

# GLOBAL CROP PRODUCTION REVIEW, 2013

Prepared by USDA's Joint Agricultural Weather Facility

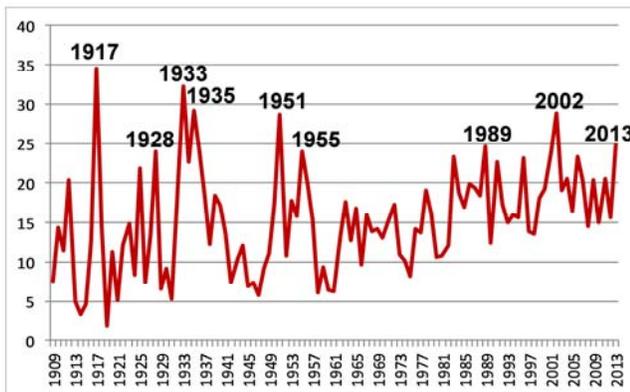
The following is an annual review of regional crop production, comparing 2013 with the previous year. For both the northern and southern hemisphere, these summaries reflect growing season weather for major commodities that were harvested in the calendar year of 2013, unless otherwise noted. Most statistics quoted are based on crop estimates released by the United States Department of Agriculture in March 2014.

**NORTH AMERICA:** In the **United States**, wheat production decreased 6 percent from 2012. However, the decrease was largely due to an 8 percent decrease in grain harvested area. As a result, the U.S. wheat yield topped the record high originally set in 2010 and matched in 2012.

U.S. winter wheat production was down 7 percent from 2012. Harvested area was also down 7 percent. The winter wheat yield was the second highest on record, behind 1999. However, the overall yield was somewhat misleading due to high drought-related abandonment, particularly on the southern Great Plains.

wheat (up 35 percent from 2012) and White winter wheat (up 2 percent). Spring wheat production was down 2 percent from last year, but the decrease was due to a 6 percent decrease in harvested area. A record-high spring wheat yield was noted in 2013. Durum wheat production was down sharply, despite the second-highest yield on record. The durum production decrease (down 25 percent from 2012) was due to a 33-percent reduction in harvested area.

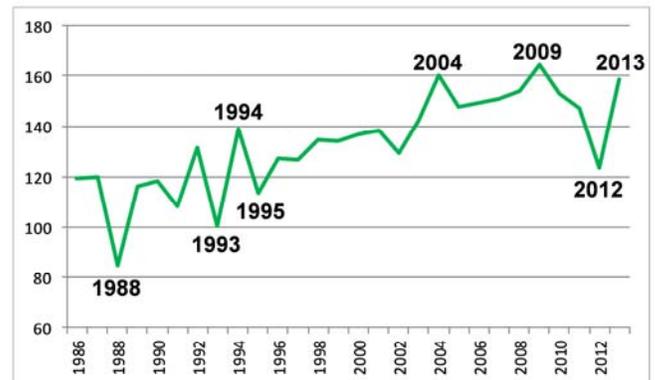
**Percent U.S. Winter Wheat Abandonment  
1909-2013**



**Figure 1. Percent U.S. winter wheat abandonment, 1909-2013; Source: U.S. Department of Agriculture.**

Lingering drought on the Great Plains cut production totals (down 26 percent from 2012) for Hard Red winter wheat (HRW). Due to high HRW abandonment rates, the overall U.S. winter wheat abandonment of 24.8 percent was the second highest — behind 2002 — in the last 60 years (Figure 1). However, drought-related HRW losses were offset by production gains in Soft Red winter

**U.S. Corn Yield, Bushels Per Acre  
1985-2013**



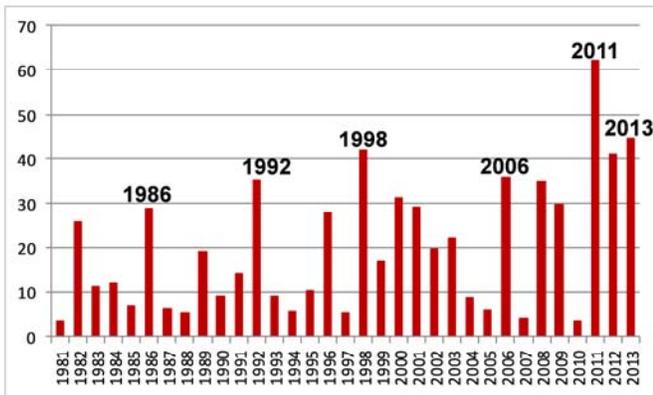
**Figure 2. U.S. corn yield, 1986-2013; Source: USDA's National Agriculture Statistics Service.**

U.S. corn production was up 29 percent from 2012, despite a 2-percent decrease in planted area. Following the historic U.S. drought of 2012, corn production rebounded to a record high. In addition, the U.S. corn yield was the third highest on record, behind 2004 and 2009 (Figure 2). Following a delayed planting season due to cool, wet conditions, dry weather returned to parts of the Corn Belt during the 2013 growing season. However, the absence of extreme heat — in stark contrast to last year — prevented widespread crop losses. Some of the season's hottest weather

arrived as the corn crop was maturing, resulting in generally favorable conditions during the drydown period.

