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The Canadian Agriculture Weather Prognosticator

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World Weather To Watch

- U.S. harvest advancing, though some delays are likely
- Hard red winter wheat prospects improved from recent rainfall
- Europe winter grain, oilseed potentials improving marginally as rain finally evolves
- India's winter crops may be impacted by dryness, warmer than usual weather
- Australia winter grain, canola yields good despite El Nino
- China winter wheat, rapeseed planting conditions were mostly good
- Russia's winter grain, oilseed areas too dry; timely winter precipitation will be needed to improve outlook
- Center west and northeastern Brazil are too dry while southern Brazil is quite wet
- Argentina crops in good shape

Late Autumn, Winter Weather Discussion

What a season this has been for the Prairies. Delayed planting, relatively good growing conditions, a sluggish harvest, the whole nine yards. Unfortunately, some of you in northern Alberta and northeastern British Columbia may not be able to completely get the rest of the crop out of the ground due to the adverse conditions this autumn. We are entering the time of year where drying rates are low and crops either in the ground or lying in swath may not be able to dry enough for ideal harvest conditions, especially areas in northern Alberta that trended wetter than usual in recent weeks.

Other locations in the Prairies received near or below normal precipitation with many areas in Saskatchewan and Manitoba receiving less than 40% of normal precipitation. While conditions were more favorable for the late-season harvest compared to the wettest areas in northern Alberta, many producers are still needing dry and warm weather to wrap up this year's harvest. Weather in the short-term may allow for some good afternoons of harvesting and general fieldwork. Obviously, any rain and snow that occurs will be a deterrent with drying rates being relatively low. There should still be a few days of drier weather for those that still need to get into the fields.

While the harvest was challenging, to the say the least, the moisture profile heading into the winter is relatively good, at least compared to some years earlier this decade. Portions of the southwestern Prairies and northern were abnormally dry or under a moderate to severe drought as of September 30. While this dryness may have expanded and intensified somewhat in recent weeks, a large section of the Prairies should enter the winter season drought-free.

No major changes were noted to the atmosphere since the last prognosticator. El Nino is still in full swing and will be the main driver for weather and the climate in general for the coming months. While autumn is a transition period for the Prairies and North America in general, the upper-air pattern in October was indicative of the usual El Nino pattern-for the most part. However, the upper-level disturbances that made their way from the northern Plains into the Prairies was a little out of the norm, especially when promoting periods of significant rain and snow for northern Alberta and neighboring areas.

Now, there will still be a need for timely winter precipitation across the Prairies. El Nino tends to promote warmer than usual conditions over the winter season for the Prairies, most notably Alberta and British Columbia. Obviously, we won't be seeing anything close to summer-like temperatures, but an extended period of warmer weather combined with limited precipitation could slowly firm the ground in parts of crop country. With dryness already in place for portions of the southwestern Prairies and in northern Manitoba, these areas could enter next spring with some deficient soil moisture.

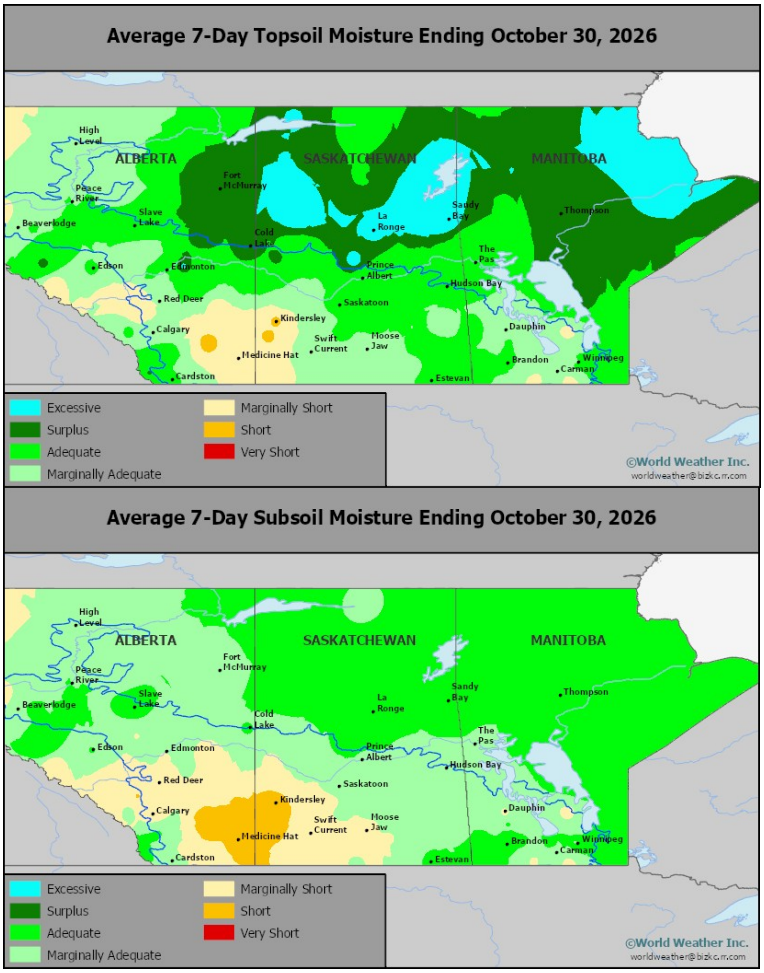
Looking at November, there are several things of note that may impact the overall pattern across North America. In the short-term a shift to a positive phase in the Pacific-North America pattern may lead to higher pressure over western and eventually central Canada during the first week to ten days of the month, which also lines up with a rela-

