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# Spain

**Post:** Madrid

# Fodder Demand in the Middle East Drives Spanish Alfalfa Area Growth

**Report Categories:**
Grain and Feed

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**Report Highlights:**
Spain's dried fodder production is expected to remain fairly stable in MY2017/18. Export opportunities in Saudi Arabia and poor corn crop margins have driven alfalfa plantings slightly up. Dry weather throughout the crop cycle has negatively impacted non-irrigated alfalfa. Export-oriented irrigated alfalfa is anticipated reach good yields and improved quality compared to last season, which would allow for increased export opportunities.

**Disclaimer:** This report presents the situation for forage production and exports in Spain. This report contains the views of the authors and does not reflect the official views of the U.S. Department of Agriculture (USDA). The data are not official USDA data.

**Executive Summary**

Spain's is the EU's largest dry fodder producer and exporter. Domestic dried fodder consumption, mainly by the dairy industry, is rather limited compared to production levels, which allows for an ample supply for export.

In **MY2017/18** Spain's dried fodder area is expected to grow at the expense of corn, whose poor margins are forcing farmers to find alternative crops. Saudi Arabia's decision to phase out forage production (See SA1702) also sent signal for farmers to increase area planted to fodder crops.

Production levels are anticipated to remain at similar levels compared to last season. The lower yields in non-irrigated alfalfa, as a consequence of the lack of precipitation throughout the crop cycle, will offset the increase in area. The absence of rains during harvest has improved the quality of the first cut of the export-oriented irrigated alfalfa compared to previous season. While domestic demand for dried fodder continues to be stagnant, export figures are anticipated to rebound in **MY2017/18** after the lower levels registered in **MY2016/17** when the ample supplies did not meet some export markets customers' requirements.

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**References**

- Abbreviations:

| | |
|---|---|
| AEFA | National Dried Alfalfa Producers Association |
| AQSIQ | China's General Administration of Quality Supervision, Inspection and Quarantine |
| BP | Basic Payment |
| ºC | Celsius degrees |
| CAP | Common Agricultural Policy |
| EFA | Ecological Focus Area |
| ESYRCE | Crop surface area and yields survey |
| EC | European Commission |
| EU | European Union |
| FAS | Foreign Agricultural Service |
| GTA | Global Trade Atlas |
| Ha | Hectares |
| MAPAMA | Ministry of Agriculture, Fisheries, Food and Environment |
| MS | EU Member State(s) |
| MT | Metric ton (1,000 kg) |
| MY | Marketing year (May/April) |
| N/A | Not Available |
| PS&D | Production, Supply and Demand |
| SPS | Single Payment Scheme |

- HS Codes (Harmonized System codes for commodity classification used to calculate trade data) for Dehydrated Fodder:

| | |
|---|---|
| 1214 | Rutabagas (Swedes), mangolds, fodder roots, hay alfalfa (3ucerne), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets. |
| 121410 | Alfalfa (Lucerne) meal and pellets; dehydrated, sun-cured and other. |
| 121490 | Hay (including alfalfa, whether or not double compressed, and Timothy); clover; and other. |

**Area and Production**

As Alfalfa is a five-year cycle crop, every year twenty percent of the alfalfa is pulled out and replanted as a part of the crop's normal cycle. In Spain, approximately half of the alfalfa is planted during fall with the remaining half in the spring.

In **MY2016/17**, the total area planted to fodder crops grew compared to the previous season with the result of lower grain (corn in particular) plantings. For **MY2017/18** favorable crop margins compared to corn led farmers to increase their less input-intensive alfalfa plantings, despite the low domestic prices for sun-cured fodder throughout **MY2016/17 (Table 1),** and the larger than usual ending stocks. Farmers see good prospects in exports market due to Saudi Arabia's decision to phase out forage production (See SA1702) which contributes to boost area planted to alfalfa (**Table 2** and **Graph 1**).

**Table 1. Average Sun-dried Fodder Farm Gate Prices**

| Year | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| **Price (Euros/100 Kg)** | 17.04 | 17.37 | 15.36 | 15.44 | 13.97 |

Source: MAPAMA

**Table 2. Area Planted to Dried Fodder under Contracts with Processing Plants (Ha)[1]****

| Market | Alfalfa | Vetch | Sainfoin | Fescue | Corn | Rye | Other | Total |
|---|---|---|---|---|---|---|---|---|
| **2006/07** | 164,020 | 4,716 | 956 | 5,596 | 1,190 | 8,274 | 7,176 | 191,928 |
| **2007/08** | 143,554 | 4,583 | 506 | 6,043 | 1,197 | 7,744 | 5,994 | 169,623 |
| **2008/09** | 122,411 | 4,039 | 679 | 5,696 | 1,248 | 5,972 | 5,993 | 146,038 |
| **2009/10** | 135,747 | 9,106 | 641 | 9,748 | 1,076 | 8,301 | 4,074 | 168,693 |
| **2010/11** | 147,065 | 12,375 | 469 | 7,724 | 1,1,74 | 8,063 | 7,946 | 184,815 |
| **2011/12** | 140,887 | 14,166 | 760 | 4,051 | 1,230 | 6,946 | 10,431 | 178,920 |
| **2012/13** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 144,674 |
| **2013/14** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 151,956 |
| **2014/15** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 141,011 |
| **2015/16** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 130,556 |
| **2016/17** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 136,127 |
| **2017/18e** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 140,000 |