U.S. soybeans also benefited from cool weather during the 2013 growing season, despite pockets of mid- to late-summer dryness. Soybean production rose 8 percent from the previous year, achieving the third-highest total on record. Like corn, soybeans were planted late in 2013 as a result of a cool, damp spring. Nevertheless, record-high soybean yields were noted in several Southern and Eastern States, including Arkansas, Georgia, Kentucky, Louisiana, Mississippi, Ohio, and Tennessee.

**Percent Texas Cotton Abandonment  
1980-2013**

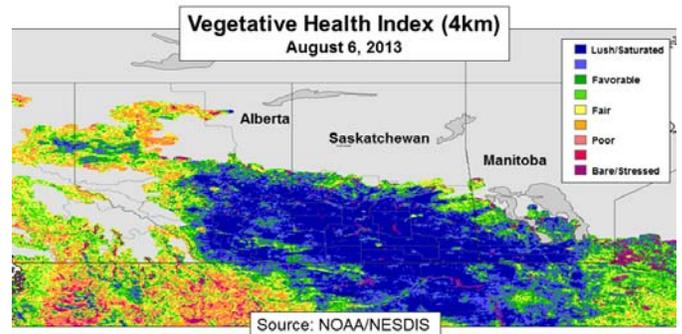


**Figure 3. Texas cotton abandonment, 1981-2013; Source: USDA’s National Agricultural Statistics Service.**

U.S. cotton production was down 24 percent from 2012, in part due to a continuation of long-term drought across the southern Great Plains. For the first time on record, cotton abandonment in Texas topped 40 percent in three consecutive years (Figure 3). However, a portion of the production decline resulted from a lower harvested acreage — 18 percent below 2012. Record-high yields were noted in several Delta States, including Arkansas, Louisiana, and Mississippi.

On the **Canadian Prairies**, late-melting snow cover and the resulting wet fields delayed initial

efforts to plant spring crops, particularly in eastern agricultural districts. However, this late start to the growing season was followed by nearly ideal weather conditions for the remainder of the growing season (including a later-than-usual autumn freeze), resulting in record spring grain and oilseed yields. This was evident before the end of the summer growing season from satellite depictions of crop vigor (Figure 4). Canola (rapeseed) production rose 30 percent from the previous year, as record yields significantly offset an area reduction of 9 percent. Canadian wheat production — primarily from spring varieties grown on the Prairies — jumped 38 percent on the exceptional weather conditions and abundant soil moisture from the late snow melt. Similarly, barley production rose 28 percent despite a marginal drop in area planted.

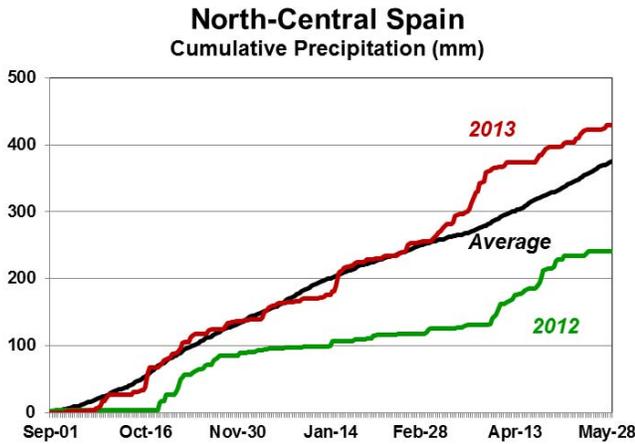


**Figure 4. Canadian Prairies Vegetative Health Index for August 6, 2013. Source: NOAA/NESDIS.**

Growing conditions were also generally favorable in **eastern Canada**, even though periods of wetness hampered fieldwork and maintained locally high disease pressure on summer grains and oilseeds. As a result, corn production rose nearly 9 percent from 2012, due to slightly higher yields. However, soybean yields fell from the previous year’s record, but higher planted area from the previous season allowed for an increase in production of more than 2 percent.

Coarse grain production in **Mexico** increased slightly from 2012. Corn production remained virtually unchanged from the previous season as a

modest increase in national corn yields (both winter- and summer-grown crops) offset slight declines in total planted area. In contrast, sorghum production jumped 18 percent on increases in both area and yield.

