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Drought in Spain to Boost Grain Imports

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Grain and Feed
Oilseeds and Products
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Approved By:
Rachel Bickford
Agricultural Attaché

Prepared By:
Marta Guerrero
Agricultural Specialist

Report Highlights:
Dry weather conditions prevailing throughout the winter grains crop cycle, along with warmer than average spring temperatures have driven down yield expectations in Spain. Overall grain production is projected to be below historical average levels. The strong demand by the domestic livestock industry, along with limited pasture availability will contribute to increase the country's grain import needs. Changes in the feed formula along with stock use may partially alleviate the grain shortfall.

General Information:

Official statistics show a slight decline of winter grain plantings in MY2017/18 confirming the long term trend of increasing tree crops at the expenses of arable crops and/or fallow land. Area planted to corn in is projected to continue to decline for the fifth consecutive year due to poor margins, irrigation water restrictions in some river basins, and to a lesser extent, by crop diversification established by European greening requirements.

The main grain crop growing regions in Spain went into winter with well above average level of biomass, and stayed above average until to the beginning of April, when yield expectations were drastically revised down due to the prolonged absence of precipitation since the beginning of the crop cycle. Warmer than average spring temperatures affected crop development. Scattered showers throughout May and the alternation of colder and warmer days were not sufficient to make up for the drought earlier in the growing season.

The below average grain crop, coupled with the strong demand by the domestic export-oriented livestock industry along with limited pasture availability will boost the country's import needs throughout MY2017/18. Changes in the feed formula and using last season's stocks will partially alleviate MY2017/18 grain shortage.

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Abbreviations used in this report

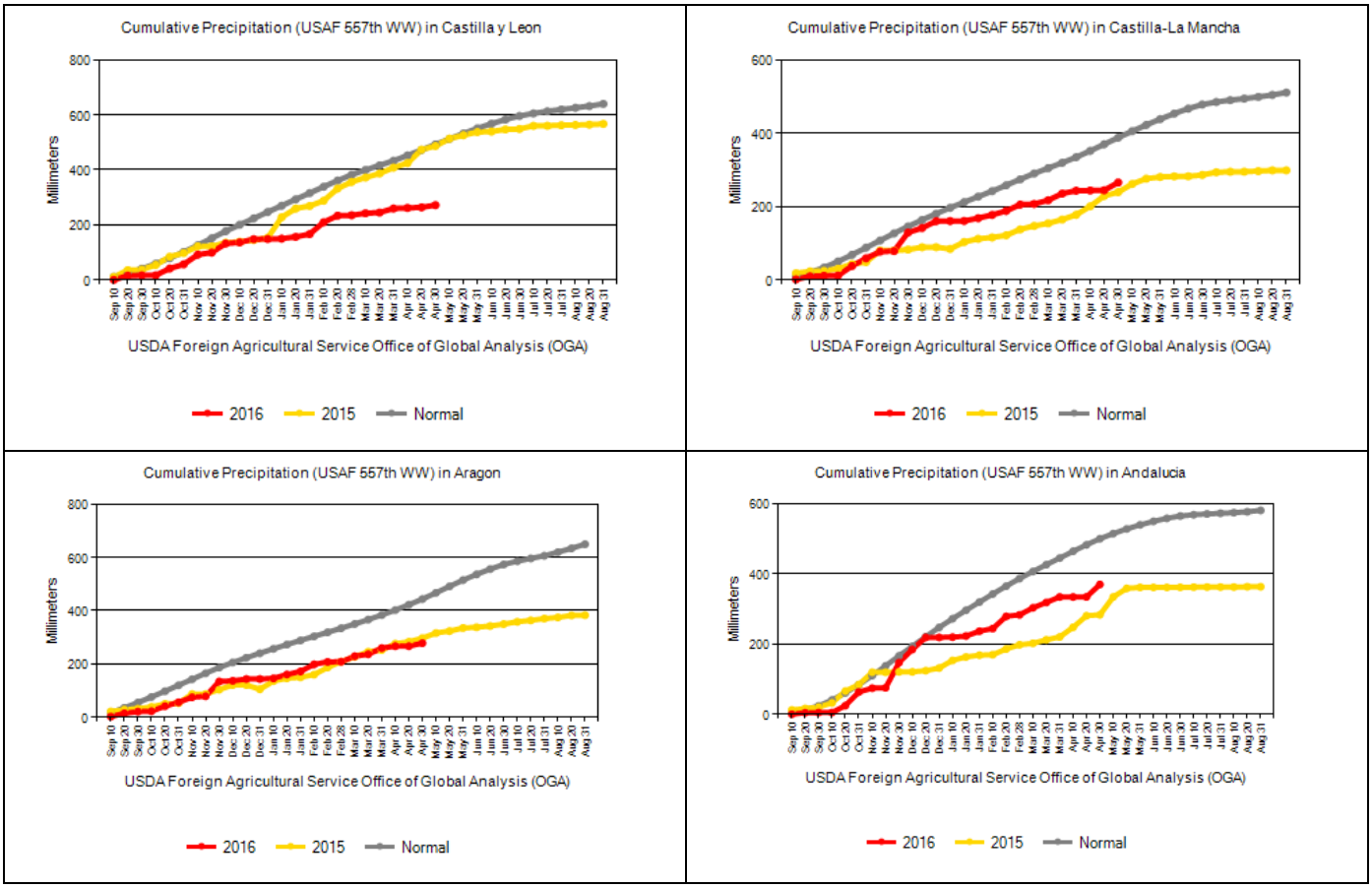
EU European Union
ESYRCE: National Survey on Crop Area and Yields
FAS Foreign Agricultural Service
IPAD International Production Assessment Division
Ha Hectares
MAPAMA: Ministry of Agriculture, Food, Fisheries and Environment.
MY Marketing Year
MT Metric Ton (1,000 kg)
MMT Million Metric Tons
MY Marketing Year.
MS EU Member State(s)
TMT Thousand Metric Tons