Late Autumn, Winter Weather Discussion (continued from page 1)

tively usual El Nino pattern. Warmer than usual weather is expected most days, though a weak cold front cannot be ruled out. Precipitation may also be limited during the first few days of the month before disturbances tracking around a nearby low-pressure trough potentially make their way into the northern Plains and southern Prairies, which is similar to the pattern that we've seen in recent weeks.

Another issue to look at will be happening way, way, way up in the atmosphere. We are monitoring the potential for a significant disruption or even complete breakdown in the northern hemisphere polar vortex. This is very notable as this will be happening very early in the season and may even be one of the earliest breakdowns of the polar vortex in recorded history-if it happens. There were a few sudden-stratospheric warming events that led to breakdown in the polar vortex late in November in 1958 and 1968 and even as recent as last year. However, the potential disruption to the polar vortex will be occurring during the first few days of November, three to four weeks earlier than these other events. One surprise is that we are currently in the westerly phase of the Quasi-Biennial Oscillation, which tends to strengthen the polar vortex winds and in turn reduces the chances for a weakening or break down in the polar vortex.

Overall, the temperature pattern for November is looking to be a little warmer than usual for the Prairies. The polar vortex splitting could potentially send arctic air into the region for a few days during the second half of the month, which may limit the deviation from normal temperatures overall. The intensity of the arctic air may be relatively low with some of the coldest air potentially reaching eastern Canada instead of the heart of the Prairies. Even if the disruption or breakdown in the polar vortex verifies and sends cooler air into North America, the cold will not be intense enough or long-lasting to bring the overall temperature profile for the month below normal in much of the Prairies. This is a rather unprecedented event and overall confidence for the forecast is a little lower than usual.



Another factor for the upper-air pattern is the potential for Typhoon In-Fa (which was located over the central Pacific Ocean) could eventually join the polar jet stream in the next week to ten days. A strong tropical disturbance reaching the jet stream could eventually help promote a more northwesterly flow pattern over North America two to three weeks from now and could also help send a little cooler air into the region. The potential for the breakdown in the polar vortex and Typhoon In-Fa impacting the upper air profile will keep us from suggesting warmer or much warmer than usual temperatures for November as a whole, which would usually be the case in the absence of these atmospheric events.

With the tropical jet sending disturbances across the southern U.S. and northern Mexico in November, moisture will likely be blocked from reaching the northern Plains and Prairies on a frequent basis in November. The Prairies will receive near to below normal precipitation as a result. There will still be opportunities for rain and snow as a few disturbances still track near or into the region, which is usual for this time of year. The lack of atmospheric moisture will limit the amount of precipitation that does occur as these disturbances impact the region. The best chance for more significant snow will come later in the month if the polar vortex sends arctic air into central North America. A strong surge of arctic air could help send some of the moisture from southern North America into the Prairies, especially if the colder air mass initially makes its way into western Canada before advancing farther east. Chances for this scenario playing out are relatively low and should not be enough to sway the overall precipita-

Late Autumn, Winter Weather Discussion (continued from page 2)