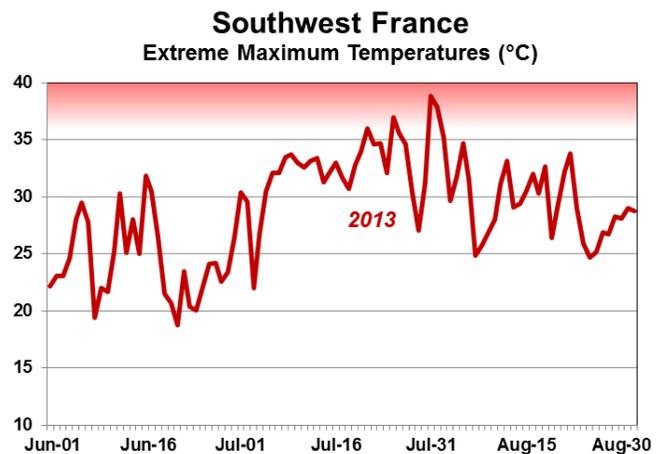


**Figure 5. Rainfall over northern Spain’s wheat areas during the Iberian Peninsula’s Water Year; Source: World Meteorological Organization.**

**EUROPEAN UNION:** In the European Union (EU-28), total wheat production increased 7 percent despite a slight drop in planted area. Pronounced gains were noted from **Poland** into the **Balkans**, where near- to above-normal autumn rainfall for planting and establishment was in sharp contrast to the preceding year’s autumn drought. Production increased slightly (2 percent) in **France**, Europe’s largest wheat producer, due to favorable weather and modest gains in yields. Likewise, abundant rainfall (Figure 5) during **Spain’s** water year (October-May) maintained abundant soil moisture for winter wheat, with yields jumping more than 50 percent over the preceding year. In contrast, wheat production in the **United Kingdom** dropped by more than 10 percent as excessively wet weather and saturated soils hampered fall planting and caused a sharp reduction in wheat acreage.

Europe’s overall coarse grain production climbed nearly 9 percent, reflecting notably improved

weather in the south versus the preceding growing campaign’s summer heat and drought. Yields increased by more than 30 percent in Spain and **Hungary**, and shot up more than 60 percent in **Romania**. EU-28 barley, oats, and rye production improved by 9, 7, and 14 percent, respectively, with many producers in Poland, **Germany**, and the **Czech Republic** dedicating more area to spring rye following the previous year’s unfavorably dry autumn and resultant winter wheat abandonment. Meanwhile, EU-28 corn production recovered 10 percent, as consistent summer rain and a lack of untimely heat boosted yields in **Italy** (up 8 percent), Hungary (37 percent), and Romania (more than 75 percent). In France, however, increased corn acreage was offset by lower yields as excessively wet spring weather was followed by locally dry, hot conditions in the mid-summer (Figure 6). Likewise, Poland’s corn production remained largely unchanged as higher area was countered by lower yields due to above-normal summer temperatures.



**Figure 6. Maximum temperatures (°C) in southwestern France’s key corn growing region during the summer, 2013; Source: WMO**

In 2013, oilseed production in the European Union climbed 13 percent due to weather-related yield and acreage increases across central and southern portions of the continent. EU-28 rapeseed production rose more than 8 percent following two years of declines, as favorable autumn rainfall

encouraged producers to expand rapeseed acreage from Poland into the Balkans; in Romania, rapeseed area increased by more than 160 percent, which coupled with a 35-percent yield gain, resulted in a production spike of more than 250 percent over last year. Gains in eastern growing areas were tempered somewhat by year-to-year losses of more than 15 percent in France and the United Kingdom, where incessant autumn rains hampered planting, lowered yields, and reduced crop quality. Meanwhile, Europe's sunflower production jumped almost 25 percent. In particular, producers in Spain were able to rely on abundant water reserves for irrigation following a wet winter (production up 66 percent), while timely rain and a lack of extreme heat boosted Hungarian sunflower yields by more than 10 percent.

