

International Weather and Crop Summary  
USDA - World Agricultural Outlook Board

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International (202) 720-9807

**HIGHLIGHTS**

**EUROPE:** Sunny, mild weather maintained favorable conditions for dormant winter crops across central and southeastern Europe.

**FSU-WESTERN:** A fresh snowfall improved insulation from bitter cold for dormant winter wheat.

**MIDDLE EAST:** Rain and snow improved moisture reserves for dormant winter grains in Turkey and provided much-needed moisture for wheat and barley establishment in Iraq.

**NORTHWEST AFRICA:** Widespread showers benefited vegetative winter grains in Morocco and Tunisia.

**EAST ASIA:** Light showers and mild weather benefited overwintering crops in China.

**SOUTHEAST ASIA:** Torrential showers caused more flooding and fieldwork delays across central Vietnam and portions of the eastern Philippines.

**AUSTRALIA:** Rain stalled winter crop harvesting in New South Wales and Western Australia.

**SOUTH AFRICA:** Warm, showery weather benefited emerging corn.

**ARGENTINA:** Unseasonable warmth and dryness limited moisture for normal development of corn and soybeans.

**BRAZIL:** Beneficial showers continued throughout central Brazil, but drier conditions prevailed in southern corn and soybean areas.

**EUROPE:** A persistent area of high pressure maintained dry, mild weather across much of the continent. From France and southeastern England into Italy and the Balkans, sunny skies and near- to above-normal temperatures were favorable for dormant winter wheat and rapeseed, though chilly conditions (up to 2°C below normal) lingered in southeastern Europe. Rain and wet snow (10-22 mm liquid equivalent, locally more) in northeastern Germany, Poland, and the Baltic States improved moisture reserves for spring growth. However, these typically colder crop areas remained mostly devoid of a protective snow cover at week's end. In Spain and Portugal, variable showers (10-40 mm) sustained favorable moisture supplies for winter wheat and barley establishment.

During November, wet weather aided winter wheat and rapeseed establishment across much of the continent, particularly in previously-dry portions of France and England. Winter crops went dormant from eastern Germany into Poland and the northern Balkans by month's end, but remained vegetative in England and northern France. In Spain and Portugal, near- to above-normal rainfall signaled a favorable start to the water year, boosting reservoirs and improving soil moisture for winter grain planting.

Persistent wet conditions in the Balkans inhibited late summer crop harvesting and other seasonal fieldwork, though drier

weather settled over the region during the latter half of the month. Despite the overall wet weather pattern, drier-than-normal conditions in Greece promoted cotton harvesting.

**FSU-WESTERN:** From northern and eastern Ukraine into southern Russia, snow provided timely protection from the coldest air of the season. Snowfall averaged 2 to 15 cm in Ukraine and Belarus, with the deepest snow cover (10 cm or more) noted in eastern Ukraine where readings dipped to  $-22^{\circ}\text{C}$  during the period. In Russia's Central and Southern Districts, 5 to 20 cm of snow (locally more) afforded adequate protection from temperatures as low as  $-27^{\circ}\text{C}$ . Consequently, this week's arctic blast had little detrimental impact on dormant winter wheat.

Wet weather prevailed across the region, slowing late-season fieldwork but favoring winter crop establishment. Locally heavy rain (100-250 percent of normal) in central and western Ukraine hampered corn and soybean harvesting. However, the rain was welcome for winter wheat in southern and eastern Ukraine. In Russia, near- to above-normal precipitation favored winter wheat establishment, particularly in the key crop region of Krasnodar Krai in the southwestern Southern District. However, sharply colder weather during the latter half of the month sped winter crops into dormancy up to two weeks ahead of normal.

**MIDDLE EAST:** A slow-moving storm system produced widespread, locally heavy precipitation across central and western portions of the region. Rain and snow totaled 10 to 75 mm (liquid equivalent) across most of Turkey, improving moisture reserves for dormant winter grains on the Anatolian Plateau while boosting mountain snowpacks and spring runoff prospects in the mountains of eastern Turkey. In the climatologically warmer growing areas of the eastern Mediterranean Coast, a soaking rainfall (25-75 mm) provided welcomed soil moisture for winter wheat establishment. In Iraq, the first appreciable rain of the season (10-70 mm) in central and northern crop areas provided much-needed soil moisture for winter grain development. Farther east, precipitation amounts in Iran were highly variable (1-40 mm), affording little significant drought relief from west-central growing areas into northeastern portions of the country. Temperatures averaged 2 to 6°C below normal across the western two thirds of the region, though the coldest readings (as low as -16°C in central Turkey) were coincident with a shallow to moderate snow cover (5-20 cm).