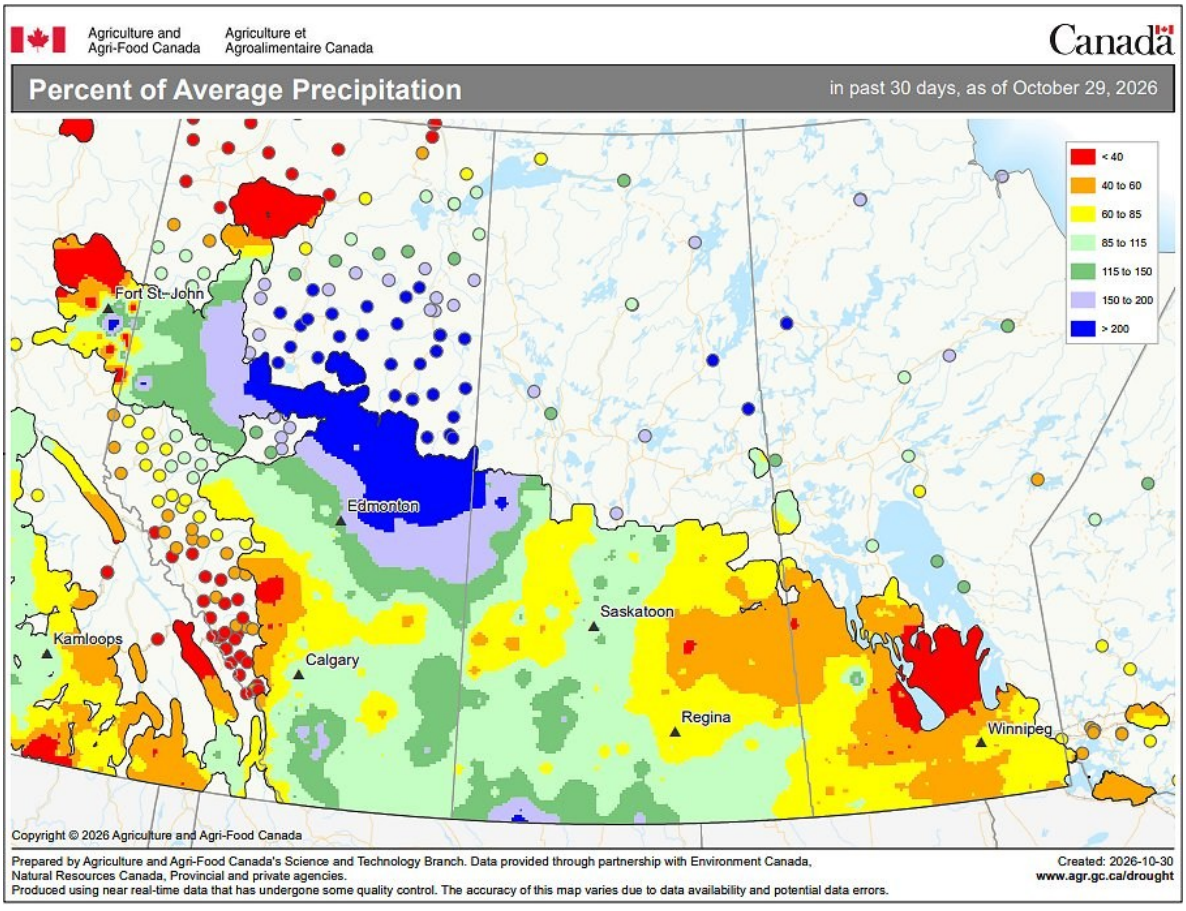
farther east. Chances for this scenario playing out are relatively low and should not be enough to sway the overall precipitation pattern above normal in much of crop country.

Looking forward to December, we should see the usual El Nino pattern stabilize over North America. Cooler air could linger during the first few days of the month depending on the timing of the polar vortex event. Another stronger cold front will also be possible mid-month. Overall, El Nino should dominate and promote warmer than usual conditions most often with the greatest deviation from normal temperatures likely occurring in Manitoba and eastern Saskatchewan. Precipitation will likely trend near normal with pockets in the southwestern Prairies potentially trending a little wetter than usual. Peace River country, southeastern Manitoba, and neighboring areas may also trend a littler drier than usual.

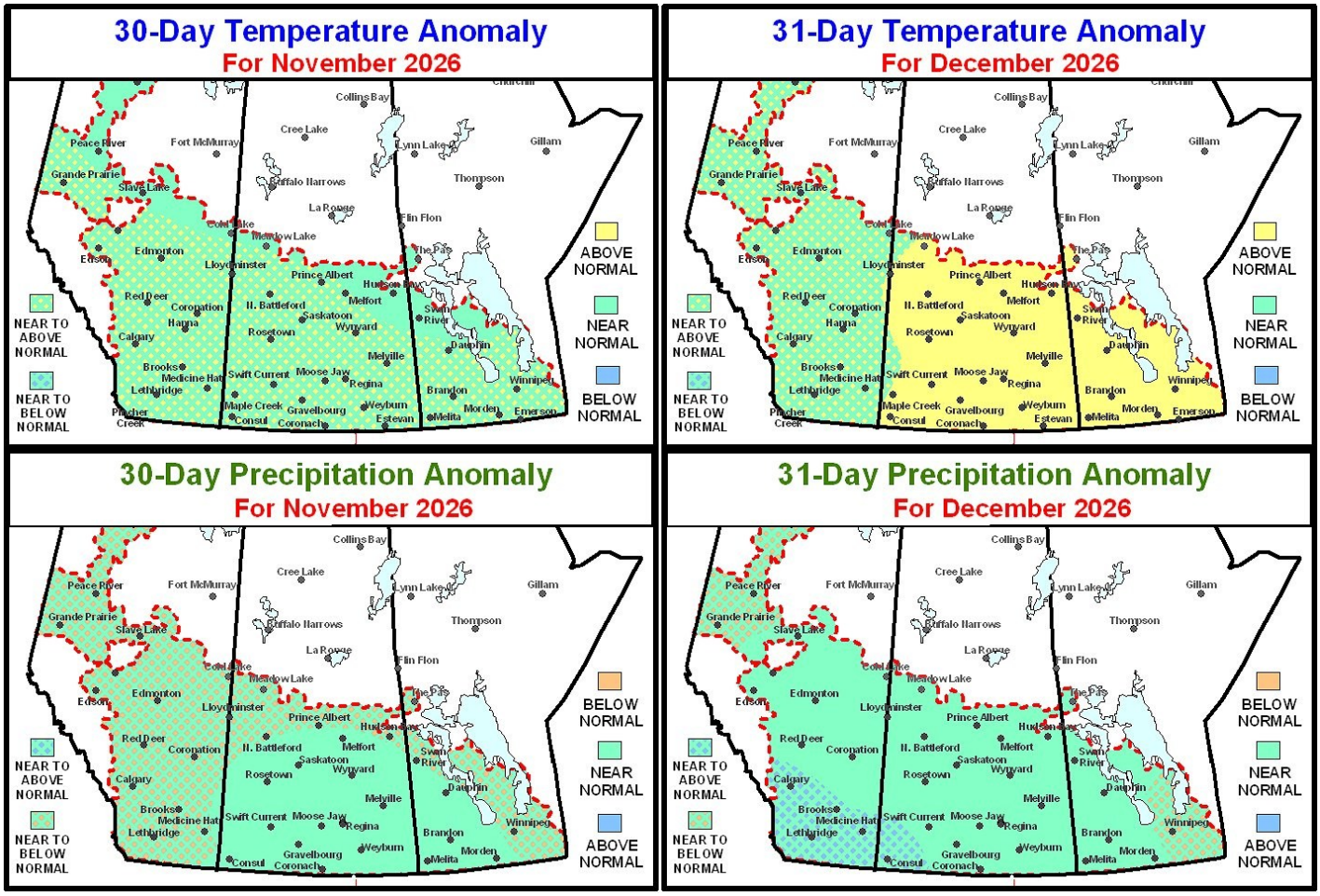
For January, we are still expecting the El Nino pattern to persist for North America. There is some discrepancy between our best analog years for the overall temperature pattern. While warmer weather is most common, some years suggest temperatures are closer to normal or even slightly cooler than usual for portions of western and southern Alberta and southwestern Saskatchewan. The chances for another polar vortex disruption will be relatively low, at least for the first half of the month. Chances will increase later in the month, though we may not see any significant impacts to the polar vortex until February. This is a long-winded way to see temperatures will generally be near to above normal across the Prairies in January with the greatest deviation from normal temperatures occurring in Manitoba and eastern Saskatchewan. Precipitation anomalies will be near normal with the usual periods of light and erratic snowfall and a few opportunities for a winter storm or two. The best chance for more significant snowfall will be from eastern Alberta into western Manitoba.