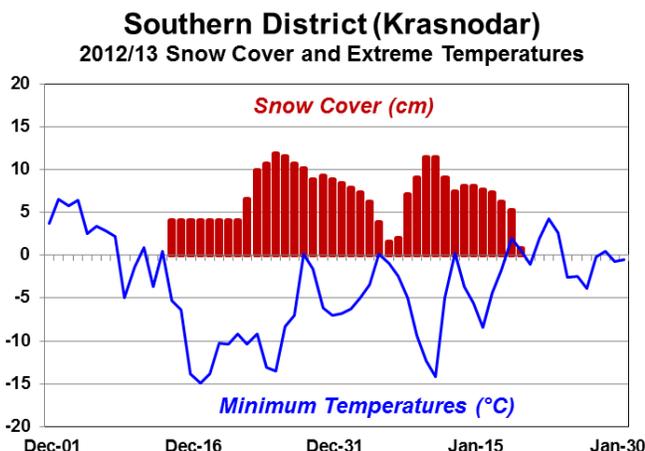


Figure 7. Depiction of reduced winterkill potential for winter wheat in Russia's Southern District during the winter of 2012/13; Source: WMO

**FORMER SOVIET UNION:** The recent trend of highly variable, weather-related wheat production continued, with sharp increases noted across much of the region following the preceding year's heat and drought. Total wheat production posted double-digit gains in **Russia** (38 percent) and **Ukraine** (41 percent), mostly attributed to winter wheat, while spring wheat areas of **Kazakhstan** saw production recover more than 40 percent over 2012's heat- and drought-afflicted crop. **Belarus**, a relatively minor wheat producer, saw wheat decline 5 percent as spring heat and dryness reduced yields.

Winter wheat, which is primarily grown in Ukraine and western Russia, was well established following near- to above-normal autumn rainfall. For the second consecutive year, the threat of freeze damage was minimized by above-normal winter temperatures as well as an adequate snowpack during an early-February cold snap (Figure 7). After favorable winter precipitation, rain continued into the spring, although pockets of dryness were noted in southern portions of Ukraine and Russia. Nevertheless, the improved weather pushed yields up more than 20 percent in both countries.

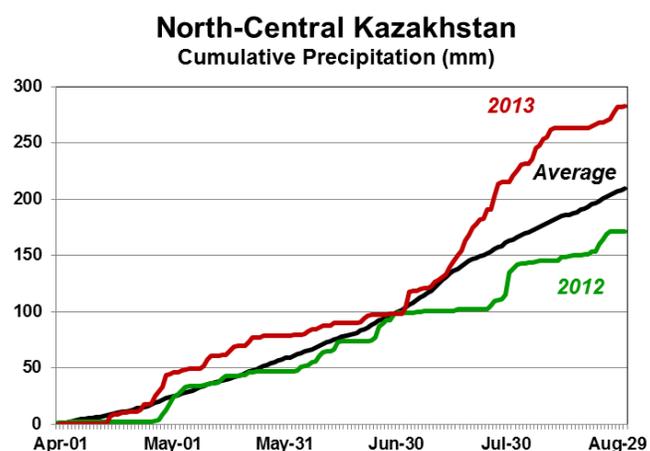


Figure 8. Cumulative precipitation (mm) in northeastern Kazakhstan's spring wheat areas; Source: WMO

Farther east, a wet spring and summer in Kazakhstan and eastern Russia supplied ample soil moisture for spring wheat, although locally excessive rainfall trimmed yield gains and cut crop quality in parts of northern Kazakhstan (Figure 8). Despite the pockets of heavy rain, Kazakhstan wheat production rebounded more than 40 percent, mostly driven by a 36-percent improvement in yields.

The generally favorable weather throughout the growing season across the Former Soviet Union also led to double-digit gains in small grains, coarse grains, and oilseeds. In Russia, barley, oats, and rye recovered 10, 22, and 58 percent, respectively,

