

## D. Country Profiles [[updated Feb. 28 2014]]



The following are brief country profiles of the 31 countries that together account for over 80 percent of the world's production and export maize, rice, wheat and soybean and are the focus of CropWatch bulletins. Statistics are based on FAOSTAT data for land area and 2014 population [1], as well as food and agricultural commodities production [2] and import/export data [3]. Crop calendar information is derived from the USDA Major World Crop Areas and Climate Profiles (MWCACP)[4], GIEWS [5] and a number of national sources. Long-term trends refer to trends described in the [Online Resources; Country Long Term Trends](#), which is based on FAOSTAT data and was first released as part of the November 2013 CropWatch bulletin.

### ABOUT THE NDVI MAPS

	< 0.2	<p>The maps in each country profile show average NDVI. The hatched area indicates areas with maize, rice, soybean, or wheat, which are the four crops covered by the CropWatch bulletin. Dotted areas are more than 50 percent irrigated. NDVI levels are indicated in the range of &lt;0.2 to &gt;0.85. Values below 0.20 mostly indicate that no crop is grown, even if some rangeland can be found in the areas; above 0.85 the NDVI corresponds to dense forest.</p>
	0.21-0.5	
	0.51-0.7	
	0.71-0.85	
	> 0.85	

### ARG: ARGENTINA

Land area: 2,737 kkm<sup>2</sup> (14% arable land); Population: 42 million (7% rural; 3% agricultural population)



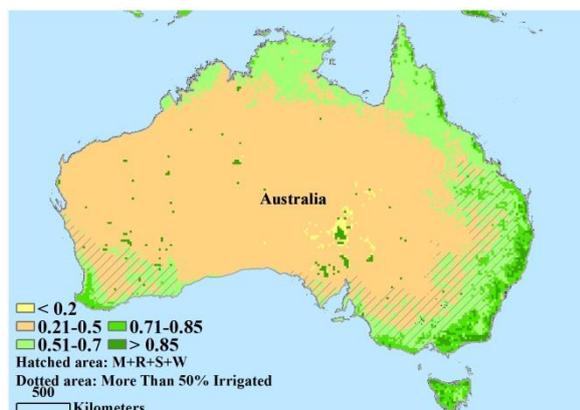
**Soybeans, sugarcane, maize, and wheat** are the top four crops in Argentina in terms of production [2]. Most crops are grown in central and northern Argentina, concentrated in north-western Buenos Aires, southern Cordoba, and Santa Fe provinces for soybean and maize. **Wheat** is mainly grown in eastern Cordoba, southern Santa Fe, and the south coastal region of Buenos Aires. **Maize** is mainly planted in October and approaches maturity in February-March; it is then harvested in March to early May. Early **soybean** is sowed in November-December and harvested in April to May. A second soybean crop, harvested in May-June, is grown the harvesting of **winter wheat**, which is sowed in June and harvested in December. Argentina now ranks as the second largest **maize** exporter and the third largest **soybean** exporter and producer in the world. **Maize**

produced in Argentina is exported around the world to more than two thirds of all countries. On the contrary, **rice** cultivation is very limited. Since the mid-1970s, large expanses of pasture and forest have been replaced by cultivated lands. Following major structural reforms implemented since 1991, imports of agricultural inputs (e.g., pesticide, fertilizer, and machinery) have accelerated[5]. This has led to a sudden boom in **soybean** cultivation, a stable cultivation area in **maize**, and a decrease in **wheat** plantation because of higher incomes from soybean cultivation. **Wheat** production has, however, remained stable over the last decade due to

improving yields.

## AUS: AUSTRALIA

Land area: 7,682 kkm<sup>2</sup> (6% arable land); Population: 24 million (10% rural; 2% agricultural population)

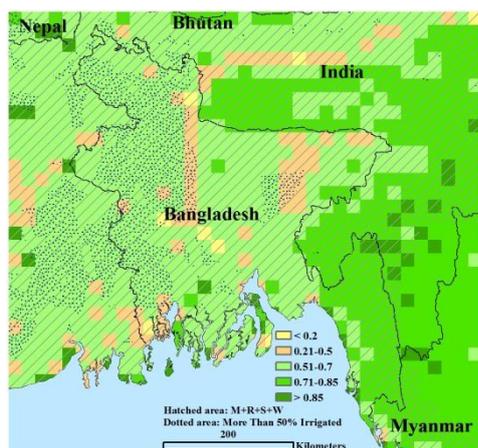


Australia is dominated by semi-arid climatic conditions in the central areas, which is the main factor behind the country's thriving livestock economy. Livestock-related activities explain why permanent meadows and pastures make up about half of the agricultural land, and why wool and animal products play an important part in exports. **Wheat, sugarcane, barley, rapeseed, and sorghum** are the top five crops in Australia. **Wheat** is grown in the southwestern, southeastern, and

eastern regions, while **sugarcane** is planted in the eastern and northeastern areas along the coast. **Barley**—Australia's third largest crop—is mainly grown in the southwestern, southeastern, and eastern areas. The eastern region also has most of the **sorghum** production. On the whole, no large and dominant trends affect the crops covered by CropWatch, except for the wheat and rice cultivation areas. **Wheat** areas show a positive trend, while for **rice**, a minor crop, cultivated areas are decreasing. Australia's **winter wheat** is usually sowed in May and harvested in November. The main exports include **wheat, barley, and rapeseed**, while **soybeans** and **barley** constitute the main imports. Next to the already mentioned animal products, **wine** produced in the Mediterranean areas is also an important export in terms of value more than quantity.

## BGD: BANGLADESH

Land area:130 kkm<sup>2</sup> (59% arable land); Population:159 million (70% rural; 20% agricultural population)



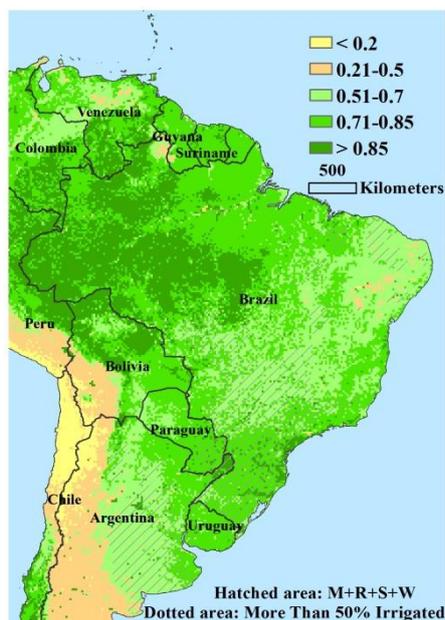
Bangladesh, located in the fertile Bengal delta, is the world's eighth most populous country, as well as one of the world's most densely populated[6]. The main food crops are **rice, potato, sorghum, and wheat**. There are three rice growing seasons, including Aman, Aus, and Boro. Aman (late monsoon) **rice** is usually planted from May to August and harvested in November and December; Aus (early monsoon) normally starts mid or end of May, with harvests in July and August. For the irrigated Boro dry season rice crop, sowing usually starts from December to January and harvest lasts from the end of April to May [7]. Rice is

grown across the country. [4] In terms of imports, **wheat** is the most important foodcrop, with **maize** also located in the top five by quantity. None of the four foodcrops monitored by CropWatch are exported: the first three agricultural commodities exports are **jute, potatoes, and cotton waste**[2]. In recent years, area and

production of **maize** and **soybean** show a significant positive trend. On the contrary, a significant decreasing trend can be found in area and production for **wheat**.

