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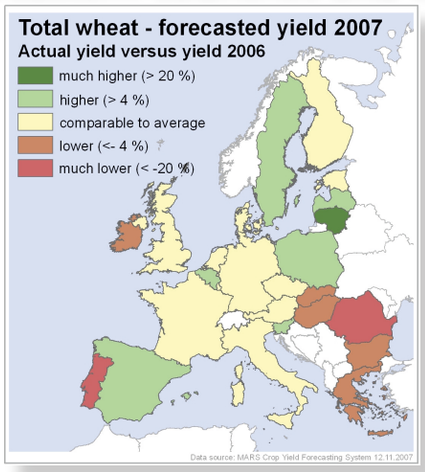
MARS AGROMETEOROLOGICAL Crop Monitoring in Europe

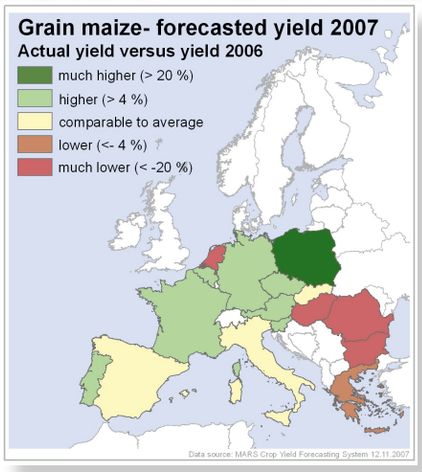
Review of the 2006-2007 campaign

Situation from 11st September to 10 November 2007

Vol. 15, No 6

A below average cereal season due to short crop cycles, drought in central/eastern countries and wet harvest conditions in north-western





MARS STAT yield forecasts at EU27

CROPS	European Union 27 Yield (t/ha)				
	2006	2007	Average 5 years	% 2007/06	% 2007/ Average
TOTAL CEREALS	4.7	**4.6**	4.7	-1.4	-2.7
Soft wheat	5.4	**5.4**	5.4	-0.1	-1.4
Durum wheat	3.0	**2.9**	2.7	-2.5	+9.2
Total wheat	5.1	**5.1**	5.1	+0.0	+0.4
Total barley	4.1	**4.3**	4.2	+4.6	+2.6
Grain maize	6.5	**5.8**	6.5	-11.9	-11.0
Other cereals (1)	2.9	**2.9**	3.2	+1.0	-7.6
Rape seed	3.0	**2.8**	3.0	-4.4	-5.3
Sunflower	1.7	**1.4**	1.6	-17.1	-13.2
Potato	25.3	**27.7**	26.6	+9.6	+4.5
Sugar beet	58.9	**61.2**	57.9	+3.9	+5.7

(1) Sorghum, rye, maslin, oats, triticale, mixed grain other than maslin, millet, buckwheat.
(Sources see page 2)

Contents

1. Highlights of the 2006/07 campaign

The EU-27 final cereal yield figure for the 2006/07 campaign is expected to be 4.6 t/ha (about – 1.2 % compared with 2006 and – 2.6 % compared with the 5-year average).

Cereal areas (Eurostat source) should also be decreased, by 3.6 % from the average. The result in terms of production should range between 262 and 265 million tonnes.

This represents a decrease of – 6.1 % from the average and of almost 1 % from 2006; i.e. 2 million to 3 million tonnes below 2006 (low year) and 17 million tonnes below the average. The most affected cereal this year is maize, which loses 7 to 8 % of its average yield capacity and shows a 5 % decease in terms of area.

The season was characterised by higher than average temperatures across the year, boosting crop growth and shortening the cycle.

Dry and hot conditions persisted in spring and summer especially in Hungary, Romania and Bulgaria, affecting heavily cereals and in particular maize productions (respectively about – 40 % in Hungary, – 48 % in Romania and Bulgaria). This was partly compensated for by the good season in Spain.

Cereal production in northern France, the UK and Germany was again limited by wet conditions at harvest (winter cereals) but not on the same amplitude as in 2006.

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MARS bulletin: http://agrifish.jrc.it/marsstat/bulletins/2007.htm
MARS agrometeorological database: http://www.marsop.info

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MARS STAT crop yield forecasts for the EU27 countries: 13 November 2007

Country	TOTAL WHEAT (t/ha)					SOFT WHEAT (t/ha)					DURUM WHEAT (t/ha)				
	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average
EU27	5.1	**5.1**	5.1	-0.0	+0.4	5.4	**5.4**	5.4	-0.1	-1.4	3.0	**2.9**	2.7	-2.5	+9.2
AT	4.9	**4.7**	5.0	-3.7	-6.2	4.9	**4.8**	5.1	-2.6	-5.9	4.8	**3.8**	4.3	-22.2	-13.4
BE	8.2	**9.0**	8.5	+9.9	+6.0	8.2	**8.6**	8.5	+5.3	+1.5					
BG	3.3	**2.7**	3.1	-16.2	-12.4	3.2	**2.7**	3.1	-16.0	-12.8	4.5	**3.9**	3.3	-14.8	+16.0
CZ	4.5	**4.4**	4.8	-1.8	-8.1	4.5	**4.4**	4.8	-1.8	-8.1					
DE	7.2	**7.2**	7.3	-0.4	-1.0	7.2	**7.2**	7.3	-0.4	-1.0					
DK	7.0	**7.1**	7.1	+1.1	-0.3	7.0	**7.1**	7.1	+1.1	-0.3					
EE	2.4	**2.4**	2.5	+0.4	-2.4	2.4	**2.4**	2.5	+0.4	-2.4					
ES	2.9	**3.3**	2.7	+15.2	+23.0	3.0	**3.6**	3.0	+18.7	+18.3	2.5	**2.6**	2.2	+4.4	+21.8
FI	3.6	**3.4**	3.5	-3.9	-1.7	3.6	**3.4**	3.5	-3.9	-1.7					
FR	6.7	**6.9**	7.0	+2.8	-1.0	6.9	**7.2**	7.2	+3.2	-0.4	4.6	**4.5**	4.7	-3.0	-4.1
GR	2.3	**2.1**	2.1	-6.9	+1.2	3.0	**2.6**	2.9	-13.6	-10.8	2.2	**2.0**	2.0	-6.5	+2.6
HU	4.1	**3.7**	4.0	-10.1	-7.8	4.1	**3.7**	4.0	-10.1	-7.8					
IE	9.2	**8.2**	8.9	-10.2	-7.4	9.2	**8.2**	8.9	-10.2	-7.4					
IT	3.7	**3.6**	3.4	-1.8	+7.2	5.5	**5.4**	5.1	-2.0	+5.7	2.9	**2.8**	2.7	-3.4	+2.9
LT	2.4	**3.8**	3.5	+61.0	+9.5	2.4	**3.8**	3.5	+61.0	+9.5					
LU	6.0	**6.2**	6.2	+3.0	-0.5	6.0	**6.2**	6.2	+3.0	-0.5					
LV	2.8	**3.2**	3.1	+14.7	+2.9	2.8	**3.2**	3.1	+14.7	+2.9					
NL	8.5	**8.6**	8.5	+2.1	+1.4	8.5	**8.6**	8.5	+2.1	+1.4					
PL	3.2	**3.5**	3.8	+8.6	-6.1	3.2	**3.5**	3.8	+8.6	-6.1					
PT	2.4	**1.8**	1.6	-26.8	+10.8	2.4	**1.8**	1.6	-26.8	+10.8					
RO	2.8	**2.0**	2.5	-27.6	-20.1	2.8	**2.0**	2.5	-27.6	-20.1					
SE	5.5	**6.3**	5.9	+15.0	+6.1	5.5	**6.3**	5.9	+15.0	+6.1					
SI	4.2	**4.8**	4.4	+13.6	+9.4	4.2	**4.8**	4.4	+13.6	+9.4					
SK	3.8	**3.6**	4.0	-6.8	-9.9	3.8	**3.6**	4.0	-6.8	-9.9					
UK	8.0	**7.8**	7.9	-3.4	-1.9	8.0	**7.8**	7.9	-3.4	-1.9					

Country	TOTAL BARLEY (t/ha)					GRAIN MAIZE (t/ha)					RAPE SEED (t/ha)				
	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average
EU27	4.1	**4.3**	4.2	+4.6	+2.6	6.5	**5.8**	6.5	-11.9	-11.0	3.0	**2.8**	3.0	-4.4	-5.3
AT	4.4	**4.4**	4.5	-1.1	-3.5	9.2	**10.1**	9.4	+9.1	+7.6	3.2	**2.2**	2.7	-30.4	-18.1
BE	7.5	**7.5**	7.4	-0.4	+0.9	10.2	**11.8**	11.2	+16.1	+6.0					
BG	2.9	**2.4**	2.8	-18.4	-14.6	4.5	**2.4**	4.5	-48.1	-47.5	1.8	**1.6**	1.6	-12.9	+0.0
CZ	3.6	**3.7**	4.0	+2.2	-9.2	6.8	**7.7**	6.9	+14.7	+12.7	3.0	**2.7**	2.7	-11.6	+0.1
DE	5.9	**5.6**	5.8	-4.9	-3.3	8.0	**9.4**	8.6	+16.4	+8.5	3.7	**3.6**	3.5	-3.2	+3.6
DK	4.8	**5.2**	5.1	+7.7	+1.2						3.1	**3.2**	3.2	+5.0	+1.3
EE	2.1	**1.9**	2.2	-13.1	-14.7						1.4	**1.3**	1.6	-2.4	-16.8
ES	2.6	**3.3**	2.6	+28.0	+28.0	9.8	**10.0**	9.7	+1.7	+2.9					
FI	3.5	**3.5**	3.3	+1.4	+6.6						1.4	**1.4**	1.3	-0.5	+5.8
FR	6.2	**6.4**	6.3	+2.7	+1.3	8.6	**9.0**	8.4	+4.2	+6.7	3.0	**3.2**	3.3	+7.8	-3.6
GR	2.5	**2.2**	2.3	-13.6	-4.4	9.0	**8.6**	8.9	-5.0	-3.9					
HU	3.7	**3.2**	3.4	-13.1	-5.6	6.8	**4.1**	6.1	-39.3	-31.9	2.2	**2.3**	2.1	+0.9	+8.3
IE	6.8	**6.5**	6.5	-5.0	+0.2										
IT	3.9	**3.6**	3.7	-7.2	-1.4	8.7	**8.7**	8.9	+0.0	-2.1					
LT	1.9	**2.6**	2.6	+35.6	+1.9						1.1	**1.7**	1.7	+46.4	-3.7
LV	2.0	**2.0**	2.1	-1.0	-5.7						1.6	**1.9**	1.7	+24.2	+11.3
NL	6.0	**6.2**	6.0	+3.2	+3.2	17.9	**14.2**	13.4	-20.4	+6.3					
PL	2.6	**3.1**	3.1	+18.5	+0.3	4.2	**5.8**	5.4	+40.4	+7.9	2.7	**2.4**	2.5	-7.8	-1.2
PT	2.4	**1.5**	1.5	-38.1	-3.9	5.0	**5.4**	5.3	+8.2	+1.3					
RO	2.3	**1.7**	2.3	-25.3	-24.7	3.6	**1.9**	3.6	-48.1	-48.1	1.6	**0.6**	1.2	-61.4	-50.6
SE	3.6	**4.2**	4.2	+17.8	+2.2						2.5	**2.6**	2.4	+6.7	+7.5
SI	3.6	**3.7**	3.7	+3.3	+2.5	6.9	**8.2**	7.3	+18.0	+12.8					
SK	3.5	**3.4**	3.6	-0.9	-3.1	5.5	**5.6**	5.6	+2.6	+0.7	2.1	**1.8**	2.0	-15.8	-13.3
UK	5.9	**5.9**	5.8	-0.3	+1.7						3.4	**3.3**	3.3	-1.7	+1.1

Note:

(a) Countries with areas below 10 000 ha are not counted in.

(b) Yield figures are rounded to 100 kg.

(c) Thenational yield forecasts are based on agro-meteorological model outputs and satellite indicators at NUTS 0 level in combination with time trend analysis.

Sources for all the EU25 crop yield forecasts tables (pages 1-3):

- 2006 yields come from Eurostat Cronos;
- 2007 yields come from MARS crop yield forecasting system.