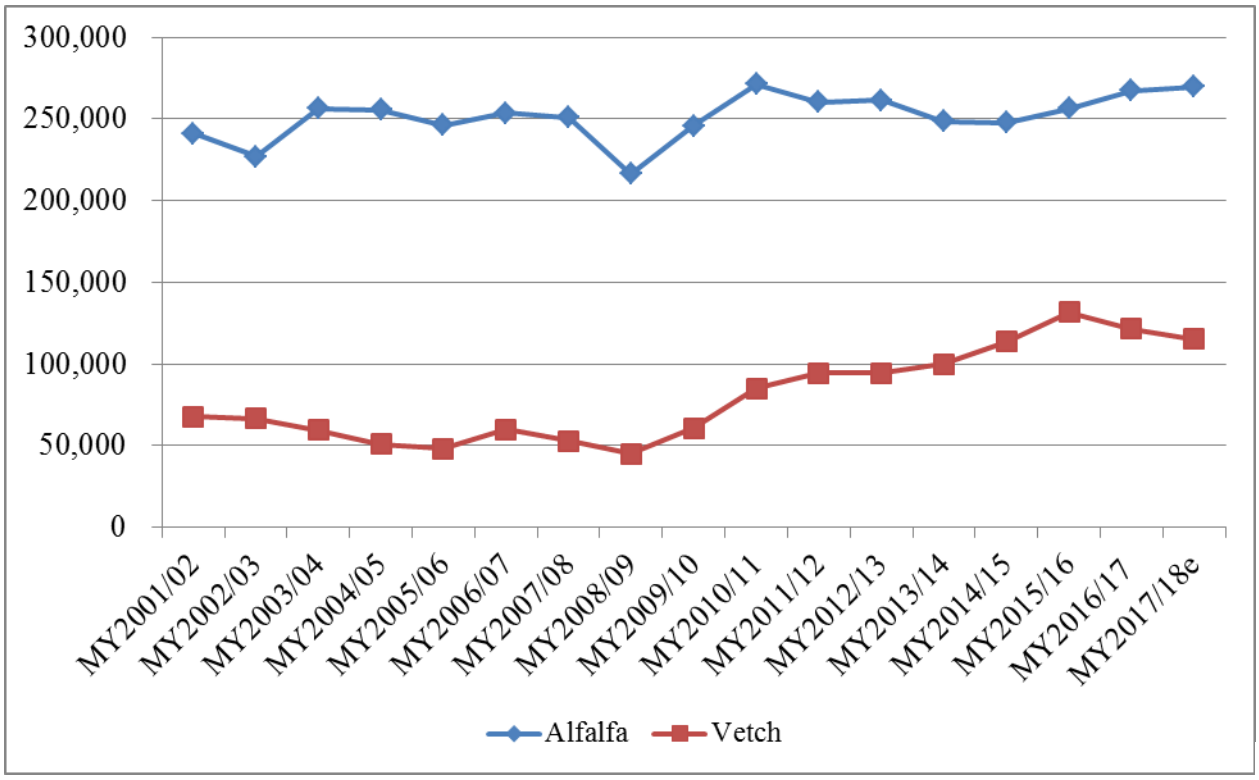
Source: FEGA (Spanish Agricultural Guarantee Fund) AEFA and FAS Madrid estimates.

***Note: Since MY2012/13 official information (FEGA) is no longer available. Data as of MY2013/14 is based on industry estimates. While crop specific areas are no longer published, according to*

[1] *Since April 1, 2012, (MY2012/13) the aid for dehydrated fodder scheme is incorporated into the farmer's Single Payment Scheme (SPS) and processors no longer receive a specific the aid. Hence, as of MY2012/13, no official information on the area planted to dried fodder is available. From MY2012/13 on, data in* ***Table 1*** *are based on the National Dried Alfalfa Producers Association survey.*

*contacts, alfalfa represents over 80% of the area planted to dried fodder under contracts with dehydrating plants.*

**Graph 1. Area Planted to Main Fodder Crops (Hectares)**[2]




Source: MAPAMA and FAS Madrid estimates.

There are two major alfalfa growing areas in Spain: Castile y Leon and the Ebro Valley (Aragon and Catalonia), although significant volumes are produced as well in Castile-La Mancha. Agricultural practices differ among the different alfalfa producing regions (**Map 1** and **Graph 1**).

- Ebro Valley (including the Autonomous Regions of Aragon and Catalonia), the most commonly cultivated alfalfa variety is "Aragón", with 77 and 72 percent, respectively, under irrigation. A significant amount of the alfalfa produced in this area ends up in the export market. The large majority of it via the Port of Barcelona (**Map 1**).

