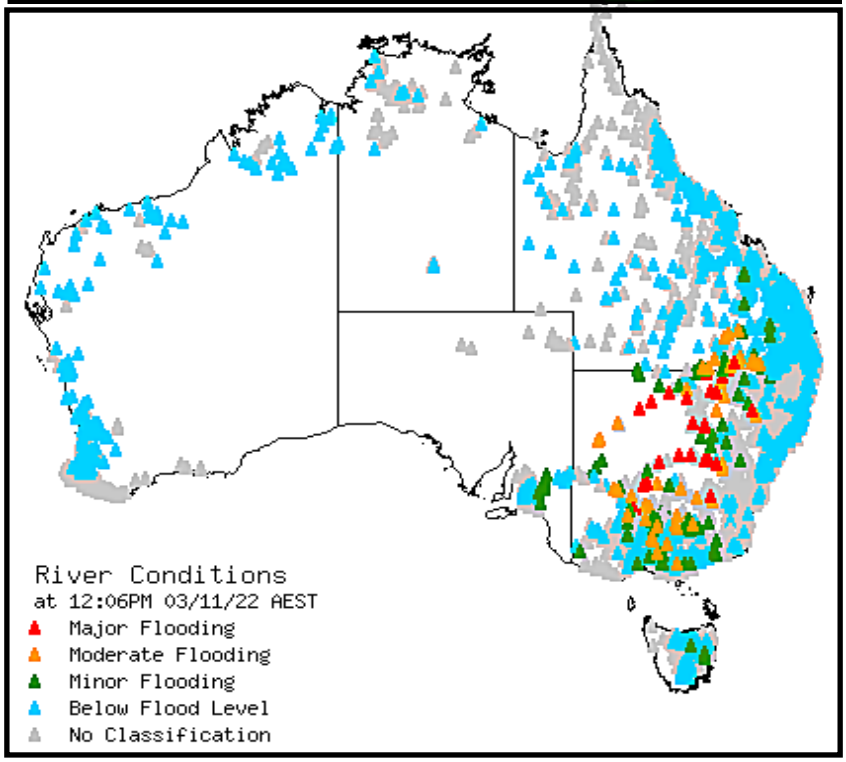
Again, December – like November – will not bring enough stormy weather to the Midwest to enhance river flows, but the rivers should be slightly better during the month due to colder temperatures inducing some greater precipitation briefly. Obviously from the accompanying map, the greater precipitation and cold bias does not last long leaving temperatures for the month of December near to above normal.

Australia to See Much Needed Drying

Wet weather continued to hamper Australia's wheat, barley, and canola maturation and early-season harvest during the past week, although it was less rainy than in previous weeks. Eastern Australia has been inundated with frequent rainfall that has many producers concerned over the potential for significant grain and oilseed quality reductions this season. Overall, production is still set to be high this season with Western Australia expected to yield best and have the greatest quality. The main crop areas in eastern Australia will finally see some drier weather through the middle of next week that will lead to net drying. Harvesting and general fieldwork conditions will slowly improve. Planting of summer grains, oilseeds, and cotton will also begin or continue under more favorable conditions in Queensland and New South Wales as the ground firms.

The ground remains saturated in much of Victoria and New South Wales where moderate to major river flooding was still occurring. The ground is still saturated in these states and every drop of new rain only contributes to the flood situation which is why the drier weather advertised for this coming week is so very important. Soil moisture in much of Western Australia and South Australia is rated quite favorably as it is in Queensland.





Queensland winter wheat and barley harvesting was often sluggish in October due to the wet weather. Many areas dried down marginally in more recent days, which likely supported more aggressive harvesting. The bulk of the harvest in New South Wales, Victoria, South Australia and Western Australia will begin in coming weeks and continue through December. Some of the harvest may extend into January depending on the progress that is made in the coming weeks for the wettest fields.

