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MARS AGROMETEOROLOGICAL

Crop Monitoring in Europe

1st March to 30th April 2010

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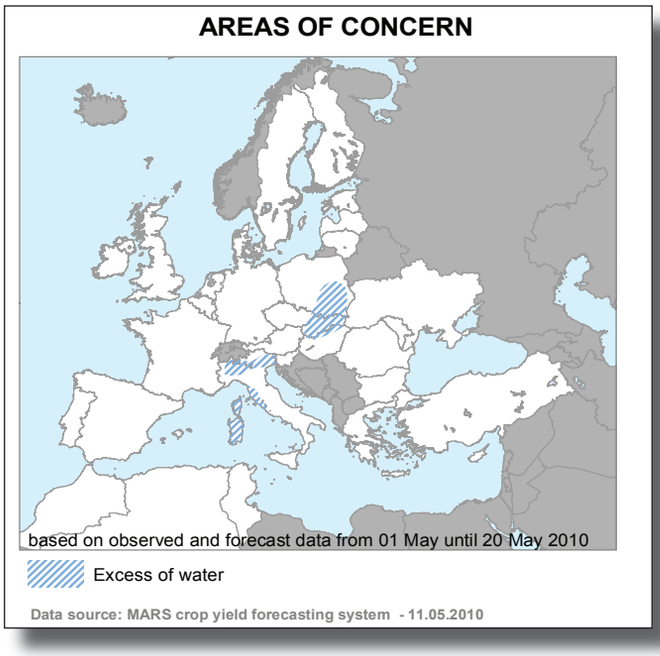
Favourable crop development in April creating promising yield expectations



Low temperature conditions in March generally delayed spring sowing and prolonged the dormancy of winter crops. Sufficient rainfall was recorded in the first half of March in many regions in Europe, with record levels in the Western Mediterranean basin but low supply in the Eastern Mediterranean. By contrast in April 2010, water deficits developed over large areas of Europe, from the UK to Morocco and from France to Ukraine.

Thanks to sufficient water supply over the 2009/2010 growing season the current yield forecast at EU27 level is very positive, i.e., forecasted yields are 3-4% above the last five-year average for all crops --with durum wheat yields above 6%. Forecasted yields for 2010 are in line with 2009 results, except for lower yields expected for winter barley, sunflower and rapeseed.

Cereals total EUROPE OF 27 (as of 11 May 2010)					
Crops	Yield t/ha				
	2009	2010	Avg 5yrs	%10/09	%10/5yrs
TOTAL CEREALS	5.1	**5.1**	4.9	+0.4	+4.7
soft wheat	5.7	**5.7**	5.5	+0.2	+3.3
durum wheat	3.1	**3.2**	3.0	+3.3	+6.3
Total Wheat	5.4	**5.4**	5.2	+0.4	+3.9
spring barley	3.8	**3.8**	3.7	+0.2	+4.1
winter barley	5.4	**5.3**	5.1	-1.6	+3.3
Total Barley	4.4	**4.4**	4.2	-1.3	+3.6
Grain maize	6.8	**6.9**	6.7	+1.2	+3.2
Other cereals	3.6	**3.6**	3.3	-0.2	+4.2
Sunflower	1.8	**1.7**	1.7	-1.0	+2.4
Rapeseed	3.3	**3.2**	3.1	-2.9	+3.1

Yields are forecast for crops with more than 10000 ha per country; figures are rounded to 100 kg
(1) Sorghum, rye, maslin, oats, triticale, mixed grain other than maslin, millet, buckwheat
Sources:
2005-2009 data come from EUROSTAT CRONOS and EES (last update: 30/04/2010)
2010 yields come from MARS CROP YIELD FORECASTING SYSTEM (up to 30/04/2010)

Contents

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ipsc Institute for the Protection and Security of the Citizen

1. Crop yield forecasts

AGRI4CAST crop yield forecasts at national level for EU-27: 11 May 2010

Country	TOTAL WHEAT (t/ha)					SOFT WHEAT (t/ha)					DURUM WHEAT (t/ha)				
	2009	2010	Avg 5yrs	%10/09	%10/5yrs	2009	2010	Avg 5yrs	%10/09	%10/5yrs	2009	2010	Avg 5yrs	%10/09	%10/5yrs
EU27	5.4	**5.4**	5.2	+0.5	+4.1	5.7	**5.7**	5.5	+0.3	+3.4	3.1	**3.1**	3.0	+2.4	+5.4
AT	4.9	**5.4**	5.1	+9.8	+6.9	5.0	**5.5**	5.1	+9.6	+6.9	4.0	**4.5**	4.3	+14.9	+6.1
BE	9.2	**8.6**	8.5	-6.0	+1.8	9.2	**8.6**	8.5	-6.0	+1.8	-	**-**	-	-	-
BG	3.3	**3.7**	3.2	+11.2	+12.6	3.3	**3.7**	3.2	+11.2	+12.6	-	**-**	-	-	-
CY	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
CZ	5.2	**5.4**	5.1	+2.1	+5.0	5.2	**5.4**	5.1	+2.1	+5.0	-	**-**	-	-	-
DE	7.8	**7.7**	7.5	-1.6	+2.4	7.8	**7.7**	7.5	-1.6	+2.4	5.8	**5.5**	5.4	-4.7	+2.4
DK	8.1	**7.5**	7.4	-7.8	+1.8	8.1	**7.5**	7.4	-7.8	+1.8	-	**-**	-	-	-
EE	3.0	**3.0**	3.0	-2.1	-2.3	3.0	**3.0**	3.0	-2.1	-2.3	-	**-**	-	-	-
ES	2.7	**2.8**	2.8	+4.6	+0.1	2.8	**3.2**	3.1	+13.0	+2.5	2.5	**2.1**	2.3	-17.9	-8.8
FI	4.1	**3.8**	3.8	-6.8	+0.4	4.1	**3.8**	3.8	-6.8	+0.4	-	**-**	-	-	-
FR	7.5	**7.1**	6.9	-4.7	+2.7	7.7	**7.3**	7.1	-4.6	+2.8	5.1	**5.0**	4.8	-1.2	+4.9
GR	2.6	**2.7**	2.4	+1.7	+9.2	2.9	**3.0**	2.8	+2.0	+7.4	2.5	**2.6**	2.4	+1.5	+9.2
HU	3.9	**4.4**	4.2	+13.8	+4.3	3.9	**4.4**	4.2	+13.8	+4.3	3.7	**-**	4.0	-	-
IE	8.6	**8.1**	8.7	-6.2	-7.7	8.6	**8.1**	8.7	-6.2	-7.7	-	**-**	-	-	-
IT	3.5	**3.8**	3.6	+7.9	+5.0	5.0	**5.3**	5.2	+5.5	+1.4	2.8	**3.1**	2.9	+8.4	+5.0
LT	4.2	**4.0**	3.7	-5.1	+7.8	4.2	**4.0**	3.7	-5.1	+7.8	-	**-**	-	-	-
LU	6.6	**6.5**	6.2	-1.8	+4.6	6.6	**6.5**	6.2	-1.8	+4.6	-	**-**	-	-	-
LV	3.6	**3.5**	3.5	-3.7	-	3.6	**3.5**	3.5	-3.7	-	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	9.3	**8.7**	8.5	-6.6	+2.4	9.3	**8.7**	8.5	-6.6	+2.4	-	**-**	-	-	-
PL	4.2	**4.1**	3.9	-3.0	+4.4	4.2	**4.1**	3.9	-3.0	+4.4	-	**-**	-	-	-
PT	1.9	**1.5**	1.8	-18.2	-16.6	1.9	**1.5**	1.8	-18.2	-16.6	-	**-**	-	-	-
RO	2.4	**2.7**	2.6	+14.7	+4.8	2.4	**2.7**	2.6	+14.7	+4.8	-	**-**	-	-	-
SE	6.1	**5.8**	6.1	-5.5	-4.9	6.1	**5.8**	6.1	-5.5	-4.9	-	**-**	-	-	-
SI	4.0	**4.4**	4.3	+11.8	+2.9	4.0	**4.4**	4.3	+11.8	+2.9	-	**-**	-	-	-
SK	4.1	**4.1**	4.2	+0.8	-2.1	4.1	**4.1**	4.2	+0.8	-2.1	-	**-**	-	-	-
UK	7.9	**8.1**	7.9	+2.5	+2.3	7.9	**8.1**	7.9	+2.5	+2.3	-	**-**	-	-	-