MARS STAT crop yield forecasts for the EU27 countries: 13 November 2007

Country	SUNFLOWER (t/ha)					SUGAR BEETS (t/ha)					POTATO (t/ha)				
	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average
EU27	1.7	**1.4**	1.6	-17.1	-13.2	58.9	**61.2**	57.9	+3.9	+5.7	25.3	**27.7**	26.6	+9.6	+4.5
AT	2.4	**2.7**	2.7	+12.3	+3.1	63.3	**65.7**	64.9	+3.9	+1.3	29.9	**31.6**	30.6	+5.9	+3.5
BE						68.3	**71.6**	69.5	+4.8	+3.0	38.6	**46.5**	43.9	+20.7	+6.0
BG	1.6	**1.0**	1.5	-38.7	-34.4						15.8	**11.3**	15.5	-28.1	-26.7
CZ	2.1	**2.2**	2.3	+1.2	-4.0	51.5	**53.5**	50.0	+3.9	+7.1	23.1	**24.4**	23.5	+5.7	+3.6
DE	1.9	**2.5**	2.1	+30.2	+19.1	57.7	**62.2**	58.2	+7.7	+6.8	36.6	**41.7**	39.3	+13.9	+6.1
DK						55.9	**57.9**	57.8	+3.7	+0.3	35.3	**39.0**	38.8	+10.7	+0.7
ES	1.0	**1.0**	1.0	+2.3	+3.4	69.6	**69.7**	69.3	+0.2	+0.6	28.8	**28.8**	27.2	-0.1	+5.6
FI						39.8	**37.9**	35.6	-4.8	+6.5	20.5	**23.8**	23.0	+15.9	+3.1
FR	2.2	**2.4**	2.3	+6.6	+3.1	78.8	**81.7**	78.2	+3.7	+4.5	40.2	**42.5**	42.1	+5.8	+0.9
GR	1.2	**1.1**	1.3	-5.7	-11.0	59.3	**61.0**	61.2	+2.9	-0.4	33.8	**24.6**	26.0	-27.1	-5.2
HU	2.2	**1.9**	2.1	-16.1	-12.9	52.4	**41.4**	47.6	-21.1	-13.2	25.0	**18.5**	23.4	-26.1	-21.0
IE											33.4	**36.0**	35.5	+7.9	+1.4
IT	2.1	**1.9**	2.1	-9.6	-6.3	52.8	**51.5**	47.9	-2.4	+7.5	24.6	**25.1**	24.1	+1.8	+3.8
LT						38.8	**39.9**	38.0	+2.9	+5.1	8.0	**12.8**	12.8	+59.5	-0.3
LV						37.3	**38.9**	37.7	+4.3	+3.2	12.2	**12.9**	13.5	+5.6	-4.5
NL						66.0	**66.2**	62.6	+0.3	+5.8	40.0	**45.5**	42.9	+13.7	+6.0
PL						43.8	**44.1**	42.7	+0.7	+3.3	15.0	**17.7**	17.9	+17.4	-1.5
PT											14.8	**17.0**	15.0	+15.1	+13.8
RO	1.5	**1.0**	1.4	-32.7	-24.8	28.9	**27.1**	26.0	-6.3	+4.3	14.4	**14.6**	14.4	+1.1	+1.6
SE						49.6	**48.9**	48.8	-1.3	+0.1	27.6	**29.1**	29.3	+5.4	-0.8
SK	2.1	**2.0**	2.0	-6.0	-2.8	49.5	**46.1**	45.7	-6.9	+0.8	14.3	**15.7**	15.8	+10.0	-0.7
UK						54.6	**58.3**	56.9	+6.8	+2.5	40.3	**40.4**	42.0	+0.3	-3.7

MARS STAT forecasts for Black Sea and Maghreb : 13 November 2007

Country	WHEAT (t/ha)					BARLEY (t/ha)					GRAIN MAIZE (t/ha)				
	2006*	MARS 2007 forecasts	Average 5 years	% 2007/06	% 2007/ Average	2006*	MARS 2007 forecasts	Avg 5yrs	%07/06	%07/5yrs	2006*	MARS 2007 forecasts	Avg 5yrs	%07/06	%07/5yrs
DZ	0.9	**1.18**	1.3	+34.7	-5.8	1.4	**1.4**	1.4	-2.0	+2.9					
MA	1.0	**0.8**	1.4	-21.3	-43.0	0.5	**0.6**	0.8	+15.0	-31.3	-	**0.5**	0.8	-	-34.7
MD	-	**0.4**	2.3	-	-84.3	-	**0.7**	1.7	-	-59.9	-	**2.1**	2.9	-	-26.8
TN	1.5	**1.8**	1.7	+17.5	+4.5	0.8	**1.0**	0.9	+19.5	+6.6					
TR	2.2	**2.1**	2.2	-5.7	-5.3	2.5	**2.4**	2.5	-5.4	-3.3	7.1	**5.9**	5.8	-16.7	+2.7
UA	2.7	**2.0**	2.6	-23.9	-23.3	2.3	**1.5**	2.2	-33.8	-29.2	3.8	**3.3**	3.8	-13.4	-13.6

Country	RAPE SEED (t/ha)					SUNFLOWER (t/ha)				
	2006*	MARS 2007 forecasts	Avg 5yrs	%07/06	%07/5yrs	2006*	MARS 2007 forecasts	Avg 5yrs	%07/06	%07/5yrs
UA	0.9	**1.0**	1.1	+3.4	-13.4	-	**1.0**	1.1	-	-2.6

Note:

(a) Countries with areas below 10 000 ha are not counted in.

(b) Yield figures are rounded to 100 kg.

(c) Thenational yield forecasts are based on agro-meteorological model outputs and satellite indicators at NUTS 0 level in combination with time trend analysis.

Sources for all the EU25 crop yield forecasts tables (pages 1-3):

- 2006 yields come from Eurostat Cronos or FAO database;

Abstract

The 6th printed MARS Bulletin (Vol. 15, No 6) makes a review of the 2006-2007 campaign and an analysis of the new 2007-2008 sowing conditions from 11 September to 10 November 2007.

Previous related analysis available:

—Climatic updates, 01/10 to 01/11/2007, (CU2007/12)

—Complete Bulletin, 11/07/2006 to 10/09/2007 (Vol. 14, No5)

Contributions

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MARS stands for Monitoring Agriculture with Remote Sensing

Technical note:

The long-term average used within this bulletin as a reference is based on an archive of data covering 1975–2006.

The CNDVI is an unmixed normalised vegetation index on the base of Corine land cover 2000 mainly for arable land or grassland.

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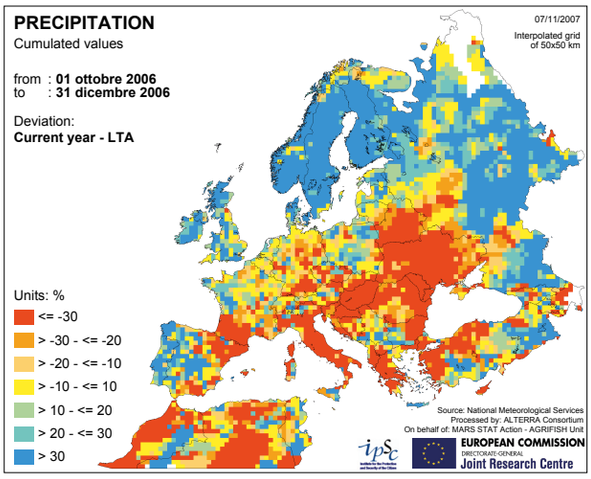
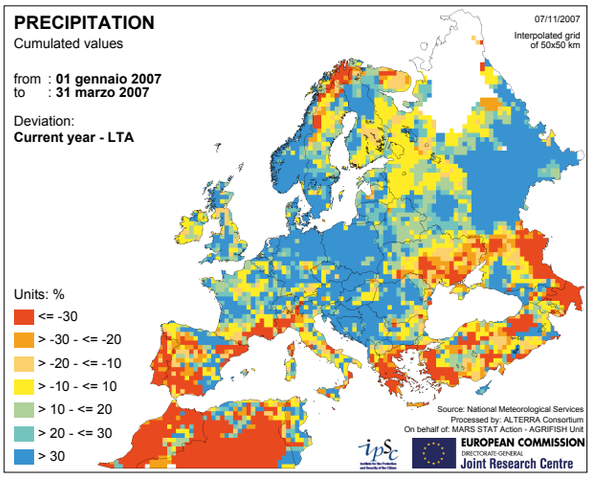
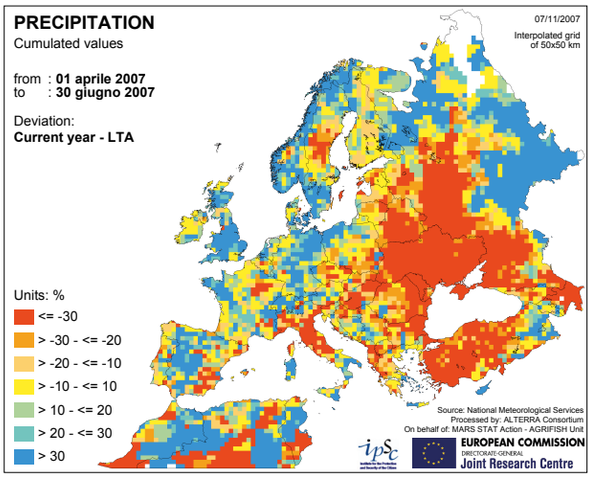
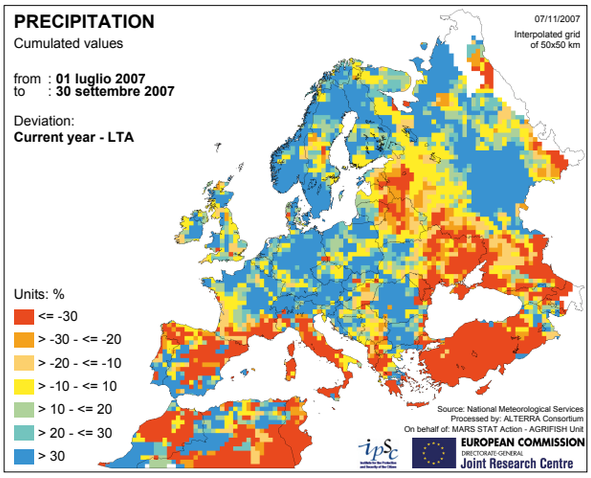








3. Climatic overview for 2006/07

Autumn 2006 (October to December): a milder than average autumn, particularly in the eastern EU and eastern countries; very limited frost risk conditions; wet at higher latitudes, quite dry in the Mediterranean Basin and Black Sea

In October, all over the continent, mild conditions occurred, particularly in the eastern EU and in the Black Sea area. The largest anomalies were recorded in the Iberian Peninsula where at the end of October both maximum and minimum temperatures remained close to the threshold of 30 °C (10 to 12 °C above the average). Those conditions favoured a rapid germination of the winter cereals. Between the second half of October and the first half of November colder air masses arrived from the north and some frost events occurred progressively from Russia towards the western EU up to Spain. In the second half of November a new warmer-than-seasonal wave was recorded, affecting mainly the areas between Portugal and the Baltic Sea; in Germany, Denmark, Poland and the Netherlands the mean temperatures were, on average, 4 to 5 °C above the seasonal values and even reached the highest values for the period since 1975 (only in 1994 were similar conditions recorded). In contrast, the temperatures were slightly colder than average in southern Italy, Greece and Turkey. In December, the warm anomaly was even more significant than in November; the phenomenon affected the whole continent (except the Iberian Peninsula, south-western France and Turkey) and in particular the Baltic States and the eastern EU, where again both the maximum and minimum temperatures were 10 to 12 °C above seasonal values. Those mild thermal conditions interrupted in many cases the winter cereal dormancy, but fortunately no relevant frost events occurred.

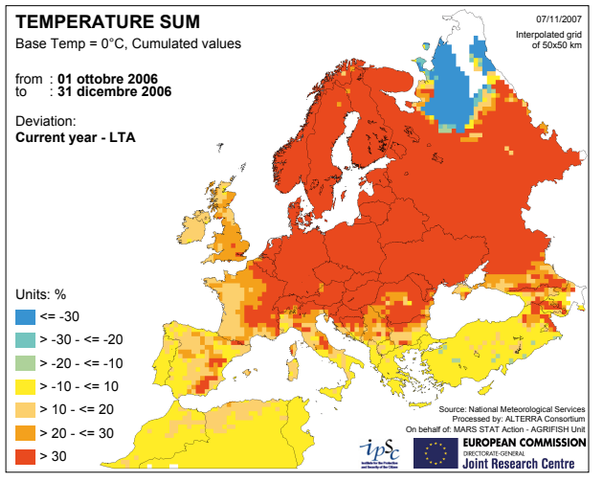
In autumn, quantitatively, the rain interested mainly the Atlantic side of the continent, whilst the Mediterranean and the eastern side (Black Sea) experienced a significant water shortage. In general, the rains were irregularly distributed but the majority of the continent experienced significant deficits (more than 50 % in north-eastern Spain, Italy, Hungary, Slovenia, Poland, northern Bulgaria, Greece, Moldova and Ukraine); only in the areas close to the Atlantic coastline (western Spain, Portugal, Normandy, Ireland, Scotland, Wales, northern Germany, Scandinavia, Denmark, Poland, the Baltic States and Russia) the cumulated values were largely higher than the seasonal norm: on average + 50 to 60 % compared with the LTA, but in some cases even + 100 to 150 % (northern Poland, southern Sweden and Scotland). Therefore, in general, the conditions were quite favourable during the sowing preparation but relatively dry over the majority of the continent for an optimal germination.