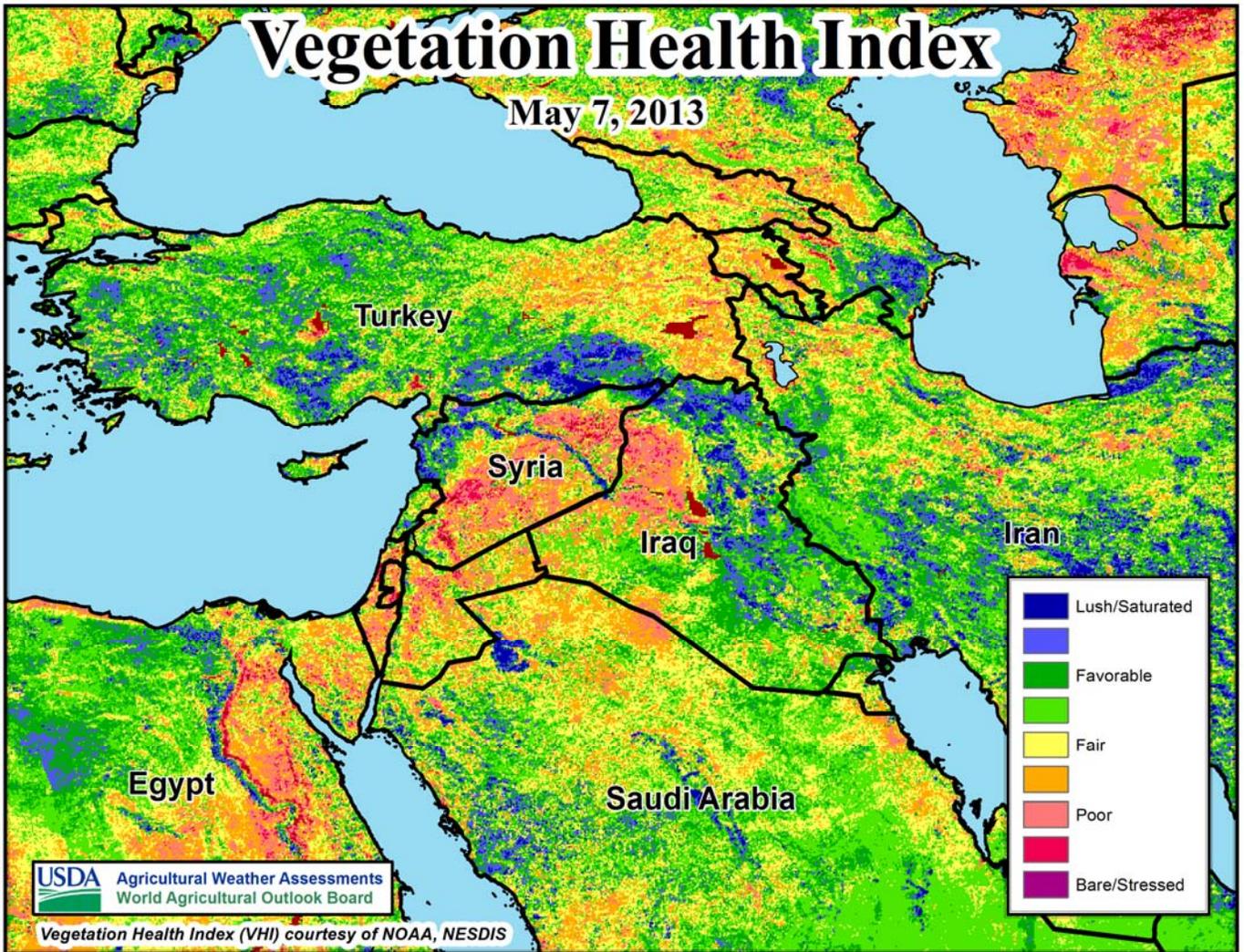


Figure 9. Satellite-derived Vegetation Health Index over the Middle East in early May, 2013, as wheat was heading to filling; data courtesy of NOAA, NESDIS.

driven largely by similar yield improvements. In Ukraine, where barley planted acreage dropped 2 percent, production rose 9 percent on the strength of an 11-percent climb in yields. However, the long-term downward trend in oats and rye production continued, as Ukrainian producers switched to corn and oilseeds. Ukraine planted its second-largest rapeseed crop (by area), which coupled with record yields (up 7 percent versus the preceding year) netted the country's second-biggest rapeseed crop (up 95 percent). Ukraine corn, sunflower, and soybean acreage continued to climb at the expense of the aforementioned spring grains; production of corn was the second largest all time

(up 48 percent versus 2012), while soybean and sunflower production (up 15 and 39 percent, respectively) reached new highs due to favorable weather and a sharp four-year upward trend in area. Likewise, farmers in Belarus sacrificed barley and oats acreage for rapeseed, which despite slipping one percent was still the second-largest rapeseed crop on record, by far.

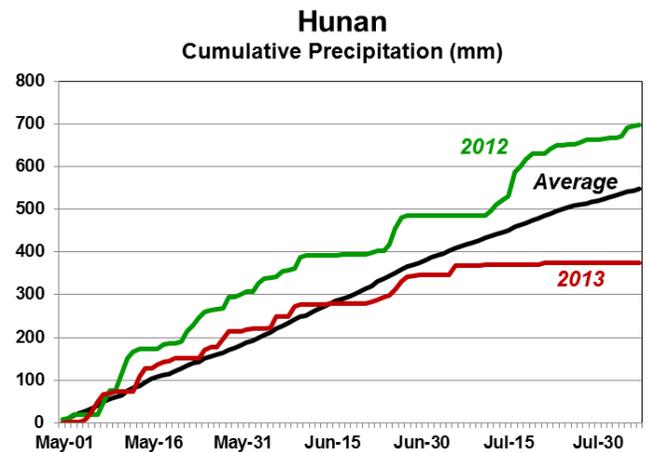
Cotton production in the Former Soviet Union, grown primarily across the south, dropped more than 6 percent. All of the region's four largest producers noted decreases in area and yield, with production down 6 percent in **Uzbekistan** and

**Turkmenistan**, while 9- and 11-percent year-to-year losses were noted in the regions' two lesser cotton producers, **Tajikistan** and **Kazakhstan**.