Precipitation and Temperatures

Lack of precipitation in September, delayed early plantings as soil was too dry. Rains at the beginning of October allowed for proper planting for rye, triticale and wheat. Barley plantings were delayed to excessive precipitation in the planting season. Winter conditions were extremely dry, which may have limited rapeseed area expansion, but did not raise concerns over potential yields, as the winter dryness could contribute to healthy root development. Grains entered spring in excellent condition throughout the country.

All eyes were then on spring precipitation, as it would be critical to determine the crop size. Spring precipitation so far (**Graph 1**) has been insufficient to ensure proper crop development (**Graph 6**), to restore soil humidity (**Graph 4** and **Graph 5**) or replenish water storage in dams (**Graph 3**). Showers in late-May arrived too late to make up for the anticipated grain crop loss.

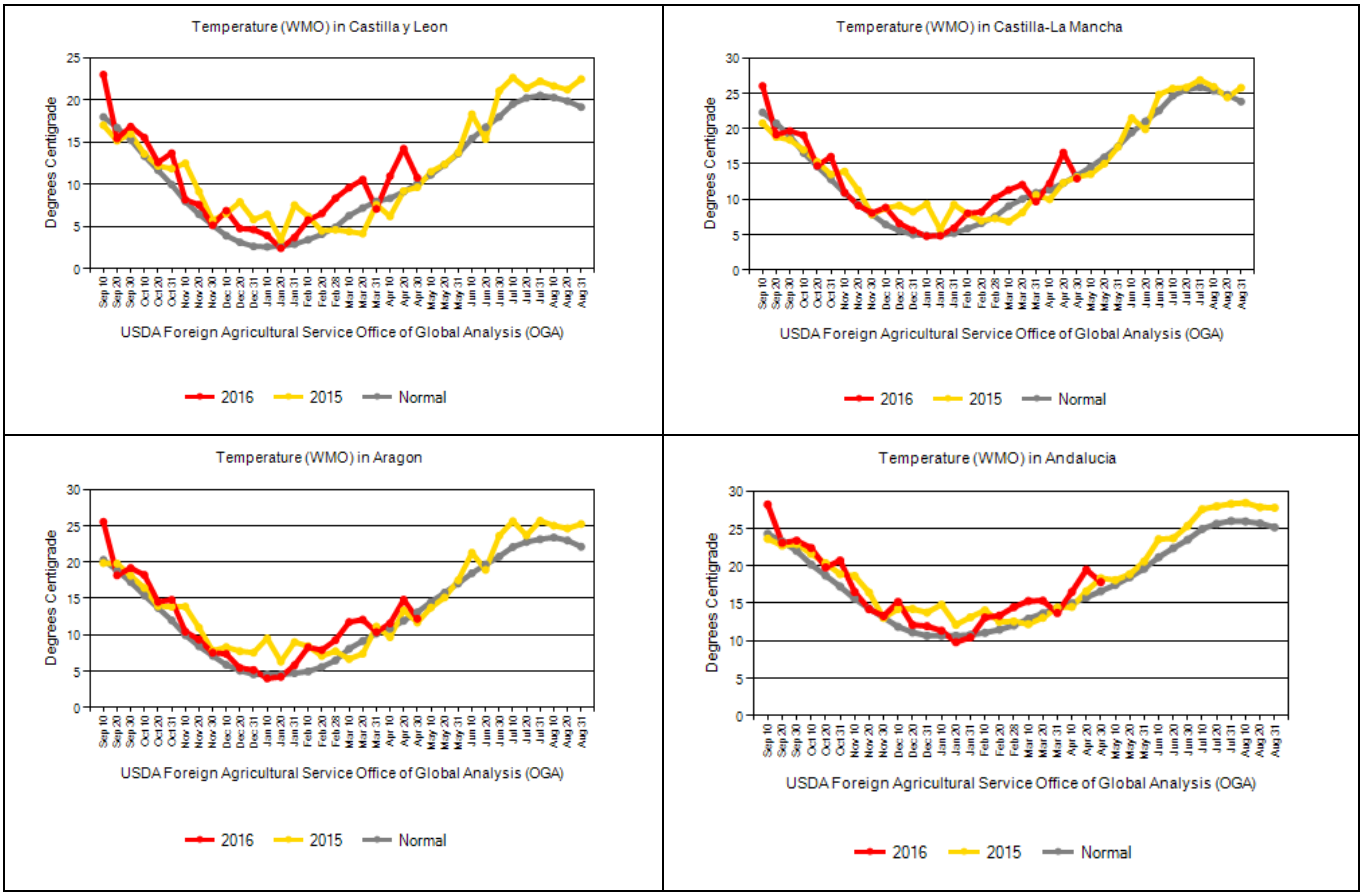
Graph 1. Cumulative precipitation in main grain producing regions.



Source: IPAD/Foreign Agricultural Service/USDA