Some long-range forecast models suggest the stratospheric winds could start to weaken in February, which could lead to another disruption in the polar vortex. There is still too much time between now and then to get bogged down into the details, just something that should be of note. The main concern heading into February (and later in January) will be the potential for winterkill in southern Alberta and neighboring areas. Warmer than usual weather could limit the amount of snow that sticks on the ground for the southwestern Prairies later this winter. With the potential for arctic air later in January and into February, several fields could be exposed to damaging cold. Again, there is still a lot of time before this could potentially occur, just something to watch in these coming months.

Overall, the drought situation should not change dramatically over the winter. A large section of the Prairies should enter spring 2027 with at least some moisture sticking around, especially with a usual amount of winter precipitation, but there is some concern about below normal moisture still lingering in the southwestern Prairies.

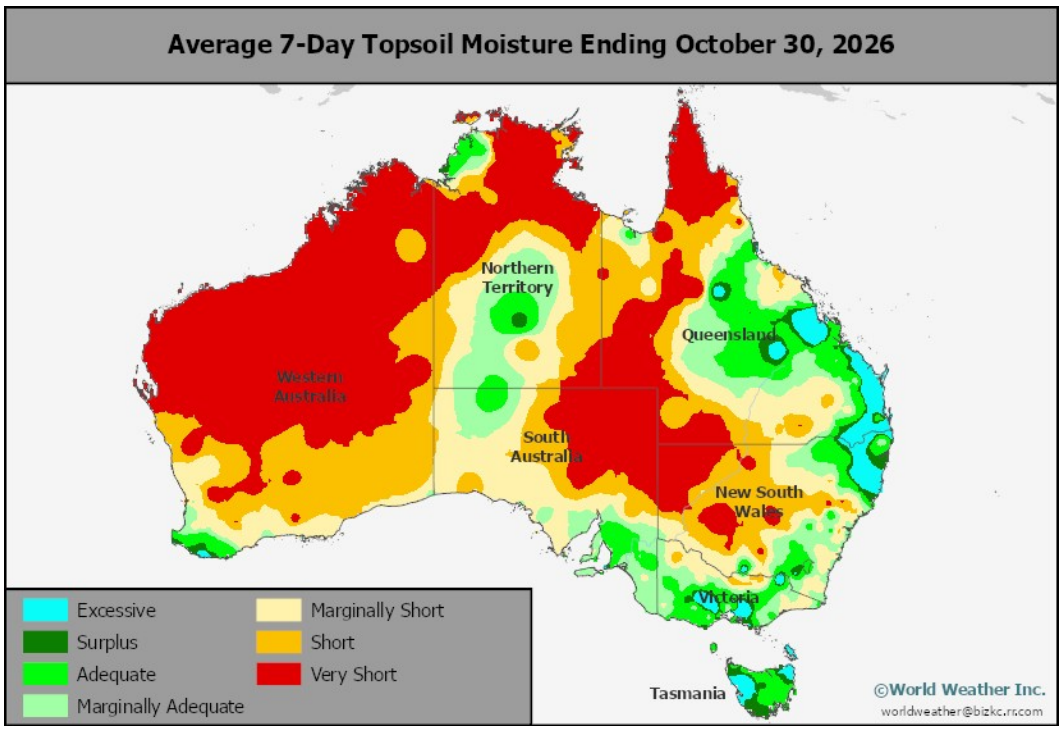


November and December Weather Outlooks



While periods of cold weather will be possible later in November, the overall temperature profile through the end of the year will be above normal across the Prairies. A few late autumn systems may impact portions of the Prairies later in November, most notably parts of Saskatchewan and Manitoba.