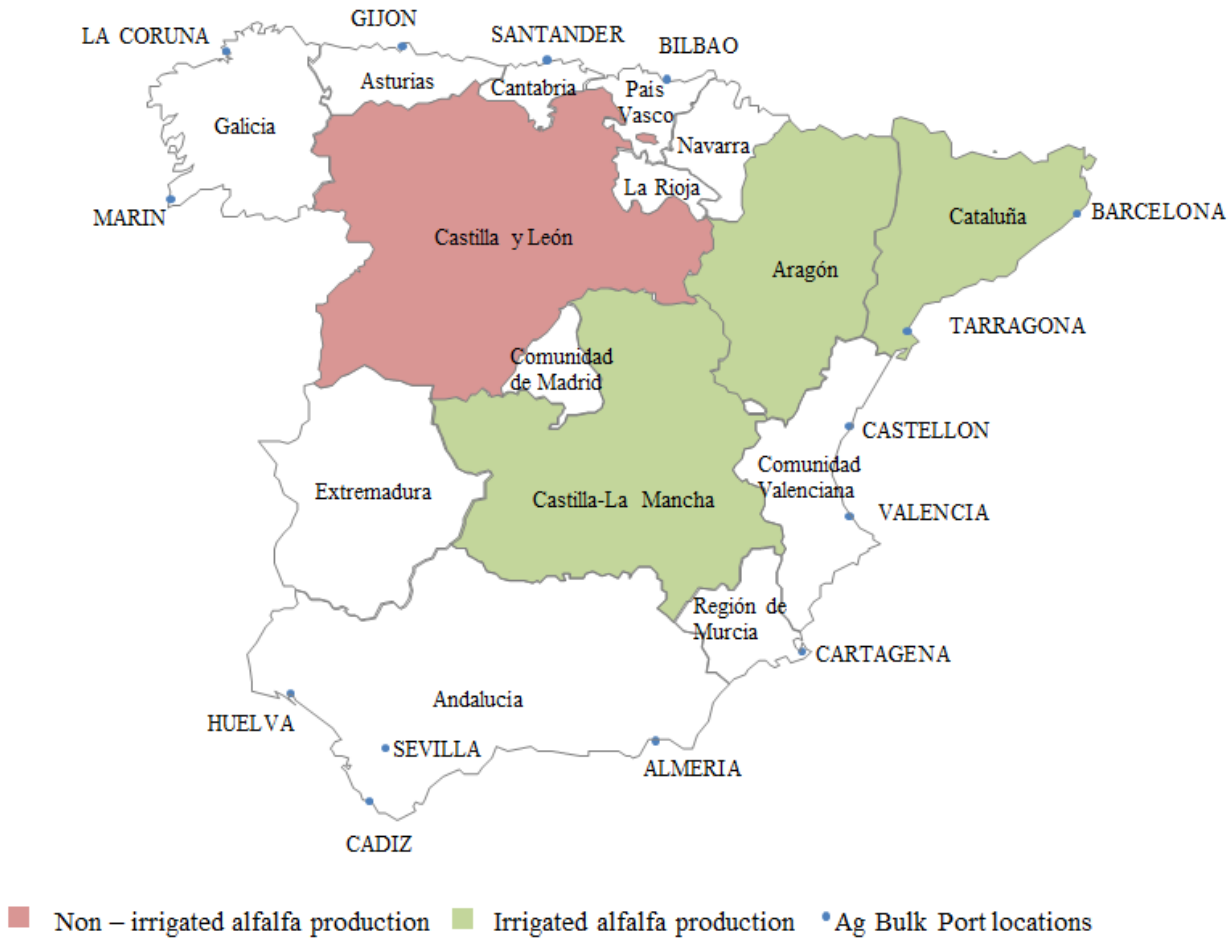
- Castilla y Leon, the most popular variety of alfalfa cultivated is "Tierra de Campos". These groups of varieties perform well in heavy clay soils, rarely, about thirty percent under irrigation.

[2] *Data for area planted to alfalfa and vetch in **Graph 1** differ from those showed in **Table 1,** as **Graph 1** includes total area (with uses different than dehydrating process) and **Table 1** includes only area under contracts whose production is subject of industrial transformation.*

Hence, yields are strongly linked to spring rains. This alfalfa is mostly consumed by the domestic dairy herd (**Map 1**).