Warmer than usual spring temperatures (**Graph 2**), combined with lack of precipitation, have significantly reduced yield potential. The reduction in average temperatures registered in early May could contribute to prevent from additional yields reduction in the northernmost grain producing regions.

Graph 2. Average temperature in main grain producing regions.

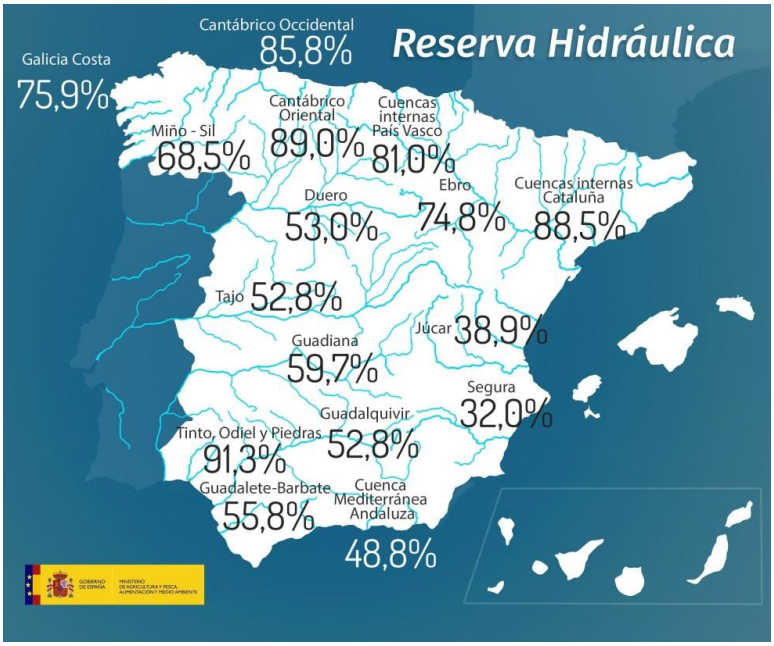


Source: IPAD/Foreign Agricultural Service/USDA

Water Reservoirs Situation: Soil and Dams

Spain boasts a large water storage system that contributes to alleviate the recurrent drought periods. However, only thirteen percent of Spain's total agricultural land is irrigated. Spain water storage system latest reports (May 23rd, 2017) indicate that there are 32,344 cubic hectometers of water stored in dams, which represents 57.8 percent of the total storing capacity down from the 75.2 percent registered in the same period of the previous year. While there is water for irrigation and other purposes still available, in certain river basins, farmers are already facing some restrictions in the amount of water allocated for their crops. This may have also influenced planting decisions, as farmers may have chosen less water-intensive spring crops.