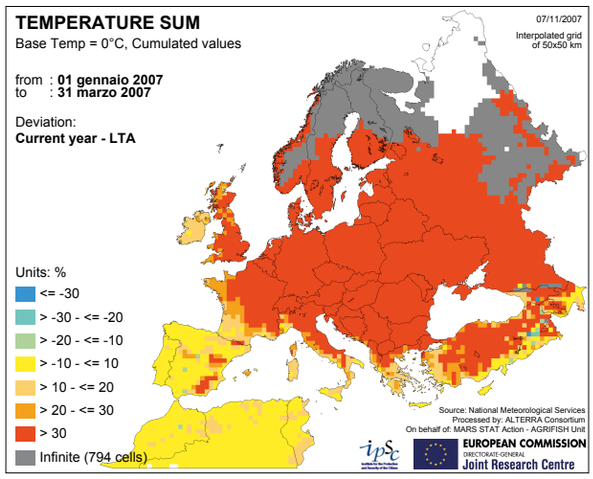
Winter 2007 (January to March): general unseasonably mild conditions were recorded; in the second half of March, winter conditions brought strong wind and risk of frost damages; rather dry in many of the Mediterranean and Black Sea areas while wetter in central and northern EU; heavy rain in Sicily

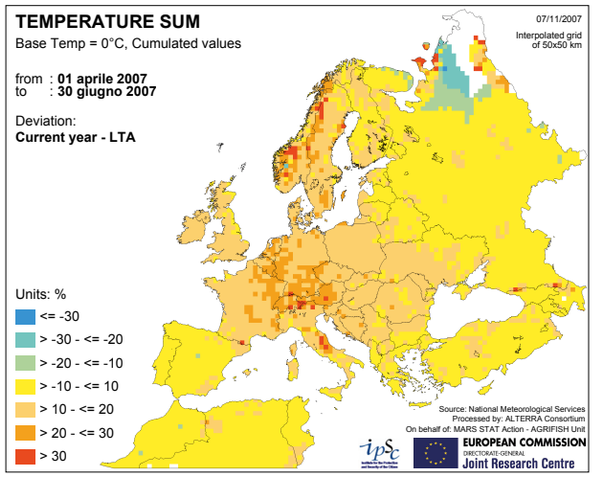
The New Year started without significant changes compared with the previous months and the winter-2007 can certainly be considered as one of the mildest for the past 20 years: only in 1990 and 2001 were similar thermal conditions recorded. The unseasonable temperatures were not uniformly distributed over the period. In **January** a persistent high pressure system over the Mediterranean area pushed cold air to higher latitudes and this caused anomalous temperatures on the more continental part of the EU. For instance, an anomalous warm wave affected northern Italy between 19 and 26 January when temperatures of 17 to 20 °C and even 22 °C [above the seasonal average] were recorded. In the last part of January a cold arctic air erupted and a rapid drop of temperatures was registered, mainly in Spain. **February** was milder again, especially in the central EU, Italy and Balkans:

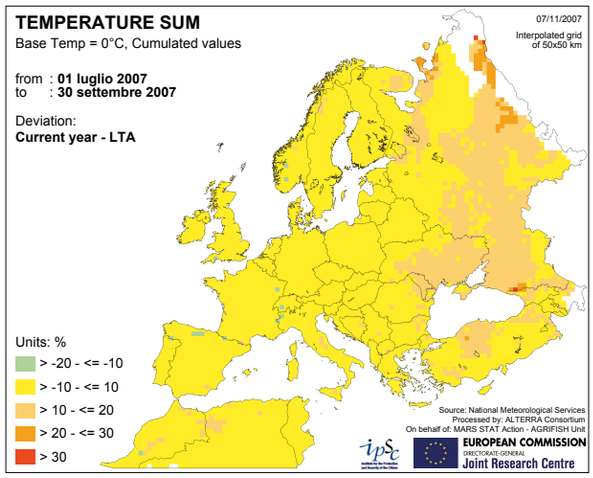
both minimum and maximum temperatures were recorded at 6 to 8° above the LTA. In contrast, in Sweden and Finland very cold conditions were recorded (even < – 35 °C). During mid-**March** the warm front moved eastwards and a drastic drop (mainly on minimum values) occurred in the western and central EU, causing frost events, in general coupled with snow (which probably prevented crop canopy damages). At that time the lowest temperatures occurred in Spain (– 7.5 °C in Aragon and Castilla y Leon, – 7.0 °C in Cataluña) and southern France (– 7.3 °C in Provence) between 22 and 25 March. In these areas crop damages were likely. At the end of March, in the whole central and eastern EU the accumulated active temperatures (GDD with base temperature = 0 °C) were largely in surplus: on average 130 to 150 GDD but with a maximum of 200 to 230 GDD between Romania and Hungary. Only in the west (Ireland, south-western France, central and western Spain, Portugal and Maghreb) were more seasonal values recorded.

During the considered period, the rain was not limiting the crop potential in the EU countries as a whole except for specific regions where scarce: southern and eastern Spain, central and southern Portugal and north-western Italy. In **January** the rain was scarce in western and southern EU and abundant in the eastern side but, fortunately, in **February** it was abundant and largely spread over the majority of the EU territory: in many cases (northern Spain, France, the southern UK, Germany, western Poland, Denmark, southern Sweden, Romania and Hungary) it was largely above the seasonal cumulated values (> + 50 % of the LTA and in some areas even > 100 %). In contrast, in some Mediterranean regions relatively dry conditions persisted: southern and eastern Spain, southern France (Rhone Valley), northwestern Italy (Po valley), eastern Greece (Macedonia) and the Black Sea Basin. In **March** the rainy events moved southwards and some areas affected by shortage of rain received beneficial water supplies: southern Italy, eastern Greece, south-eastern Spain and Maghreb (> 100 mm above the LTA). In Sicily some intense showers (> 160 mm in one day) occurred with possible local problems and damages. Despite those rains, southern Spain, southern Portugal, Rhone Valley, Po valley, eastern Ukraine, southern Turkey and Morocco still received less rain than expected: the soil water content was even more depleted.



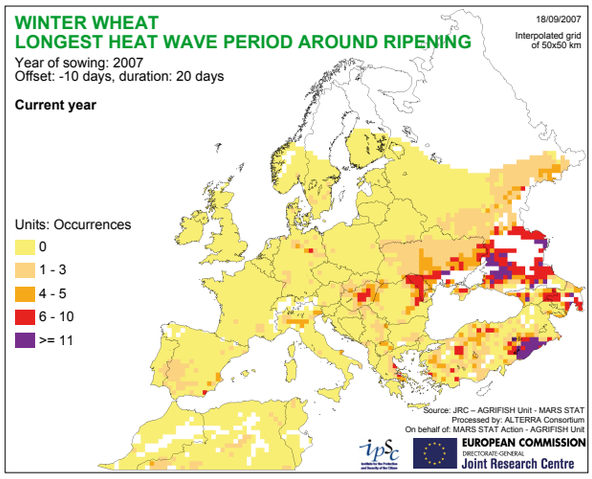


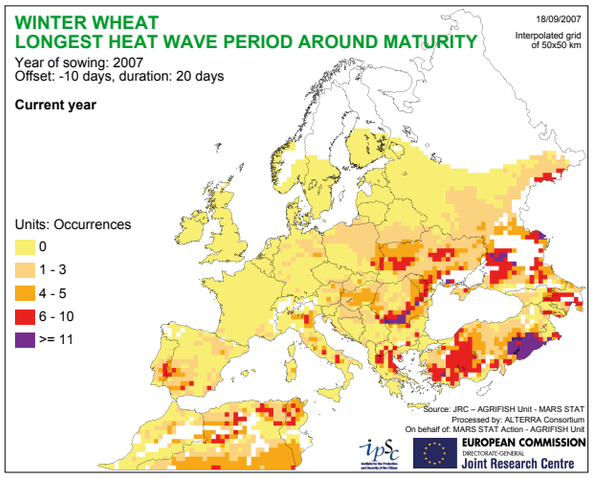


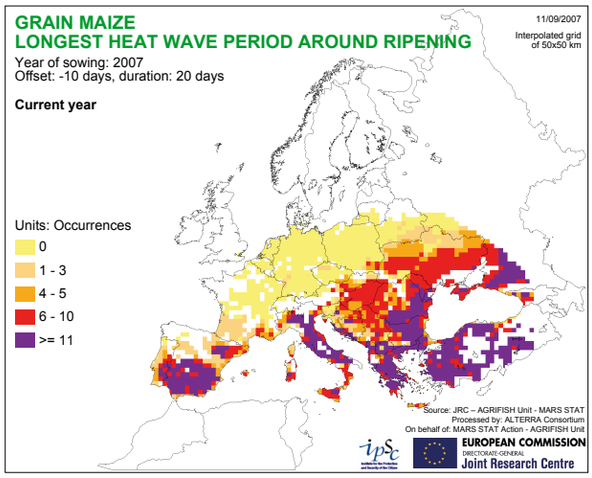


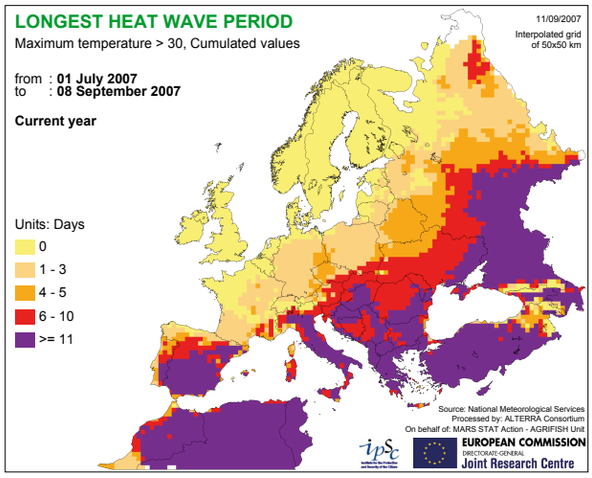
Spring 2007 (April to June): the mild winter was followed by a warmer than seasonal spring (mainly April), with temperatures almost constantly above the average (except in the Iberian Peninsula, Maghreb, Turkey and Russia); rain shortages occurred in April, but beneficial water supply in May and June; still insufficient in northern Italy, Greece, the Black Sea area and Russia

As a whole, the season presented a general surplus of cumulated active temperatures, mainly in central and northern EU areas (on average 150 to 200° GDD). The largest anomalous accumulation occurred in **April**, mainly because of higher than average minimum temperatures in central and northern EU areas. In fact, in France, Benelux, the UK, western Germany, Ireland, Denmark and Sweden, April 2007 was one of the mildest for the last 30 years, whilst in Italy and western Turkey this season was the warmest since 1975 (on average 2 to 3 °C, and in some cases even 4 to 4.5 °C, above the seasonal mean). Similar thermal conditions occurred in eastern Germany, Poland, the Czech Republic and Austria only in 1986, 1998 and 2000. Nevertheless, during April in eastern EU areas and around the Black Sea the minimum temperatures were lower than average with a higher number of frost days. Extremely high temperatures occurred both in April (30 °C in the Netherlands, Belgium, central France, Portugal, southern Spain and northern Italy) and at the beginning of May in Spain and Portugal (34 °C in Extremadura and Alentejo) and Turkey (38 °C in Akdeniz, 37 °C in Guneydogu Anadolu). **May** was characterised by a









strong west–east thermal gradient with cooler conditions (2 to 3 °C below the LTA) along the Atlantic and North Sea line and a progressive increase eastwards as far as Ukraine, the Black Sea, Turkey and Russia (6 to 8 °C above the seasonal average). But, at the beginning of the month, an Arctic cold airflow erupted in the Baltic States and on the eastern side of the continent, where the minimum temperatures dropped suddenly several degrees below 0 °C. **June** started with more normal conditions in southern EU areas whilst remaining warmer in the northern latitudes. During the month, the 'warm wave' moved progressively south-eastwards, invading central and eastern EU areas and then the southern and central Mediterranean countries. In the second half of June a very hot wave, blown from Africa, covered southern Italy, Greece and the Baltic Peninsula up to southern Ukraine. The maximum temperatures shot up, reaching very anomalous values (15 to 16 °C above the average) and in many cases were above 40 °C (e.g. 47.0 °C in Apulia (IT), 45.3 °C in Sterea Ellada (EL), 44.6 °C in Thessalia (EL), 43.5 °C in Basilicata (IT), 42.4 °C in Makedonija, 42.1 °C in Yugozapaden (BG). Meanwhile, colder fluxes were attracted from the northern latitudes having an effect on western EU areas and Finland.