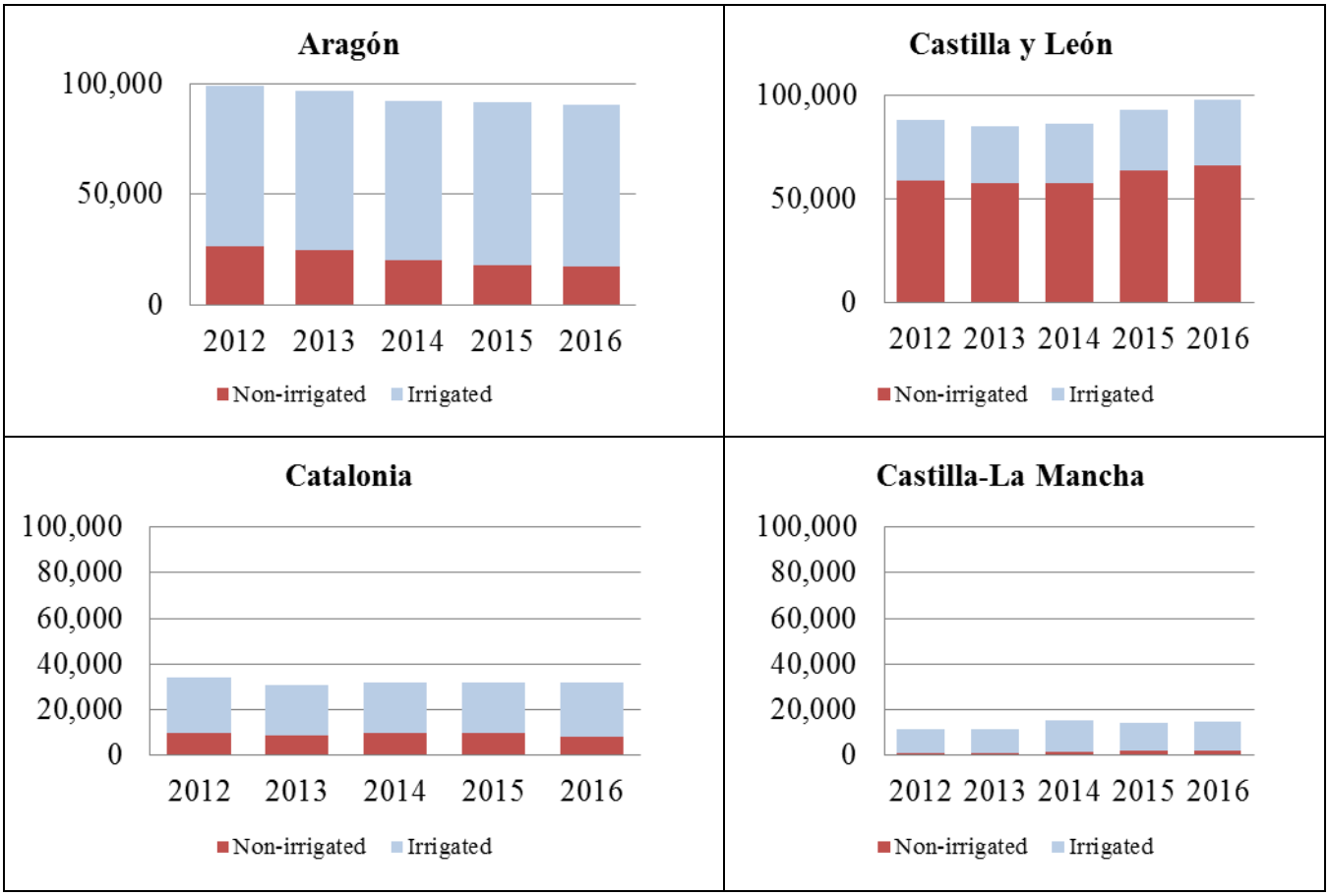
- In Castilla – La Mancha 92 percent of the alfalfa is under irrigation (**Map 1**).

**Map 1. Alfalfa Producing Regions and Port locations**




Source: FAS Madrid based on MAPAMA and Unistock data.