Australia Winter Crop Harvest To Expand

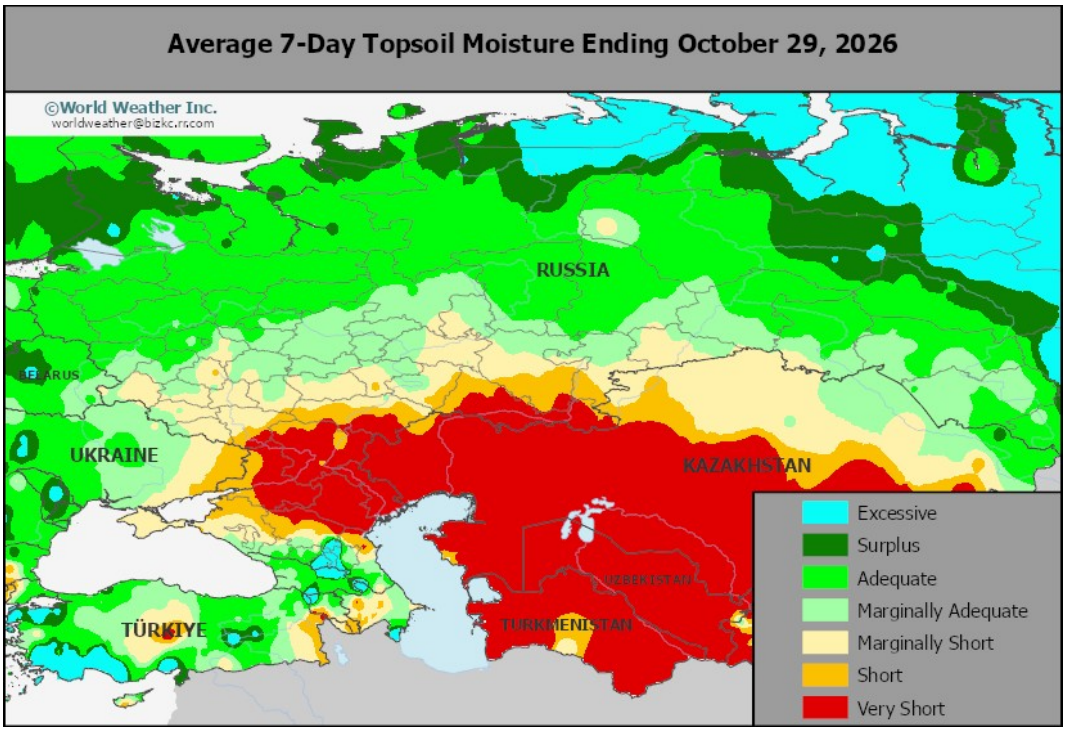


Australia's winter wheat, barley, and canola yields are expected to be lower than last year's totals, which is not a big surprise given the development of El Nino this year. However, yields are expected to trend a little higher than the previous five-year average. Timely rain is South Australia and Victoria over the growing season helped support larger than usual yields, enough to offset the losses that are expected in Queensland, New South Wales, and Western Australia. The harvest usually begins in October for some states with the bulk of the harvest occurring in November and December.

Eastern Australia and portions of South Australia were unusually wet for the 7-day period ending October 8 with portions of central Queensland receiving up to 5.35 inches of rain. Eastern Australia generally experienced drier than usual weather in an El Nino environment, so the recent rain may have delayed the harvest and potentially reduced quality in the wettest locations. Overall production potentials were likely unchanged despite the wet weather. The rain was otherwise welcome for the summer grains and oilseeds, which are primarily produced in Queensland, New South Wales, and Victoria. Long-term production potentials are still uncertain due to the potential for drier weather later in the growing season.

The main winter grain and oilseed areas will still have opportunities for rain through at least mid-November. Harvesting should advance around the rain and quality impacts will be relatively minimal. Production potentials will remain unchanged. The summer crop areas will not receive enough rain to significantly impact long-term soil conditions. Net drying may slow establishment and early-season development for the main summer crop areas.