As with the temperatures, there were anomalies in the distribution of rainfall. It was very dry in April over the whole continent (except Spain and the western Mediterranean), but very wet in May and June along the whole Atlantic side and in central Mediterranean while remaining dry in the western Mediterranean (including Italy), Hungary, Romania, Bulgaria, Black Sea countries and Russia. At the end of June a clear surplus (an average 60 to 100 mm) was present in all of the Atlantic countries (mainly Germany and England), whilst a deficit (120 to 150 mm) was recorded in central and northern Italy, Hungary, Romania and Bulgaria, Black Sea areas (mainly Ukraine and Moldova) and Russia. In the wetter areas the rain was distributed in a larger than average number of rainy days (5 to 10). In contrast, alarmingly cumulated water deficits were recorded in northern Italy (Piemonte, Lombardia, Friuli, Veneto with – 300/– 250 mm, equivalent to – 90/– 80 % compared with the LTA), Portugal (– 70/– 80 %), Greece (– 40/– 50 %), Bulgaria, Romania, Hungary, central and southern Ukraine (– 80/– 70 %), Turkey (– 20/– 30 %) and western Russia. In these areas the soil moisture content presented conditions even worse than recorded in 2003.

Summer 2007 (July to September): sharp differences in weather conditions between the eastern (warmer and drier than average) and the western side (cooler and wetter) of the continent; a prolonged dry spell in central Mediterranean, Black Sea and Baltic areas; in contrast, abundant and persistent rain in central and northern EU areas, interfering with field activities and affecting crop yield

During the first two months a typical summer high pressure system (Azorean anticyclone) characterised the global circulation but limited its influence on the Mediterranean Basin, avoiding its expansion on central Europe, as normally occurs in this season. That determined a general southbound flux of cool air on the western side of Europe and, in contrast, African hot air was pushed to Balkans and Black Sea area. Therefore, in **July** in southern and central Italy, the Balkans and Black Sea areas maximum temperatures were on average 5 to 6 °C above seasonal values. Extreme temperatures occurred between 22 and 25 July, when the maximum reached 40° to 43 °C and even 45 °C locally in Italy (Apulia), Greece, Bulgaria, Romania, Hungary, Bosnia, Moldova and Turkey (10 to 12 °C above the long-term average). In contrast, in Scandinavia, British Isles, western France, western Spain and northern Portugal the recorded maximum values were on average 2 °C below the seasonal values. The synoptic configuration persisted in **August** and all the areas progressively located eastwards to 12 and 13° E experienced higher than average temperatures, whilst westwards they were lower than average. However, brief oscillation of the

general circulation occurred and determined a temporary increase or decrease of temperatures; i.e.: at the very beginning of August a sudden temperature drop occurred (12 to 14 °C) in the eastern side of Europe but was followed immediately by a new rapid increase.

Since the last part of August the Azorean anticyclone has moved back eastwards determining a significant drop of temperatures (even 3 to 4 °C below the LTA) in the whole central and eastern EU area. Only in the eastern and southern Black Sea Basin and in Portugal have the temperatures remained above the seasonal average.

As a whole, in this season the cumulated active temperatures (Tbase = 0 °C) presented values within the normal range of variation with a slight surplus on the eastern side of the continent and comparable deficit in the western side.

The particular synoptic circulation forced the Atlantic rainy fronts to pass on to the central and northern EU territory, missing the southern countries completely. Two opposite conditions occurred. There was a water shortage in the Mediterranean territories (particularly in southern France, Italy and central and eastern Spain), Baltic States and in the eastern EU's neighbouring countries (in particular Turkey, Moldavia, Ukraine and Russia) but there was abundant and persistent rain in central and northern Europe and in particular in the countries facing the North Sea and the Atlantic.

The first group of countries received on average around 80 to 100 mm less rain than expected. In some areas (e.g. southern Italy, southern France and Spain) this deficit represents more than 60 to 70 % of the expected water. The second group of countries, and in particular central and northern France, Great Britain, Ireland, central and northern Germany, Denmark, Sweden, northern Poland and Finland, experienced persistent rain and one of the wettest Julys since 1975; similar conditions occurred only in 1987 and 1998. In central Germany, southern Sweden, Austria, Poland and Romania, levels of more than 200 mm above the seasonal average were recorded. In the whole period, 12 to 17 rainy days occurred more often than the seasonal average. It means that the longest period with consecutive dry days (i.e. daily rain = 0) was on average no longer than 4 to 5 days. Temporary flooding was likely to have occurred locally and the harvests were delayed or carried out under unfavourable wet conditions.

4. Agrometeorological analysis on the EU-27 area for the 2006/07 campaign

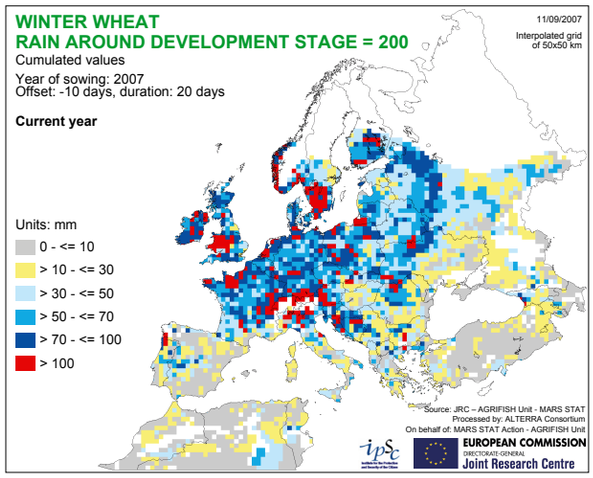
Cereals

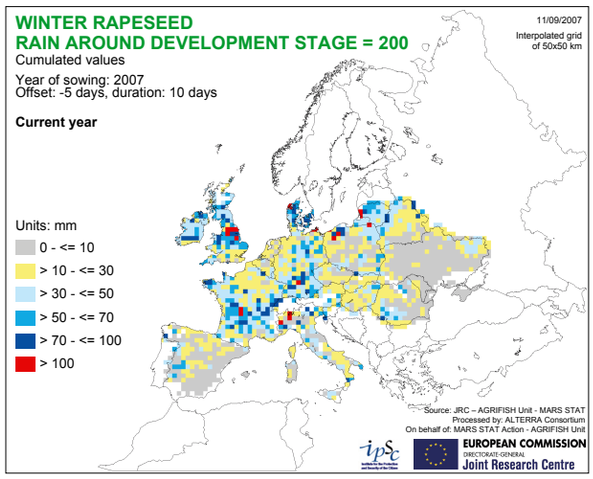
The average yield for cereals at EU-27 level is 4.62 t/ha, lower than for 2006 (– 1.2 %) and the 5-year average (– 2.6 %) as a result of the dry conditions experienced by important maize producers in eastern Europe and of the shortened crop cycle for winter cereals in central and eastern countries.

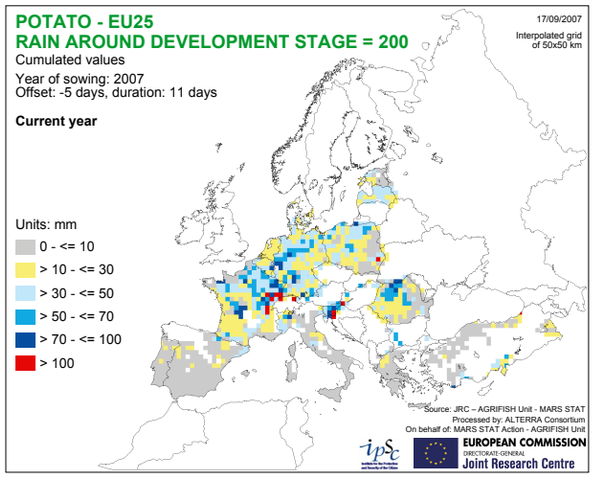
The catastrophic situation for maize in Romania and Hungary due to the summer drought is the main factor which has lowered the average yield for total cereals in Europe.

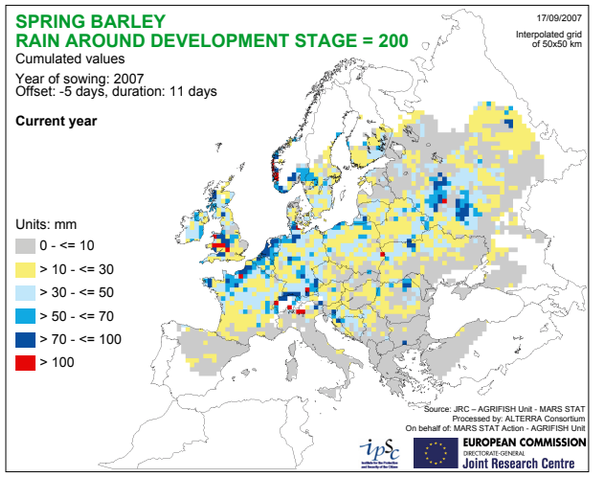
Soft wheat yields have been penalised in central and eastern Europe (Austria, the Czech Republic and Slovakia, Romania, Hungary, and Bulgaria) because of the high temperatures recorded during winter, which shortened the vegetative phase and therefore the crop potential before the grain filling stage.

Cereals production for the EU-27 is lower than in 2006 (– 0.9 %), although there is a slight increase in surface (+ 0.3 %); the situation is worse when compared with the 5-year average productions (– 6.1 %) because of the combined effect of reduced surface (– 3.6 %) and the yield reduction mentioned above.









SOFT WHEAT

Soft wheat is forecast to yield 5.38 t/ha at EU-27 level. This figure is comparable to that recorded in 2006 (+ 0.2 %) and lower than the 5-year average (– 1.1 %).

Compared with the 5-year average, the countries where the situation is worst are Austria (4.78 t/ha, – 5.9 %), Bulgaria (2.72 t/ha, – 12.9 %), the Czech Republic (4.41 t/ha, – 8.2 %), Greece (2.55 t/ha, – 10.6 %), Hungary (3.66 t/ha, – 7.7 %), Ireland (8.22 t/ha, – 7.5 %), Poland (3.52 t/ha, – 6.1 %), Romania (1.99 t/ha, – 20.1 %) and Slovakia (3.56 t/ha, – 9.7 %).

Compared with the previous year, the countries where the highest yields were recorded are Belgium (8.60 t/ha, + 5.2 %), Spain (3.56 t/ha, + 18.5 %), Lithuania (3.18 t/ha, + 34.8 %), Latvia (2.98 t/ha, + 6.5 %), Poland (3.52 t/ha, + 8.4 %), Sweden (6.28 t/ha, + 15.0 %) and Slovenia (4.76 t/ha, + 13.6 %).

Forecast yields are also slightly lower than the 5-year average for the main producers not yet mentioned: Germany (7.18 t/ha, – 1.0 %), France (7.16 t/ha, – 0.4 %) and the UK (7.77 t/ha, – 1.8 %).

Temperatures decidedly higher than the average were recorded during the winter. This, coupled with the abundant rainfall in the same period, could have had a triggering effect on diseases. While warm conditions persisted in spring, problems due to insufficient water availability have affected most of the countries, shortening crop cycles. Drought influenced wheat in the last part of its cycle in eastern countries. Machines accessibility to the fields during harvests has been hindered in some of the north-western countries.

BARLEY

The situation for total barley is better than that for wheat. This is mainly explained by the contribution of spring barley, which did not suffer from the shorter season due to the warm winter. Forecast yield at EU-27 level is 4.48 t/ha, higher than for 2006 (+ 1.4 %) and close to the 5-year average (– 0.4 %).

The satisfactory yield forecast at EU-27 level results from large decreases forecast for many small producers and substantial increases for main barley producers, such as Spain and Poland.

Severe yield decreases are forecast for Bulgaria (2.40 t/ha, – 18.4 % compared with last year), Estonia (1.85 t/ha, – 13.3 %), Greece (2.16 t/ha, – 13.4 %), Hungary (3.18 t/ha, – 13.6 %), Ireland (6.47 t/ha, – 5.0 %), Italy (3.60 t/ha, – 7.2 %), Portugal (1.48 t/ha, – 38.0 %), and Romania (1.74 t/ha, – 25.2 %).

With respect to 2006, high yields are forecast for Denmark (5.19 t/ha, + 7.8 %), Spain (3.29 t/ha, 27.7 %), Lithuania (2.63 t/ha, + 35.3 %), Poland (3.07 t/ha, + 18.6 %), and Sweden (4.24 t/ha, + 17.9 %).

Variations lower than 5 % are forecast for the yields of other important producers: – 4.8 % compared with 2006 for Germany (5.62 t/ha), + 2.8 % for France (6.41 t/ha), – 0.3 % for the UK (5.92 t/ha), + 1.5 % for Finland (3.54 t/ha) and + 2.2 % for the Czech Republic (3.67 t/ha).

Winter barley forecasts are influenced by the same factors that drove the winter wheat current campaign: a warm and wet winter and a dry spring in most of the countries.