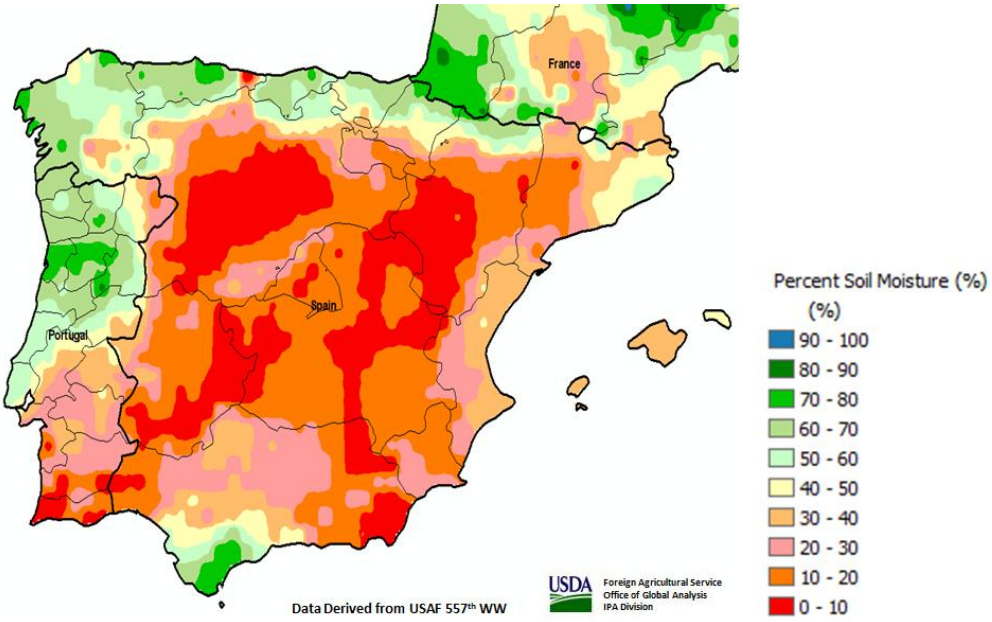
Graph 3. Water Reservoirs in the Main River Basins



Source: MAPAMA. Date: May 23rd, 2017.

Soil moisture and subsurface moisture (**Graph 4** and **Graph 5**) are at critical levels, in particular in Spain's central grain basket.

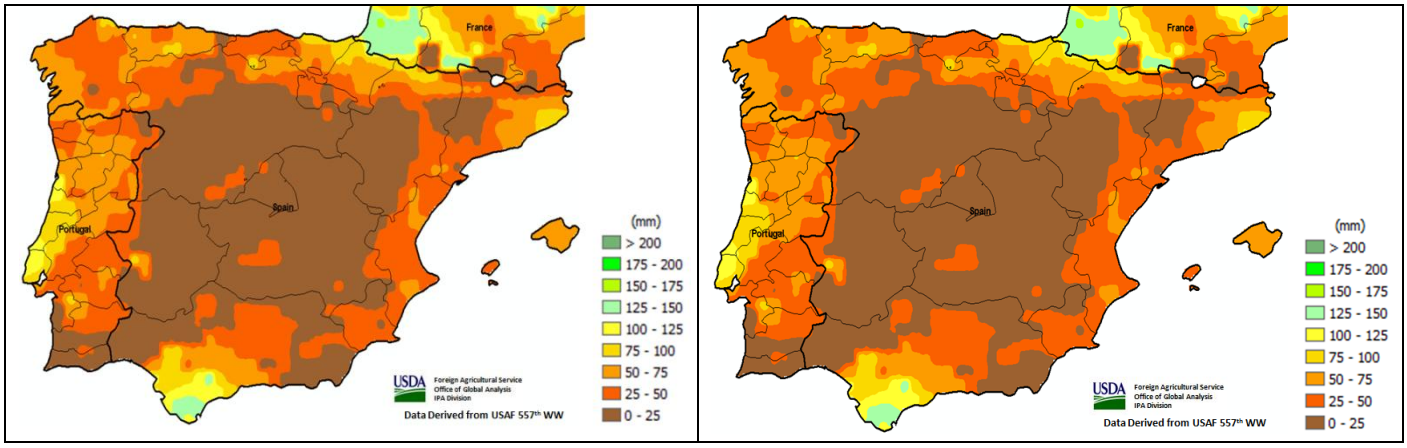
Graph 4. Soil Moisture Percentage on May 22, 2017*