**Graph 1. Area Planted to Alfalfa in Spain's Main Producing Regions (Hectares)***

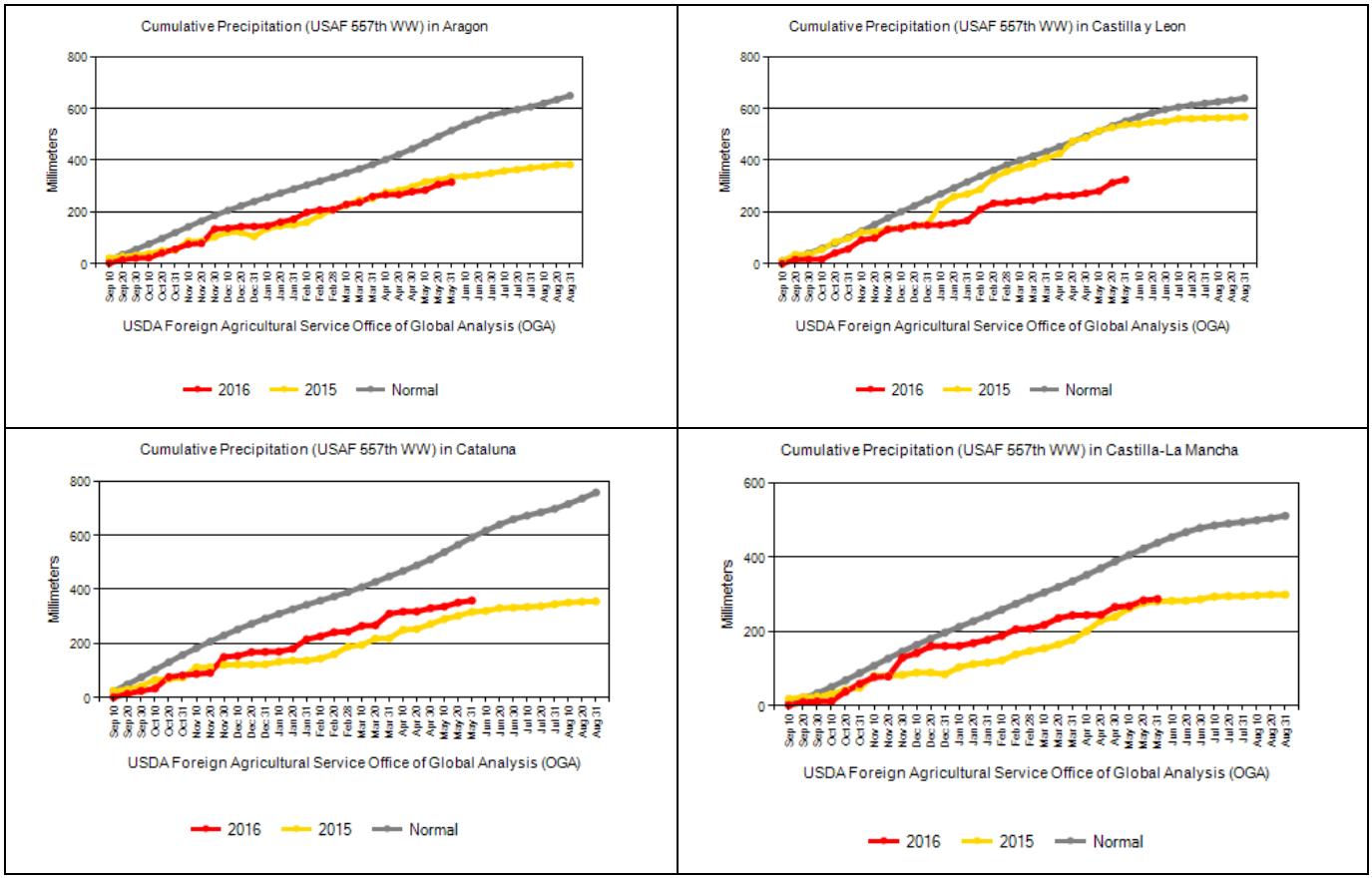



Source: ESYRCE. MAGRAMA

In **MY2016/17** timely spring precipitations contributed to replenish soil water and reservoirs and boosted non-irrigated alfalfa yields (Castile and León). The excess of water was detrimental for alfalfa quality in irrigated land (Ebro Basin). Overall production levels overcame the previous season output, which, along with the lower quality resulted in reduced exports, creating an oversupply in the domestic market, pushing domestic prices down (**Table 1**).

In **2017/18** dry conditions required irrigation to establish the crop, improve soil humidity and carry out fall plantings operations. The lack of precipitation prevailed until the beginning of the first cut (**Graph 2**), which created good conditions for the rest of the harvest.

**Graph 2. Cumulative Precipitation in Main Alfalfa Producing Regions**




Source: IPAD/Foreign Agricultural Service/USDA

The lack of water does not represent a threat to overall yields as the vast majority of alfalfa in Spain (67%), and in particular, alfalfa intended for the export market, is cultivated under irrigation. Dry weather conditions have boosted irrigation needs and stress the tough non-irrigated alfalfa in Spain's central plateau.

Overall production levels (**Table 3**) are anticipated to remain at similar levels compared to last season. The lower yields in non-irrigated alfalfa, as a consequence of the lack of precipitation throughout the crop cycle, will offset the increase in area planted.

**Table 3. Dried Fodder Production under Contracts with Dehydrating Plants (MT)[3]**

| MY | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18e |
|---|---|---|---|---|---|---|
| **Production** | 1,619,823 | 1,659,688 | 1,469,716 | 1,559,498 | 1,595,503 | 1,600,000 |

Source: AEFA (National Dried Alfalfa Producers Association) and FAS Madrid estimates.

[3] *It includes sun-dried fodder and dehydrated fodder. On average, dehydrated fodder represents over 90 percent, which given its homogeneity, is preferred by some importing countries.*

For additional information on climate conditions affecting crops in MY2017/18, see GAIN Report SP1714.

**Processing**

Spanish fodder producers use both sun-drying and mechanical dehydration to preserve alfalfa:

- **Sun-cured fodder:** Sun-cured fodder (hay) is normally less homogeneous and is for the domestic market. Sun-cured fodder operations include mowing, which may be combined with conditioning; turning and tedding to allow an even drying, windrowing, collection and baling.