During November, intensifying short-term drought adversely impacted winter grain establishment from central Turkey into Iraq and Iran. Despite beneficial moisture in western and northern Turkey, central Turkey's Anatolian Plateau reported little – if

any – precipitation until the last two days of the month. The drought impacts were compounded by sharply colder weather at month's end, which accelerated crops into dormancy. In western Iran, late-month bitter cold (-18 to -10°C) occurred prior to winter wheat being cold hardened, and given the lack of snow cover may have resulted in localized burnback or winterkill. Much-needed rain and snow arrived in early December, though likely too late for wheat establishment except in the warmer Mediterranean growing areas.

**NORTHWEST AFRICA:** Another round of moderate to heavy showers in Morocco and Tunisia maintained or improved prospects for winter grain development. A slow-moving storm system produced a soaking rainfall (10-74 mm) across central and northern Morocco, boosting moisture supplies for vegetative winter wheat and barley.

Farther east, widespread moderate to heavy showers (10-100 mm) in Tunisia sustained good to excellent conditions for winter grain development. In Algeria, showers were also beneficial – albeit highly variable (ranging from a Trace to 101 mm) – for vegetative winter crops. Overall, winter grain prospects in northern Africa have recovered nicely from autumn drought and are vastly improved over last year, when historic drought gripped the region from October to mid-February.

During November, moderate to heavy rainfall during the latter half of the month alleviated drought in Morocco and Algeria. In Morocco, the 50 to 200 mm of rain (locally more in far northern Morocco) ended drought concerns and vastly improved conditions for winter grain planting and establishment. Likewise, 35 to 190 mm of rainfall in Algeria eased or ended autumn drought and improved winter grain prospects. Moderate to heavy showers continued in Tunisia, where autumn drought has not been a concern.

**FSU-EASTERN:** Winter remained firmly entrenched in the north, while rain and snow provided supplemental moisture for winter wheat in the south. In northern Kazakhstan and neighboring portions of central Russia, frigid arctic air settled over the region; temperatures for the month averaged up to 7°C below normal, with nighttime readings plunging as low as -40°C. Farther south, near- to above-normal precipitation (90-200 percent of normal) across eastern Uzbekistan and environs hampered cotton harvesting. However, the rain – along with mountain snow – was beneficial for winter wheat establishment (primarily grown in Uzbekistan) and provided a boost to irrigation reserves (mountain snowpacks and reservoir levels) for next season's summer crops.

**SOUTH ASIA:** Seasonably dry weather prevailed across much of India during November, although most of the south was unusually dry. Southern states typically receive over 300 mm of rain in November and managed little more than 25 mm for the month. While the dry conditions elsewhere benefited rapid winter (rabi) crop planting, the southern dryness limited soil moisture and irrigation supplies for rice and other seasonal crops. In other parts of the region, dry weather in Pakistan aided wheat planting, while seasonal showers in Bangladesh and Sri Lanka benefited rice.

**EAST ASIA:** A brief period of light showers brought 1 to 10 mm (locally up to 20 mm) to much of eastern China's winter crop areas. Temperatures remained unseasonably mild (1-2° above normal), allowing continued vegetative growth of rapeseed in the Yangtze Valley, but conditions were still cool enough to keep wheat dormant on the North China Plain. Freezing temperatures extended well into the southeast, but traditionally warmer sugarcane areas in the far south remained frost free. *This is the final weekly summary of the season; coverage will resume in March 2017.*

Rainfall was near to above normal across much of eastern China in November and much above normal in the southeast. Rainfall totals ranged from 25 mm on the North China Plain to over 200 mm south of the Yangtze River. The moisture, along with seasonable temperatures, benefited establishment of wheat and rapeseed in northern sections as well as promoting development of sugarcane and seasonal vegetables in southern provinces. However, by month's end an arctic air mass descended onto winter crop areas, forcing much of the wheat on the North China Plain into early dormancy and stymying development of rapeseed in the Yangtze Valley. Temperatures rebounded quickly, though, to more seasonable values aiding crops that remained vegetative.