Source: IPAD/Foreign Agricultural Service/USDA based on WMO data.

**Note: Percent Soil Moisture: 100% = Saturated Ground (Both topsoil and subsoil)*

Graph 5. Surface and Subsurface Soil Moisture (mm) on May 22, 2017



Source: IPAD/Foreign Agricultural Service/USDA based on WMO data.

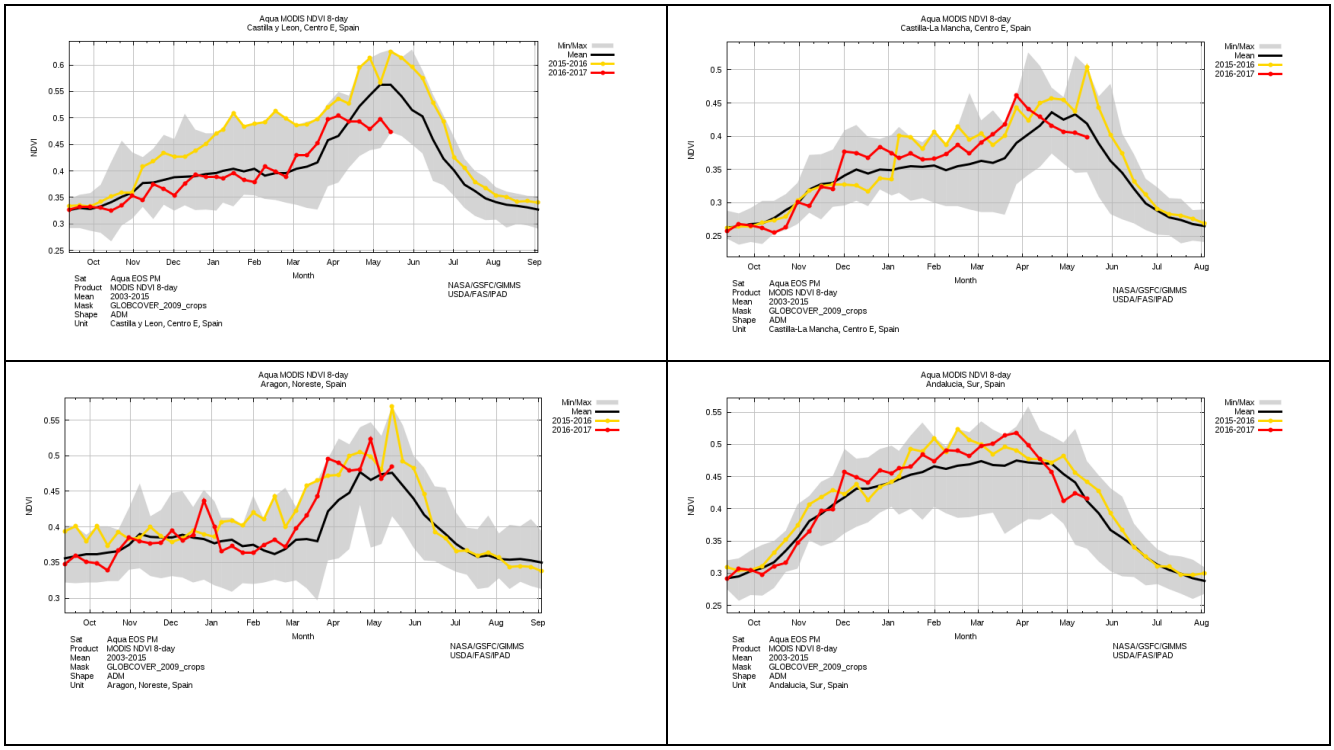
Vegetation index

As shown in **Graph 6** the NDVI (Normalized Difference Vegetation Index) in the four main Spanish grain growing regions went into winter with above average level of biomass, and stayed above average until to the beginning of April, when a sizeable to average grain crop was still projected.