In the period when spring barley is usually sown in some areas of central and north-western countries abundant and frequent precipitations have caused problems. Countries which have probably been affected are France, Belgium, the Netherlands, Germany, the UK, Austria, the Czech Republic and Slovakia.

GRAIN MAIZE

Grain maize is forecast to yield 6.0 t/ha at EU-27 level: – 8.0 % and – 7.0 % respectively compared with 2006 and the 5-year average.

Western Europe benefited from exceptionally good weather conditions (wet during the initial vegetative period, plenty of solar radiation during the period of intense growth and a dry harvest), which allowed very high yields: Belgium (11.8 t/ha, + 16.1 %), Austria (10.1 t/ha, + 9.1 %), Germany (9.3 t/ha, + 16.4 %), France (9.0 t/ha, + 4.3 %) and Portugal (5.4 t/ha, + 8.2 %). The maize yield was also very good (+ 6.3 % on the average of the last 5 years), in the Netherlands (14.2 t/ha, – 20.4 %), but without reaching the very good level of 2006. In case of Spain (10.0 t/ha, + 1.8 %), the irrigated crops benefited from the solar radiation resources which are normally available for maize growth in this area.

Important yield increases compared with the previous year are forecast for the countries from the north-eastern area for maize in the EU-27: Poland (5.8 t/ha, + 40.4 %), Latvia (2.9 t/ha, + 24.9 %), Slovakia (8.2 t/ha, + 18.0 %), the Czech Republic (7.7 t/ha, + 14.6 %) and Slovakia (5.6 t/ha, + 2.6 %).

This year the unfavourable conditions (dry and extremely hot summer) from along lower Danube Basin strongly affected the maize crops in Romania (1.9 t/ha, – 48.2 % compared with 2006), Bulgaria (2.4 t/ha, – 48.1 %) and Hungary (4.1 t/ha, – 39.3 %).

Greece (8.6 t/ha, – 5.0 %) experienced a small reduction compared with the previous year and in the case of Italy (8.7 t/ha, 0.0 %) the maize yield remained at the level of 2006.

Oilseeds

RAPESEED: YIELD POTENTIAL COMPROMISED BY OVER-WET OR OVER-DRY CONDITIONS

The final yield expectation at EU-27 level is quite low at 2.8 t/ha, – 4.7 % and – 5.6 % respectively compared with 2006 and the average of the last 5 years.

Only a few countries are expected to get a better yield compared with last year; by order of surface importance: France (+ 7.8 %, 3.2 t/ha), Denmark (+ 5.0 %, 3.2 t/ha), Lithuania (+ 46.4 %, 1.7 t/ha), Latvia (+ 33.8 %, 1.9 t/ha) and Sweden (+ 6.7 %, 2.6 t/ha).

The countries with lowest yields in 2007, compared with the average, are France (– 3.6 %), Poland (– 1.2 %), Romania with a dramatic drop (– 50.6 %, 0.6 t/ha), Lithuania (– 3.7 %), Slovakia (– 13.3 %, 1.8 t/ha), Estonia (– 16.8 %, 1.3 t/ha) and Austria (– 18.1 %, 2.2 t/ha).

After a generally dry autumn, January and February contributed to partially replenish the soil moisture. Later, the soil moisture decreased to reach a minimum during the dry month of April. The crop benefited from higher than average temperatures during most of the crop cycle, which was up to 3 weeks in advance.

From May, northern countries such as the United Kingdom, France, and Germany suffered from wet conditions and lower radiation that limited the promising yield potential. Moreover, harvests were often carried out under wet suboptimal conditions.

In contrast, central countries such as Hungary, and Romania even more so, suffered from a dry spell, often associated with excess of temperature that lowered drastically the yield potential.

SUNFLOWER: OPTIMAL CONDITION IN FRANCE AND SPAIN, OVER-DRY IN ROMANIA, HUNGARY AND BULGARIA

The expected yield for sunflower is about 1.4 t/ha at EU-27 level, much lower than last year (– 17.1 %) and than the 5-year average (– 13.2 %).

More than 90 % of the EU-27 sunflower surface is covered by five countries. Three of them have shown a significant decrease compared with average: Romania (– 24.8 %, 1.0 t/ha), Bulgaria (– 34.4 %, 1.0 t/ha) and Hungary (– 12.9 %, 2.21 t/ha). Two of the main producing countries are expected to have a better yield than average: Spain (+ 3.4 %, 1.0 t/ha) and France (+ 3.1 %, 2.4 t/ha).

After a dry start in April, the soil moisture in Hungary, Romania and Bulgaria was partially replenished in May. Then the crop suffered from a dry spell up to the end of July, associated with extreme temperatures that reduced the yield potential. Despite abundant rainfall from August until the harvest, the crop yield potential could not recover from the previous situation.

In contrast, sunflower in France, and to a lesser extent in Spain, benefited from wet conditions throughout the main crop cycle that ended under drier conditions and was harvested under relatively dry conditions.

Root and tuber crops

SUGAR BEET

The expected yields of sugar beet in 2007 can be considered positive at EU level. The estimate is for overall 61.2 t/ha, with an increase on both the 2006 season (+ 3.9 %) and the 5-year average (+ 5.7 t/ha).

Conditions were particularly favourable in Germany (62.2 t/ha; + 7.7 % on 2006) and the Netherlands (66.2 t/ha; + 0.3 %) due to abundant rains in summer followed by a decrease at the beginning of autumn. These conditions facilitated field accessibility and the relative sugar content. In the UK the wet summer was followed by a drier autumn, favouring yields (58.3 t/ha), with an improvement over both the 2006 season (+ 6.8 %) and the 5-year average (+ 2.5 %). Among other main producers, France reported relatively high yields (81.7 t/ha), the maximum levels of productivity in Europe. Conditions in Poland were average too (44.1 t/ha; + 0.7 on 2006). After the bumper season of 2006, Italy experienced a moderate decrease in yields (51.5 t/ha; – 2.4 %) but that was still significantly above the 5-year average (+ 7.5 %). In Spain the abundant spring rains and irrigation allowed a certain resilience to the dry and warm summer conditions and yields remained stable (69.7 t/ha; + 0.2 on 2006 and + 0.6 on the 5-year average). Exceptions to this positive scenario were Hungary and Romania, affected by repeated heatwaves during the summer. The expected yields are significantly reduced (– 13.2 % in Hungary on the 5-year average). The final outcome is not expected to improve even in view of abundant autumn rains.

POTATO

The average expected yield of potatoes in the EU-27 stands at over 27 t/ha for the 2007 season. This represents an increase on the 5-year average (+ 4.6 %) and an even more marked improvement on the 2006 season (+ 9.6 %).

Conditions were favourable for the main producers of northern and central Europe (Germany, Belgium, the Netherlands, Denmark, Poland and the Baltic States). In these countries, yield exceeded 30 t/ha on average, with an increase of 10 to 20 % over the 2006 season. Significant peaks in production were reported in Belgium (46.5 t/ha; + 20.7 % on 2006). For other relevant producers, such as Ireland and France, yields recovered from 2006 and current levels can be considered in the norm. In the UK the level is comparable to 2006 i.e. 4.4 t/ha, which is still below average (– 3.7 %). In the Iberian Peninsula, Spain reported stable yields with respect to 2006 (28.8 t/ha) with a 5.6 % increase on the 5-year average. In Portugal the average yield (17 t/ha) exceeded by over 13 % both the 2006 season and the long-term average. Yield in the Balkan States, in particular Hungary, Bulgaria, and Greece (24.6 t/ha; – 27.1 % on 2006) was significantly reduced as a consequence of the heatwaves that hit the area in late spring and summer.

Rice

Rice yield at the EU-27 level is forecast at 6.58 t/ha, lower than the 5-year average (– 0.7 %) and 2.3 % less than last year.

Among the main producers, rice is forecast to perform better than 2006 only in France (5.80 t/ha, + 6.0 %). Yield in Italy (6.67 t/ha) is expected to be at a higher level than the 5-year average (+ 2.3 %), although lower than for 2006 (– 2.7 %), which was an exceptional year. An unfavourable season is depicted for Spain, Portugal and Greece, yielding respectively – 1.6 % (6.90 t/ha), – 4.8 % (5.52 t/ha) and – 1.0 % (7.79 t/ha) compared with 2006.

Except for Romania (2.92 t/ha, – 12.3 %), forecasts are higher than those recorded in 2006 in eastern countries: + 8.8 % (4.80 t/ha) and + 8.9 % (4.28 t/ha) respectively in Bulgaria and Hungary.

High temperatures shortened crop cycles in Italy, France and especially Greece, while Portugal was penalised by unseasonably cool conditions during the first part of the season, which could have created problems to crops in emergence and post-emergence phases.

A significant reduction in rice-cropped area is expected in Spain, where possible water scarcity discouraged some farmers to grow rice. Greece, Portugal and Hungary experienced cold shocks during the pre-flowering period, with possible yield losses due to spikelet sterility.

5. Agrometeorological analysis on the Black Sea area 2006/07

Turkey: erratic weather conditions during the 2007 agricultural season negatively affected yields

Wheat is forecast at ~2 t/ha, a reduction of around 6 % on 2006. The same outcome is expected for barley (2.3 t/ha; – 5.4 % on 2006). Forecast yield for grain maize is 5.9 t/ha, – 4.5 % on 2006 but t with a 6.1 increase on the 5-year average. Variable climate trends, ranging from cold to wet and again to dry during the 2007 winter and spring eventually evolved into a summer drought which reduced the expected yield for winter cereals.

The beginning of the 2006/07 agricultural season was characterised by alternating periods of low and high temperatures over the main cereal production areas of Turkey. These were also combined with intense rains and dry spells.

Abnormally cold temperatures occurred during December when cereals were emerging and in the first phases of tillering. Warm weather set in at the beginning of January, with temperatures exceeding the normal averages by over 10 °C.

At the beginning of February intense rains spread from northern Turkey and the Black Sea area southwards and eastwards, favouring the start of the shooting phase of wheat. Dry conditions continued, however, to prevail in the west and in the south-west of the country.

In these areas the rainfall deficit continued to accumulate during April and May, moving gradually eastwards and affecting the main winter wheat production areas of central Anatolia. Although temperatures were within the norm almost everywhere, these conditions caused alarm for wheat in the heading phases. Winter barley, in a more advanced stage of development was less affected by the lack of rain. At the end of May conditions started gradually to improve, partly compensating what had been a bad start to the season. Wet weather moved in from the north-west, affecting progressively the Black Sea coast and then the central areas. In these areas the temperatures were stable on average levels and even slightly warmer than the norm. Wheat crops were then, for the most part, in the flowering stage and took advantage of these conditions.

The overall climatic water balance continued to improve until the first dekad of June when the onset of abnormally high temperatures and the contemporary reduction in precipitation changed the picture again. Winter cereals in the grain filling and final maturation phases were at that moment quite susceptible. Harvesting of winter cereals takes place during July in the cereal vocational areas of Antalya and Ankara and these conditions significantly affected the final yield. Harvesting takes place during June in the western and Mediterranean regions and this allowed the crops to avoid the onset of drought and to partly compensate the negative outcome in the rest of the country.

Summer crops are prevalent in coastal and irrigated areas and in the western region of Bati Marmara. Grain maize, in particular, should have been less affected by the particular climatic combination of the 2007 agricultural season and is taking advantage of rain in its final maturation phases, partly compensating for previous losses.

Ukraine: warm and dry year; southern Ukraine very affected

Expected yields are: winter wheat 2.0 t/ha (– 23 % on the last 5-year average, i.e. – 24 % less than 2006); barley 1.5 t/ha (– 29.2 % on average and – 33.8 % on 2006) and maize 3.3 t/ha (– 13.6 % on average).

The warmest September to January period , at least since 1975, continued warm and dry form February to March. Precipitation received from April to June was – 30 % below normal. The climatic water balance for July to September was the lowest within the last 33 years for the agricultural areas from the Black Sea zone and the second lowest (after 1994) for the north-eastern zone. As these unfavourable conditions started from the beginning of the vegetation season, the negative impact on simulated yields was very high: the simulated yields of winter wheat (frost damages not considered in those simulations), spring barley, maize and sunflower were the lowest since 1975. The north-western zone shows a close-to-normal situation and in some areas the simulated yield is above the long-term average.

6. Agrometeorological analysis on the Maghreb for 2006/07

Morocco, Tunisia and Algeria: A dry start of the season developed favourably in Algeria and Tunisia where spring rains favoured yields; dry conditions persisted in Morocco and developed into one of the worst droughts in recent years.

The yield forecast for winter wheat in Algeria is 1.27 t/ha. This represents a significant recovery on the 2006 season (+ 34 %) but still almost – 6 % with respect to the 5-year average. In Tunisia the wheat yield is estimated at 1.5 t/ha (+ 17.5 % on 2006 and + 4.5 % on the 5-year average). The forecast yield for barley in Algeria is fairly stable at 1.44 t/ha (– 2.0 % on 2006 and + 2.9 % on the 5-year average). In Tunisia the estimate is 1 t/ha, a recovery on the 2006 season (+ 19.5 %) and also on the 5-year average (+ 6.6 %).