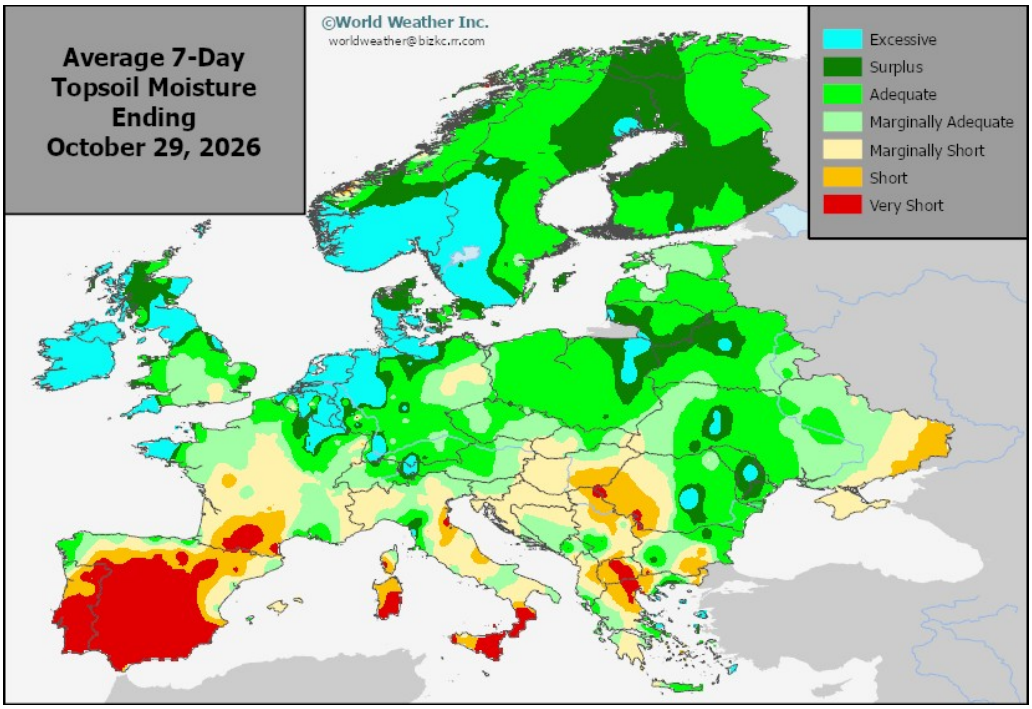
Russia's 'Southern Region' Too Dry



In the **former Soviet Union**, dryness is a growing concern for Russia's USDA defined 'Southern Region' and Volga River Basin into western Kazakhstan. These areas have been much drier than usual in recent weeks as planting came to an end. Wheat, barley, rye, and other winter grains and oilseeds may have established unevenly or poorly. Ukraine saw a good mix of rain and sunshine in October and winter crop prospects are more favorable.

Drier than usual weather is slated for much of the former Soviet Union during the next several days. Precipitation potentials will gradually increase later during the second week of the outlook into mid-November, which could marginally bolster soil moisture in the driest areas of Russia and Kazakhstan. Resulting precipitation will still be too light to promote ideal long-term production potentials for Russia and Kazakhstan and the need for significant winter precipitation will remain high. Winter grain and oilseed prospects will remain a little more favorable for Ukraine where soil moisture is rated more adequately. Timely precipitation will still be needed over the winter as well.

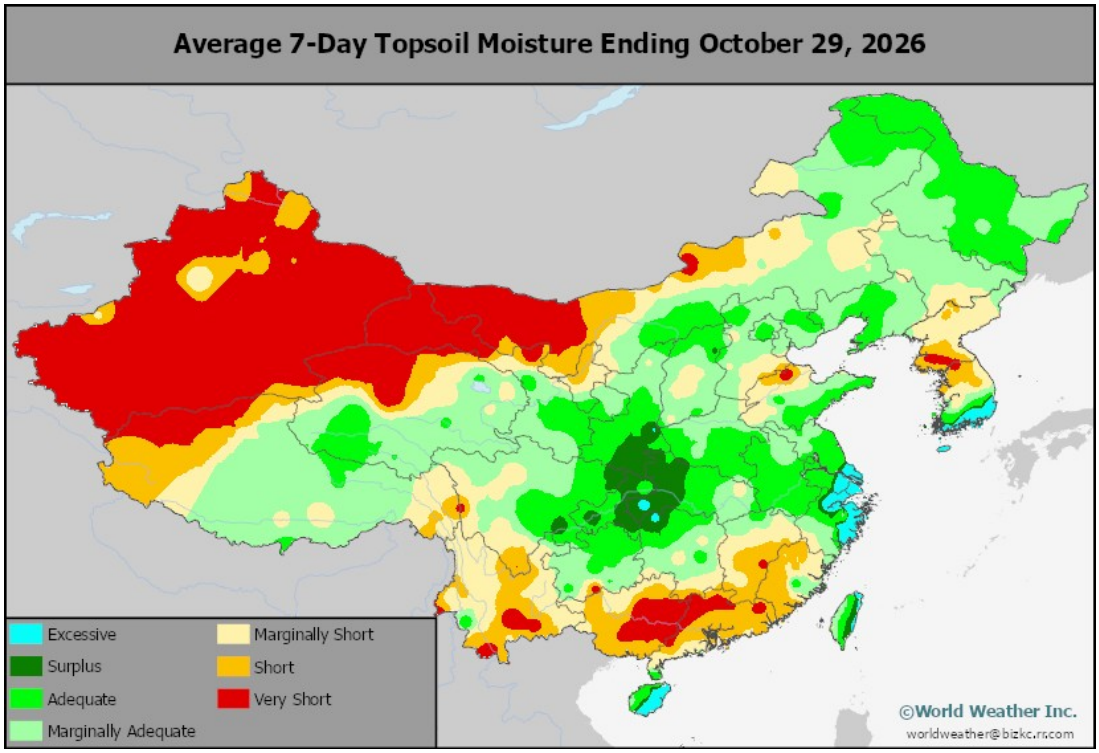
Europe's Driest Areas See Some Improvement



Europe finally started to see relief from the drought this month. There are still several areas in France, the Iberian Peninsula, and southeastern Europe that are moisture deficient and need better precipitation to completely fix the moisture deficits. While the rain was too late for the summer crops (where significant losses were noted in France), conditions for the winter grains and oilseeds improved somewhat. There is still a need for more rain in the near future to support good establishment before crops go dormant.