At the beginning of April NVDI suffered a sharp decline in the four main growing regions as a consequence of the water deficit and warmer than average temperatures registered, which negatively affected the crop development.

In Andalucía, where the grain crops harvest has already started, and in Aragon, the NDVI seems closer to average. In Castile and Leon and Castile-La Mancha, the two main central grain producing regions, the vegetative vigor is well below last season's and average levels and grain plants show signs of water stress.

Graph 6. Vegetation Index in main Grain Producing Regions

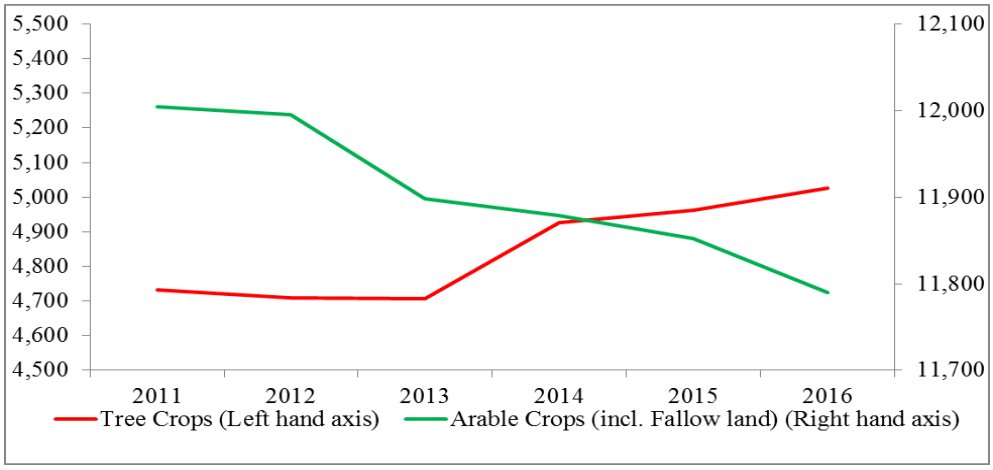


Source: IPAD/Foreign Agricultural Service/USDA

Planting Decisions

Area devoted to total winter grains remains fairly stable compared to the previous season. However tree crops are following a long term expansion trend, at the expenses of arable crops area (**Graph 7**).

Graph 7. Arable Crops and Tree crops Evolution (1,000 Ha)



Source: FAS Madrid based on ESYRCE Survey data.

Total **wheat** plantings were reduced in MY2017/18. **Durum wheat** area has declined as the price differential to soft wheat does not cover the higher crop cost. **Barley** and **Soft wheat** area is also trending down, due to competition from tree crops, in particular new olive grove plantings in Southern Spain, but also by tree nut plantings in the Spanish central plateau. The so-called minor grains (**oats**, **triticale**, **rye**) area continues to grow for the third consecutive year, most likely as a consequence of greening compliance implementation.

Area planted to **corn** in is projected to continue to decline for the fifth consecutive year due to poor margins, and to a lesser extent by crop diversification established by EU greening programs. However, there are some corn growing areas where area planted to **corn** is extremely inelastic as few or no alternatives are available.

Area planted to **sugar beet** (See EU17030) **alfalfa/vetches** area is projected to partially replace **corn** plantings in **MY2017/18**. In some regions, **rice** is an alternative to **corn**. However, the initial investment required for **rice** cultivation, the unfavorable market conditions along third countries competitions and difficult crop management due to the lack of crop specific authorized active matters (See SP1702) would prevent **rice** area from growing at the expenses of **corn**. Other alternatives to **corn** that farmers are putting in place in irrigated areas include less water demanding crops such as **sunflower**, **high protein wheat**, **barley or even fava beans**.