Country	TOTAL BARLEY (t/ha)					SPRING BARLEY (t/ha)					WINTER BARLEY (t/ha)				
	2009	2010	Avg 5yrs	%10/09	%10/5yrs	2009	2010	Avg 5yrs	%10/09	%10/5yrs	2009	2010	Avg 5yrs	%10/09	%10/5yrs
EU27	4.5	**4.4**	4.2	-0.4	+4.5	3.8	**3.9**	3.7	+1.4	+5.3	5.4	**5.3**	5.1	-1.5	+3.3
AT	4.6	**4.9**	4.6	+6.3	+6.3	3.9	**4.2**	4.0	+8.6	+5.8	5.3	**5.6**	5.5	+5.2	+2.5
BE	8.6	**8.6**	8.1	+0.1	+6.0	6.1	**-**	5.7	-	-	8.6	**8.6**	8.1	+0.1	+6.0
BG	3.3	**3.3**	3.0	-1.1	+10.5	2.3	**2.3**	2.3	+3.9	+1.0	3.4	**3.3**	3.0	-0.9	+10.6
CY	1.8	**1.6**	1.1	-11.2	+39.7	-	**-**	-	-	-	1.8	**1.6**	1.1	-11.2	+39.7
CZ	4.4	**4.4**	4.2	-0.9	+5.2	4.2	**4.3**	4.0	+1.7	+6.8	4.8	**4.6**	4.5	-5.2	+1.4
DE	6.5	**6.2**	6.0	-4.7	+4.1	5.2	**5.0**	4.7	-4.1	+5.6	6.9	**6.7**	6.5	-3.9	+3.3
DK	5.8	**5.2**	5.1	-9.8	+1.5	5.5	**5.0**	4.9	-9.6	+1.5	6.5	**5.8**	5.8	-10.2	+0.5
EE	2.7	**2.6**	2.5	-4.6	+2.6	2.7	**2.6**	2.5	-4.6	+2.6	2.4	**-**	2.8	-	-
ES	2.4	**2.9**	2.7	+20.4	+9.8	2.5	**3.0**	2.7	+19.5	+9.6	2.1	**2.7**	2.4	+28.0	+9.5
FI	3.6	**3.4**	3.5	-5.8	-4.0	3.6	**3.4**	3.5	-5.8	-4.0	-	**-**	-	-	-
FR	6.8	**6.5**	6.4	-5.4	+1.5	6.8	**6.0**	6.0	-11.3	+0.2	6.9	**6.7**	6.5	-2.9	+1.9
GR	2.3	**2.5**	2.3	+7.6	+7.7	-	**-**	-	-	-	2.3	**2.5**	2.3	+7.6	+7.7
HU	3.2	**3.9**	3.7	+21.1	+6.6	2.6	**3.6**	3.2	+36.6	+10.7	3.6	**4.1**	4.0	+13.5	+3.3
IE	6.1	**6.9**	6.5	+13.9	+5.3	5.9	**6.8**	6.4	+15.4	+6.4	7.3	**7.6**	7.7	+4.5	-1.5
IT	3.2	**3.6**	3.6	+13.1	-0.6	-	**-**	-	-	-	3.2	**3.6**	3.6	+13.1	-0.6
LT	3.1	**2.8**	2.7	-10.5	+4.2	3.0	**2.7**	2.6	-9.5	+4.0	3.8	**3.5**	3.3	-9.9	+4.9
LU	-	**-**	-	-	-	5.2	**-**	4.7	-	-	6.1	**-**	5.7	-	-
LV	2.5	**2.4**	2.4	-5.3	+2.3	2.5	**2.4**	2.3	-6.7	+1.7	2.7	**2.8**	3.1	+2.5	-11.6
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	6.8	**6.5**	6.1	-5.6	+5.8	6.8	**6.5**	6.1	-5.6	+5.8	8.0	**-**	7.2	-	-
PL	3.4	**3.2**	3.1	-7.3	+3.0	3.2	**3.0**	3.0	-6.2	+2.3	4.3	**3.9**	3.8	-8.3	+2.3
PT	1.9	**1.7**	1.9	-9.9	-10.6	-	**-**	-	-	-	1.8	**1.7**	1.9	-9.9	-10.6
RO	2.3	**2.5**	2.3	+11.3	+11.0	1.6	**2.0**	1.8	+29.2	+10.4	2.7	**2.9**	2.6	+8.6	+13.2
SE	4.7	**4.4**	4.3	-4.7	+4.3	4.6	**4.4**	4.2	-5.0	+3.7	5.5	**5.4**	5.4	-3.2	-0.9
SI	3.5	**3.9**	3.8	+11.6	+4.9	3.0	**-**	3.1	-	-	3.5	**3.9**	3.8	+11.6	+4.9
SK	3.5	**3.5**	3.6	+2.6	-0.8	3.4	**3.5**	3.6	+3.7	-0.6	3.8	**3.6**	3.7	-7.2	-2.9
UK	5.8	**6.0**	5.8	+2.8	+2.7	5.5	**5.7**	5.4	+3.1	+5.6	6.4	**6.5**	6.5	+2.0	+0.4

Note: Yields are forecast for crops with more than 10000 ha per country; figures are rounded to 100 kg
Sources: 2005-2009 data come from EUROSTAT CRONOS and EES (last update: 30/04/2010)
2010 yields come from MARS CROP YIELD FORECASTING SYSTEM (up to 30/04/2009)

AGRI4CAST crop yield forecasts at national level for EU-27: 11 May 2010

Country	SUNFLOWER (t/ha)					GRAIN MAIZE (t/ha)					RAPESEED (t/ha)				
	2009	2010	Avg 5yrs	%10/09	%10/5yrs	2009	**2010**	Avg 5yrs	%10/09	%10/5yrs	2009	**2010**	Avg 5yrs	%10/09	%10/5yrs
EU27	1.8	**1.7**	1.7	-1.8	+1.5	6.8	**6.9**	6.7	+0.7	+2.6	3.3	**3.1**	3.1	-4.4	+1.4
AT	2.7	**2.7**	2.6	-0.8	+4.0	10.6	**10.4**	10.2	-1.6	+1.9	3.0	**3.2**	3.1	+5.9	+4.2
BE	-	**-**	-	-	-	11.1	**11.8**	11.4	+6.8	+3.8	4.4	**4.1**	4.0	-6.9	+3.8
BG	1.8	**1.5**	1.5	-15.0	+0.7	4.2	**4.3**	3.9	+2.3	+8.3	2.6	**2.7**	2.2	+1.2	+24.0
CY	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
CZ	2.4	**2.3**	2.3	-2.1	+1.1	8.5	**8.2**	7.3	-2.6	+12.7	3.2	**3.1**	3.0	-1.3	+4.2
DE	2.4	**2.3**	2.3	-5.3	-0.1	9.8	**9.6**	9.3	-2.0	+3.3	4.3	**4.0**	3.8	-6.2	+6.0
DK	-	**-**	-	-	-	-	**-**	-	-	-	3.8	**3.5**	3.5	-8.1	-0.4
EE	-	**-**	-	-	-	-	**-**	-	-	-	1.7	**1.5**	1.6	-8.0	-4.7
ES	1.0	**1.1**	1.1	+5.5	+3.8	10.1	**9.9**	9.9	-2.0	-0.4	1.6	**1.6**	1.6	+1.8	-1.1
FI	-	**-**	-	-	-	-	**-**	-	-	-	1.7	**1.5**	1.4	-11.8	+7.1
FR	2.3	**2.4**	2.4	+2.7	+0.2	9.1	**9.0**	8.9	-1.6	+0.6	3.8	**3.5**	3.3	-8.6	+3.9
GR	1.2	**-**	1.2	-	-	9.8	**9.7**	9.7	-0.9	+0.2	-	**-**	-	-	-
HU	2.3	**2.4**	2.3	+2.7	+4.7	6.4	**6.5**	6.4	+1.6	+1.7	2.1	**2.6**	2.3	+21.8	+10.6
IE	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
IT	2.1	**2.2**	2.2	+6.0	+0.2	8.3	**9.1**	9.1	+10.9	+0.5	1.9	**1.9**	1.9	-3.3	-2.6
LT	-	**-**	-	-	-	-	**-**	-	-	-	2.2	**2.0**	1.8	-7.1	+12.4
LU	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	-	**-**	-	-	-	2.2	**2.1**	2.0	-6.3	+0.4
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	-	**-**	-	-	-	13.0	**11.7**	11.5	-10.1	+1.2	-	**-**	-	-	-
PL	-	**-**	-	-	-	6.2	**5.9**	5.7	-4.9	+3.9	3.0	**2.8**	2.7	-4.8	+3.4
PT	0.6	**0.6**	0.6	-0.3	+1.8	6.8	**6.1**	5.7	-10.3	+6.3	-	**-**	-	-	-
RO	1.4	**1.3**	1.3	-8.1	-0.4	3.4	**3.4**	3.2		+6.3	1.3	**1.6**	1.5	+22.0	+9.0
SE	-	**-**	-	-	-	-	**-**	-	-	-	3.0	**2.9**	2.7	-3.7	+9.1
SI	-	**-**	-	-	-	7.8	**7.6**	7.6	-2.7	+0.5	-	**-**	-	-	-
SK	2.2	**2.3**	2.2	+4.3	+5.1	6.9	**6.3**	6.3	-8.0		2.3	**2.6**	2.3	+13.0	+15.6
UK	-	**-**	-	-	-	-	**-**	-	-	-	3.3	**3.5**	3.5	+6.2	-0.2