Production is still expected to be one of the largest on record for Australia this year due to favorable soil moisture and timely rain during the spring. However, rainfall in October became excessive causing river flooding. The wet bias also came with cooler than usual temperatures resulting in poor drying conditions between rain events and keeping crop development slower than usual. More recently the wet bias in early maturing crop areas was threatening a serious downgrading in wheat, barley and canola quality, but drier weather coming up in the next ten days could prove to be perfectly timed to protect production and quali-

Australia to See Much Needed Drying (continued from page 7)

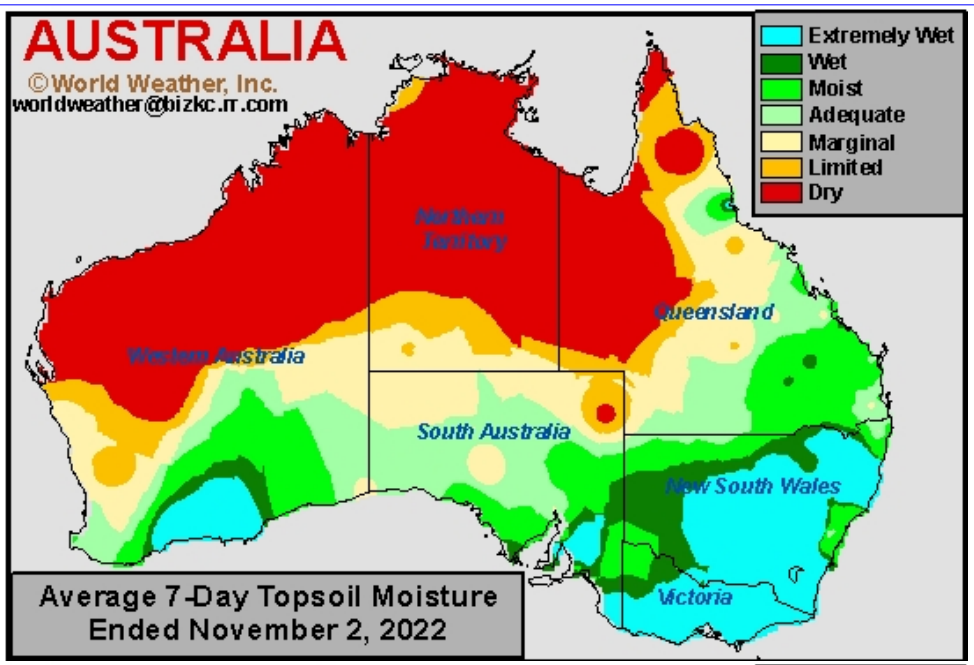
ty. Protein levels have likely fallen off significantly this year because of the wet and cool bias and if the rainy weather lasts any longer some of the crop could end up sprouting in the head of wheat and barley. Canola might also be downgraded if the wet environment does not change soon. Western Australia and South Australia have not been nearly as wet as crop areas to the east and no major quality declines were suspected.

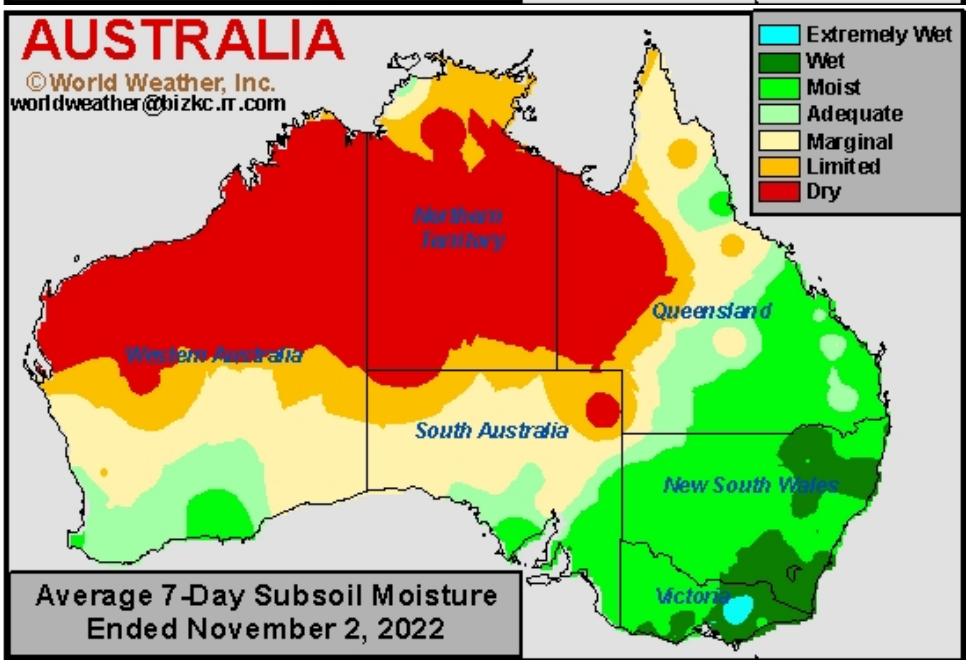
In the meantime, planting of the summer grains oilseeds, and cotton has progressed slowly in the wettest areas of New South Wales and Queensland in recent weeks. Long-term crop prospects are favorable due to the ample moisture, though drier and warmer weather would be welcome to get the rest of the crop in the ground in a timely manner.