- **Dehydrated fodder:** Alfalfa destined for dehydration is cut in the field. After a pre-drying phase in the field, it is windrowed and transported to the fodder processing plant. The large majority (85 percent) of the alfalfa is collected and transported by fodder wagons, while the remaining 15 percent is chopped and collected by forage harvesters and transported via trucks to the plant. Dehydrated fodder represents about 85 percent of the country's fodder production. It is domestically consumed and largely exported. In the fodder processing plant, the alfalfa is classified by quality and moisture. Then it goes through the processing plant drier (one step trommel), which dries the fodder out with a 300ºC air flow. Moisture levels of the final product fall between 12-14%.

The products obtained (bales or pellets) are classified under three quality groups. Requirements for the different quality groups of bales and pellets can be checked in the tables below:

**Table 4. Alfalfa in bales standards**

| Quality | Raw Protein (%) | ADF (%) | NDF (%) | RFV | Moisture (%) | Color |
|---|---|---|---|---|---|---|
| **Premium** | <18 | <31 | <38 | 160 | <14 | Intense green |
| **First** | 16.5-18 | 31-33 | 38-42 | 140-160 | <14 | Green |
| **Second** | 15-16.5 | 33-36 | 42-44 | 120-140 | <14 | Pale green |

Source: AEFA (National Dried Alfalfa Producers Association)

**Table 5. Alfalfa in pellets standards**

| Quality | Raw Protein (%) | RFV | Moisture (%) |
|---|---|---|---|
| **Premium** | <18 | 160 | <12 |

| | | | |
|---|---|---|---|
| **First** | 16.5-18 | 140-160 | <12 |
| **Second** | 15-16.5 | 120-140 | <12 |

Source: AEFA (National Dried Alfalfa Producers Association)

Details about dehydrated fodder processing plants location can be found in **Table 6**.

**Table 6. Spain Location of Processing Plants**

| Region | Number of Plants | Approved to export to China[4] |
|---|---|---|
| Aragon | 34 | 19 |
| Catalonia | 11 | 8 |
| Castile y Leon | 11 | 5 |
| Castile-La Mancha | 7 | 0 |
| Navarra | 4 | 0 |
| Andalusia | 3 | 1 |
| Extremadura | 1 | 0 |
| Balearic Islands | 1 | 0 |
| **Total** | **72** | **33** |

Source: AEFA (National Dried Alfalfa Producers Association) and MAPAMA.

Quality issues in the first cut of the **MY2016/17** harvest led to an increased share of pellet versus bales production (**Table 7**), and to less *Premium* and more *First* and *Second* Quality bales and pellets production. Favorable harvest conditions in **MY2017/2018** are anticipated to result in a larger amount of bales production compared to pellets as well as in more *Premium* production at the expenses of *First* and *Second* categories, allowing for recovery in exported volumes.

**Table 7. Spain Dried Fodder Product by Production Type (MT)**

| Market Year | Pellets | Bales | Total |
|---|---|---|---|
| **2006/07** | 671,381 | 1,303,269 | 1,974,651 |
| **2007/08** | 605,995 | 1,176,343 | 1,782,339 |
| **2008/09** | 534,625 | 992,875 | 1,527,500 |
| **2009/10** | 427,652 | 1,282,956 | 1,710,609 |
| **2010/11** | 451,106 | 1,353,350 | 1,804,426 |
| **2011/12** | 441,723 | 1,478,810 | 1,920,533 |
| **2012/13** | 386,495 | 1,233,328 | 1,619,823 |
| **2013/14** | 438,158 | 1,221,530 | 1,659,688 |
| **2014/15** | 283,361 | 1,186,208 | 1,469,716 |
| **2015/16** | 265,115 | 1,294,383 | 1,559,498 |

[4] *For more information on the Agreement with China, please see **Trade** Section.*

| | | | |
|---|---|---|---|
| **2016/17** | 377,782 | 1,217,721 | 1,595,503 |
| **2017/2018e** | 365,500 | 1,234,500 | 1,600,000 |

Source: AEFA (National Dried Alfalfa Producers Association) and FAS Madrid estimates.

**Consumption and Marketing**

Domestic consumption of dried fodder only represents a small amount of the demand. Dairy sector needs have remained stable since 2013 (**Table 8**). Consequently the export demand drives changes in the fodder market.

For more information on the EU-28 dairy sector, see the latest information available on Dairy and Products Annual EU-28 GAIN Report.

**Table 8. Dairy Cow population (1,000 Heads)**

| Year | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017e |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dairy cow population | 903 | 888 | 828 | 845 | 798 | 827 | 844 | 845 | 844 | 844 | 845 |

Source: Eurostat. FAS Madrid estimates.

**Trade**

Spain is the world's third largest fodder exporter after the United States and Australia. Spain is a net exporter of fodder, with exports (**Table 10**) largely exceeding imports (**Table 9**). Imports recorded from other EU countries such as France or Poland grew significantly in **MY2015/16**, (**Table 9**), most likely for re-exporting purposes.