**SOUTHEAST ASIA:** Easterly winds intensified across northern sections of the region, bringing more flooding rainfall to Vietnam and portions of the eastern Philippines. In Vietnam, over 200 mm of rain was reported across Central Coast regions, with some areas reporting nearly 600 mm for the week. Over the last 30 days many locales have recorded rainfall totals well in excess of 1,000 mm. And while lesser rainfall amounts have occurred in the Central Highlands region, the excessively wet weather has played havoc with coffee harvesting and transport. In the Philippines, reports of 300 mm or more of rainfall were common along the eastern Visayan Islands and eastern Luzon, with some locales reporting nearly 500 mm. The downpours delayed fieldwork and maintained saturated conditions for corn and rice. Meanwhile to the south, seasonably wet weather continued in Malaysia and Indonesia, where 25 to locally over 100 mm sustained adequate soil moisture for oil palm and rice. In particular, rainfall totals in Java, Indonesia, since November 1 remained above normal.

Unusually wet weather occurred in northern portions of the region during November, reflecting the current La Niña conditions. Unseasonable showers early in the month across Thailand slowed both summer rice harvesting and winter rice sowing but further improved irrigation supplies. In Vietnam, monthly totals over

1,000 mm in some central locales caused massive delays in coffee harvesting and transport, while more seasonable amounts (less than 100 mm) were reported in northern and southern rice areas. To the east, near- to above-normal rainfall in the Philippines maintained favorable moisture conditions for rice and corn. Much of the rainfall came as a result of Tropical Storm Tokage which moved across the central islands at the end of the month. In southern sections of the region, near- to above-normal rainfall improved oil palm prospects in Indonesia while keeping rice well watered. In contrast, unseasonably light showers in Malaysia created short-term moisture deficits for oil palm. Longer-term (6 months) moisture conditions have been more favorable and prospects remained improved over last year's drought-affected crop.

**AUSTRALIA:** In southern Queensland and northeastern New South Wales, scattered showers (2-10 mm, locally more) benefited vegetative cotton and sorghum. Pockets of dry weather allowed fieldwork to progress, although the majority of the winter wheat in this region reportedly has been harvested. Farther south, soaking rains (10-50 mm or more) throughout the remainder of New South Wales stalled wheat, barley, and canola harvesting. Similarly, widespread showers (generally 10-50 mm) disrupted winter crop harvesting in Western Australia as well. According to Dairy Australia, about 65 to 75 percent of the winter wheat in New South Wales and Western Australia has been harvested as of mid-December. Elsewhere in the wheat belt, mostly dry weather in South Australia and Victoria favored rapid winter crop harvesting and helped maintain the quality of crops waiting to be harvested. Dairy Australia recently reported about 70 percent of the winter wheat crop had been harvested in New South Wales, while approximately 45 percent had been harvested in Victoria. Temperatures averaged near normal in western and southern portions of the wheat belt and about 1 to 2°C above normal in eastern areas.

In November, near-normal rainfall in eastern Victoria and southern New South Wales benefited immature winter grains and oilseeds. Throughout the remainder of the wheat belt, mostly dry

weather prevailed, favoring winter crop maturation and harvesting while sustaining good to excellent yield and quality prospects. Although the dry weather aided fieldwork in southern Queensland and northern New South Wales, the dryness slowly but steadily reduced topsoil moisture for recently sown summer crops.

**SOUTH AFRICA:** Warm, showery weather maintained overall favorable conditions for corn and other emerging summer crops. Moderate rainfall (10-25 mm, locally higher) covered the central and eastern corn belt, including key production areas in southwestern Mpumalanga, Free State, Gauteng, and eastern North West; heavier rain (25-100 mm) fell in outlying production areas of northern Mpumalanga and Limpopo. Weekly temperatures averaged within 1°C of normal in most of the aforementioned areas, with daytime highs reaching the upper 20s and lower 30s (degrees C). Somewhat higher temperatures (35°C) maintained high evaporative losses at the western edge of the corn belt, where planting had likely not yet occurred. Similar temperatures were briefly recorded in irrigated sugarcane areas of eastern Mpumalanga and northern KwaZulu-Natal. Farther south, warm, mostly dry weather reduced moisture for sugarcane in rain-fed production areas of southern KwaZulu-Natal. Mostly dry, warmer-than-normal weather dominating the Cape Provinces promoted rapid growth of corn, cotton, and other row crops in the Orange River Valley, as well as tree and vine crops in Western Cape.