A large section of Australia will be drier biased through the middle of next week. Periods of spotty rain will still occur from South Australia into Victoria and portions of southern and eastern New South Wales. These areas will receive 0.10 to 1.00 inch of rain by next Thursday with local amounts of 2.00 inches or slightly more in the mountains of eastern Victoria and southeastern New South Wales. Western Australia, Queensland, and the remaining portions of New South Wales will receive little to no rain. The main production areas may then see a mix of spotty rainfall and sunshine November 10 – 16.

Net drying is slated for a large section of Australia's winter crop areas through the middle of next week. Harvesting and general fieldwork will slowly improve as the ground firms. Crops that are still maturing will see better conditions as well. The dryness will likely come a little too late in the season to significantly improve the quality of early season crops most impacted by recent rain.

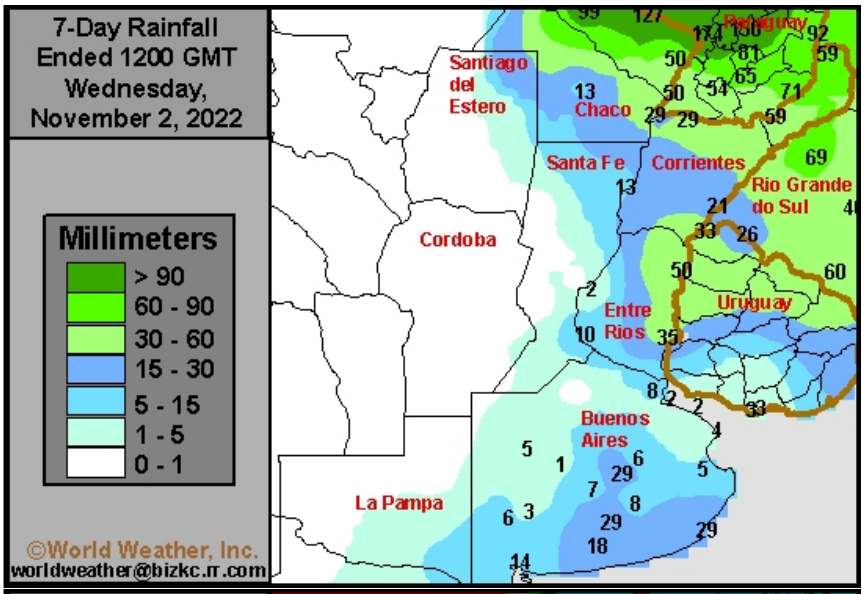
Winter crop production potentials will remain high for much of Australia, but only if the drier bias last longer than expected. Summer crop planting, establishment, and development conditions will improve or remain favorable for summer crops in New South Wales and Queensland.