**Table 9. Spain Total Imports of Fodder by Origin in MT***

| Country of Origin | MY | MY | MY | MY2015/16 | MY2016/17e |
|---|---|---|---|---|---|
| EU-28 | 10,139 | 6,134 | 18,136 | 31,358 | 30,700 |
| Others | 841 | 506 | 739 | 1,840 | 1,300 |
| **TOTAL** | **10,980** | **6,640** | **18,875** | **33,198** | **32,000** |

Source: GTA and FAS Madrid estimates.* Includes both bales and pellets.

In **MY2015/16** record export levels were achieved. In the absence of a strong domestic demand, fodder processors managed to export to new markets, such as Iran. Exports to Saudi Arabia more than doubled while exports to China registered a 20 percent decline.

In **MY2016/17** despite the overall decline in exported volumes, UAE continued to be the largest destination for Spanish dried fodder followed by Saudi Arabia, which consolidated its position as

Spain's second largest market for dehydrated fodder. Exports to China continued to decline as the harvest quality did not meet China's requirements.

Saudi Arabia's decision to phase out forage production (See SA1702) along with improved quality may contribute to increase Spanish fodder exports in **MY2017/18**.

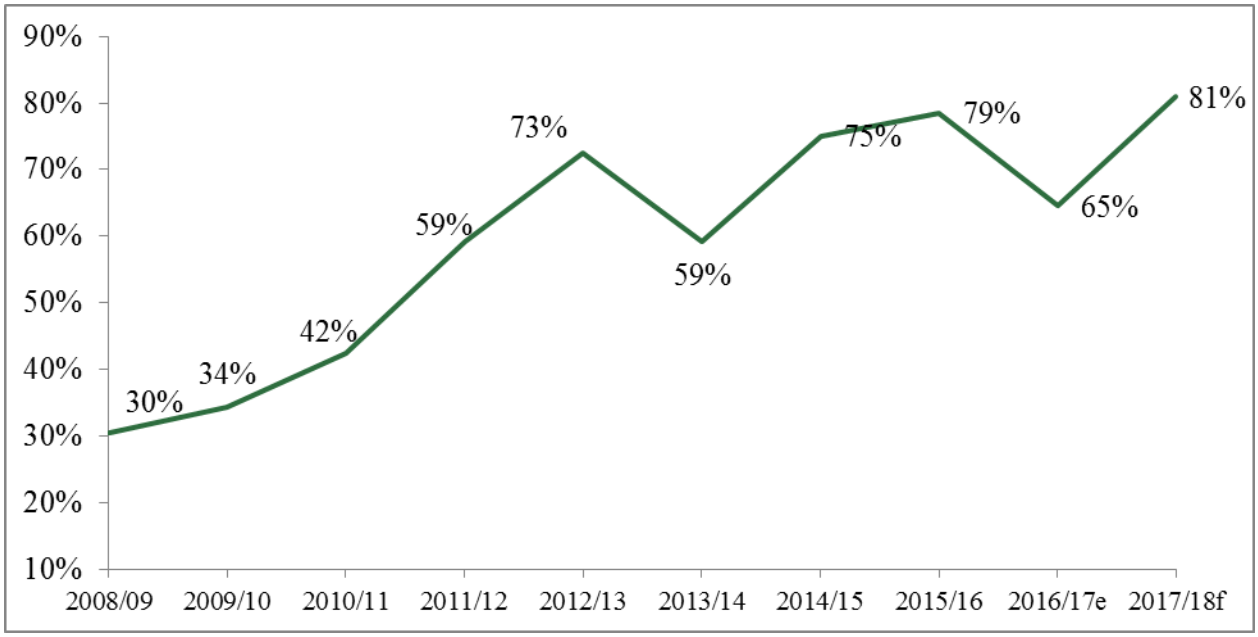
**Table 10. Spain Total Exports of Fodder by Destination in MT***

| Country of | MY2012/13 | MY | MY | MY | MY |
|---|---|---|---|---|---|
| **EU-28** | 159,362 | 139,674 | 128,506 | 124,839 | 131,300 |
| **United Arab** | 782,034 | 643,243 | 700,013 | 722,679 | 536,400 |
| **China** | 0 | 0 | 91,842 | 126,119 | 39,500 |
| **Saudi Arabia** | 118,505 | 73,167 | 45,092 | 109,333 | 114,800 |
| **Jordan** | 20,164 | 24,514 | 29,791 | 44,261 | 44,000 |
| **Iran** | 0 | 0 | 0 | 14,952 | - |
| **Lebanon** | 7,910 | 14,081 | 21,066 | 14,873 | 30,400 |
| **Japan** | 6,943 | 2,863 | 7,649 | 10,854 | 12,200 |
| **Kuwait** | 10,612 | 6,171 | 9,112 | 9,442 | 11,400 |
| **Korea South** | 3,375 | 2,474 | 7,445 | 8,355 | 13,200 |
| **Morocco** | 20,535 | 15,540 | 14,799 | 7,093 | 29,100 |
| **Others** | 45,048 | 60,353 | 47,598 | 23,721 | 67,900 |
| **TOTAL EXPORTS** | **1,174,488** | **982,080** | **1,102,913** | **1,216,521** | **1,030,200** |

Source: GTA. * Includes both bales and pellets.