Southeast Europe will continue to see much-needed rain in the coming days. The moisture profile will further increase and should improve long-term production potentials for the winter crops. Other production areas will trend drier or much drier than usual, though mild daytime temperatures will limit drying. Precipitation potentials will gradually increase toward mid-November with portions of northern Europe remaining a little drier than usual. The outlook for the winter grains and oilseeds will remain much more improved compared to earlier in the autumn. There will still be a need for timely winter precipitation, especially for France and the Iberian Peninsula, along with southeastern Europe where dryness is lingering.

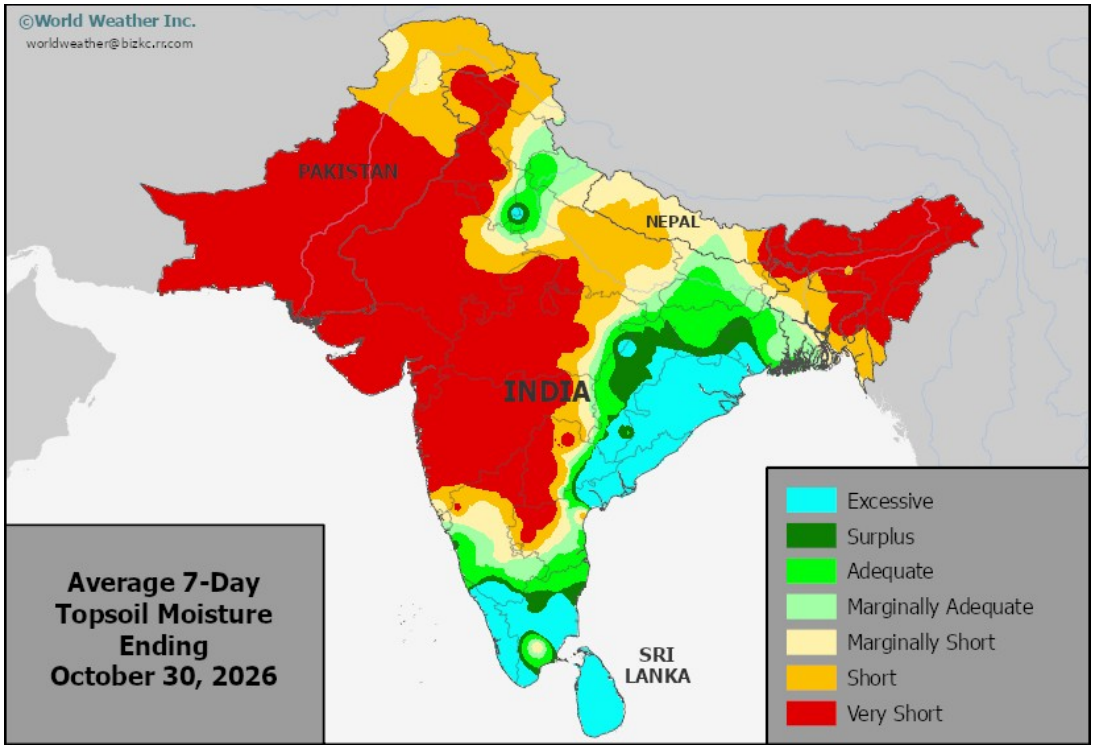
China Winter Crop Prospects Favorable



China's winter wheat planting should be winding down while rapeseed planting is continuing aggressively. Some of the main wheat production areas were a little dry during the planting season, but there was generally enough rain to support good establishment. The North China Plain (the primary winter wheat region) would benefit from a good shot of rain in the near future before the crops go dormant. A few of the southern rapeseed areas would benefit from greater rain and some of that may be forthcoming in the first half of November.

Alternating periods of precipitation and sunshine are slated for the main winter grain and oilseed areas for China in the coming weeks. Soil moisture will bolster or remain at adequate levels. Overall production potentials will remain favorable.