**MIDDLE EAST:** In the Middle East, winter grains rebounded in 2013 after the poor 2011-12 growing campaign. In contrast to the preceding year's drier-than-normal autumn, near- to above-normal precipitation provided adequate soil moisture for winter grain establishment in **Turkey**. Wheat and barley survived the winter with minimal freeze damage, while favorable spring moisture helped boost Turkish barley and wheat yields 32 and 18 percent, respectively. Across the rest of the region, near- to above-normal rainfall during the water year (October-May) maintained adequate to abundant soil moisture for winter wheat, and crops bounced back accordingly. In **Iran**, wheat rebounded 4 percent on improved yields, while **Iraqi** winter wheat production spiked 57 percent due to a similar increase in area. **Syria** wheat gains (up 14 percent) were tied directly to weather-related yield improvements (up 17 percent), which more than offset a 3 percent decline in wheat acreage (Figure 9). In contrast, the region's cotton crop — which is grown in the summer and heavily irrigated — decreased for a second straight year due to a reduction in planted acreage. Total cotton production dropped 13 percent in Turkey (20 percent reduction in area), 17 percent in Syria (area down 20 percent), and 4 percent in Iran (5 percent acreage decline).

**AFRICA:** Across northwestern Africa, a favorable growing season (November-May) improved yields for predominantly rain-fed winter grains over most of the region. In **Morocco**, wheat and barley production soared 81 and 125 percent, respectively, as yields rebounded from the preceding year in response to consistent, timely rains. Conversely, **Algeria** wheat production slipped 3 percent despite a 13-percent jump in yields, as wheat acreage declined more than 14 percent. Farther east, winter grain area reductions in **Tunisia** lowered wheat and barley production 19 and 17 percent, respectively, despite steady or climbing yields.

**South African** corn production fell about 3 percent from the previous season as modest decline in yields failed to offset a slight increase in area. Following an overall favorable start to the growing season, drier conditions gradually developed across the corn belt; above-normal temperatures accompanied the drying trend, exacerbating the effects of the dryness on immature, rain-fed summer crops. Elsewhere, abundant rain maintained favorable conditions for sugarcane production in key rain-fed growing areas.



**Figure 10. Depiction of developing drought in Hunan Province, China; Source: WMO.**

**ASIA:** In **China**, wheat production was virtually unchanged compared to last year, as spring rainfall and dry harvest weather maintained favorable crop prospects. Rapeseed also benefited from timely moisture, although wet harvest weather tempered high expectations for the crop. As a result, production of rapeseed was up almost 3 percent from the previous year on small increases in both area and yield. Summer weather was mixed for crops, with wet weather in northeastern China boosting corn production nearly 6 percent year-to-year but having the opposite effect on soybeans, reducing production 6 percent versus 2012. Excessive wetness on the North China Plain kept groundnut yields stagnant as compared to last year, with production rising less than 2 percent mainly on area. In contrast to wet weather in northern growing areas, drought overspread southern cotton

and rice areas (Figure 10). Prolonged hot, dry weather during the summer reduced rice yields, which was offset by increased area to limit overall production losses (down less than 1 percent from last year). Cotton, meanwhile, saw significant reductions in both area and yield, as unfavorable weather in eastern China impacted the crop. As a result, cotton production was down 8 percent from 2012.

Rice production in **Japan** and **South Korea** was up year-to-year, ranging from 1 percent in Japan to nearly 6 percent in South Korea. Despite record-setting rainfall in parts of **North Korea**, rice production was up 4 percent, as most of the wetness occurred outside major rice producing areas.

An active summer monsoon benefited rice across **Southeast Asia**, as production increased in most countries. Rice in **Indonesia** increased just over 2 percent due in part to record rainfall during the dry season boosting yields. In the **Philippines**, rice production rose a modest 2 percent versus last year as Super Typhoon Haiyan curtailed expectations. However, Haiyan, deemed the most powerful land falling tropical cyclone ever recorded, had limited impact on crops based on the storm's track through minor crop-producing districts in the central Philippines. Meanwhile in key rice producing

countries of **Indochina**, rice production was stagnant in **Vietnam**, remaining unchanged from last year, while rice production was up slightly (2 percent) in **Thailand** on favorable monsoon rains.