Table 1. Spain's Winter Grain Area (1,000 Ha)

Crop	MY2014/15	MY2015/16	MY2016/17	MY2017/18e
Wheat	2,171.6	2,176.4	2,249.2	2,236.4
Soft	1,874.5	1,828.4	1,800.4	1,795.9
Durum	297.1	347.9	448.8	440.5
Barley	2,792.2	2,598.9	2,569.6	2,565.5
Oats	430.4	483.7	500.9	515.6
Rye	134.6	146.6	156.3	155.0
Triticale	195.7	215.6	224.0	215.7
Total Winter Grains	5,724.5	5,621.1	5,700	5,688.2
Corn	421.6	398.3	353.2	330.0

Source: MAPAMA. Avance de Superficies and FAS Madrid estimates.

Oilseed production in Spain is virtually limited to **sunflower**. Area planted to **soybeans** or **rapeseed** is comparatively small, despite the steady growth of **rapeseed** plantings over the last few years. For **MY2017/18**, in the absence of official data, FAS Madrid forecasts a decline in area planted to **sunflower** as a consequence of the poor margins reported by the crushing industry. **Sunflower** in Spain is mainly grown in non-irrigated land and depend largely in subsoil humidity for its growth. Poor soil and subsoil humidity conditions (**Graph 4** and **Graph 5**) may have further discouraged spring plantings

and negatively affected yield expectations. Nevertheless, the above mentioned water restrictions may result in corn area being partially replaced by **sunflower** plantings under irrigation.

While area planted to **rapeseed** in Spain is still small, a continuous increase in rapeseed area has been reported year after year. According to provisional data for MY2017/18, a slight decline in area might have taken place as the consequence of the difficulties in the fall planting season. Nevertheless, biodiesel demand in neighboring countries such as France or Portugal, and to a lesser extent greening compliance, are seen as the main drivers for this crop's area growth.

Table 2. Spain's Oilseeds Area (1,000 Ha)

Crop	MY2014/15	MY2015/16	MY2016/17	MY2017/18e
Sunflower	783.4	738.9	719.1	690
Rapeseed	43.2	71.0	89.8	83.5

Source: MAPAMA. Avance de Superficies and FAS Madrid estimates.

Crop Development

The combination of limited water supplies, warm spring temperatures and windy conditions in some areas has provoked plants' hydric stress and is anticipated to result in a well below average winter grain crop for most of Spain's grain growing regions. Showers in May came in late for the large majority of the grain producing regions. Spanish harvesting operations start in late May to early June in the southernmost grain growing areas, such as Andalucía, and then move up North. Part of the grain crop is being harvested for hay or used as pasture, which further reduces grain yielding potential.

Barley is the largest grain crop in terms of area in Spain and the majority of it is grown in the Central and Northern half of the country, where the most unfavorable conditions have been reported.

Only the Center-North of the country, an area highly specialized on soft wheat production, still holds some recovery potential. **Soft wheat** looks to have better yields expectations compared to barley as the wheat crop cycle is delayed compared to barley.

As the large majority of the **corn** is grown in irrigated conditions, final yields are expected to remain stable. However, the reduction corn plantings will also contribute to force the country's total grain production down.

In the absence of official production statistics by the Ministry of Agriculture, Food, Fisheries and Environment for the **MY2017/18** or industry numbers, FAS Madrid estimates a significant decline in total winter grain output, which may amount to just over **14 MMT**, **5 MMT** down from the nearly **19 MMT** reached in the previous bumper crop season.

Table 4. Spain's Winter Grain Production Estimates (1,000 MT)

Crop	MY2015/16	MY2016/17	MY2017/18e
Wheat	6,362.7	7,943.4	6,200
Soft	5,437.7	6,913.5	5,400
Durum	925.0	1,029.9	800
Barley	6,705.1	9,289.8	6,200
Oats	781.0	1,115.6	875
Rye	281.4	390.4	300
Triticale	450.0	540.8	450
Total Winter Grains	**14,580.2**	**19,280.1**	**14,025**

Source: MAPAMA data and FAS Madrid estimates.

While it is still too early in the season to forecast **sunflower** crop production levels (**Table 5**), the lack of spring precipitation will likely prevent average yields from being achieved as sub superficial water reservoirs are rather limited.

The large majority of **rapeseed** (75 percent) is grown in non-irrigated land, and the crop cycle coincides in time with the grains. While good output is anticipated for **rapeseed** grown in irrigated conditions, industry sources report uneven crop establishment due to the dry conditions during the planting season in dry land. As in the case of grains, the lack of water and the warmer temperatures may have also contributed to a significant reduction in yields.