Note: Yields are forecast for crops with more than 10000 ha per country; figures are rounded to 100 kg
Sources: 2005-2009 data come from EUROSTAT CRONOS and EES (last update: 30/04/2010)
2010 yields come from MARS CROP YIELD FORECASTING SYSTEM (up to 30/04/2009)

AGRI4CAST crop yield forecasts at national level for Maghreb and Black Sea: 11 May 2010

Country	WHEAT (t/ha)					BARLEY (t/ha)					GRAIN MAIZE (t/ha)				
	2009	2010	Avg 5yrs	%10/09	%10/5yrs	2009	2010	Avg 5yrs	%10/09	%10/5yrs	2009	2010	Avg 5yrs	%10/09	%10/5yrs
BY	-	**3.8**	3.3	-	+13.3	-	**3.3**	3.1	-	+7.7	-	**4.3**	4.3	-	-
DZ	-	**1.4**	1.4	-	+1.2	-	**1.2**	1.4	-	-11.3	-	**-**	-	-	-
MA	2.1	**1.8**	1.4	-17.4	+23.7	1.7	**1.3**	0.9	-25.9	+44.5	-	**0.8**	0.8	-	+4.7
TN	2.2	**1.5**	1.7	-31.3	-10.3	1.8	**1.4**	1.3	-25.7	+2.4	-	**-**	-	-	-
TR	-	**2.2**	2.3	-	-1.3	-	**2.3**	2.2	-	-2.6	-	**6.7**	7.0	-	-4.2
UA	-	**3.1**	2.8	-	+8.8	-	**2.3**	2.2	-	+5.2	-	**4.2**	4.2	-	+1.1

Note: Yields are forecast for crops with more than 10000 ha per country; figures are rounded to 100 kg

Sources: **DZ** : FAO; 5 last years 2003 – 2007; **MA** : Min. of agriculture of Morocco (from INRA); last 5 years: 2005-2009; **TN** : Min. of agriculture of Tunisia (from CNCT); last 5 years: 2005-2009; **TR** : FAO; 5 last years 2005 – 2009; **UA** : FAO; 5 last years 2004 – 2008; **BY** : FAO; 5 last years 2004 - 2008

Abstract

The 3rd 2009 printed MARS Bulletin (Vol. 18, No. 2) covers meteorological analysis and crop yield forecasts for the period 1st March to 30 April 2010.

Previous related analysis available:

—Climatic update, 01/05/2010 to 24/05/2010, (CU2010/5)

—**Complete Bulletin, 01/11/2009 to 28/02/2010, (Vol. 18, No. 1)**

Next printed issue

Vol. 18, No. 3: 1st May - 10 June 2010 analysis and forecasts.

Contributions

The ***MARS technical report*** is an EC publication from JRC/IPSC MARS Unit-AGRI4CAST Action

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MARS stands for Monitoring Agricultural Resources.

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Technical note The long-term average used within this bulletin as a reference is based on an archive of data covering 1975–2009. The CNDVI is an unmixed normalised vegetation index on the base of Corine land cover 2000 for arable land or grassland.

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2. Agrometeorological overview

2.1. Temperature and evapotranspiration

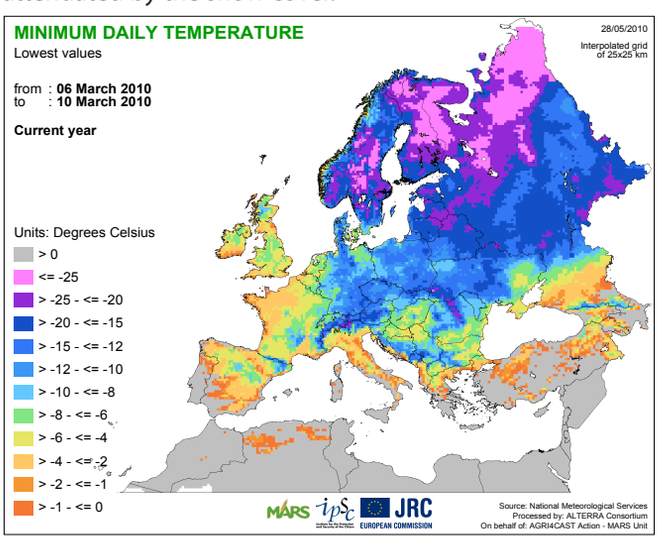
Mild March in central and eastern Europe, but decidedly cooler in western Europe. A warmer April followed in western Europe and in the extreme north-east of Europe.

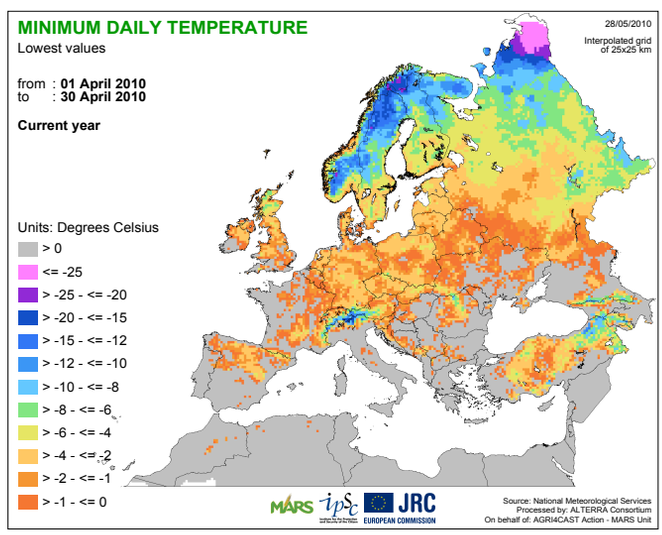
In **March** temperatures varied widely: colder than seasonal during the first half (due to a very strong high pressure system which blew Arctic air across the whole continent) with severe frosts (12/ 14°C in northern Germany and -15/-17°C in south-east Germany). By contrast, the second half, in particular the last ten days, were very mild, with maximum temperatures largely above the seasonal values. However, only the eastern side of the continent (from Scandinavia to Turkey) displayed significant differences from the long-term average (LTA): 30/40 % above average in terms of cumulated GDD (Tbase = 0°C), with the exception of Hungary, where more normal conditions prevailed. On the western side values slightly below average were recorded. These conditions prolonged the winter dormancy for winter crops until mid-March, although the impact of the frosts was attenuated by the snow cover.

Similarly, spring sowing was probably also delayed by the unfavourable thermal conditions, although germination was favourable on the eastern side.

April started with continuation of the milder conditions recorded in the second half of March, especially the maximum daily values which remained above the seasonal average in the western and central parts of the Mediterranean region. In these countries the cumulated GDD were significantly above the LTA, by between 50 and 100 GDD. On the extreme north-eastern side of the continent too (Russia, Belarus and Finland) considerable surpluses in the cumulated GDD were recorded. In both these areas the maximum daily temperatures were 2 to 4°C above the seasonal averages.

Despite this, light frosts occurred once again in the second half of the month in Germany (-3/-4°C), Poland (-4°C and -6°C in the south) and the Czech Republic. Nevertheless, the higher maximum temperatures accelerated crop development which caught up on the delay built up in the previous months.





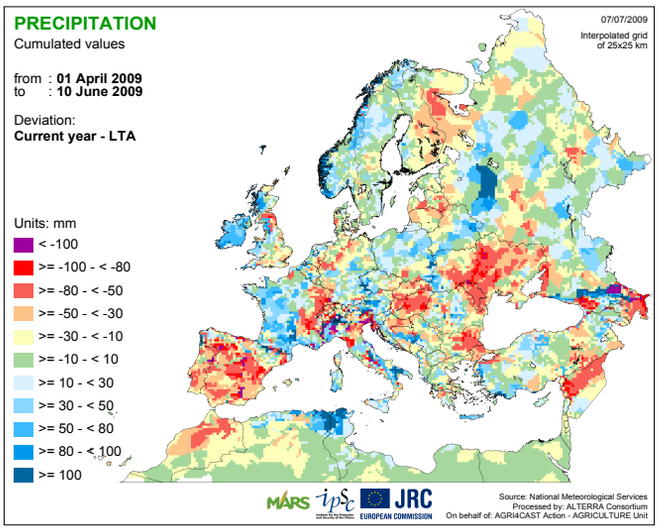
2.2. Rainfall

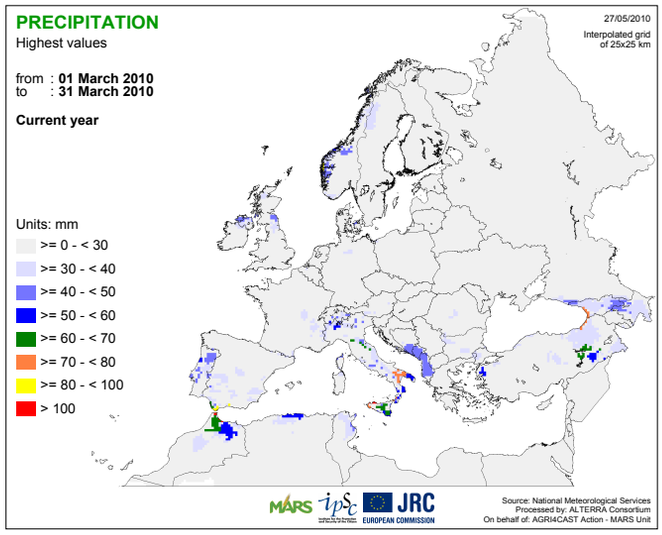
Generally favourable rain, in particular in the central and western Mediterranean (with the exception of Greece) and Black Sea (except Ukraine) regions. Relatively drier in the central EU and eastern Europe.