In **India**, favorable weather produced a near-record wheat crop, which was within 1 percent from 2013's level of production. Rapeseed production, meanwhile, was up nearly 3 percent from the prior year predominantly due to more area. Summer crop production was mixed within India. The summer monsoon reversed from the previous year's poor performance (particularly in the west), with record rainfall in many areas, including in the Ganges River Basin and across soybean areas in central India. As a result of early rainfall and improved monsoon prospects, area was up substantially for most crops. Cotton and groundnut production were up 2 percent and 10 percent, respectively on improved monsoon rains. However, soybean yields were down significantly due to prolonged field flooding and wet harvest weather (Figure 11), but production was up (3 percent) due to a large increase in area. Rice yields were also hampered by late-season rainfall coming from several strong tropical cyclones, including a category 5 storm. Increased area helped offset the reduced yields, as production remained virtually unchanged from 2013.

In **Pakistan**, favorable weather boosted wheat yields and subsequently production as well (rising 3 percent from last year). Rice and cotton also benefited from good moisture and a lack of flooding which has been a reoccurring event over the last several years (production rose 10 percent for rice and 2 percent for cotton).

**SOUTH AMERICA:** Summer crop production rose dramatically across the region, owing mainly to improved weather that accompanied the abatement of La Niña and the transition to neutral ENSO (El Niño / Southern Oscillation) conditions. In a distinct contrast to the preceding two seasons that were marked by drought, wet weather impacted the start of the **Argentina** summer

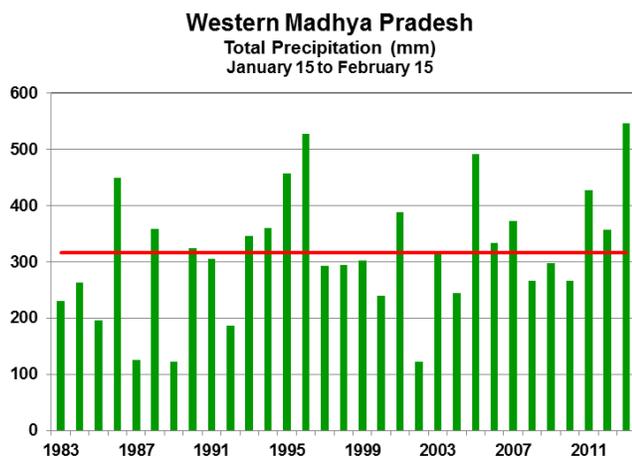


Figure 11. Seasonal comparison of mid-summer rainfall in central India (1983-2013); Source: WMO.

growing season (Figure 12). Initially beneficial for replenishing soil moisture reserves, the wetness slowed the harvesting of winter grains and impacted yields and quality. Winter wheat production fell 40 percent from the previous season, due to the combination of lower area (a result of the previous year's dryness) and a drop in yields of nearly 15 percent. Consequently, summer crop planting also experienced some delays.

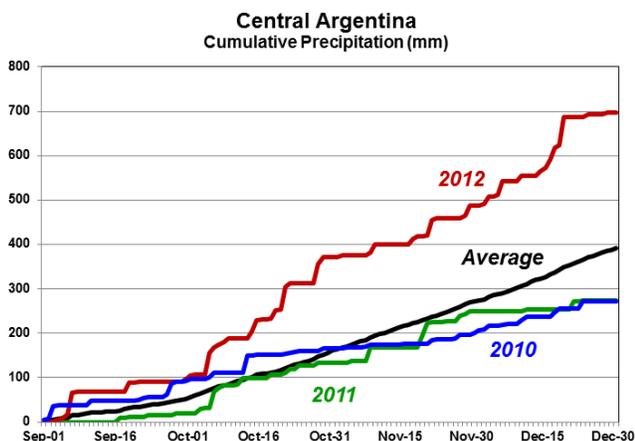


Figure 12. Depiction of unusual spring 2012 wetness in the main production areas of central Argentina as compared to previous years; Source: WMO

Drier conditions developed in high-yielding farming areas of central Argentina toward the end of December, 2012. While initially beneficial following earlier periods of excessive wetness, the dryness — which eventually led to stressfully hot weather — became unfavorable for summer crop development by the early part of February, tempering crop expectations. In spite of the late-season stress, conditions were favorable enough to exceed the previous year's output for most crops. Corn production rose 26 percent, due to increases in both area and yields; similarly, soybean production rose 23 percent. Cotton production fell 25 percent as higher yields failed to offset a reduction in harvested area of more than 30 percent.

In **Brazil**, wheat production fell nearly 25 percent from the previous year from the combination of

lower area and yields, part of the problem being untimely wetness during harvest. In contrast, soybean production reached record levels (82 million metric tons versus 66.5 during the 2011/12 campaign, as depicted in Figure 13), as yields rose more than 10 percent from the previous season and area reached record levels. Corn production posted a second consecutive record at 81 million metric tons, achieving records in both yield and area of the combined summer- and winter-grown portions of the crop. As in Argentina, cotton production fell (down 31 percent) as increased yields failed to offset a significant reduction in acreage.