### BRA: BRAZIL

Land area: 8,459 kkm<sup>2</sup> (9% arable land); Population: 202 million (15% rural; 5% agricultural population)

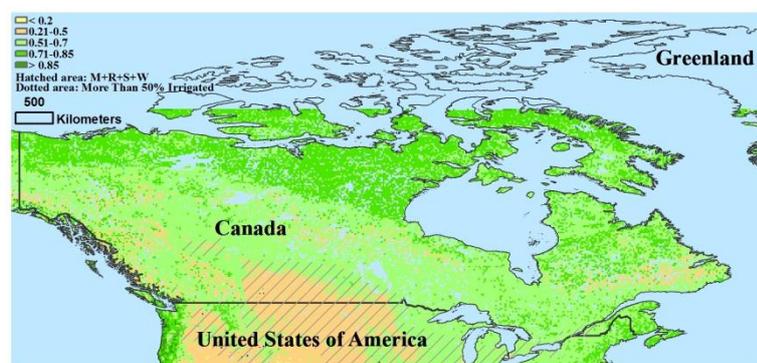


Agriculture plays an important role in Brazil's economy as the country has vast agricultural lands. **Sugarcane**, **soybeans**, and **maize** are the three major crops in terms of production. The country is one of the most significant producers and exporters of **maize** and **soybean**, not to mention **sugarcane** and **coffee**. Farming systems display great latitudinal diversity. The central states produce most of the country's grain and oilseeds crops. **Soybean** is usually planted in November-December and harvested in April-May. The states of Mato Grosso, Parana, Rio Grande do Sul, and Goias together produced over 75 percent of total **soybean** in the recent decade[8]. There are two main **maize** seasons: the first (sowed in October and harvested in March-April) accounts for 70 percent of total output; the second is planted in February and mainly

harvested in June-July. Parana, Mato Grosso, Minas Gerais, Rio Grande do Sul, and Goias are also the five top producers of **maize**. **Winter wheat** in Brazil usually grows from April to June and is harvested from October to December. Nearly 90 percent of **wheat** in Brazil is produced in Parana and Rio Grande do Sul. Rio Grande do Sul is also the major **rice** producing state, covering almost 60 percent of total rice production [8]. Over the recent decade, increasing trends have been observed in both area and production for **maize**, **rice** and **soybean**, while **rice** areas decreased. Since the early 1970s, planting areas for **soybean** have grown strongly, with soybean production increasing more than thirty-fold in the past 35 years [5]. In parallel, the volume of soybean exports sharply increased after the 1990s to make a substantial contribution to Brazil's GDP.

### CAN: CANADA

Land area: 9,094 kkm<sup>2</sup> (5% arable land); Population: 36 million (19% rural; 0.9% agricultural population)

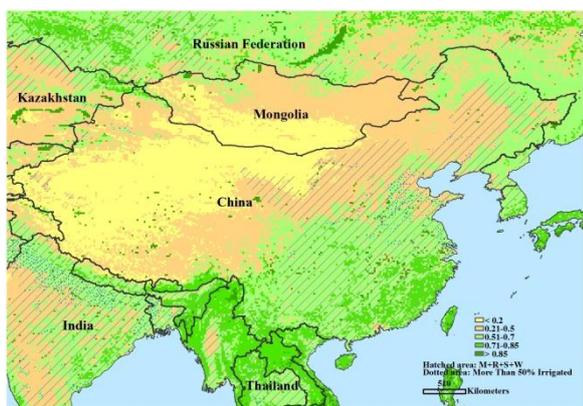


**Wheat**, **rapeseed**, **maize**, **barley**, and **soybeans** are the top five crops in Canada. Due to the country's cold climate conditions, it has only one crop growing season and only five percent of its land area is arable land. **Wheat** is grown as **spring wheat** and **durum**, mostly planted in the south of Alberta,

Saskatchewan, and Manitoba in May, to be harvested in September. **Barley** follows similar patterns, but the crop is mainly grown in Alberta and Saskatchewan. **Maize** and **soybean** are mostly grown in Ontario and Quebec, planted from May to June and harvested in October and November. Canada has become the third major **wheat** exporter in the world. The main food imports include **sugar**, **maize** and **cake of soybeans**. Because of its climate, the country grows no rice. Yield and production of **maize**, **wheat**, and **soybean** (the other three crops monitored by CropWatch) continue their longer term increases.

## CHN: CHINA

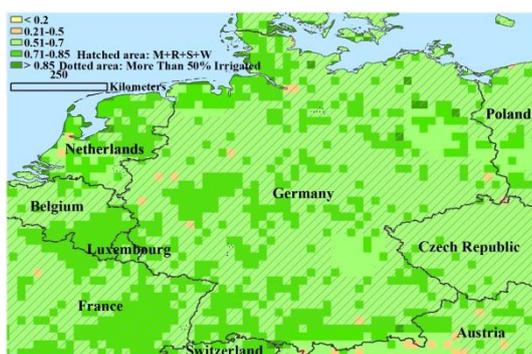
Land area: 9,327,000 km<sup>2</sup> (12% arable land); Population: 1,425 million (45% rural; 35% agricultural population)



In China, the top five crops are **rice**, **maize**, **wheat**, **sugarcane**, and potatoes. **Rice** is mainly planted in the northeast and south of the country, including in Hubei, Hunan, Anhui, and Jiangxi provinces. Rice in China is grown either as “single rice” (only one crop is grown, typically planted from late June to mid-August) or as two crops per year. When two crops are grown, they are generally planted in May (the first or “early rice” crop) and between early August and late September (second or “late rice”). **Maize** is mostly grown in the northeast and central regions, with small amounts cultivated in the southwest of China. Maize growing seasons are clearly differentiated between the north (planting from early July to late August) and the south (from late April to late June). **Winter wheat** occurs mainly in the center of China (growing from early November to early May), while **spring wheat** is more common in the northeast (growing from early May to early July). In recent years, the area, yield, and production of **rice**, **maize**, and **wheat** in China have all increased, while area and production of **soybean** display a negative trend. Together with **palm oil**, **dried cassava** and **cotton lint**, **soybean** is one of the most important food imports in China, mostly to compensate for decreasing national production (associated with decreasing areas; yields have remained stable).

## DEU: GERMANY

Land area: 349,000 km<sup>2</sup> (34% arable land); Population: 83 million (26% rural; 0.7% agricultural population)

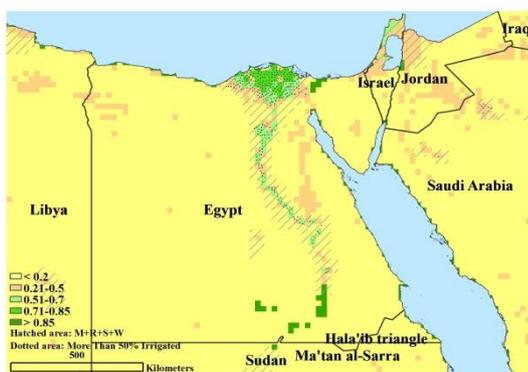


Germany is the largest economy and second most populous nation (after Russia) in Europe. As in most other western European countries, in the second half of the 20th century, the number of farms in Germany decreased dramatically; production nevertheless increased due to new technologies and more efficient production methods. **Sugar beet**, **wheat**, **potatoes**, **barley** and **maize** are the top five crops produced in

Germany. The major **wheat** growing states are Lower Saxony (Niedersachsen) and Bavaria, where wheat areas are 13 and 19 percent of the total area, respectively. Wheat is usually planted in October and harvested in August. **Spring barley** dominates the south of Germany (Baden-Württemberg and Bavaria) where it is sowed in April and harvested in August. **Winter barley** is mainly grown in the northwest (Niedersachsen and Nordrhein-Westfalen) and southeast (Bavaria). It is mainly planted in April and May and harvested in September and October. The main food imports include **wheat**, **soybean** (cake and beans) and **rapeseed**, while **wheat**, water, **barley** and **potatoes** constitute the main agricultural exports. According to FAOSTAT data, planted areas of both **wheat** and **maize** have significantly increased over the recent decade [1] [9].