Water supplies appear generally favourable over the current season: the southern EU regions, where demand is highest, received abundant rain and the soil water reserves seem adequate to meet the increasing demand in the future. At the same time, the northern areas received less water than the seasonal averages, but higher levels of solar radiation, which is normally one of the main limiting factors in these areas in this period. The number of rainy days was also adequate to permit sowing of spring crops without major obstacles. Romania, Bulgaria and the Po valley were the only places where the rain very probably hampered sowing during the optimum period.

In March, a persistent strong Arctic low pressure system led to cold dry air influencing all the northern and eastern side of the continent and pushed the rainy fronts into the Mediterranean basin. The highest surpluses over the LTA were therefore recorded in the Iberian peninsula (50/70 mm above average), in southern Italy (80 mm), in the Balkans (40/50 mm in Bulgaria and southern Romania) and in all the Maghreb area (100 mm above average in Morocco and 50 mm above in Tunisia and Algeria). By contrast, a shortfall was recorded in the eastern Mediterranean region (40 mm below average in Greece), in the central EU region (20/30 mm in central and southern Germany, northern and eastern France, the Czech Republic, Hungary, Austria and the Benelux countries) and in the eastern European countries (30 mm in Belarus and Ukraine).

In April these last conditions persisted, but the area showing a deficit was larger, extending to France, the UK, the Benelux countries, Germany and also northern Italy, northern Spain, northern Poland, western Morocco, Ukraine and western Turkey. The situation was particularly critical in Greece, where the water deficit recorded in this period (outside the main agricultural production areas) coupled with crops' higher water requirements created alarming conditions lowering the expectations for final winter cereal yields.





3. Country-by-country campaign analysis

3.1 E U - 27

France: Seasonal development of winter crops, delay in Mediterranean areas. Good conditions for spring sowing.

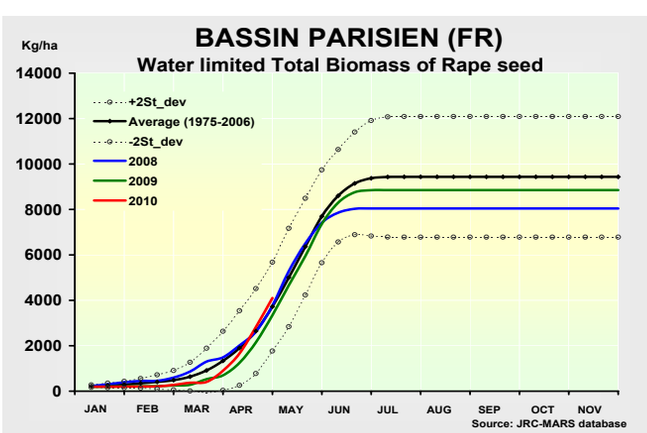
The forecasts are now 7.3 t/ha for soft wheat and 5.0 t/ha for durum wheat (2.8 % and 4.9 % above the five-year average respectively). Winter barley is forecast at 6.7 t/ha (1.9 % up on the five-year average) and rapeseed at 3.5 t/ha (3.9 % above). For spring barley the forecast is 6.0 t/ha, 0.2 % above the average. Sunflower and grain maize are forecast at 2.4 t/ha and 9.0 t/ha respectively.

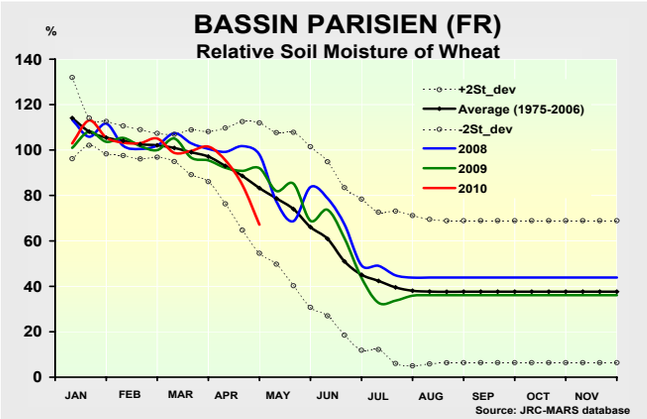
Temperatures recorded in some areas of central France between 5 and 16 March were 6°C lower than the seasonal conditions, which could affect rapeseed flower development. After this period, temperatures bounced back to average values until the end of March. Throughout April, temperatures were slightly warmer, with a hot spell at the end of the month (between 27 and 31°C in south-western and central France on 28 April, 10°C above the seasonal values). These conditions took the cumulated temperatures during March and April (base 0°C) up to near-average values, which helped to catch up on the delay in development observed at the end of February.

As a result, development of wheat and winter barley is close to average in the eastern regions, but shows a slight delay in the Bassin parisien and in the western and south-western regions. Only the Mediterranean areas show a significant delay (between 10 and 14 days in the Provence-Alpes-Côte d'Azur and Languedoc-Roussillon regions), which is comparable to the delay observed in 2005 and could affect durum wheat production.

Furthermore, development of rapeseed is ahead of average values in eastern areas and close to average in other regions (Bassin parisien, west and south-west).Rainfall cumulated over March and April was fairly low in most of the country (cumulated precipitation 40 % below seasonal values).

Precipitation was concentrated around the end of March and start of April. Only some areas in the Provence-Alpes-Côte d'Azur region (Bouches du Rhône and Vaucluse) showed a positive balance over the same period (30 % above seasonal values). This distribution of rainfall favoured sowing of spring crops, such as sunflower and maize. However, the decline in water reserves observed over the last few ten-day periods could have a negative effect on crop establishment and on winter crop maturation. The latter will depend on the climatic conditions prevailing in May.



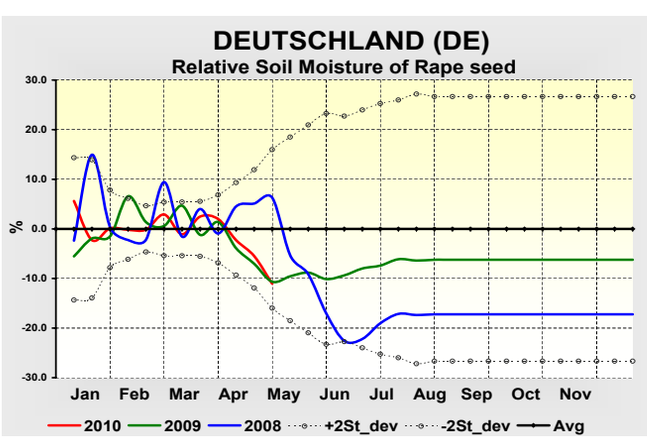


Germany: high evaporative demand scarcely met by the lower soil water content at the end of April.

Winter crop forecasts are above the five-year average but remain below 2009 levels: soft wheat is forecast at 7.7 t/ha (2.4 % above the five-year average), durum wheat at 5.5 t/ha (2.4 % above), winter barley at 6.7 t/ha (3.3 % above) and rapeseed at 4.0 t/ha (6.2 % below last year). For spring barley too a good yield potential is predicted, with simulations giving values of 5.0 t/ha (5.6 % above the average). Grain maize and sunflower are currently set for 9.6 t/ha and 2.3 t/ha respectively, in line with the five-year average.

Weather conditions have been quite similar all over Germany, marked by colder temperatures at the beginning of March which turned to milder conditions from mid-March on. Despite the sparse rainfall all over the country during the period covered by this analysis, soil moisture conditions stayed close to average until the second half of April, probably as a consequence of the beneficial effect of the thaw. In fact deep snow covered most of the regions up to the first ten days of March.