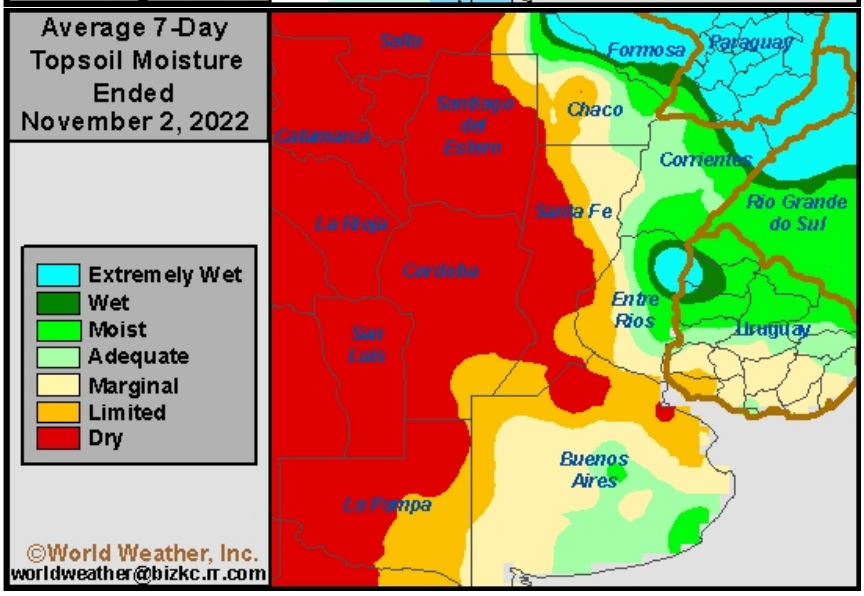




Argentina Dryness To Intensify For Another Week

A large portion of Argentina's grain and oilseed region reported little to no rain during the past week. At least another seven days of dry or mostly dry weather is slated for these regions with temperatures surging above normal at times. Dryness will expand and intensify across the main production regions, increasing concern for production impacts this season. Production may trend lower than normal this season due to the poor planting conditions in many locations and the threat for La Nina to perpetuate dryness during some of the most important growing periods. There is potential for some rain during the second week of the outlook that could bring a little relief from dryness. Even if the rain does verify, precipitation totals will be too light to completely fix the moisture deficits.





Portions of Buenos Aires, eastern Entre Rios, Corrientes, Formosa, and Chaco still have adequate to marginally adequate soil moisture due to the recent rainfall. However, a large portion of the main grain, oilseed, and other crop areas continue to struggle with short to critically short moisture. Drought is firmly entrenched in many areas of western and central Argentina despite some rain in October.

Planting of the corn, sunseed and other early season coarse grains and oilseeds is progressing slowly due to ongoing dryness. Corn planting is off to one of the worst starts on record with many producers possibly switching to soybeans if dryness persists in the coming weeks. Soybean planting normally begins in early November. The periods of rain in October briefly supported improved planting prospects, though the rain was too light to support ideal establishment and long-term development conditions. Concerns are already high for reduced early season corn and sunseed production this season. Another few weeks of dryness may increase concerns for soy and other oilseed production impacts as well, which will be possible due to La Nina.

Winter wheat production is also set to be the lowest in years this season due to the ongoing dryness. Maturation conditions have otherwise been generally favorable in northern production areas in recent weeks due to the lack of significant rain. Harvesting in the more important production areas of the central and south normally begins in November and continues through December.

Below normal precipitation is slated for much of Argentina through the middle of next week as a high-pressure ridge restricts moisture from entering the country. There is potential for some spotty rainfall Tuesday as a disturbance approaches from the west, though

Argentina Dryness For Another Week (continued from page 9)

there is too much time out in the forecast to have high confidence in the disturbance verifying.

Temperatures will also trend near to above normal with highs initially reaching the 70s and 80s Fahrenheit through Friday and then rising to the 80s and 90s over the weekend into the middle of next week.

Aggressive drying is slated across Argentina during the coming week. Planting and establishment conditions will deteriorate further as drought intensifies. Concern over potential production declines will also increase. Early season corn may see the greatest reduction in production as more producers potentially switch over to soybeans. There is potential for periods of erratic rain November 10 – 16 that could marginally improve the moisture profile. Producers may try to take advantage of the rain and plant a significant amount of crop in the days before the rain. Even if the precipitation does verify, rainfall will not be enough to significantly improve long-term soil conditions. Additional rain will be needed during the second half of November for better long-term crop prospects.

Wheat maturation and early-season harvesting will advance swiftly through the middle of next week.

November weather is expected to be drier than usual in eastern Argentina while rain in the west slowly increases during the month. Temperatures are expected to trend a little warmer than usual. The pattern will support improved crop conditions in the west while the east gets too dry.