## EGY: EGYPT

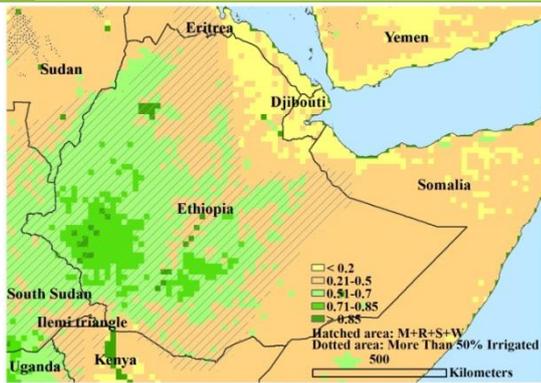
Land area: 995 kkm<sup>2</sup> (3% arable land); Population: 83 million (56% rural, 7.5% agricultural population)



**Wheat**, **maize**, and **rice** are the major cereals in Egypt, although they rank only second after **sugarcane** in terms of value and production. **Soybean** cultivation is very limited. Similar to other summer crops, **soybean** is grown between May and November. Virtually all crops are irrigated, which also explains why—with the exception of **wheat** (grown as a winter crop from November to May)—areas have been stagnating over the last 12 years. Pressured by the other countries in the

Nile basin, the government has been trying to discourage the cultivation of **rice** and substitute it with less water demanding crops such as **maize** (another summer crop). Some farmers strongly resist the move and no equilibrium has been reached about the share of the main cereals. With a population of about 83 million, Egypt is the main **wheat** importer in the world, importing about 10 million tons, which is more than the national production. The country also imports significant amounts of **maize** (6000 kiloton (kT)) and **soybean** (2000 kT). Exports include mainly **fruits**, **potatoes** and **vegetables**. **Maize** and **wheat** are the most "dynamic" crops, with production on a significant upward trend over the last decade. For **soybean** and **especially** rice, for reasons indicated above, production has mostly stagnated. Most crops, however, enjoy very acceptable yields due to the country's favorable radiation climate under mostly adequate water supply.

## ETH: ETHIOPIA



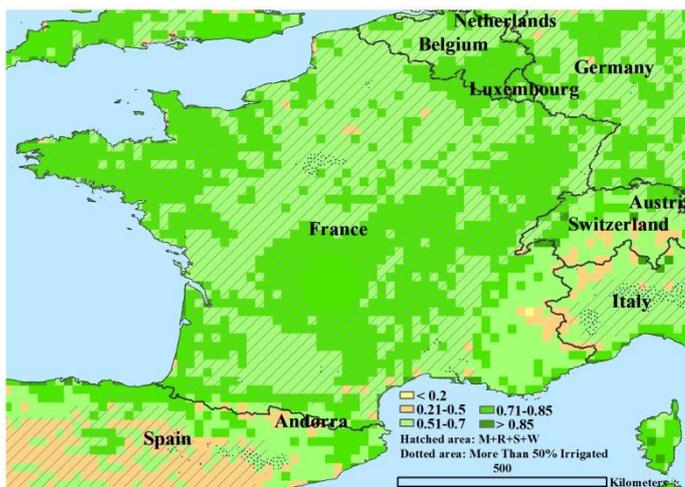
Land area: 1,000 kkm<sup>2</sup> (15% arable land); Population: 97 million (82% rural; 38% agricultural population)

The preferred cereal in most parts of Ethiopia is **teff**, a crop hardly grown outside of the country. Among the “mainstream” cereals, **maize** comes first (in terms of production), followed by **teff** and **wheat**, while **rice** cultivation is very limited; Because of elevation, the climate is mostly temperate, particularly in the areas where water is normally

available and the requirements of **rice** can be met. Altogether, Ethiopian agriculture and particularly the production of **maize** are developing fast. The country is characterized by complex terrain with uni-modal or bimodal rainfall, next to some of the driest places in the world, resulting in complex phenology largely determined by topography, land and labor availability, as well as the need to accommodate crops “around” **teff**. In addition, phenology is rather opportunistic in that, when rainfall permits, **wheat** and **barley** are planted early (February) to be harvested in summer (belg season). The main crops are harvested towards the end of the year (in October and November, sometimes in December) while planting takes place from May or June for very long cycles (**maize** and **sorghum** at higher elevations and reliable rainfall). By definition, crops harvested after August are assigned to the main, or Meher, season. The country imports mostly **wheat** and exports **sesame**, **beans** and—number one in terms of value—high quality **coffee**. Although yields generally remain low by all standards, production of most crops has kept increasing over the last decade.

## FRA: FRANCE

Land area: 548 kkm<sup>2</sup> (34% arable land); Population: 65 million (13% rural; 0.7% agricultural population)



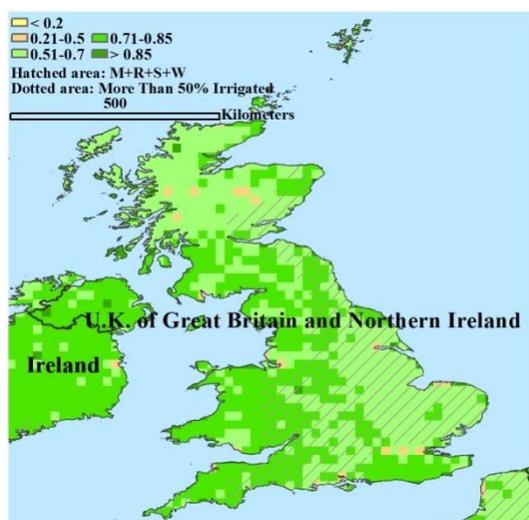
France is the world’s fifth **wheat** producer and ranks second and fourth respectively in global **wheat** and **maize** exports. **Sugar beet**, **wheat**, **maize**, **barley**, and **potatoes** are the top five of most produced crops by quantity. **Sugar beets** are mainly grown in the north-central part of the country covering Nord-Pas-de-Calais, Picardie, Ile-del-France, north of Normandy, and the central areas of Centre and Auvergne. **Sugar beets** are planted from April to May and harvested from September to October. **Wheat** is

mainly grown in the north of the country, with Picardie and Centre as the main growing regions. The crop is planted in October and November and harvested in July and August. **Maize** is mainly grown in the center and south, with Aquitaine and Midi-Pyrenées as the main growing provinces. The sowing of maize usually takes place

in April and May and the harvest lasts from September to November. Champagne-Ardenne, Centre, and Bourgogne-Franche Comte are the major growing regions for **barley**, which is usually planted in September and October and harvested in June and July. The main food imports include **water**, **soybean cake**, and **non-alcoholic beverages**, while **wheat**, **maize** and **barley** constitute the main agricultural exports by amounts. By value, **wine** and **animal products** dominate exports, along with **wheat**. Contrary to the positive trend of area and production of **wheat**, the area and production of **soybean** has suffered from a significantly decrease trend over the recent decade.