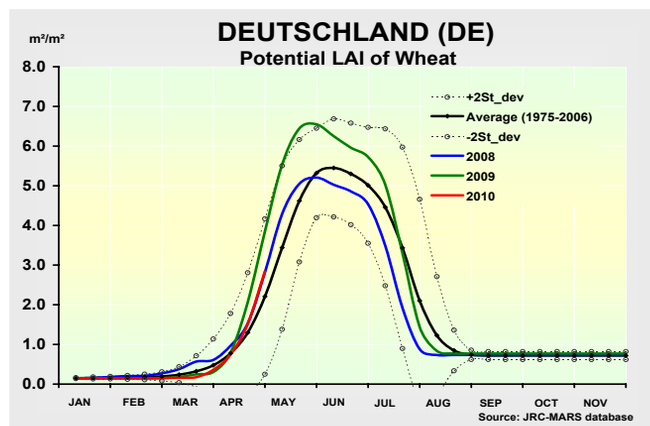
However, the lack of rain in April led to a general deficit in cumulated values to around 40 % below the LTA in the southern (Bayern and Baden-Württemberg) and western (Rheinland-Pfalz and Nordrhein-Westfalen) regions, but to less critical conditions in the north (18 % below average in Niedersachsen and 17 % below in Schleswig-Holstein).



With the exception of the drop during the first ten days of March, temperatures (especially daily maxima) have been noticeably above the norm, leading to surplus thermal accumulation. In conjunction with the high levels of irradiance, this led to significantly high potential evapotranspiration values which might have enhanced the dry spell effect of the last ten-day periods. This situation will be eased by the precipitation which started at the beginning of May which will spare crops from a water shortage but could damage rapeseed, which is now at the flowering stage.

Despite the mild conditions observed in almost every region, winter crop development still shows a slight delay caused by the prolonged presence of snow covering the fields. Winter wheat is at the heading stage and, despite the delay, shows a high simulated leaf area index and good biomass accumulation. Spring barley development, by contrast, is ahead of schedule, particularly in Bayern and in the north-east, and does not seem to be suffering from the low soil moisture.

Generally speaking, even if soil moisture conditions were to become critical for winter crop development, the present weather conditions point to replenishment of water reserves in the soil, creating average yield expectations. Summer crops were sown under drier conditions than average. However, the crop yield potential should not be reduced if the good conditions continue in May.



Poland: Mild spring and sufficient water resources have a positive effect on yield expectations.

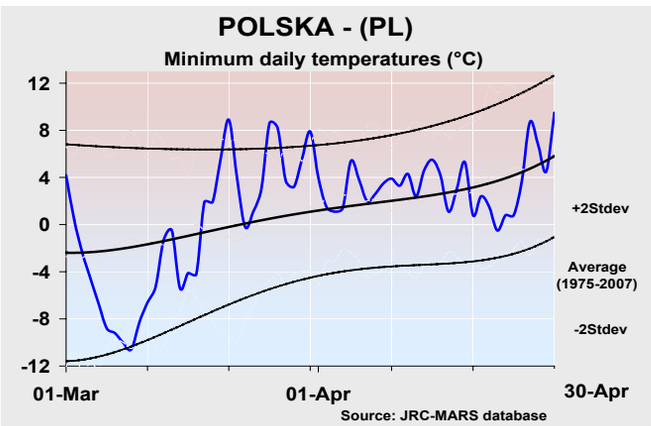
At the moment the crop yield forecasts are below the 2009 level but above the five-year average. Winter crop yields are estimated as soft wheat 4.0 t/ha (3.0 % down on 2009 and 4.4 % below the LTA), winter barley 3.9 t/ha (down by 8.3 % and up by 2.3 % respectively) and rapeseed 2.8 t/ha (down by 4.8 % and up by 3.4 %). Spring barley is currently set for 3.0 t/ha (down by 6.2 % and up by 2.3 %) and grain maize for 5.9 t/ha (down by 4.9 % and up by 3.9 %).

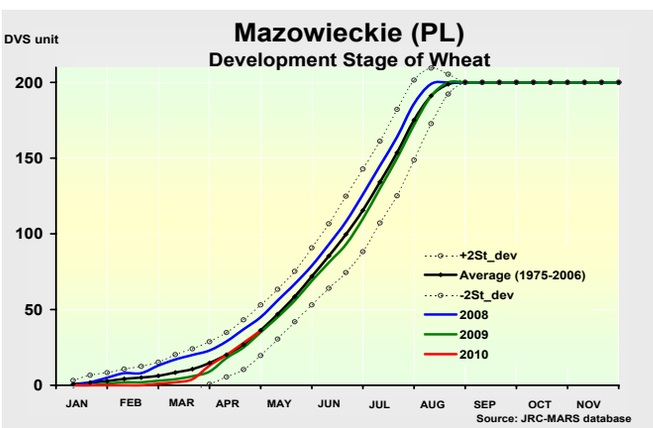
Since the beginning of the year the cumulated rainfall is close to the average. In the second ten days of March snow

was still lying in the fields.

After a very harsh winter, the cumulated active temperatures (Tbase = 0°C) exceeded the seasonal level in the third ten-day period of March. This time both minimum (> 8°C) and maximum temperatures were above the 2 standard deviation value.

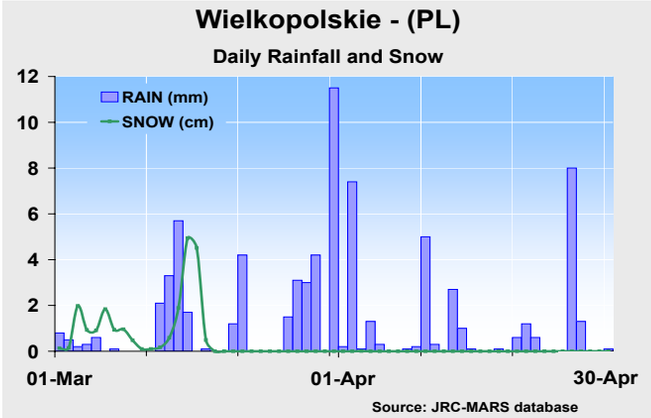
These thermal conditions combined with sufficient soil moisture boosted crop development after winter dormancy and were favourable for spring sowing. At the moment the cumulated active temperatures are 25 % above the LTA. Solar radiation and climatic water balance are also slightly above the LTA.





The cold wet days in May are likely to cause a slight delay in the yield formation process. Soft wheat started heading in Poland, with the exception of the north of the country. Crop development is slightly delayed compared with last year (especially in the western part of the country) but is close to the average seasonal value. Winter rapeseed is flowering in most of the country, except in the north, where it is finishing the vegetative phenological phase.

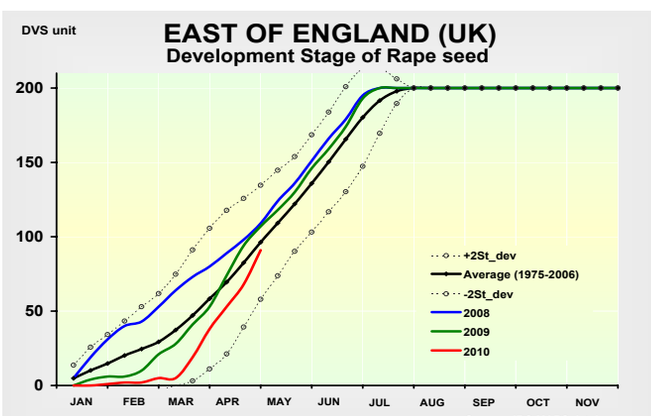
Rapeseed development is slightly advanced compared with the average, except in the north-west of the country, where it is at the same stage as indicated by the LTA. In Lubelskie rapeseed is even more advanced than the good rate last year, creating promising yield prospects. Spring barley is at the emergence stage and slightly delayed compared with the previous year. Summer crops are at a very early stage of development.



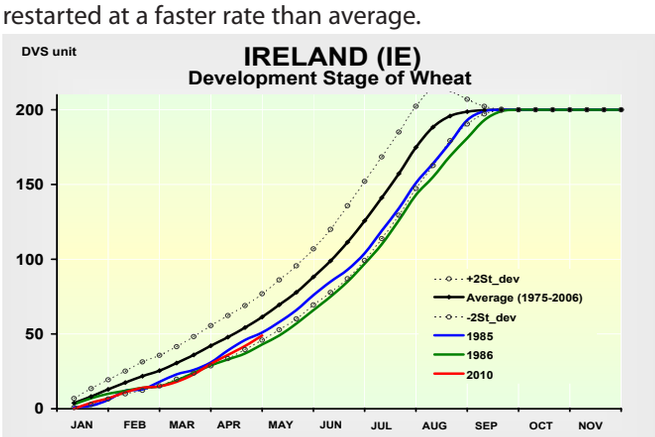
UK and Republic of Ireland: seasonal temperatures and relatively dry. Crop development still delayed in Ireland.