In marked contrast to last season, widespread, occasionally heavy November showers maintained overall favorable prospects for corn and other rain-fed summer crops. Monthly rainfall accumulations of more than 100 mm were recorded in Mpumalanga and nearby

locations in Gauteng, Free State, and KwaZulu-Natal, areas where planting had either already occurred or was likely imminent. Near- to above-normal rainfall was also recorded in western sections of the corn belt (North West and the remainder of Free State), helping to condition fields in preparation for December-planted summer crops. Summer warmth (daytime highs in the middle 30s degrees C) maintained high evaporative losses in the outlying northern and western farming areas but temperatures were closer to normal (highs more commonly in the upper 20s and lower 30s) in eastern production areas, advancing corn development in the absence of stressful heat. Elsewhere, early-month rain benefited sugarcane and other rain-fed summer crops in and around southern KwaZulu-Natal, though a drying trend developed during the latter part of November. Unseasonable warmth and dryness dominated irrigated farmlands of the Cape Provinces for much of the month, spurring rapid early development of summer row crops – including corn and cotton – as well as tree and vine crops in key production areas of Western Cape.

**ARGENTINA:** Warm, mostly dry weather reduced topsoil moisture for establishment of summer crops, while hastening drydown and harvesting of winter grains. Little to no rain fell across a broad area of central Argentina, including previously wet locations in La Pampa, southern Cordoba and western Buenos Aires; a few locations in southern Buenos Aires, Santa Fe, and southern Entre Rios recorded rainfall in excess of 10 mm. Near- to above-normal temperatures accompanied the dryness, with daytime highs reaching the middle and upper 30s (degrees C) on several days. While early in the growing season, the heat and dryness likely posed some stress on emerged corn and soybeans, necessitating a return to a more normal pattern of summer rain and warmth as earliest-planted crops reach reproduction. Drier conditions also prevailed farther north, with the heaviest rain (greater than 10 mm) generally confined to far northern agricultural areas (eastern Salta through Formosa). Despite several days with daytime highs reaching the middle and upper 30s, weekly temperatures averaged near to slightly below normal across the north. According to the government of Argentina, sunflowers and corn were 99 and 63 percent planted, respectively, as of December 15, slightly lagging last year's pace. Soybeans were 70 percent planted, 8 points behind last year. Meanwhile, wheat was 58 percent harvested versus 54 percent last year, an increase of 15 points from the previous week.

A November drying trend improved conditions for spring fieldwork in high-yielding summer crop areas of central Argentina that had been plagued by earlier periods of wetness. Monthly accumulations of rainfall ranged from 25 mm in southern Buenos Aires to 100 mm (locally higher) in the traditionally wetter southern Parana River Valley (southern sections of Santa Fe and Entre Rios). While favoring drydown and harvesting of winter grains, sections of southeastern Buenos Aires had become too dry for uniform germination of soybeans and other summer crops that typically follow wheat and barley, and more rain was needed. In contrast, unfavorable wetness returned to the vicinity of northern La Pampa as rainfall returned toward the end of November after a brief period of dryness. Monthly average temperatures were near to slightly above normal in Argentina's more southerly farming areas, despite a late spring freeze that reportedly damaged immature winter grains in southern Buenos Aires during the second half of November. Farther north, wetter-than-normal conditions prevailed for much of the month in western agricultural areas (Tucuman and Salta) but a drying trend – similar to that recorded in central Argentina – developed over the northeastern cotton belt (northern Santa Fe to eastern Formosa), aiding fieldwork.