## GBR: UNITED KINGDOM

Land area: 242kkm<sup>2</sup> (25% arable land); Population: 64 million (20% rural; 0.7% agricultural population)



**Wheat**, **sugar beet**, **potatoes**, **barley** and **rapeseed** are the top five most produced crops in the United Kingdom (UK). **Wheat** is the dominant crop. It is mainly grown as a winter crop in the south of the country, sowed in October and November and harvested from July to August in the next year. **Sugar beet** is confined to the southeast of the country with East Anglia as the major growing area. It is usually planted in March and April and harvested from late September to December. **Barley** is grown almost everywhere in the country, with Scotland, East Anglia, and the South East as the major growing regions. **Spring barley** is usually planted in March and April and

harvested in July and August, while the sowing of **winter barley** may start from mid-September and the harvesting generally ends in July the next year. **Rapeseed** is mainly grown in Scotland, the East Midlands, and southeastern parts; planting generally takes place in mid-September and October, with a harvest from mid-June to mid-August. The main food imports for the U.K. include **soybean cake**, **wine**, and **sugar**, while **wheat**, **barley**, and **rapeseed** constitute the main agricultural exports. No significant trend has been observed in the area, yield, and production of **wheat** in the UK over the last decade.

## IDN: INDONESIA

Land area: 1,812 kkm<sup>2</sup> (13% arable land); Population: 253 million (47% rural; 20% agricultural population)

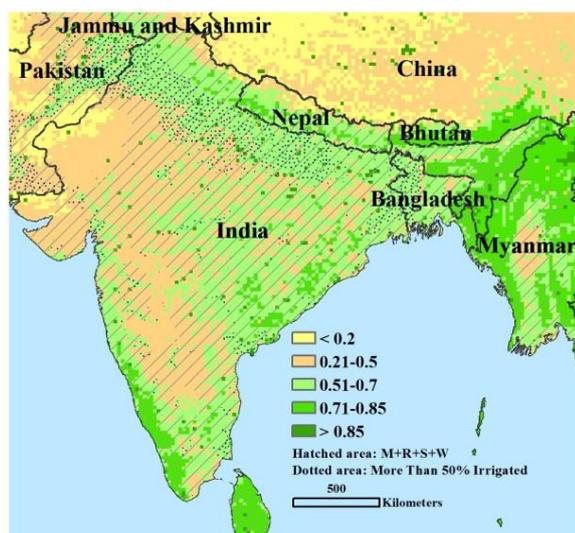


Indonesia is the world's largest archipelago nation, consisting of approximately 17,508 islands. **Maize** and **rice** are the two major crops. Most of the rice and maize cultivation regions are located on Java (the easternmost island) and

Sumatra (southern center). Indonesia is one of the most important **palm oil** exporting countries and the world's third largest **rice** producer and consumer. Indonesia enjoys a tropical climate with a short dry season and a long rainy season with mostly heavy precipitation and high temperatures and humidity (equatorial climate). Rainy season crops are cultivated starting in June, to be harvested in December; irrigated dry season crops are cultivated from November to their harvest in May. Areas and yields for most CropWatch-monitored crops keep increasing, particularly for **rice** and **maize**. Areas for the cultivation of **soybean**, a relatively minor crop in the country, have stagnated for about a decade, with soybean yields generally tending to improve. Even soybean yields, however, are modest compared to yields in other tropical countries.

#### IND: INDIA

Land area: 2,973 kkm<sup>2</sup> (53% arable land); Population: 1,267 million (68% rural; 22% agricultural population)



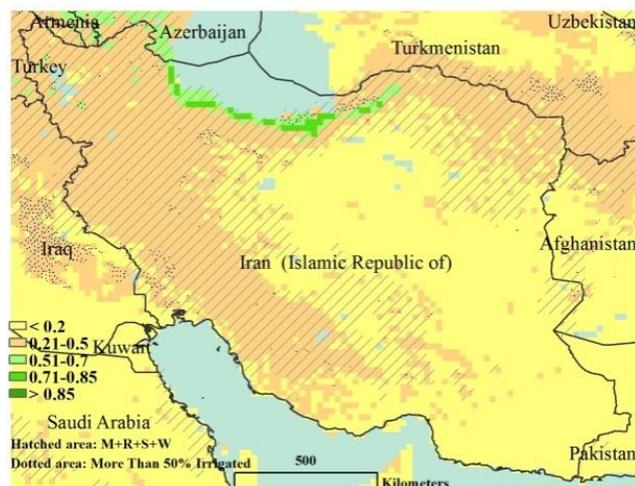
India is the seventh-largest country by area and the second-most populous country in the world; 64 percent of cultivated land in India is dependent on monsoons [10]. The main foodcrops by area are **rice**, **maize**, and **wheat**, followed by **sugarcane**, **potato**, **barley**, **sorghum**, **millet**, **groundnut**, **soybean**, and **rapeseed**. The two growing seasons in India include (i) Kharif, (meaning "summer"), with sowing usually in June/August and harvesting in September to January, and (ii) Rabi (or "winter") season, with sowing in October to December and harvests in March to May [7]. As for the main producing areas, **rice** is mainly cultivated in the east and north (Punjab, West Bengal and

Chhattisgarh); **wheat** in the central-west (Madhya Pradesh, and Gujarat) and north (Punjab, Haryana Delhi, and Uttar Pradesh); and **maize** in the central south and northern parts, including Goa Karnataka, Andhra Pradesh, and Bihar[4]. India's imports mainly include **palm oil**, **(dry) peas**, **soybean oil**, **cashew nuts** (with shell), and **sunflower oil**; none of the main food crops covered by CropWatch are in the top of this list. The main farm products exported from India include **soybean cake**, **maize**, **cotton lint**, **refined sugar**, and **rapeseed cake**. Of the four main CropWatch-monitored crops, only **maize** and **wheat** are in the export list's top ten [3]. Over the recent decade,

nearly all four crops show a significant increase in area, yield, and production, with only maize production showing no trend [8].

## IRN: IRAN

Land area: 1,629,000 km<sup>2</sup> (11% arable land); Population: 78 million (31% rural; 8% agricultural population)

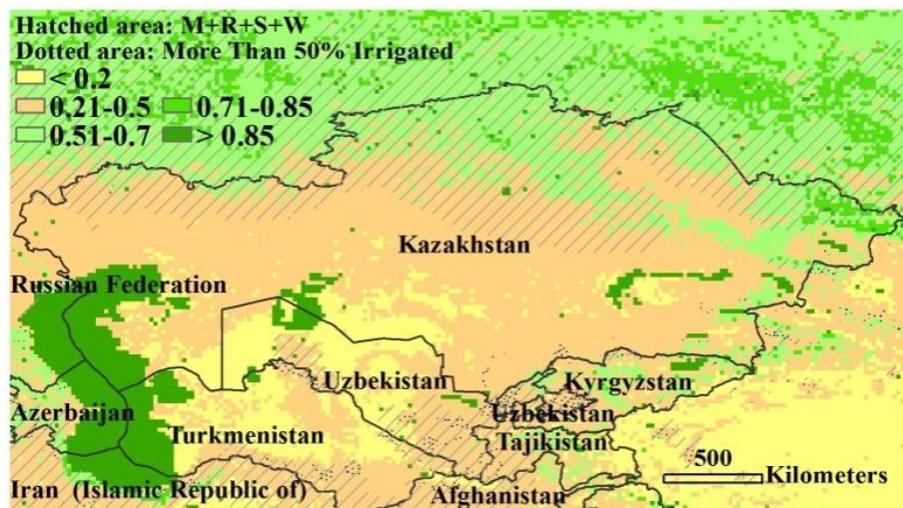


Agriculture is a major sector of the Iranian economy, employing 33 percent of the national workforce, contributing 26% of non-oil export earnings, and covering over 80 percent of the national food requirements[11]. The country is characterized by a complex mix of climates ranging from Mediterranean to desert in the center and east (Semnan, east Esfahan, north Yazd, south Khorasan, east Kerman, and the areas along the Pakistani border). Deserts and mountain areas make up about half of the land area[12]. Accordingly, crops are grown mostly in the

west and north, with **rice** confined to the wettest areas in the center-north (Gilan, Mazadaran, and Golestan) along the southern shore of the Caspian sea, where annual rainfall can exceed 2000 mm [12]. Irrigation and livestock account for 92 percent of water use and about 50 percent of crops are irrigated, mostly with ground water[12]. **Wheat, tomatoes, sugarcane, and potatoes** are the top four crops in Iran. The country is known for being one of the major producers of several types of nuts as well as sheep and goat skins. The main growing areas for **wheat** are in the northwest and northeastern regions. Sowing of **winter wheat** normally takes place in September, with harvests in July. The main food imports include **maize, cake of soybeans, sugar, soybeans and soybean oil**, as well as **barley**. **Vegetables and potatoes** constitute the main agricultural exports. Iranian agriculture is characterized by the absence of any noteworthy trends, at least as far as the crops focused on by CropWatch are concerned, with the exception of the decrease in areas for **rice**[8]. Both **maize** and **soybean** are very minor crops in the country.