In the UK soft wheat is estimated at 8.1 t/ha (2.3 % above the five-year average), winter barley at 6.5 t/ha (0.4 % above), spring barley at 5.7 t/ha (5.6 % above) and rapeseed at 3.5 t/ha (0.2 % below). In Ireland soft wheat has been revised upwards to 8.1 t/ha (7.7 % below the five-year average), with winter barley at 7.6 t/ha (1.5 % below) and spring barley at 6.8 t/ha (6.4 % above).

Cooler than seasonal conditions during the winter noticeably delayed crop development.



Luckily, since the second ten days of March more seasonal temperatures have returned and crop development has restarted at a faster rate than average.



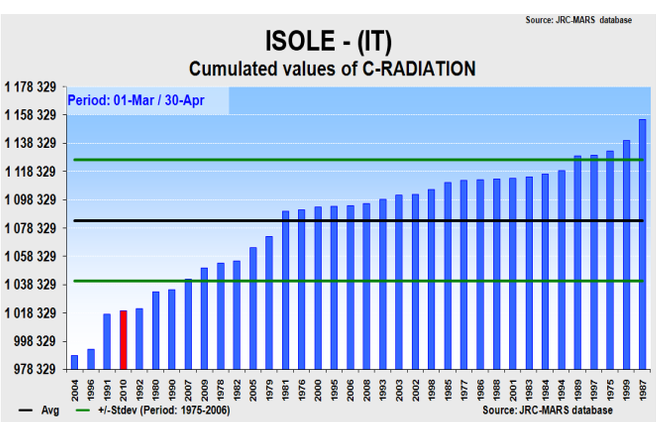
Nevertheless, not all the cumu-lated delay was caught up, in particular in Ireland and Scotland. In these areas, at the end of April the delay was still around 15 to 20 days. In Ireland, similar conditions occurred in the mid-'80s when the national statistics reported a significant drop in yields.

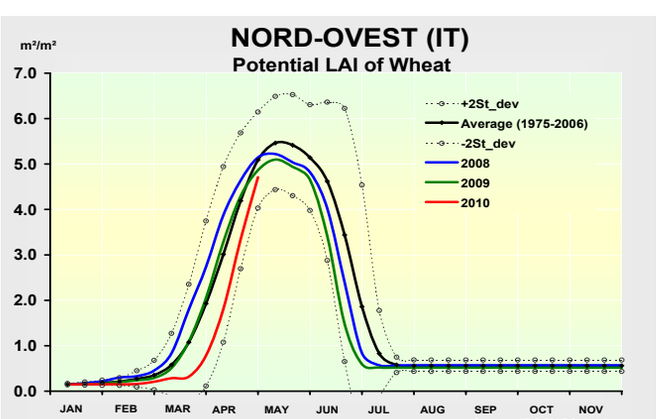
Furthermore, the weather forecast for the next few days predicts another unfavourable fall in temperatures. Therefore, the yield forecasts show winter crops suffering more than spring crops and more in Ireland than in the UK. By contrast, simulations show rapeseed in relatively better condition, especially in the western and southern UK.

Italy: Moderate yield expectations despite the cold and wet weather in the north. Optimum conditions in the centre and south.

With the exception of rapeseed, expectations for winter crop yields are close to the average. Durum wheat is forecast at 3.1 t/ha (5 % above the five-year average). Simulations put yields at 5.3 t/ha for soft wheat (1.4 % above the five-year average) and at 3.6 t/ha (0.6 % below average) for barley. Grain maize and sunflower are set for close to the five-year average, with 9.1 t/ha and 2.2 t/ha respectively.

Italy reported two distinct patterns, depending on the month and the region. March brought some rainfall that led to balanced soil moisture levels overall in the north and to a surplus in southern regions, where values remained adequate in April too when precipitation was lighter.





In the north-east and north-west cumulated temperatures (base 0°C) remained below average until mid-April as a result of the prolonged drop at the beginning of March which made it difficult to recover.

Winter cereals development reflected this, maintaining the delay (in Piedmont and Liguria winter wheat still shows a ten-day delay).

In central and southern regions, by contrast, temperatures (especially daily minima) have been continuously higher than average, leading, despite the low irradiance level observed during the period covered by this analysis, to an advance in crop development and to canopy expansion.

Nevertheless, in general, the simulations point to good biomass potential. Rapeseed is at an advanced stage of development; its flowering might be compromised by the intense precipitation at the beginning of May. Grain maize has just emerged and the young seedlings could suffer from the rapid increase in soil moisture expected in the next few days as a consequence of the heavy rain.

Spain: Good expectations for soft wheat and barley. Water excess affecting durum wheat yield in Andalucía. Favourable climatic conditions for sowing spring crops.

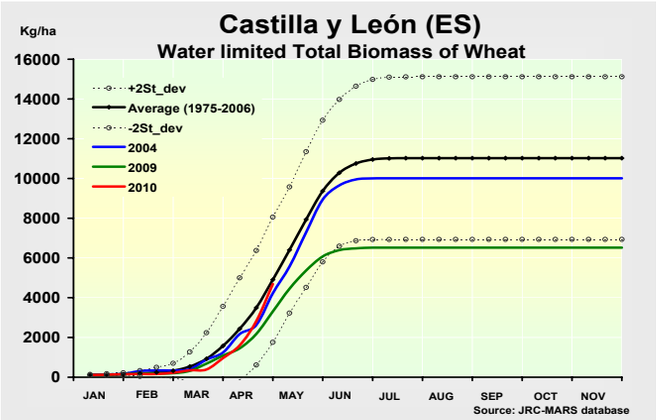
The forecasts for soft wheat and durum wheat are 3.2 t/ha and 2.1 t/ha (2.5 % above and 8.8 % below the five-year average respectively). Winter and spring barley yields are forecast at 2.7 t/ha and 3.0 t/ha (9.5 % and 9.6 % above the five-year average respectively). Sunflower and grain maize are forecast at 1.1 t/ha and 9.9 t/ha respectively.

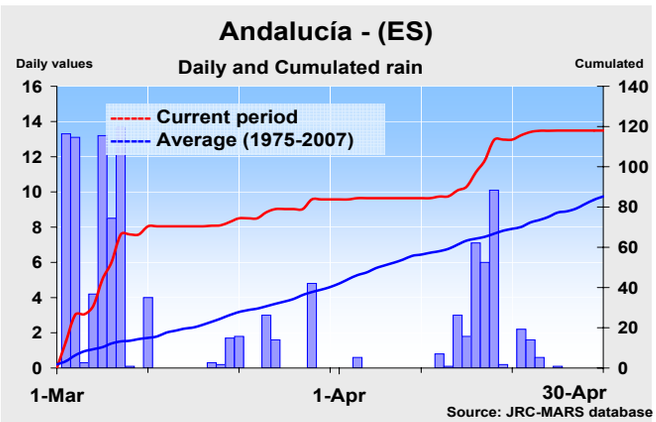
The first two ten-day periods of March were cooler than seasonal across northern Spain, with minimum temperatures down to -10°C (Castilla y León, southern Aragón and northern Castilla La Mancha).

Thereafter, temperatures remained near seasonal values until around mid-April and then above average until the end of the month. This made up for the delay in development of winter crops in early March. Nevertheless, some delays (of about 7 to 15 days) persisted in small areas of Castilla y León (Burgos, Segovia and Soria), Aragón, Extremadura and Cataluña.

The high temperatures recorded during the last week of April (around 30°C on 28 April) in Extremadura, Andalucía and some regions of Castilla y León and Castilla La Mancha could affect the early grain-filling of cereals. As regards rainfall, this year continues to be particularly wet.

All regions except the north-east (Aragón and Cataluña) show higher-than-seasonal cumulated rainfall. Even if rainfall was less abundant than during the period from December to February, cumulated rainfall since 1 January makes this year the second wettest in the last 35 years (behind 1979).





This situation has generated high soil water content in Castilla y León and Castilla La Mancha, which will allow winter crops to reach their final phase of growth in good conditions and spring crops to establish well. However, heavy rains in Andalucía until the first ten days of March had a strong impact on the growth of winter crops in this region.

The return to favourable temperatures has helped to mitigate the negative effects of this water surplus, but a big decrease in the yield of winter crops (soft wheat, durum wheat and winter barley) is expected in this region.Finally, weather conditions over this period were favourable for planting and establishment of sunflower, grain maize and rice.

Romania: High expectations for winter crops.

Development of winter crops is very promising all over Romania. The forecasts have been updated to 2.7 t/ha for soft wheat, 4.8 % above the five-year average, and 2.9 t/ha for winter barley (13.2 % above). Rapeseed yields are forecast at 1.6 t/ha for this growing season, which could exceed the average by 9.0 %. The yield estimates for spring crops are only indicative, since these crops are still at an early stage of development. Spring barley is expected to yield 2.0 t/ha (10.4 % above average). The forecast for grain maize is 3.4 t/ha (6.3 % above) and for sunflower 1.3 t/ha (0.4 % below).