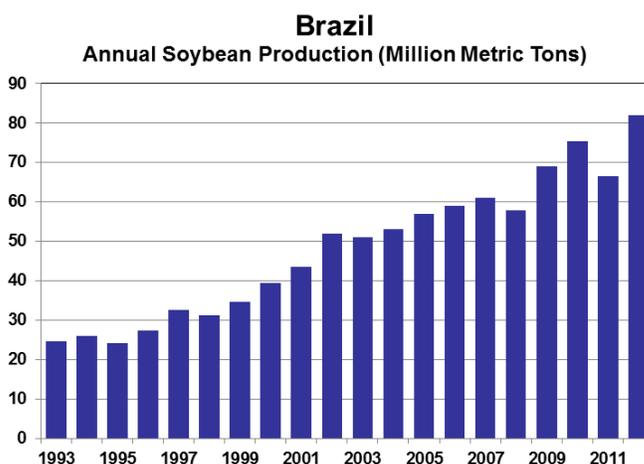
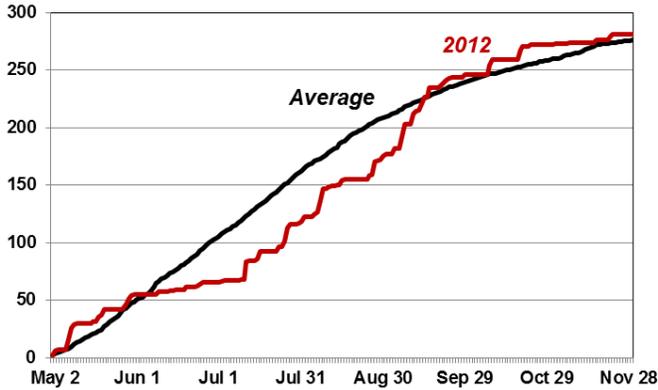


Figure 13. Brazil soybean production (USDA).

Conditions for summer crops in **Paraguay** were similar to those in southern Brazil, with nearly ideal weather for soybean development. As a result, production more than doubled from the previous season (8.3 million metric tons versus 4.0 in 2011/12) as farmers posted the highest yields and area since 2002.

**AUSTRALIA:** In 2013, Australian wheat and barley production rose 18 and 15 percent, respectively, relative to 2012 production levels, despite unfavorably dry weather in portions of eastern Australia. In Western Australia, unseasonably dry weather in June and early July slowed early winter crop development (Figure 14). Intermittent, soaking rains during the remainder of the growing season, however, favored jointing,

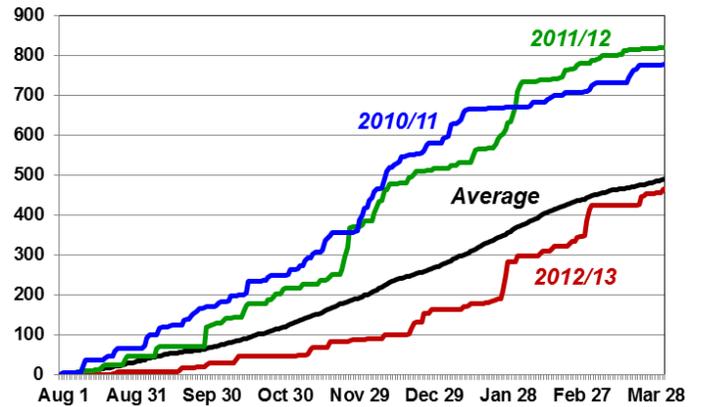
**Western Australia - Central**  
Cumulative Precipitation (mm)



**Figure 14. Depiction of beneficial rainfall in Western Australia’s central farming areas; Source: WMO.**

reproductive, and filling winter grains, significantly boosting early-season crop prospects. In southeastern Australia, winter wheat and barley benefited from steady showers throughout most of the growing season, helping ensure relatively high yielding crops. In contrast, mostly dry weather in northern New South Wales and southern Queensland stressed winter grains during the latter half of the growing season, causing local yield reductions.

**NSW / Queensland Border Region**  
Cumulative Precipitation (mm)



**Figure 15. Rainfall in the summer crop areas of New South Wales and Queensland; Source: WMO.**

Following 2 years of well-above-normal rainfall, much drier weather overspread major cotton growing areas in eastern Australia (Figure 15). Irrigated cotton continued to thrive because many reservoirs began the growing season at or near capacity, but the area planted to dryland cotton decreased significantly, causing a 16 percent reduction in Australia cotton production relative to 2012 estimates.