## KAZ: KAZAKHSTAN

Land area: 2,700km<sup>2</sup> (9% arable land); Population: 17 million (47% rural; 7% agricultural population)

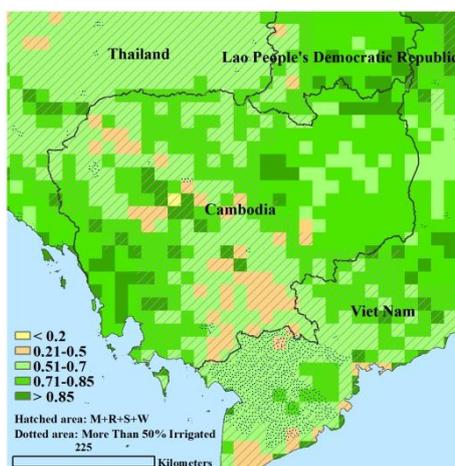


Livestock is one of the mainstays of the Kazakh economy, where permanent meadows and pastures make up about 75 percent of the agricultural land. The country is an important producer and exporter of high-quality **wheat**, which is one of the top four crops, together with **potatoes**,

**barley** and **cotton**[2]. Most of the **wheat** is planted in three oblasts of north-central Kazakhstan: Kostanai, Akmola, and North Kazakhstan. Minor grain crops including **spring barley**, **winter wheat**, and **rice** are grown in the south[13]. **Spring wheat** is mainly planted in May and harvested in late August or September. **Barley** (also a source of straw, important for livestock) is sowed in late April and matures in late August or September. **Cotton**, the major export crop, is planted in April and harvested in November[7]. **Wheat** and small amounts of **barley** are mainly exported to destinations in Europe (including Russia and Ukraine), northern Africa, and Central Asia. Kazakhstan depends on imports for **sugar** and **potatoes** [3]. In the mid-1990's, shrinking livestock populations caused a decline in grain area and led to a 75-percent drop in production. **Wheat** areas started to rebound from 2000, coinciding with gradual State subsidies for agricultural inputs, while the areas for **barley** remained fairly stable over the same time due to the crop's relevance for the livestock sector[13]. **Rice** and **soybeans** are minor crops in Kazakhstan; their production nevertheless keeps increasing, contrary to **maize**.

**KHM: CAMBODIA**

Land area: 177km<sup>2</sup> (23% arable land); Population: 15 million (80% rural; 35 agricultural population)



**Rice, maize, sugarcane** and **soybean** are the main crops in Cambodia[2]. The majority of the crops are cultivated during the wet season, which begins in June. **Rice** cultivation dominates the agricultural landscape and makes up around 85 percent of the total cultivated area [14]. Traditionally, three rice crops are grown in the wet season, while only one dry season rice crop is produced, mainly because of undeveloped irrigation infrastructure. The dominant rice growing typology is rainfed lowland rice. The Mekong river and the Tonle Sap (Great Lake) are the major rice cultivation regions, with

particularly intense cultivation in Battambang, Kampong Cham, Takeo, and Prey Veng provinces[15]. After a sharp drop in rice cultivation during the 1970s due to the international political situation, the reforms of 1989 led to a gradual recovery [16]. **Red maize** (as yellow maize is known locally) is the main maize cash crop in the country, grown mostly for feed. It is usually planted in May and harvested in September to October. The principal cultivation areas are Battambang, Pailin, Kampong Cham, Kampot, Kandal, and Takeo provinces[17]. Production and cultivated areas for **rice** and **maize** have been increasing at a sustained pace for the last decade, while the trends affecting the growth of **soybean** (still a minor crop) remain modest. The main export commodities include **rubber, palm oil, and tobacco; vegetables, wheat and sugar** constitute the main imports[2].

## MEX: MEXICO

Land area: 1,994 kkm<sup>2</sup> (13% arable land); Population: 124 million (21% rural; 6% agricultural population)

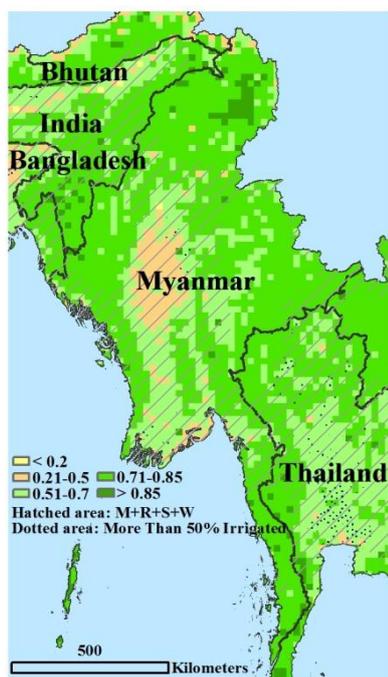


**Sugarcane, maize, oranges, wheat, and tomatoes** are the top five crops in Mexico. Due to mountains and semi-arid climatic conditions, only 13 percent of the land area is arable. **Maize**, by far the dominant crop in terms of area and production, is widely distributed across the whole country. **Summer maize** is planted in April to August and harvested in October to March; **winter maize**, which is planted in the northwest of

Mexico, is sowed in January to March, and harvested in the period April to July. Some **winter wheat** is planted in the northern region of the country, sowed in November to February, and harvested in April to July. Although Mexico is the seventh largest maize producer in the world, domestic production is insufficient to cover requirements and therefore is complemented by sizeable imports of **maize, wheat, and soybean**. The areas under **maize** and **rice** have undergone a marked decreasing trend over the last decade, although production has followed the opposite trend.

## MMR: MYANMAR

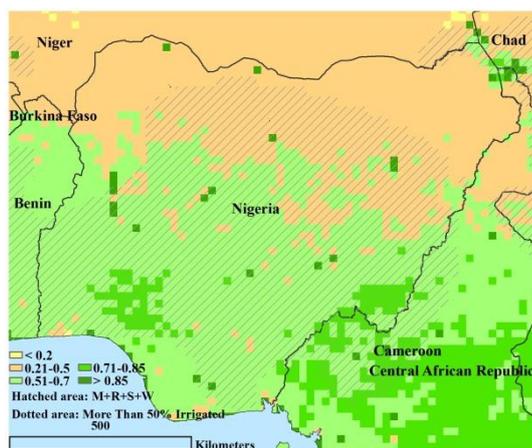
Land area: 653 kkm<sup>2</sup> (17% arable land); Population: 54 million (66% rural; 39% agricultural population)



The predominant crops in Myanmar are **rice**, **sugarcane**, and **maize**[2]. Before World War II, the country used to be the world's largest rice exporters[18]. **Rice** is still the principal agricultural product and covers around 60 percent of total cropland [19]. Sowing of main rice takes place in May and June, with the harvest in October to December. The second rice crop is sowed in November/December and harvested from late March to mid-June. The main rice producing regions are in the delta zone (Ayeyarwady, Pegu, Yangon, and Mon states) [4]. **Wheat** production is not very developed because of the limited areas that are suitable for cultivating the crop. However, Sagaing division, which is located in the central dry zone, is the leading producer of wheat and contributes more than 80 percent of total production[20]. Wheat is usually sowed in late September to early-December and harvested in late January to early-April. In recent years, the government's policy has been to boost agricultural production and private companies are increasingly investing in **maize** cultivation for animal feed production. Maize production regions continue to expand, growing a hybrid maize that is an excellent source of profit for farmers due to its high yields[21]. Over the last decade, positive trends are seen for the production, yield, and cultivation areas of the four main CropWatch-monitored crops[8]. The country's main export commodities include **beans**, **maize** and **cotton**, while **palm oil** and **wheat** constitute the main imports [3].