With the exception of **MY2016/17**, when fodder quality issues negatively impacted exported volumes, the ratio exports/production continues to grow steadily (**Graph 3**) as a result of a stagnant domestic demand (**Table 8**) and the industry determination to increase Spanish fodder presence in export markets.

**Graph 3. Exports/Production Share Evolution**




Source: FAS Madrid

**Production, Supply and Demand**

**Table 11. Spain Production, Supply and Demand for Dehydrated Fodder (MT)**

| Market Year | MY 2012/13 | MY 2013/14 | MY 2014/15 | MY 2015/16 | MY 2016/17e | MY 2017/18f |
|---|---|---|---|---|---|---|
| **Production** | 1,619,823 | 1,659,688 | 1,469,716 | 1,559,498 | 1,595,503 | 1,600,000 |
| **Imports** | 10,971 | 6,640 | 18,875 | 33,566 | 32,000 | 15,000 |
| **Total supply** | **1,630,794** | **1,666,328** | **1,488,591** | **1,593,064** | **1,627,503** | **1,615,000** |
| **Dom. Consumption** | 456,604 | 684,248 | 386,089 | 367,771 | 597,303 | 450,000 |
| **Exports** | 1,174,190 | 982,080 | 1,102,502 | 1,225,293 | 1,030,200 | 1,165,000 |
| **Total Demand** | **1,630,794** | **1,666,328** | **1,488,591** | **1,593,064** | **1,627,503** | **1,615,000** |

Source: FAS Madrid estimates.

**Policy**

Since 2015, the **Single Payment Scheme** has been replaced by the so-called **Basic Payment** (BP) which is not crop specific. Farmers receive an area payment regardless of the crop. The Basic Payment amount takes into consideration the different land uses at the county level: irrigated vs. non-irrigated land; permanent crops or pasture land for example. The basic payment amount is influenced by the amount of support previously received by farmers cultivating the land. As result, a total of fifty homogeneous regions have been defined in Spain. Broadly speaking, the amount of the Basic Payment allocated to each region represents the support granted to the type of land use. The amount of support under Basic Payment received was calculated based on the subsidies received in 2014. In the irrigated land in the Ebro basin, where most of the export oriented alfalfa is grown, industry sources estimate that

Basic Payment would add up to nearly 250 Euros per hectare. In the case of Castile y León, the other main alfalfa producing region, where alfalfa is grown in non-irrigated land and coexists with non-irrigated grain plots, the amount of support via Basic Payment may add up to ninety Euros per hectare.

A large part of farm support is linked to greening measures compliance. An option for greening compliance is to maintain EFAs (Ecological Focus Area). Alfalfa is considered as a nitrogen fixing crop for greening compliance purposes. Farms over fifteen ha need to devote over five percent of their cultivation land to this use.

Additionally, in Spain's implementation of CAP reform, specific payments have been allocated to **protein crops** (peas, bean, and sweet lupin) or **legumes** (vetch, soybeans, *lathyrus cicera*, *lathyrus sativus* and non-irrigated alfalfa[5]). Support levels are not sufficient to significantly influence planting decisions (See values in **Table 12**). Hence, farmers' planting decisions will ultimately be based on crop margins expectations.

**Table 12. Legume Specific Payment (Euros/Ha)**

| Year | Total Area (Ha)* | Out of which in Castile y León | Payment (Euros/Ha) |
|---|---|---|---|
| 2015 | 450,372.01 | 249,374.21 | 48.06 |
| 2016 | 451,406.24 | 238,529.70 | 47.71 |

Source: FEGA

**includes all legume crops eligible for the subsidy*

**Related Reports**

| Report Title | Date Released |
|---|---|
| Saudi Arabia: Saudi Arabian Alfalfa Hay Market | 02/27/2017 |
| Spanish Dried Fodder Exports Continue to Soar | 06/29/2016 |
| Spanish Fodder Consolidates its Presence in Export Markets | 08/10/2015 |
| Spain is Ready to Export Dried Fodder to China | 07/17/2014 |
| Wondermilk Works Wonders In China | 03/01/2014 |
| Dutch Dairy Processors Gear Up for Chinese Demand | 05/08/2013 |
| Spanish Dried Fodder Processors Seek New Markets | 06/03/2013 |
| Record Forage Exports Despite Record Domestic Prices | March 2013 |
| U.S. Hay Exports to the UAE on the rise | 06/14/2012 |
| Spain dehydrated fodder Sector Faces New Challenges | 03/06/2012 |
| Spain Dehydrated Fodder Sector 2011 | 02/02/2011 |
| Spain Dehydrated Fodder Sector 2010 | 02/22/2010 |

[5] *In Castile y León, for the most part, alfalfa is grown without irrigation.*