**BRAZIL:** Widespread showers maintained overall favorable prospects of soybeans, cotton, and other summer crops in the main production areas of central Brazil. Rainfall totaled 50 to well over 100 mm throughout the main farming areas of the Center-West Region (Mato Grosso, Goias, and Mato Grosso do Sul) and the northeastern interior (Tocantins, western Bahia, and southern farming areas of Piaui and Maranhao). The rain also extended throughout the southeast (Sao Paulo and Minas Gerais), providing essential moisture for development of sugarcane, citrus, and coffee. The rainfall in the aforementioned areas also helped to keep temperatures down to more seasonable levels, as few locations reported daytime highs in excess of 35°C. In contrast to the abundant northern rains, mostly dry weather prevailed across southern Brazil, with rainfall totaling only 5 to 25 mm from Rio Grande do Sul to southern Parana. Despite the dryness, temperatures were highly variable, though most locations recorded daytime highs in the lower 30s (degrees C) on several days. Corn and soybeans are in or nearing reproductive phases of development in these areas and need rain soon to prevent declines in yield potential. According to the government of Parana, first-crop corn and soybeans were both well over 50 percent in flowering to filling stages of development as of December 12.

During November, the combination of occasional showers and

extended periods of dry, sunny weather maintained overall favorable conditions for summer crops in southern Brazil. Monthly rainfall averaged between 100 and 125 mm from Sao Paulo southward through Rio Grande do Sul; while this represented near-to below-normal accumulations for most the region, moisture conditions were still overall favorable as a result of periodic wetness in October. According to reports emanating from the governments of Rio Grande do Sul and Parana, early-planted crops advanced toward – and into – reproduction during November, making the return of the rainfall at month's end timely. In Sao Paulo and southern Minas Gerais, heavy rain in early November contrasted with drier, warmer conditions during the latter half of the month. Heavier rain (amounts totaling more than 200 mm) fell in the Center-West Region (Mato Grosso, Goias, and northern Mato Grosso do Sul) throughout the month while in the northeastern interior (Tocantins and environs), showers developed a bit later and ended after just a few weeks. The northeastern rainfall, though below normal in many locations, marked the onset of the summer rainy season and encouraged planting of soybeans, cotton, and other crops. Summer warmth (daytime highs reaching the middle and upper 30s degrees C) maintained high evapotranspiration rates in the more northerly farming areas.

**MEXICO:** In November, unseasonable rainfall gave a late-season boost in moisture to immature summer crops in southern and eastern parts of the country. The moisture also increased irrigation reserves for the upcoming winter cropping season. Areas recording above-normal rainfall included the southern plateau (Jalisco to Puebla), where rain totaling 10 to 50 mm fell over a period of several weeks during the middle part of the month. Heavier rain (monthly accumulations from 50 to locally more than 200 mm) fell from the northeast (Coahuila, Nueva Leon, and Tamaulipas) southward along the Gulf Coast to Tabasco and Campeche, increasing irrigation reserves for winter crop production. According to the government of Mexico, national reservoir levels were at 76.6 percent of capacity as of November 30, compared with 78.2 percent at this time last year and 67.0 percent in 2014. Northwestern reservoirs (including those in Sinaloa and Sonora) were at 85.0 percent versus 84.4 percent last year and 72.6 percent in 2014.

**CANADIAN PRAIRIES:** Unseasonable warmth dominated the Prairies for much of the month of November, keeping large sections of the Prairies snow-free for late fieldwork. Monthly average temperatures were 3 to 5°C or more above normal in Alberta and more than 7°C above normal throughout most of Saskatchewan and Manitoba. Below-normal precipitation (5-25 mm, liquid equivalent, in most areas) accompanied the warmer-than-normal conditions. However, snow returned to Alberta's northern growing areas during the middle part of the month, renewing harvest delays; according to the government of Alberta, harvesting of all crops had only reached 90 percent complete as of November 29, with remaining crops likely to be left in the fields until spring. Fieldwork was virtually complete in Saskatchewan and Manitoba by month's end.

**SOUTHEASTERN CANADA:** Seasonal cooling occurred across the region during November, although temperatures were above normal on most days. Despite the unseasonable warmth, daily average temperatures had fallen below the threshold for dormancy (averaging 5°C or lower for at least 2 weeks) in most areas by month's end, first in Quebec before gradually moving southward through Ontario. Nighttime lows briefly approached -10°C in a few outlying production areas but the cold was generally not low enough to affect dormant wheat. Although monthly precipitation was near to below normal, most of Quebec and Ontario had accrued a protective layer of snow cover ahead of the aforementioned cold outbreak. Much of this snow had melted off by month's end, upon the advent of warmer weather (daytime highs approaching 15°C in some of the warmer parts of Ontario).