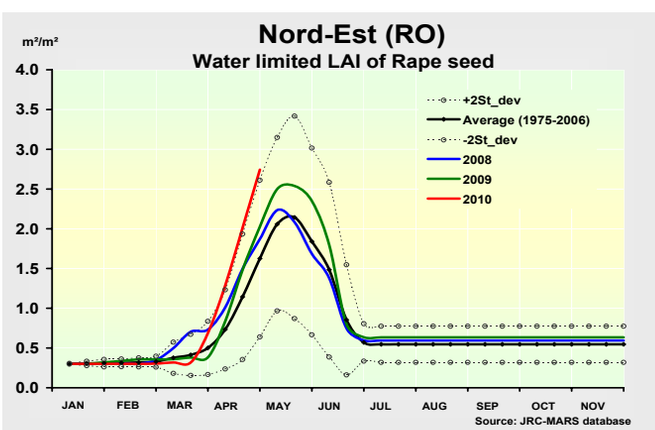
The snowy winter was followed by a rainy spring. The precipitation was above normal levels for most of the country, except some north-eastern and south-eastern regions. The cumulated climatic water balance for this year is still above average. The temperature followed the normal pattern and was the same as the long-term average. The thermal and irradiation conditions were most favourable for agricultural production along the River Danube, on the Romanian plains.

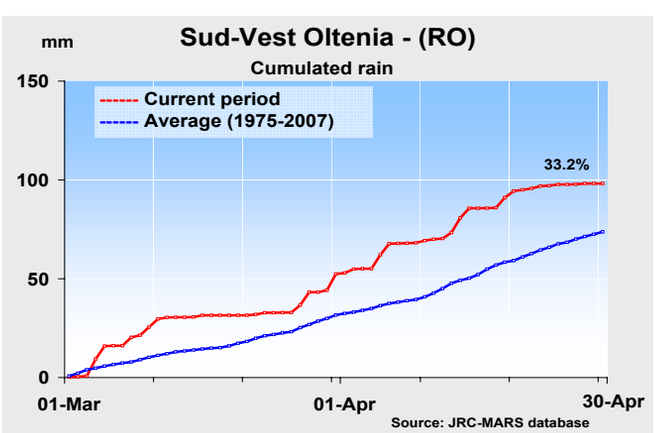
The phenological development of all crops was in line with or slightly ahead of the average at the end of April. Rapeseed was in flower, while in some areas of south-west Oltenia grain filling had started. The wheat is mainly at the heading stage and was already flowering near the Black Sea. The spring barley was tillering and had reached the stem elongation phase in the most advanced southern and western regions. Grain maize and sunflower are just beginning to emerge along the southern border of Romania.

The canopy development of winter crops seems to be exceptional. The leaf area index is approaching the maximum possible for this stage of the vegetative season. The biomass accumulation is higher than usual. The positive expectations have also been confirmed by satellite images. The current outlook is very good.

However, the weather in May and June will be crucial for the final yield formation of winter crops.

The spring crops benefited from the good soil moisture and favourable temperature conditions for germination and emergence.



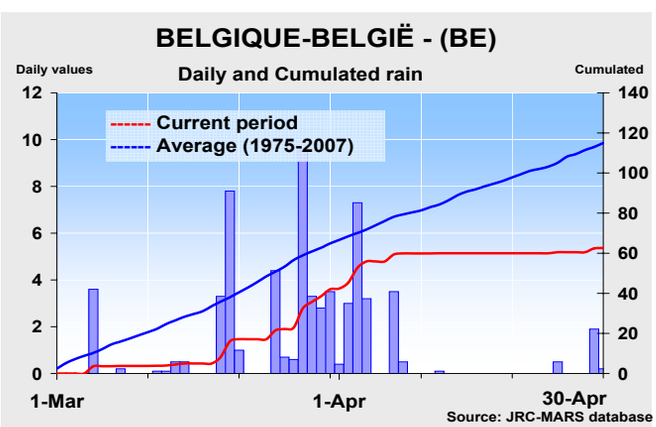


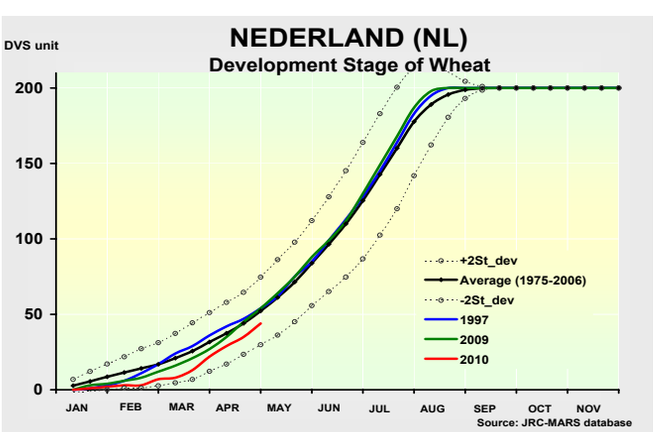
Belgium, the Netherlands, Luxembourg: Average yields expected, development of winter crops delayed.

Soft wheat is forecast at 8.6 t/ha in Belgium, 6.4 t/ha in Luxembourg and 8.7 t/ha in the Netherlands. These forecasts are close to the 2009 yields and just above the last five-year average (by 1.8 %, 4.6 % and 2.4 % respectively). In Belgium, rapeseed is forecast at 4.1 t/ha, which is 6.9 % lower than the 2009 yield but still 3.8 % higher than the last five-year average. Winter barley is forecast at 8.6 t/ha, similar to the 2009 yield. Spring crops are at a very early stage in Belgium and the Netherlands. Maize is forecast to average 11.8 t/ha in Belgium (6.8 % up on 2009) and 11.7 t/ha in the Netherlands (down by 10.1 % in comparison with 2009). Simulations put spring barley yield in the Netherlands at 6.5 t/ha (an increase of 5.8 % compared with the last five-year average).

The delay in development of winter wheat observed in late February had not been made up by early May, except a little in Luxembourg. This is due to an extremely dry April and, more locally, to very low, sometimes even negative, temperatures. Consequently, the soil moisture remained below the seasonal level, particularly in Belgium but also, to a lesser extent, in Luxembourg and the Netherlands.

Under these conditions, rapeseed development was slightly behind average during the last ten days of April, especially in Belgium.





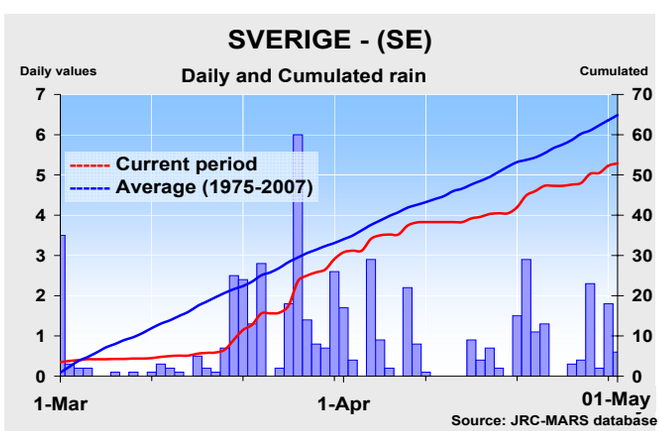
These cold temperatures could have affected rapeseed in different areas of Belgium just before its flowering stage. However, the delay in development of wheat and rapeseed has been limited by the level of maximum temperatures, often well above the seasonal averages. This explains why the simulations give a potential leaf area index of winter crops slightly above average. The weather in May, particularly the cumulative rainfall, will be a decisive factor for the final yields. By early May, wheat was at the end of its tillering stage and rapeseed at its flowering stage.

Regarding spring crops, spring barley (mainly in the Netherlands) and grain maize were sown in relatively good conditions between mid-March and mid-April. Nevertheless, beneficial rainfall in May will be very important. These two spring crops are still at a very early stage of development.

Denmark and Sweden: harsh frost at the beginning of March followed by milder temperatures. Drier than normal.