#### NGA: NIGERIA

Land area: 911 kkm<sup>2</sup> (40% arable land); Population: 179 million (49% rural; 7% agricultural population)



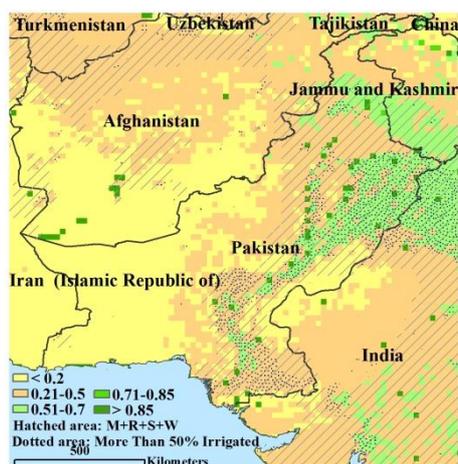
Nigeria is, by far, the most populated country in Africa (about 180 million people), while Egypt and Ethiopia come next with a population less than half the Nigerian population. The climate of the country is mostly "zonal" and spans very contrasting climate zones: from equatorial in the south (growing season of cereals from March to November) to semi-arid (Sahelian) in the north (growing season from May or June to October). The main **maize** producing areas are in the central latitudes, which combine favorable sunshine (insufficient in the south) and rainfall (low and unreliable in the north). Agriculture, especially

**rice** and **maize** are developing fast, while **soybean** and **wheat** (a dry season irrigated crop in the north during winter) play a very minor part. Like many west African countries, Nigeria imports large amounts of **wheat** for "urban bread" (about 4000 Kt) and rice (2000 Kt or about half the national production). It is stressed that

**yams**(mostly in the south) and **cassava** (more common in the north) are the most important crops and actually largely exceed the production of cereals. In terms of cereal trends, productions generally increase due to expanding areas and improving yields. **Soybean**, on the other hand, has been undergoing a constant decline in cultivation area and production over the recent decade.

### PAK: PAKISTAN

Land area: 771kkm<sup>2</sup> (27% arable land); Population: 185 million (63% rural; 14% agricultural population)

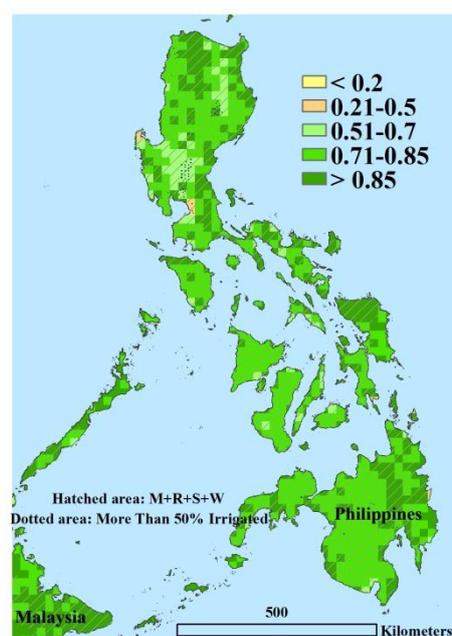


Agriculture constitutes the largest sector of Pakistan's economy, which is dominated by **livestock products, winter wheat, cotton, rice, maize** and **sugarcane**. Most crops grow in the east and south of Pakistan, in Punjab and Sindh provinces [22]. Sowing of **winter wheat** starts in October, with harvests in April-May. **Rice** and **cotton** are planted in late May and mature in November-December. **Maize** is sowed in April for harvesting in October-November. **Wheat, cotton** and especially **rice** are exported for increasing foreign exchange earnings. Agriculture contributes about 24 percent of Gross Domestic Product (GDP), accounts for half of employment, and is the largest source of foreign

exchange earnings [3]. The country's main import products include **palm oil, rapeseed** and **soybean**[1]. For **wheat, rice, and maize** production, increasing trends have been observed for the period 2001-12; this was achieved by expanding areas and improving yields[4].

### PHL: PHILIPPINES

Land area: 298 kkm<sup>2</sup> (18% arable land); Population: 100 million (50% rural; 14% agricultural population)

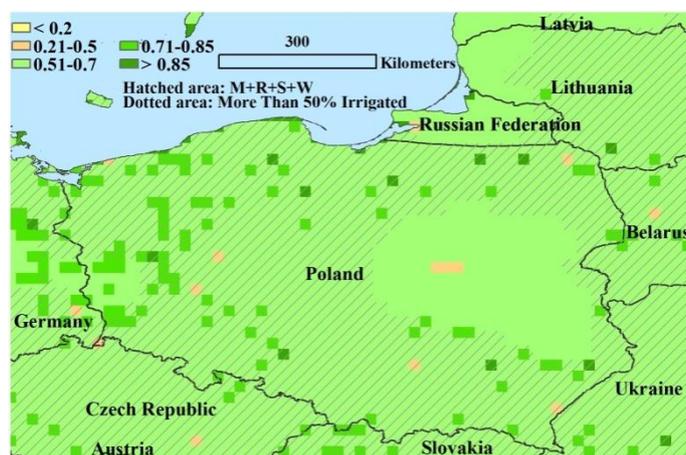


The Philippines is one of the largest island groups in the world. The islands are divided into three groups: Luzon (north), Visayas (center), and Mindanao in the south. The country benefits from a tropical and usually hot and humid climate. The major four crops are **coconut, rice, maize, and sugarcane**. **Sugar** is the most important agricultural export of the Philippines. Around one-fourth of total cropland is used for **rice** cultivation, which is grown especially in central and north-central Luzon, south-central Mindanao, western Negros (part of centre Visayas), and eastern and central Panay (NW Visaya). Because the Philippines, like Indonesia, mostly enjoys a very long humid season with an ample moisture supply—interrupted locally by a short dry season around the beginning of the year, **rice** and **maize** have two seasons. The first season crop is planted in April and

harvested around October and rarely suffers from drought conditions; the second season crop is planted in October and harvested around April of the next year. **Maize** and **rice** are undergoing rapid area and production increases, while **soybean** remains marginal, with decreasing areas.

## POL: POLAND

Land area: 304kkm<sup>2</sup>(37% arable land); Population: 38 million (39% rural; 7% agricultural population)

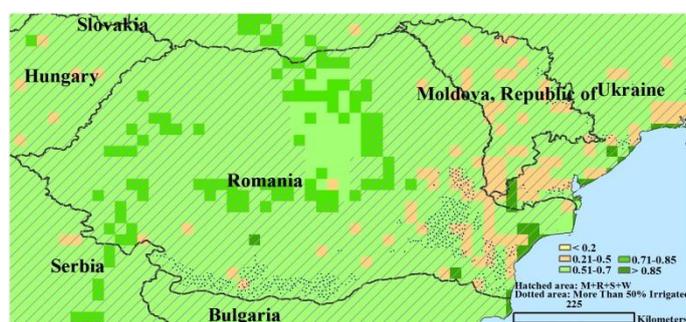


**Sugar beet, wheat, potatoes, triticale, and barley** are the top five crops in Poland. Zamosc, Bydgoszcz, and Opole are the major growing provinces for **sugar beet**, which is generally planted in April and May and harvested in October and November. **Wheat** is grown across the country, with Zamosc and Opole as the main growing provinces. The sowing of **wheat** usually takes place in September and October, with harvests in July and August the next year.