The yield for winter wheat in Morocco is forecast at 0.8 t/ha, a 21.3 % reduction on 2006 and an even more significant – 43 % on the 5-year average. Due to the widespread distribution of the cultivation areas, the yield of barley was also significantly reduced with respect to the 5-year average (0.6 t/ha, – 31.3 %) but still saw an improvement over the 2006 season (+ 15.0 %).

At the onset of the new agricultural season, in autumn 2006, precipitation was scarce over most of western Maghreb. The deficits have been more relevant in the winter cereal cultivation areas of central and western Morocco, while better conditions were reported in Algeria and Tunisia. Temperatures in this period were milder than average over most of the region, possibly limiting the hardening of winter cereals and increasing susceptibility to possible cold spells. Algeria and Tunisia were characterised by scarce rainfall in January and average temperatures of around 8 and 9 °C. Crops were still in vernalisation and the water deficit did not significantly affect development. From February onwards rainfall was abundant over the central and eastern portions of the Maghreb. This trend affected most of the coastal regions of Algeria and Tunisia, with absolute peaks during the second dekad of May. Temperatures in this period were reported as normal. Winter cereals in the grain filling and whose development had been delayed by the cold spells in early winter took full advantage of the combined effect of mild temperatures and available soil moisture. The crop season closed positively during June in Algeria and Tunisia.

Morocco reported normal rainfall levels up to the third dekad of January. From then until March, however, the main winter wheat cultivation areas in the north and centre-west experienced one of the worst droughts in recent years. Conditions eased from mid-March onwards, and especially in the agricultural districts of the north-east. In these areas there were moderate but well distributed rains until mid-June and both maximum and minimum temperatures did not report particular deviations from the norm. The drought, however, endured in the south-west, along the Atlantic coast and in the southern central regions. To make this condition even more damaging was the fact that it coincided with the delicate phases of tillering and heading of wheat which had been anticipated by the mild temperatures during winter and the absence of vernalisation.

7. Agrometeorological analysis on the eastern countries for 2006/07

Belarus: close to or above long-term average yields for most of the crops

Expected yields are: winter wheat 2.9 t/ha (– 3.1 % on the last 5-year average), barley 2.7 t/ha (– 4.8 % on average) and maize 4.5 t/ha (+ 18 % on average).

Two frost waves were recorded in February (locally the minimum temperature fell below – 30 °C) but the good snow cover minimised the impact on winter crops. March was warmer than usual. The reduced level of soil moisture due to a dry spring was improved by rain from beginning of July. Maturity of most of the crops was anticipated. The simulated yields were close to the long-term average (since 1975) but the simulated rapeseed yield was below the reference level (trend not considered).

Moldova: an extremely dry and hot year

Low or failure yields at 0.4 t/ha are expected for wheat. The estimations for barley and maize are respectively low (0.7 t/ha and 2.3 t/ha).

This year, the Republic of Moldova was subject to extremely and exceptionally dry and hot climatic conditions (the probability of the occurrence of warmer and drier events for the period April to July is about 2 years in every 100).

Yields for winter crops (wheat) are at the lowest level since at least 1975. Compared with the last 5-year averages, harvest reductions of up to 84 % for winter wheat, about 65 % for barley and 22 % for maize were estimated for this year.

At least a quarter of the total area grown with crops could have been seriously affected (crop failure). The three most affected areas are the south, the area around the town of Balti and the eastern bank of the Dniester (Nistru) river.

Only the north-western part of the country shows patterns close to a normal situation.

Russia: moisture deficit for summer crops

The winter period was less favourable for winter crops than the previous year, especially in the Volga and Urals regions. In some regions, unfavourable winter conditions affected around 30 to 50 % of winter crops, and it was necessary to re-sow them.

Meteorological conditions during April to May were optimal for winter crops and favourable for spring crop sowing practically everywhere, and the sowing campaign is likely to be finished without delay.

In June and July meteorological conditions for summer crops were favourable in all regions, except the central Russia, middle Volga and Urals regions where a low amount of precipitation delayed crop development.

Dry weather with high air temperature in August in the Northern Caucasus region is favourable for spring crop harvesting, but it creates problems for last stages of summer crop development. The yield of sunflower and especially maize is likely to be affected by such weather conditions. Additionally, the sowing of winter crops the central and north-western regions led to delay in crops harvesting, and consequently, to a decrease in grain quality.

As a result, the yield of winter crops seems to be lower by 15 to 20 % than in the previous year (due to unfavourable winter conditions and a dry spell at the end of the season) practically everywhere except some regions of Northern Caucasus, where the yield seems to be close to the previous season. The yield of spring grain crops, however, is likely to be higher than or close to that of the previous year. The yields of potatoes, sunflower and sugar beet are likely to be close to the previous year or slightly higher.

8. Pasture analysis

The forage production season was characterised by a great variability in climatic conditions all over Europe. In southern and western Europe there was a positive outcome which resulted in a sufficient supply of fodder biomass. Conditions were worse in eastern Europe, particularly in Hungary.

The 2007 season had a positive start in most of the livestock fodder production areas of Europe. Warm temperatures characterised the winter season over most of northern Germany, the Netherlands and the northern Alpine regions. The amount and distribution of precipitation were at average levels until the end of February and maximum temperatures were systematically 5 °C above the long-term average from February to April.

The combined effect of mild temperatures and sufficient rainfall at the onset of spring were consistent with a positive development of the green biomass for forage and abundant grazing for cattle and sheep. In those areas where animal feed production is principally made up of silage forage the outcome of the winter and spring season encouraged an early first cut.

From March, however, dry weather started affecting the central regions of Europe, moving progressively northwards. The situation continued worsening until early May with cumulated rainfall not reaching 60 % of the long-term average. These conditions were consistent over most of northern Europe as well as the UK and Ireland. Diffuse precipitation returned almost everywhere in May except for some of the forage production regions of eastern Europe.

There was, however, abundant rainfall over Ireland and central and western France, with conditions more favourable than elsewhere in Normandy. The regrowth was delayed by the dry spell in April but the following abundant precipitation allowed significant recovery for the second cut in June.

Dry conditions in March and April were, however, less favourable for the early development stages of maize for green cut and most affected were the vocational silage production areas, especially in northern Italy.

While dry conditions affected most of Europe, precipitation continued throughout Spain, with alternating periods of cloud-free skies combined with relatively mild temperatures. Pastures were not significantly affected by this erratic climatic trend and actually took advantage of it. This particular combination, while delaying the forage regrowth, boosted biomass production and an extended season in the grazing districts of the south-west (Extremadura),

Summer conditions in the forage crops' vocational areas were significantly different between western and eastern Europe. Intense precipitation ranging from the western Iberian Peninsula to France and northern Germany characterised the months of July and August, limiting access to the meadows for grazing and the third forage harvest. The enduring cloud cover and the mild temperatures delayed the final cut with a prolonged development actually boosting production though reducing quality.

In eastern Europe, in contrast, there were heatwaves and dry weather in July and August and, as for most other summer crops, forage production was severely affected. The failure of grain maize yield in areas like Hungary probably motivated an early harvest and the destination of maize to forage. In this part of Europe overall condition improved in September, allowing the final cut of forage, though there might also have been problems with the quality here.

PASTURES

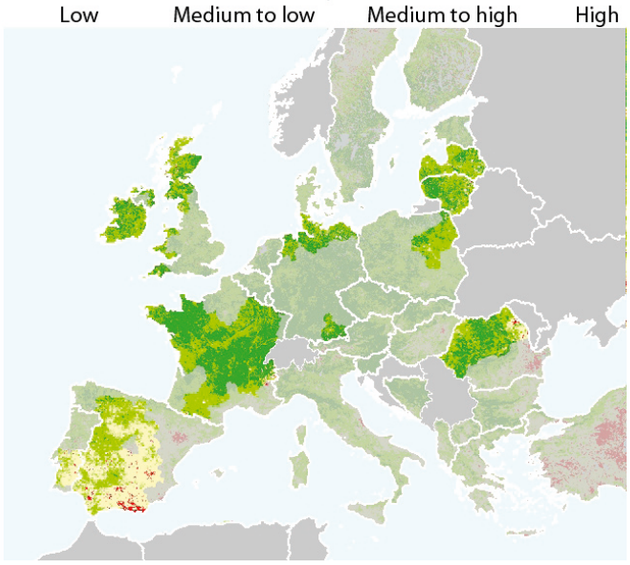
South-western Spain: Late spring rains and mild temperatures allowed an extended grazing season and above average levels of biomass. These conditions are reflected by the cumulated levels of the NDVI that appear significantly above average in the south-west. The onset of dry but normal conditions in August concluded the forage season. The NDVI values in the summer were at the maximum levels for recent years.

Central France: There was abundant precipitation in May and throughout summer. Exceptional conditions of the vegetation as represented by the NDVI converged to the norm in June and July. The biomass potential however did not exceed normal levels.

Ireland and the UK: There was a good start to the season disregarding a dry spell in April. Intense rainfall from June limited access to the meadows for grazing and cutting and this protracted until August over Northern Ireland

Cumulated levels of NDVI in the period March to October 2007

Low Medium to low Medium to high High



SILAGE FORAGE

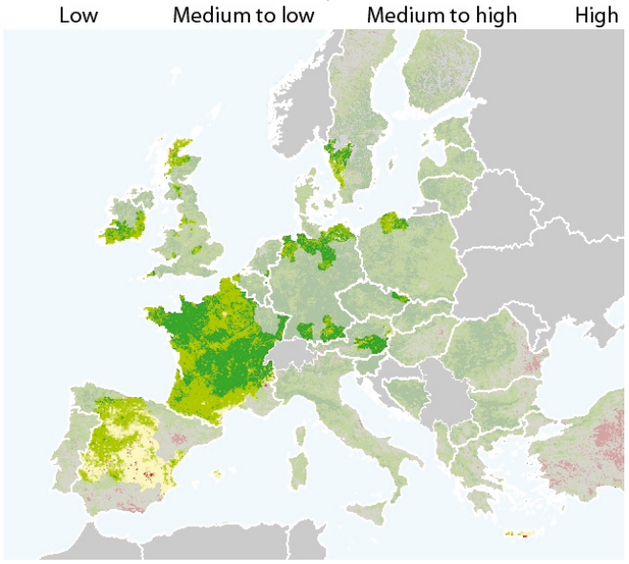
Western France: The first cut was as anticipated due to the mild and wet winter, but the reduced rainfall in May slowed regrowth. In June, precipitation coupled with mild temperatures delayed the second cut, which was nevertheless positive in terms of overall biomass.

Precipitation in July and August caused difficult access to the meadows and the availability of wet grass may have been conducive to using dry hay reserves.

Northern Germany: A positive start was followed by a dry period in early June. Rain returned in July and delayed the second cut. In July and August temperatures were lower than average and the period was characterised by a continuous cloud cover. The extended season, though favouring biomass production, may have also caused the use of dry hay reserves. The NDVI levels have not deviated significantly from the average but have shown improvement in some areas.

Cumulated levels of NDVI in the period March to October 2007

Low Medium to low Medium to high High



GREEN MAIZE

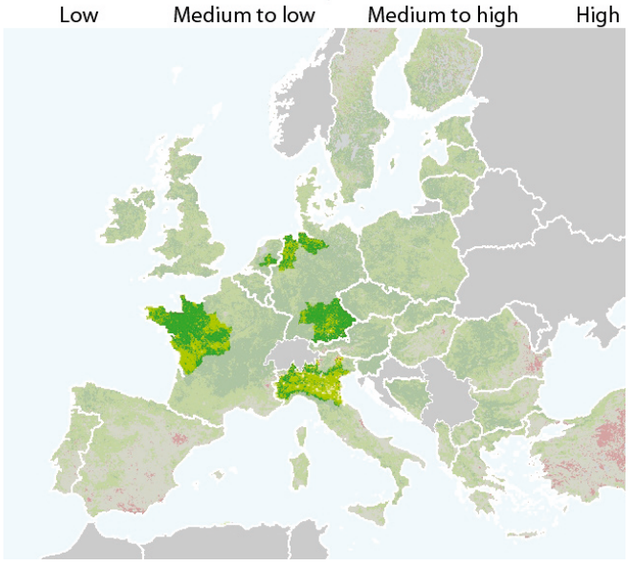
North-western France: Conditions were more favourable than elsewhere due to continuing precipitation. NDVI levels were significantly higher than the norm even though the reduction during August can be attributed to the persistent cloud cover.