Table 6. Spain's Oilseeds Production Estimates (1,000 MT)

Crop	MY2014/15	MY2015/16	MY2016/17	MY2017/18
Sunflower	953.0	769.2	713.3	600
Rapeseed	104.4	149.4	231.6	160

Source: MAPAMA. Avance de Superficies and FAS Madrid estimates.

Ending Stocks, Consumption and Trade

Depending on the size of the domestic grain crop, the livestock sector demand and the price relations between the different ingredients comprising the feed formula, Spain has an annual grain deficit of between nine and twelve million metric tons. Even in years when domestic grain supplies are ample, the Spanish grain production is not sufficient to meet the country's needs for feed, food or biofuels.

In **MY2017/18**, compound feed production is expected to remain strong as increased opportunities in export markets continue to drive feed demand. Additional information on livestock situation in Spain can be found in the GAIN Report SP1709.

On top of the sharp production decline anticipated, the limited pasture availability will result in increased import needs compared to the previous season. Consequently, Spain will be forced to import in **MY2017/18** a significant amount of grains to meet its shortfall. However, lower grain prices throughout **MY2016/17** encouraged farmers to build up stocks. In the light of poor crop expectations for **MY2017/18**, domestic grain sale operations have slowed down, as old-campaign stocks are being stored, which will partially make up for the new season's shortage.

As far as the composition of the **feed** formula is concerned, after the bumper crop registered in **MY2016/17** allowed for an extensive use of domestic **wheat** and **barley** and still permitted stocks being built. As the aftermath of the short crop anticipated for **MY2017/18**, Spanish livestock growers will be feeding significantly less **barley** to their animals. Increased **corn** imports and, to a lesser extent higher **wheat** imports, will offset the production decline. Sunflower cake imports originated in the Black Sea Region played an important role in terms of protein and energy supply for compound feed in **MY2016/17**. Its extensive use is forecasted to continue throughout **MY2017/18**, which would continue to partially alleviate grain import needs.

In regards to **bioethanol** use, there are three grain-based bioethanol facilities in Spain whose total grain consumption may amount to nearly 1 MMT. The inland plant has been in a production halt since April 2016 as its margins are tighter (as input and output have to be transported from and to port locations respectively). The plants in port locations are currently running at full capacity. While in **MY2015/16** and **MY2016/17** some substitution by wheat took place, corn is anticipated to be the preferred grain in **MY2017/18**. **Corn** consumption by other grain processing industries, such as isoglucose production, is anticipated to grow in **MY2017/18** in response to the EU sugar quota phase-out (See EU17030).

Policy

As of **MY2015/16** due to the CAP reform implementation, the Basic Payment Scheme (BPS) has replaced Single Payment Scheme (SPS). The Basic Payment, is not crop specific, hence, farmers would receive this payment regardless the crop they grow. Also, a large part of the support received by farmers (30%) is linked to greening measures. To comply with greening measures, crop diversification has to be observed. Farms between ten and thirty ha must grow at least two different crops, and farms over 30 ha must grow at least three different crops in their arable land. This policy may ultimately introduce slight variations in areas where monoculture is practiced. Other option for green compliance includes the cultivation of nitrogen fixing crops. Since 2017 **soybeans** and **peanuts** count as nitrogen fixing crops for Greening compliance.

In addition, specific payments allocated to **protein crops** (peas, bean, sweet lupin), **legumes** (vetch, *lathyrus cicera*, *lathyrus sativus* and non-irrigated alfalfa) or **oilseeds** (sunflower, rapeseed, soybean, camelina and cartamo) exist. Nevertheless, support levels rank between 40 and 60 Euros per hectare, which will not likely determine farmers planting decisions.

Economic Impact of Drought Mitigation Measures

Drought is the most important climate hazard for crops in Spain, given the frequent occurrence of dry periods. A government supported insurance system covering drought hazard is in place to mitigate the effects of drought in agricultural production. To complement this insurance, the Spanish Ministry of Agriculture, Food, Fisheries and Environment is working on a special set of measures to diminish the economic impact of the dry conditions in farmers' income.

Related Reports

Report	Date Released
Oilseeds and Products EU-28 Annual 2017	04/05/2016
Grain and Feed EU-28 Annual 2017	04/06/2017