Poland is one of the most continental countries in western Europe and a mixed type of farming prevails in most parts of the country. The length of the growing season varies regionally according to climate, being much shorter in the northeast where a harsh continental climate prevails [23]. The main food imports include **soybean cake, wheat, sunflower cake, and maize**, while **wheat, apple and rapeseed cake** constitute the main agricultural exports. No significant trend has been observed for area, yield, and production of **wheat** and **maize** over the recent decade.

## ROU: ROMANIA

Land area: 230kkm<sup>2</sup>(39% arable land); Population: 22 million (47% rural; 3% agricultural population)



**Maize, wheat, potatoes, sunflower and barley** are the top five crops in Romania in terms of production. Both **maize** and **wheat** are grown all over the country except in parts of the centrally located mountains of Transylvania. The major growing counties for **maize** are Dolj, Timis and Teleorman, and maize is planted in April/May

and harvested in August and September. Timis, Dolj, Olt, Teleorman and Constanta are the major growing counties for wheat, which is usually planted in September and October and harvested in July and August. A major problem faced by the country's agricultural sector is the lack of significant investments, which has led to its current relatively poor mechanization compared with other European countries. The main food imports include **wheat**,

**soybean cake, sugar, and maize**, while **maize, wheat and sunflower seed** constitute the main agricultural exports. A significant decreasing trend is observed for the **maize** area, while an increase of area, yield and production is observed for **rice** over the recent decade.

#### RUS: RUSSIA

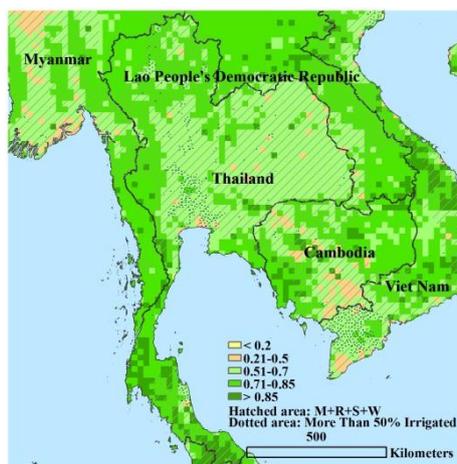
Land area: 16,377,000 km<sup>2</sup> (7% arable land); Population: 142 million (26% rural; 4% agricultural population)



Russia ranks third in world wheat production and **wheat, sugar beet, potatoes, barley, and sunflower** are the country's top five crops in terms of production. South-western Russia—including parts of Siberia and the Central, Southern, Volga, and Urals regions—are the major growing areas for all crops. **Wheat** is grown across these five regions. **Winter wheat** is planted from late August to October and harvested in July to August of the following year; **spring wheat** is planted in May and harvested from mid-August to September. **Barley** is mainly grown in the south of the Central and Volga regions and in the northwest of the Southern region. **Winter barley** is planted from late September to October and harvested from mid-June to late July; **spring barley** is planted from April to May and harvested from August to September. **Maize** plays a relatively minor part in Russia and its main growing area is confined to the southwest of the Southern Region. Sowing of maize takes place in May and harvest is from October to November. **Sugar beets** and **sunflower** dominate the south of the major growing regions and are usually planted in late April to May and harvested from mid-September to October. The main food imports include **sugar, potatoes and bananas**, while **wheat and barley** constitute the main agricultural exports. With the exception of **wheat**, other CropWatch-monitored crops (**maize, soybean and rice**) have all witnessed a positive trend in area, yield, and production over the recent decade.

#### THA: THAILAND

Land area: 511kkm<sup>2</sup> (31% arable land); Population: 67 million (65% rural; 26% agricultural population)

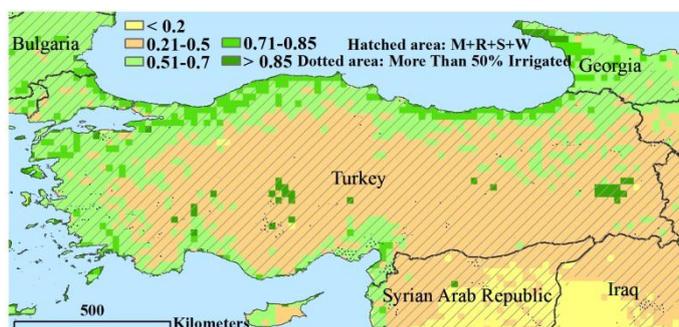


**Sugarcane, rice, and maize** are the major crops in Thailand [2]. The Mekong river and the Chao Phraya are the major sources of water for agriculture. **Rice** is the most important crop and covers around half of the total cropland [24]. The central plains are known as the rice bowl of the country. In 2013, Thailand's rice exports moved to a third place worldwide due to the government's rice pledging policy[25]. Rice is mainly planted in May to August and harvested in October to January. A second rice is sowed in January to March and harvested in late April to June. The principal region of **maize** cultivation is the northeast[4]. Most fields are in the uplands regions. Sowing takes place in mid-April

to mid-June and harvest extends from mid-July to September. Based on a long term trends analysis using FAOSTAT data, the growth in both production and cultivation areas for **rice** continues to increase at high rate, while area and production of **soybean** continue to decrease. The main export commodities include **sugar, cassava, rubber,** and **maize,** while **soybeans, wheat, and cotton** constitute the main imports.

#### TUR: TURKEY

Land area:770 kkm<sup>2</sup> (27% arable land); Population:76 million (26% rural; 10% agricultural population)



**Wheat, sugarbeet, tomatoes, and barley** are the top four crops in Turkey. The main growing area for **wheat** is in the west and central area, including the Aegean region, central and southeast Anatolia, and the Thrace region. Sowing of winter crops takes place during September to November, with crops harvested

from April through the end of July, depending on the regional climate [24]. Turkey is one of the world's largest producers of **barley**, used in the feed sector and in malting and the beer industry. While **winter barley** is grown in every region, **spring barley** is mainly grown in the northeast, being planted in April and harvested in October. The main food imports include **wheat, soybeans, sunflower seed, and cotton lint. Wheat flour, tomatoes, lemons, and limes** constitute the main agricultural exports. Over the recent decade, **wheat, rice, and maize** all underwent significant increasing trends in area, yield, and production, while soybean production, a minor crop in the country, remained stable around 100 kT, although yields recently improved.