Northern Italy: The Po Valley is intensely irrigated to support the production of maize on alluvial soils. The winter was dry, significantly reducing the available water reserves. The dry conditions extended into May, affecting germination and the early development stages. Precipitation in early June was not sufficient to make up for the losses, and high temperatures in summer determined a further increase in irrigation. Return of rain in mid-September was insufficient to make up for the deficit.

Hungary: Heatwaves and drought characterised the season. The failure of the grain maize production cycle may have

Cumulated levels of NDVI in the period March to October 2007

Low Medium to low Medium to high High



9. Spot vegetation satellite analysis

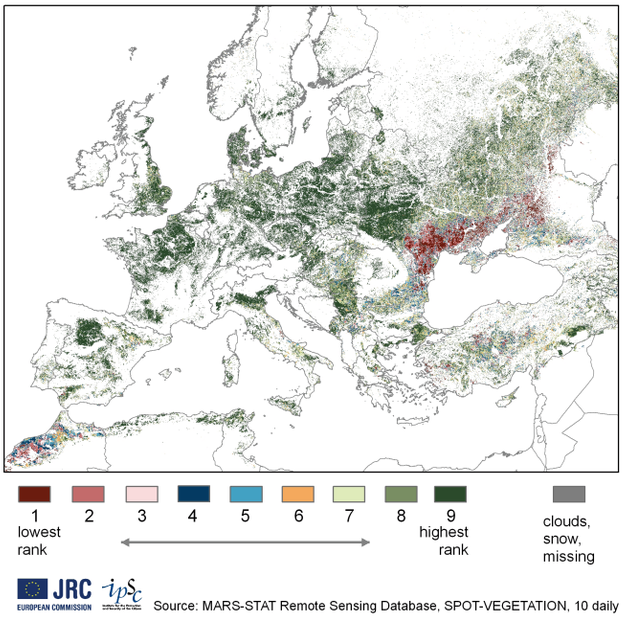
Map highlights — review of the 2006/07 season

The season 2006/07 was in large parts of Europe characterised by an early start, resulting in an early vegetation boost. This phenomenon is in keeping with the analysis comparing the profiles of 2006/07 with the average year and mapping the shift that appears between the average year and the profiles of the recently concluded season.

Beside conditions close to or even better than normal for a number of European countries, the season was less favourable, due to drought and heat stress, for the Black Sea area. This is depicted when analysing the cumulated NDVI values from March until September 2007 and ranking them among the available time series (in this case with NDVI data from spot vegetation since 1998). Cumulated NDVI values for this region (dark red) are the lowest in the entire time series, whereas they are among the highest for the remainder of Europe.

Cumulated NDVI ranking - March until September 2007

Cumulated NDVI ranked within all historic March-September periods (1999 - 2006) for arable land



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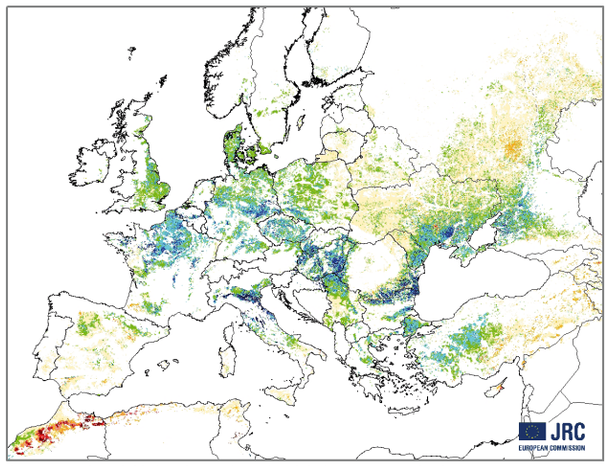
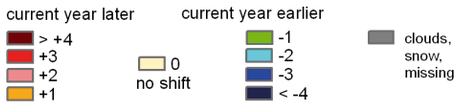
Source: MARS-STAT Remote Sensing Database, SPOT-VEGETATION, 10 daily

Crop cycle shift in 2006 / 07 for arable land

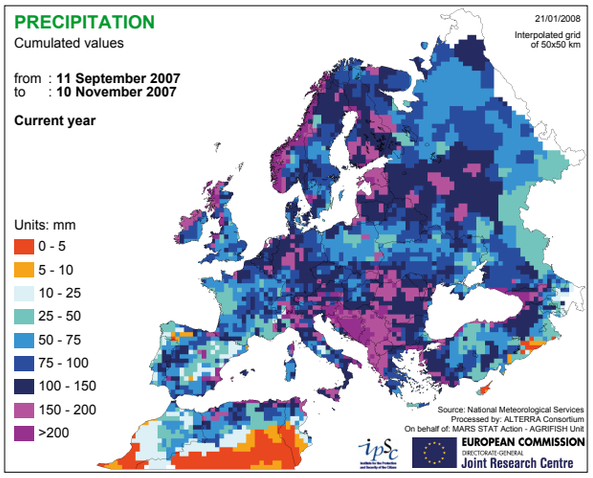
Current season (2006/07) compared to average season

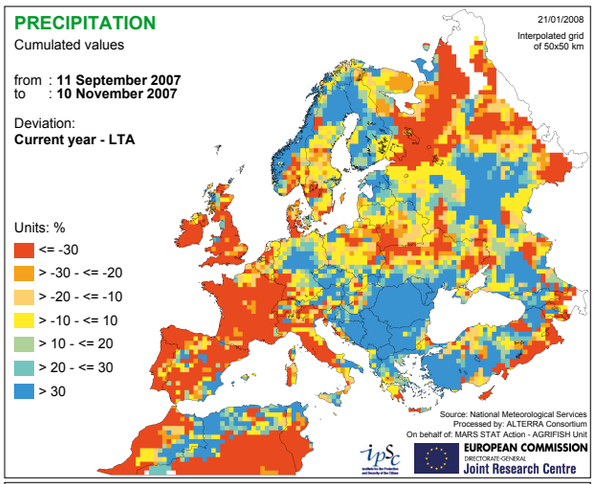


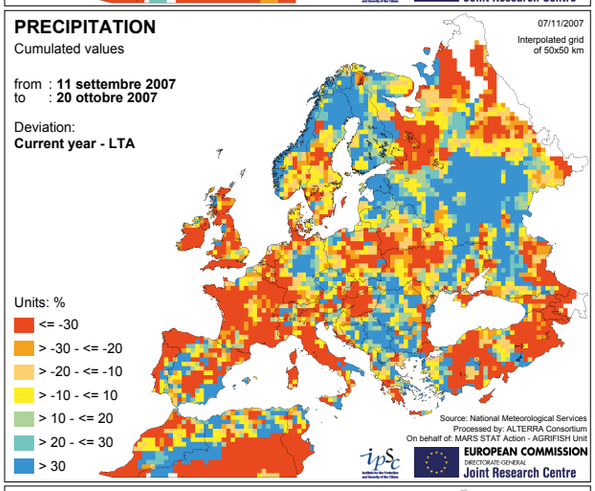
Crop cycle shift in decades for highest correlation

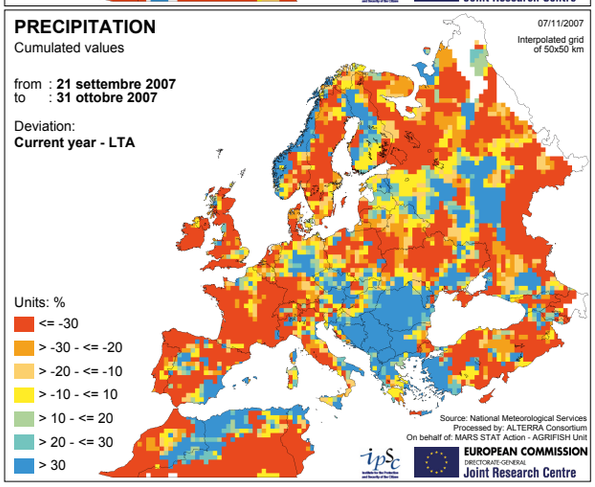


Source: MARS-STAT remote sensing database, SPOT-VEGETATION, 10 daily









B. New 2007/08 campaign 11 September to 10 November 2007

1. Agrometeorological overview

Temperature

General seasonal conditions: temperature values in central and eastern EU were slightly below average; quite milder conditions in October on the eastern side (from Finland to Turkey) and in November on Iberian Peninsula and in northern Italy and the British Isles; a drastic drop in France

During the whole period, the central part of the continent (from the Pyrenees to Poland and from Germany to Sicily) experienced slightly colder than average temperatures (mainly due to minimum daily values) and large daily thermal oscillations occurred, even if generally within the normal range of variation. Since the second half of October light frost events happened. However, in these areas the temperatures did not represent a limiting factor either for the last part of the cycle of summer crops, ready to be harvested, or for the new sowings.

Opposite conditions were recorded in the areas around those described above (namely Maghreb, Spain, Portugal, the British Isles, Finland, the Baltic States, Russia, Belorussia, Ukraine, Turkey and Greece) with slightly higher than seasonal temperatures especially at the beginning of the period. However, in these areas large thermal oscillation also occurred at the end of September. At the end of October frost events occurred.

Rain

Drier than seasonal in western EU; quite wet eastwards from Germany; useful rain in Algeria and Tunisia

The continent was clearly divided into two sectors along a virtual line connecting northern Germany with Greece.

West of this line rainfall was largely below the expected values (on average 50 to 100 mm) particularly in France, Italy, Portugal, England and Ireland (100 to 150 mm and even more). The rain shortage mainly occurred during the first half of September and from mid-October. However, light rainy events (8 to 10 mm) occurred permitting a quite good preparation of sowing beds, sufficiently supplying the top soils after sowing. The harvesting in September was also conducted under optimal conditions.

In contrast, on the eastern side of the line, the rains were abundant (but not so persistent). At the beginning of September and at the end of October a few heavy rainy events (> 30 $mm.d^{-1}$) occurred, mainly in Austria, southern Germany, southern Poland, Romania and Bulgaria with possible temporary flooding.

2. Winter crop sowing overview — autumn 2007

EU-25

Winter wheat: generally favourable conditions for wheat sowings recorded so far all over Europe, with a few exceptions in the eastern Balkans, in some regions in central Europe, and in south-eastern countries; dry sowing characterised south-western countries

Precipitations higher than the average in the sowing period were recorded in Slovenia, Croatia, Bosnia and Herzegovina, Bulgaria, western Turkey, northern France, north-eastern Austria and central Germany. The number of days characterised by intense rainfall is close to the average in

these areas (with the exception of the Balkan States). This was translated into high soil moisture for the whole sowing period, with resulting problems for field accessibility.

In contrast, Spain, Portugal and south-western France experienced dry sowings.

Winter barley: wet sowings verified in the Czech Republic, Slovakia and southern Poland

Precipitations around sowing depicted 2007 as a wet year: 100 mm more than the long-term averages were recorded in the Czech Republic, Slovakia and southern Poland. Field access has probably been hindered in these countries. Although less significant, problems due to soil moisture excess during the traditional sowing period have been recorded also in Germany, in the Balkans (especially in the north-western countries), and in Hungary. Favourable dry sowings have occurred in the UK, Ireland and France. Lower than average temperatures were measured in the whole of central Europe. Although no problems in the germination and emergence phases are expected, this is probably slowing down crop development and leaf area expansion, increasing the risk of frost damages in the next months.

Winter rapeseed: wet conditions and narrow time-window for sowing

The main producing areas are in northern Europe (France 25 % of the 2006 EU-27 surface, Germany 25 %, the United Kingdom 8 %) and in central Europe (Poland 11 % Romania 6 % the Czech Republic 5 % and Hungary 4 %).

Most of these zones experienced a wet August and September and got a quite narrow time window for field access for an optimal sowing.

During the last dekad of August the United Kingdom, southern Germany, Poland, the Czech Republic and Hungary could benefit from a relatively dry period for sowing.

In France, fieldwork could have been optimal only during the first part of September.

Northern Germany got a late narrow time-window during the second dekad of September, much too late for optimal crop installation.

Romania was under optimal conditions from mid-September.

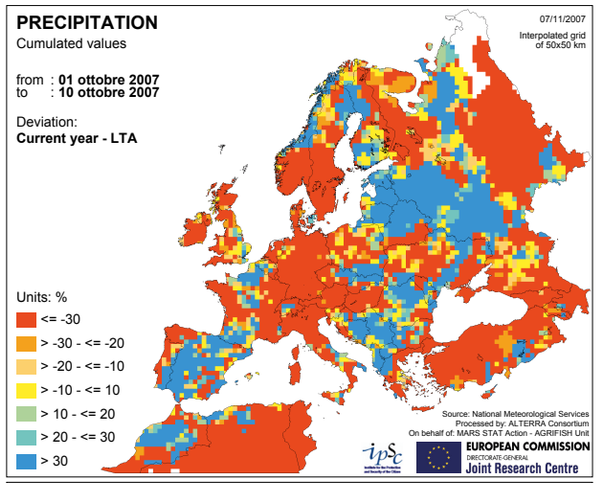
When sown, the crop could grow under normal-to-higher temperatures up to the second dekad of October, when a colder spell started from the central areas and moved to the western area. In November the temperatures were close to normal.