India's Rabi Crop Areas Facing Dryness

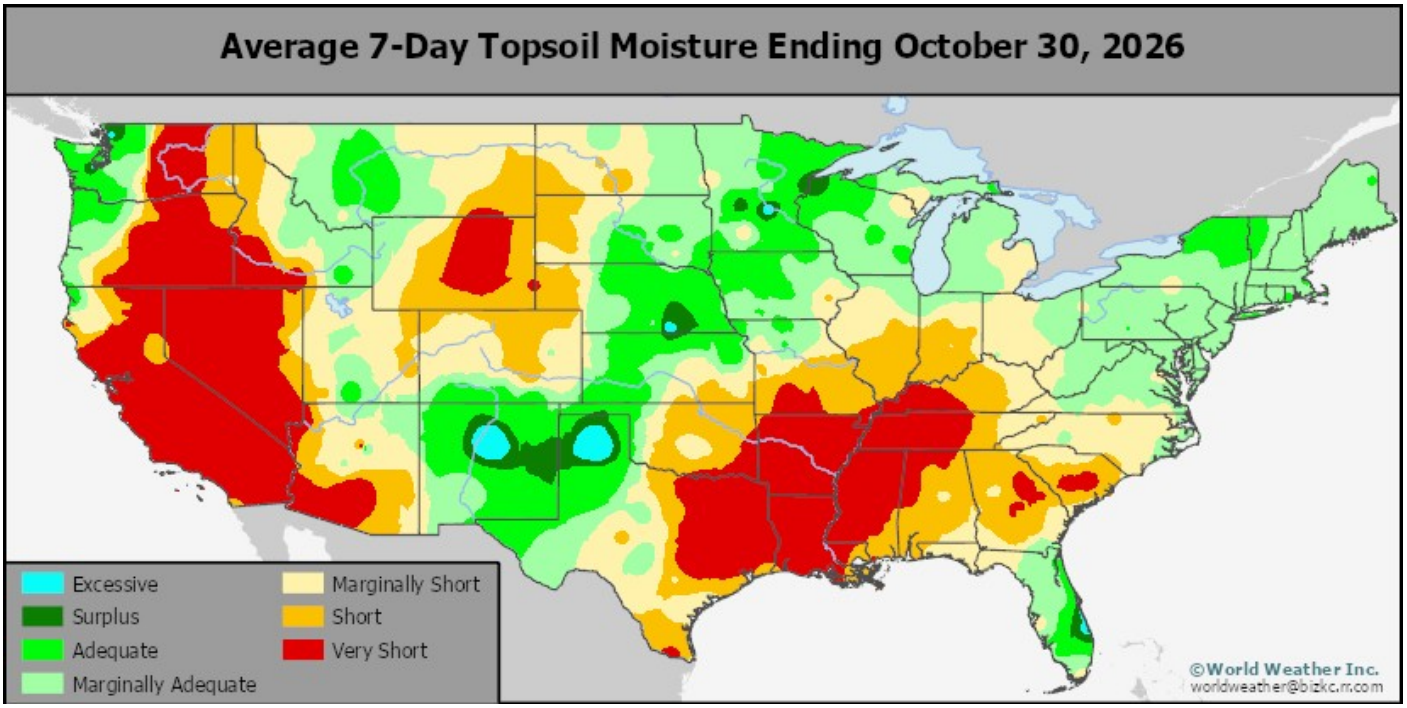


One country to watch over the winter is **India**. As I am sure you are all aware, monsoonal rainfall was lacking overall this season, especially in the south. While southern India received timely rain in recent days, the main rabi (winter) crop areas (western, central, and northern India) are likely lacking usual soil moisture for this time of year. Recent rain in the south likely supported good planting and establishment, though there are concerns for long-term production potentials. Western and portions of central and northern India are also facing serious moisture deficits and will need abundant precipitation over the winter.

In the meantime, Tropical Cyclone Arnab advanced into eastern India earlier this week. Flooding and strong winds promoted damage to crops and infrastructure for northeastern Andhra Pradesh and neighboring locations in the east. Rainfall was other beneficial for several locations that produce winter grains, though eastern India is only a minor producer of wheat and barley.

El Nino tends to promote warmer than usual conditions across India over the northern hemisphere winter. While a majority of India's rain occurs over the monsoon season, disturbances (usually called 'western disturbances') still bring some periodic rain to portions of western, central, and northern India over the winter months. These disturbances are very important to maintain a good environment for new growth. With the likelihood of warmer than usual weather over the winter combined with already deficient moisture, growing conditions for much of the rabi crop areas will likely be less than favorable to downright poor. Production may be lower than usual for the winter season.

U.S. Plains Moisture Profile Already Improving



The **United States** hard red winter wheat planting is either winding down or will be finishing up in the next week or two for the main production areas in the central and southern Plains. The high Plains region received much-needed rain during the past two weeks with some trending wetter or much wetter than usual for this time of year. The precipitation helped chip away at the drought that was prevalent across the region. Eastern fringes of crop country in Oklahoma and Kansas were not nearly as wet recently. Overall, the environment has improved greatly in October. There is still a need for more rain to completely break the drought and support ideal long-term production potentials. Other winter grain areas in the Midwest and Pacific Northwest are dry and in growing need of moisture.

Wetter than usual weather will expand across the Plains in the coming days, as well as the Midwest. This shot of rain should be enough to improve or maintain a good environment for the wheat before crops start going dormant or semi-dormant later this month into December. El Nino winters usually support a rather wet bias in the southern Plains. As long as the wet weather verifies, hard red winter wheat prospects may be favorable, at least compared to several recent years that were hurt by drought. Rainfall in the Midwest may be too light to completely reverse the dryness. However, wheat produced in the region will still benefit.

The Pacific Northwest will trend drier than usual for at least the first ten days of November. The region tends to trend warmer than usual in an El Nino environment. Some of the crop is irrigated and relies on mountain snowpack. With drought ongoing across the region and potential for drier than usual conditions over the winter, moisture shortages may be a growing concern over the winter.