#### UKR: UKRAINE

Land area: 579 kkm<sup>2</sup>(56% arable land); Population: 45 million (31%rural; 5% agricultural population)

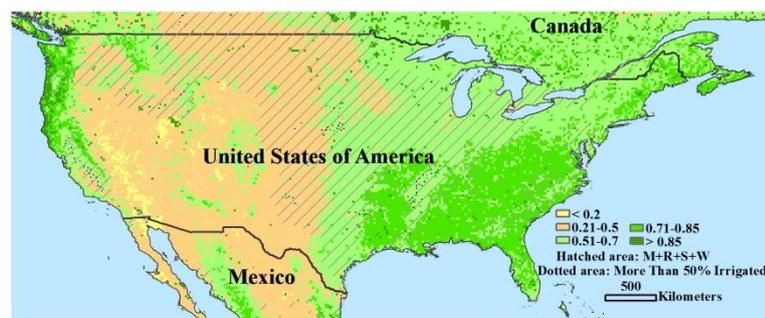


Potatoes, maize, wheat, sugar beet, and barley are the top five crops in Ukraine. Wheat is grown across the country: Spring wheat is planted mostly in the northwest, while winter wheat dominates the south-central region. About 95 percent of wheat production is winter wheat, which is used for bread and

pastry. Maize is the third most important feed cereal in the country [24], with the main growing region in central and east Ukraine. Barley is the top feed grain. The increasing demand for barley from the brewing industry has recently led to a jump in production. Over 90 percent of the crop is spring barley, which dominates eastern Ukraine. Winter barley is confined to the south of the country due to its poor cold-tolerance. Sowing of winter crops takes place in September and October and harvests are in summer, in July and August. Spring cereals (wheat and barley) are planted in April to June for harvesting in August and September. Longer cycled summer crops (maize, sugar beet, sunflower) are usually planted in May and harvested in October. The main food imports include bananas, sugar, and edible oil, while wheat, maize and soybean (as beans and cake) constitute the main agricultural exports. With the exception of wheat, the crops covered by the CropWatch bulletin have all undergone positive trends in area, yield, and production over the recent decade.

## USA: UNITED STATES

Land area: 9,147 kkm<sup>2</sup> (18% arable land); Population: 323million (17% rural; 0.7% agricultural population)



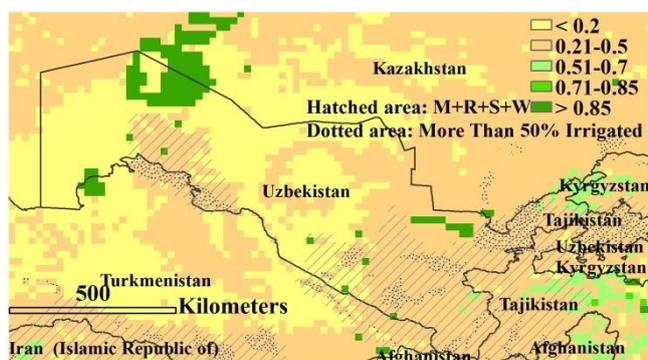
Maize, soybeans, wheat, sugarcane, and sugar beet are the top five crops in the United States. The distribution and phenology of maize and soybean, two summer crops, largely overlap. Both are grown mostly in the “cornbelt,” the north-eastern states around the Great

Lakes (Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Iowa, as well as the north of Missouri and the eastern part of South Dakota and Nebraska). Planting occurs from April to May and harvest from September to November. Winter wheat is planted across the country, especially in the High Plains and northwest regions (including Kansas, Oklahoma, Arkansas, western Texas, Montana, and Washington states); sowing takes place in September and harvests are in July. Spring wheat is grown in the far northern part of the United States, between April and October. Rice is largely confined to the Mississippi valley in the climatically favorable southern states of Mississippi, Arkansas, and Missouri. The United States is the largest exporter of maize, wheat, and soybeans in the world. By amount, the main food imports include bananas, barley and rapeseed cake. Yields and productions

of most crops have increased over the recent decade, contrary to significantly decreasing **soybean** areas accompanied by stagnating yields and production.

## UZB: UZBEKISTAN

Land area: 425kkm<sup>2</sup> (10% arable land); Population: 29 million (64% rural; 9% agricultural population)

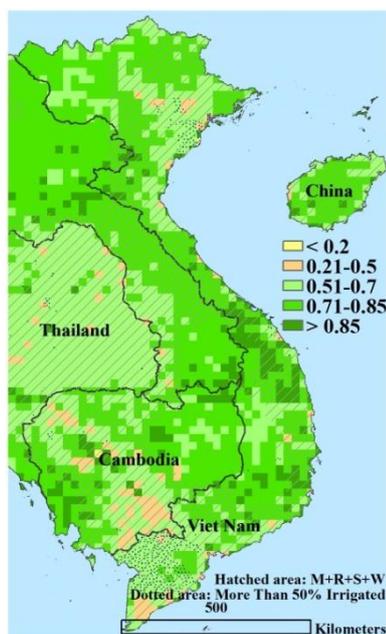


**Livestock** and **cotton** play the central role in Uzbek agriculture. The country is one of the world's largest cotton producers and cotton is also one of the primary export earners. The major food crop is **wheat**, with smaller areas occupied by **fodder crops, barley, potatoes** and **rice**. **Wheat** is cultivated in the east of the country and accounts for about one third of the cultivated land [4]. The major part of

agricultural production still depends directly on government targets for cotton and grain. Sowing of **winter grains** starts in September; the grains are harvested in summer from June to August. **Spring coarse cereals (mostly maize and barley)** are usually planted in April and harvested after August. **Cotton** is sowed mostly in the west, in late April, and harvested in November [7]. **Wheat, flour of wheat, sugar, and barley** are among the major agricultural imports. Other important agricultural products include **raw silk, fruits, vegetables, grapes**, significant quantities of which are exported to neighboring countries[28]. According to FAO statistical data, **rice** and especially **maize**, while remaining minor crops, have nevertheless undergone some development over the last decade. **Soybean** is an insignificant crop in the country.

## VNM: VIETNAM

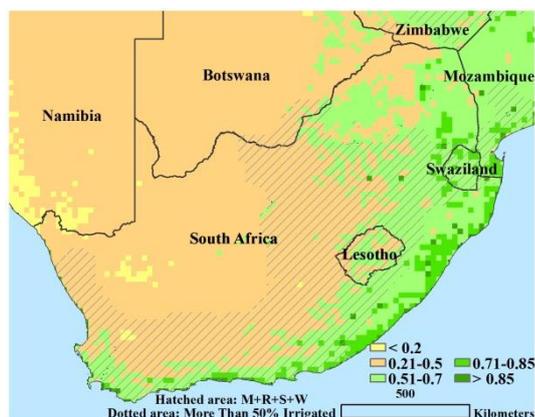
Land area: 310kkm<sup>2</sup> (21% arable land); Population: 93 million (67% rural; 33% agricultural population)



**Rice, sugarcane, and cassava** are among the major food crops in Vietnam [2]. **Rice** is the most important crop and cultivated on about 82 percent of the arable land. Vietnam is the world's second largest exporter of rice. The rice cultivation takes place in the Red River delta (18 percent of production) in the north and the Mekong River delta in the south (52 percent)[24]. The summer season rice crop is normally planted in May and June and harvested in late August to October, while the first rice crop in the north is sowed in mid-June to mid-August and harvested at the end of the year. Production of rice and maize continues to grow at a significant trend rate. The main export commodities include **cassava, coffee, rubber, and fruits**, while **soybeans, wheat, and maize** constitute the main imports [3].

## ZAF: SOUTH AFRICA

Land area: 1,213 kkm<sup>2</sup> (10% arable land); Population: 53 million (37% rural; 2% agricultural population)



In the African context, South Africa has been a major producer of **maize**. In spite of constantly decreasing areas, production has kept increasing due to significant improvements in average yields (approximate doubling since 2000, but with large fluctuations that also affect production). Maize is grown as a summer crop during the south-African monsoon (November to May), while most **wheat** (a winter crop grown May to November) originates from the Mediterranean areas in Western Cape province, in the southernmost part of the

country. Wheat is no longer perceived as an attractive crop by South African farmers and since the 1980s imports have constantly increased. This has happened in parallel with decreasing wheat hectares, to the extent that **wheat** and **soybean**, which is picking up, currently both stay at about 700 kHa. As a result of decreasing domestic production, wheat is, followed by soybean, the largest agricultural import. **Maize** is the main export, followed by **fruits** and **grapes** and **grape products**. Decreasing wheat production and a needed but repeatedly delayed land reform are two of the major issues facing South-African agriculture.

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