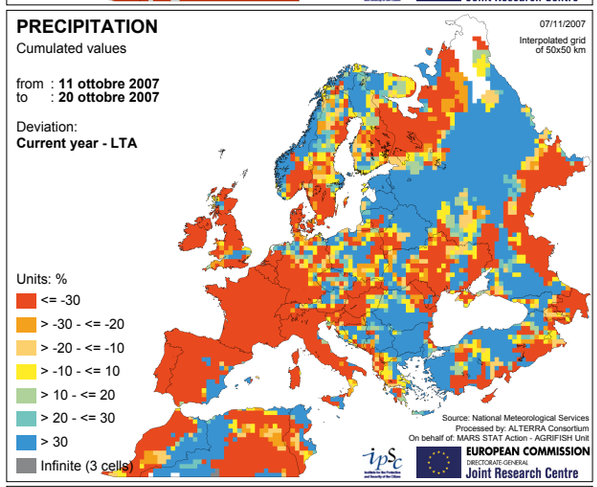
No extreme temperatures were recorded during the whole period and radiation was within the average level. The rape could grow under normal condition for emergence.

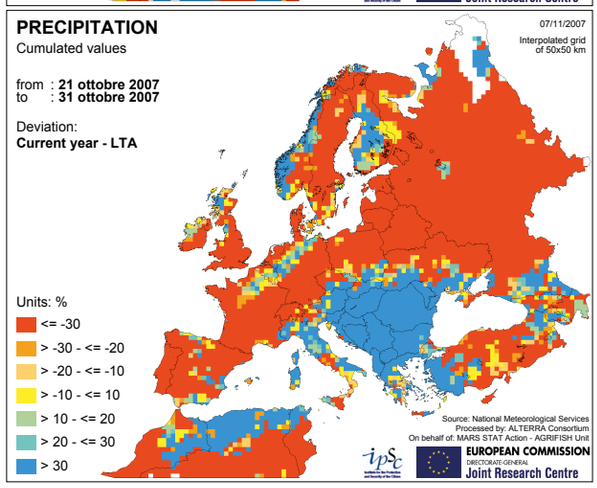
Black Sea area

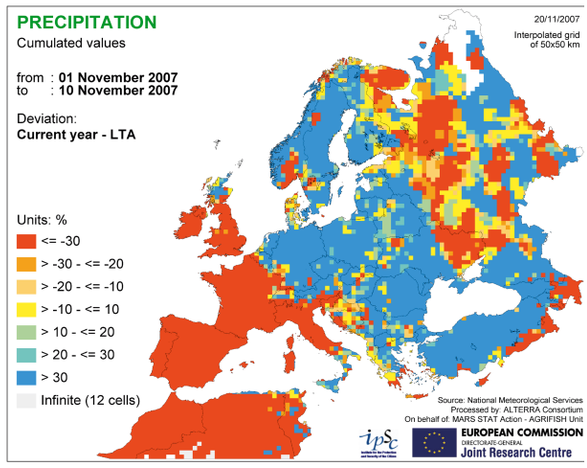
Ukraine, Belarus, Moldavia: dry sowing conditions for winter wheat

The cumulated rain for the sowing period of winter wheat (one week before and one week after the average sowing date) was rather dry, especially in the western areas of Belarus, Ukraine and north-western Moldova, where the recorded values remained below 15 mm and mainly below 30 mm for the rest of those countries. The two weeks after sowing were warmer than usual especially in western Belarus and northern and eastern Ukraine, but the weather remained dry for the whole area except Moldova where the cumulated rainfall exceeded 30 mm. The weather was also dry during the sowing of winter rapeseed. The sowing









of winter barley from some areas in Ukraine and northern Belarus was probably delayed by rain, but the weather was dry in southern Belarus and Moldova.

Eastern countries

Russia: normal conditions for winter crop sowing

The air temperature was close to optimal for winter crop sowing. In many regions the air temperature in September and October was higher than normal by 2 to 5 °C. Anyway, it was not extreme for winter crop sowing.

The amount of precipitation was low in October in regions close to the Urals. In other regions of European Russia the precipitation was favourable for winter crop sowing. The number of days with significant rain was less than three practically everywhere except western and central regions, where the number of rainy days was near 10 during September and October 2007. The soil moisture content at the beginning of September 2007 was lower than the long-term average in central, southern and the Chernozemic regions of Russia, which should lead to a delay in the sowing campaign. The amount of precipitation and soil moisture content in September 2007 was close to normal in the other regions of Russia.

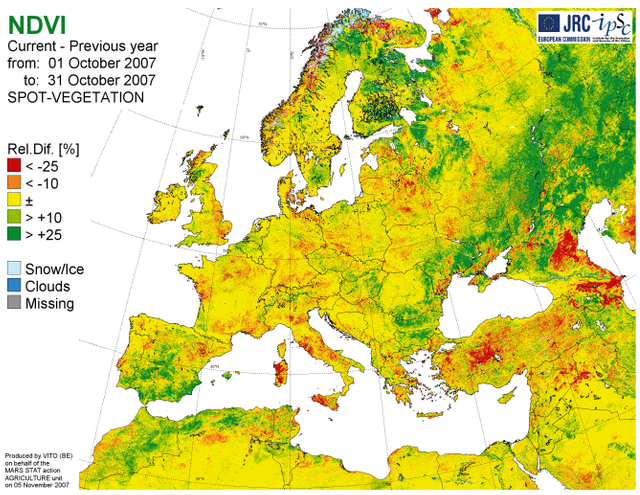
In general, meteorological conditions were favourable for winter crop sowing in most regions of European Russia. However, soil moisture content is low in many regions and the conditions for favourable emergence of winter crops depend on the amount of precipitation in the coming dekads.

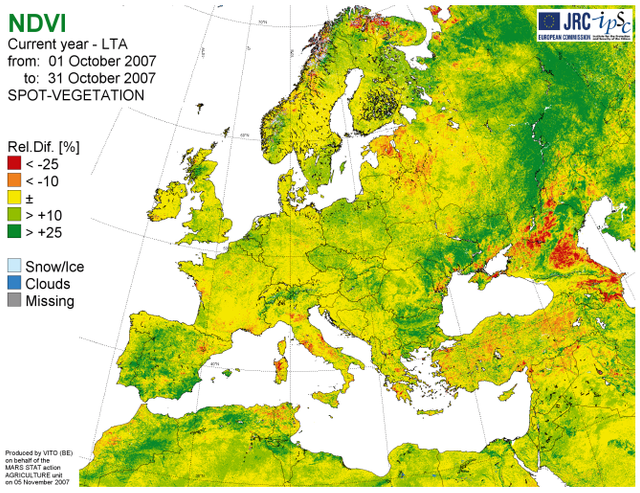
Maghreb

In the most important winter cereal production areas of Morocco, the beginning of the 2007/08 agricultural season was characterised by dry weather and mild temperatures. The latest significant rains occurred in September in the eastern portion of the country and on the Mediterranean coast. Accessibility to fields for sowing is guaranteed, however, given the protracted drought during the summer and early autumn, conditions are not the most favourable for the germination of winter cereals.

Better conditions can be observed in the central and eastern portion of the Maghreb region. In Algeria there were rains during the summer and at the end of September. There was no rain at the beginning of October and again at the beginning of November. The conditions for field access and the soil moisture content can be considered favourable for sowing winter cereals and, even if some field preparation practices may have been hampered by the rain, conditions are optimal at present for late sowing and germination. The picture is the same overall for Tunisia; the distribution of the autumn rain here is even more favourable as there have been alternating periods of wet and dry weather from September to the present time.

3. Spot vegetation satellite analysis



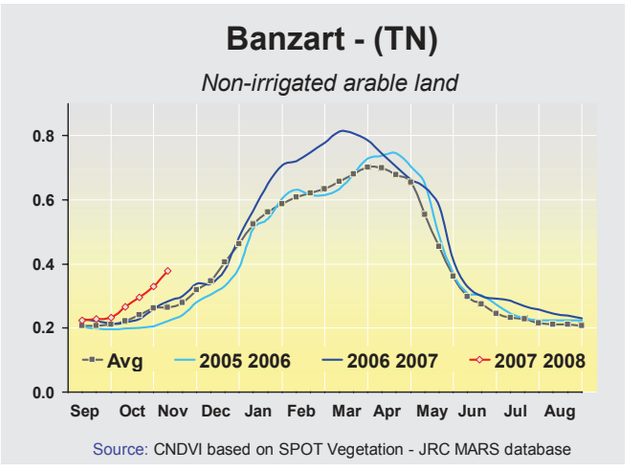


MAP HIGHLIGHTS — NEW SEASON:

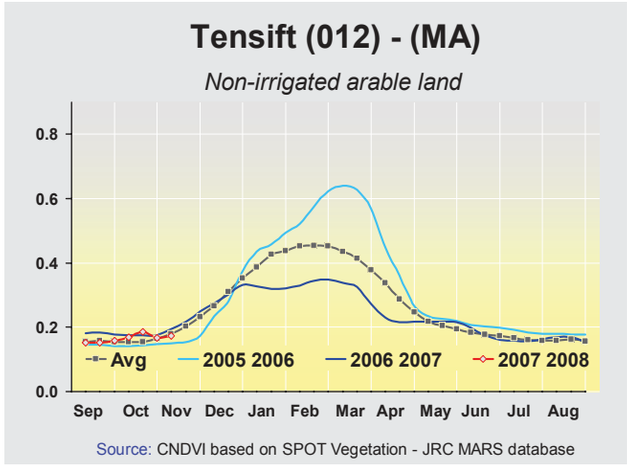
The two maps show the monthly composite of the NDVI values: October is compared with the long-term average and, in the second map, last year's values. Normal to better autumn conditions are reflected for large parts of Europe. Less biomass accumulation can be observed in Italy for the islands, large parts of the Po valley and Tuscany. The same counts for Turkey and parts of Maghreb. This is especially true in comparison with last year's values where early in the season a significant biomass accumulation was observed.

CNDVI — HIGHLIGHTS

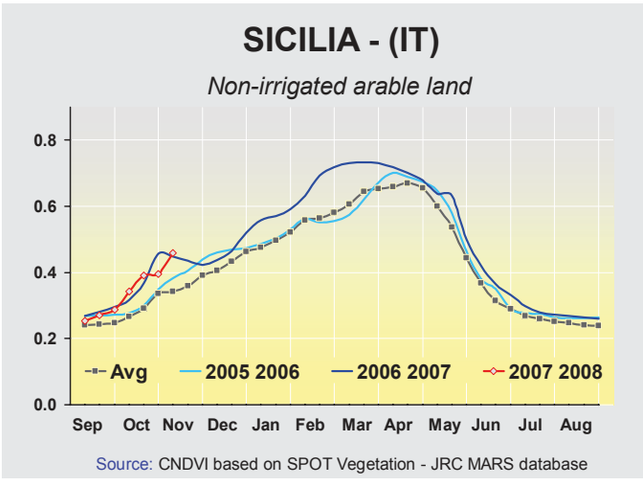
For Banzart in Tunisia we see a favourable start to the biomass accumulation. The profile for Tensift in Morocco is oscillating around the average and the vegetation boost is expected in the coming dekads. Looking at the profile of the Italian island Sicilia, well above average NDVI values can be observed for the non-irrigated arable land. In northern Europe (Mecklenburg Vorpommern, in Germany, and the eastern UK) a close to average first vegetation growth can be observed before the winter dormancy.



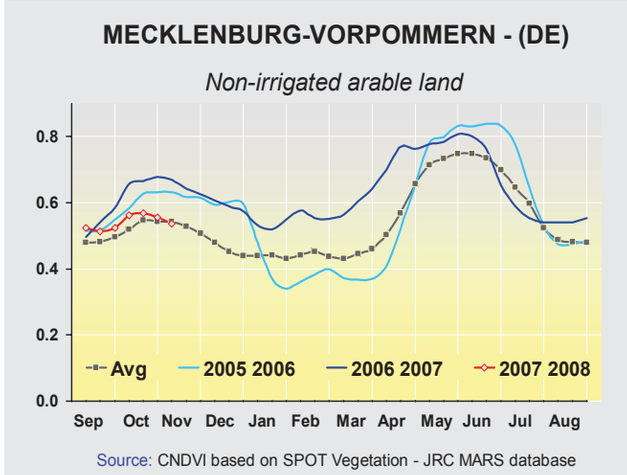
Source: CNDVI based on SPOT Vegetation - JRC MARS database



Source: CNDVI based on SPOT Vegetation - JRC MARS database



Source: CNDVI based on SPOT Vegetation - JRC MARS database



Source: CNDVI based on SPOT Vegetation - JRC MARS database

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