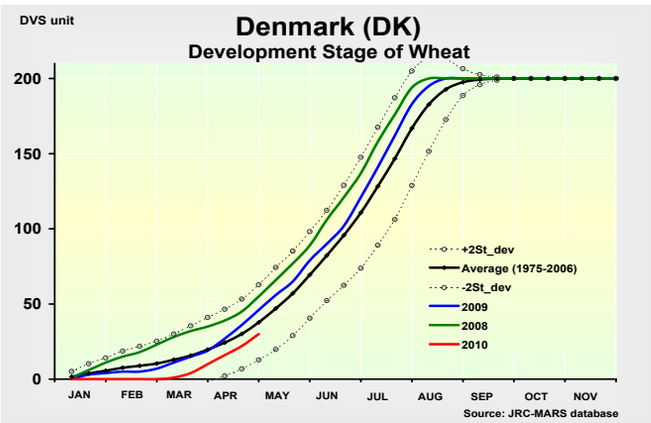
In Denmark soft wheat is estimated at 7.5 t/ha (1.8 % above the five-year average, but 7.8 % down on 2009), winter barley at 5.8 t/ha (0.5 % above the five-year average and 10.2 % down on 2009), spring barley at 5.0 t/ha (1.5 % above the five-year average and 9.6 % down on 2009) and rapeseed at 3.4 t/ha (down by 0.4 % and 8.1 % respectively). In Sweden soft wheat is estimated at 5.8 t/ha (4.9 % below the five-year average), winter barley at 5.4 t/ha (0.9 % below the five-year average), spring barley at 4.4 t/ha (3.7 % above the five-year average and 5.0 % down on 2009) and rapeseed at 2.9 t/ha (9.1 % above the average and 3.7 % down on 2009).

Following a very cold January and February, March also got off to an extremely cold start (-11/-12°C on 5 March), but fortunately the snow cover and the 'hardening' level reached were sufficient to protect the crops.



After the first ten days, the weather changed and temperatures progressively climbed to even above the seasonal average. These thermal conditions persisted during almost all the period considered. Consequently, crop development was boosted and the delay built up in the

previous period had almost been caught up by the end of April. Nevertheless, the faster development did not permit appropriate accumulation of biomass. In fact, compared with LTA conditions, simulations showed a significant shortfall at the end of the month.



In terms of both quantity and timing, the rain supplies were distributed in line with the seasonal averages. Good 'dry' windows for sowing spring crops (mainly barley) were available in both mid-March and mid-April, nearly in step with the standard crop calendar.

Finland: Mild spring raises winter crop yield expectations.

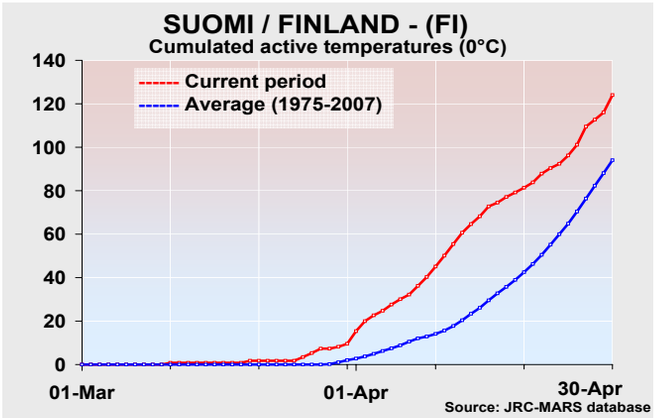
Winter crop yields are now forecast at higher than the five-year average but lower than last year. Yield is estimated at 3.8 t/ha for soft wheat (6.8 % down on 2009 and close to the five-year average), 1.5 t/ha for rapeseed (down by 11.8 % and up by 7.1 % respectively) and 3.4 t/ha for spring barley (down by 5.8 % and 4.0 % respectively).

In March snow was still lying on the fields. The snow cover was significantly thicker than usual, especially in the south of the country. The intensive thaw started at the end of the month, when the daily temperatures stayed above 0°C.

Since then the cumulated active temperature (base = 0°C) has been increasing and remained above the seasonal average. In the second ten days of April it exceeded the LTA by >100 %. The cumulated precipitation was also higher than usual (in Etela-Suomi by 36 %). Relative soil moisture was mainly in line with the average, but at the end of April increased to the 2 standard deviation.

The thermal conditions were favourable for restarting crop development after winter dormancy. The more frequent rainfall, which was higher than last year especially in the second half of April, could have caused farmers some problems with access to fields for spring work and sowing.

In April winter wheat development was slightly ahead compared with both last year and the long-term average. At the end of the month, a delay in crop development was noticed, because of temperature fluctuations and high soil water content. At the moment winter wheat is tillering.

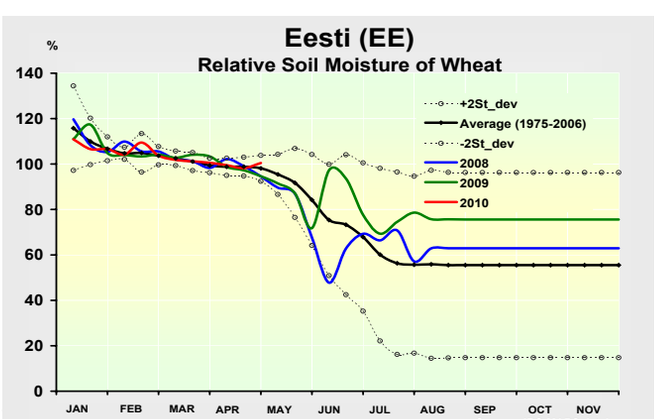


Estonia, Latvia and Lithuania: Winter crop yield expectations positive, especially for rapeseed in Lithuania.

For Estonia the yield forecasts are soft wheat 3.0 t/ha (2.1 % down on the previous year and 2.3 % below the five-year average), rapeseed 1.5 t/ha (down by 8.0 % and 4.7 % respectively) and spring barley 2.6 t/ha (4.6 % below and 2.6 % above). For Latvia soft wheat is put at 3.5 t/ha (down by 3.7 %), winter barley at 2.8 t/ha (2.5 % above and 11.6 % below), rapeseed at 2.0 t/ha (6.3 % below and 0.4 % above) and spring barley at 2.4 t/ha (6.7 % below and 1.7 % above). The figures for Lithuania are soft wheat 4.0 t/ha (5.1 % below and 7.8 % above), winter barley 3.5 t/ha (9.9 % below and 4.9 % above), rapeseed 2.0 t/ha (7.1 % below and 12.4 % above) and spring barley 2.7 t/ha (9.5 % below and 4.0 % above).

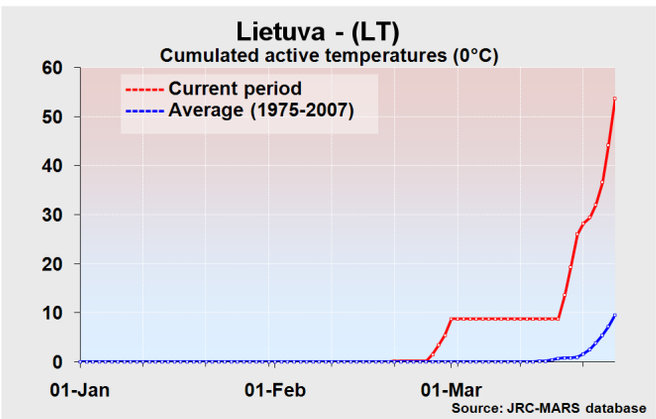
Cumulated precipitation since the beginning of the year is in line with the average in Estonia and 20 to 30 mm below average in Lithuania. The thick snow cover persisted until the second ten-day period of March in Lithuania and up to the end of March in Estonia.

In the spring period covered by this report, showers were most frequent between March and April and pushed the water surplus above the long-term average. In all three countries the cumulated temperatures were 30 % above the seasonal value.



In Lithuania in the second ten-day period of April a dry spell decreased the risk of over-wetting after the long winter. The mild thermal conditions combined with sufficient soil water supplies boosted crop development, especially for rapeseed. The favourable soil moisture conditions also allowed spring field work and sowing.

In all three countries winter wheat development was delayed slightly, compared with the average seasonal phase and last year. By contrast, in Lithuania rapeseed growth is ahead of schedule. If the weather remains mild, crop yields will be satisfactory. At the moment winter wheat is tillering and rapeseed is still at the vegetative development stage.



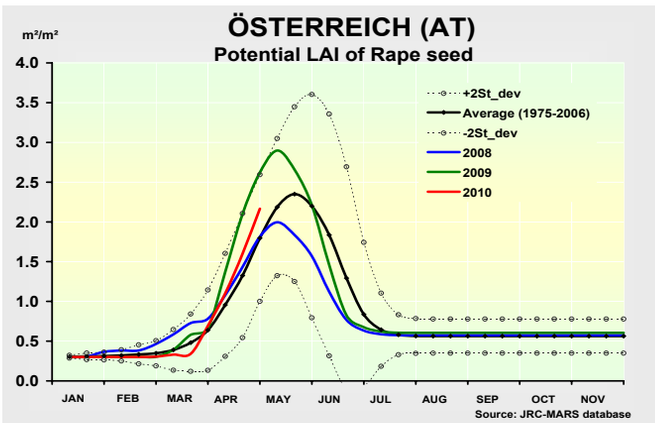
Austria and Slovenia: warm dry conditions make it possible to catch up on the delay in the development stage.

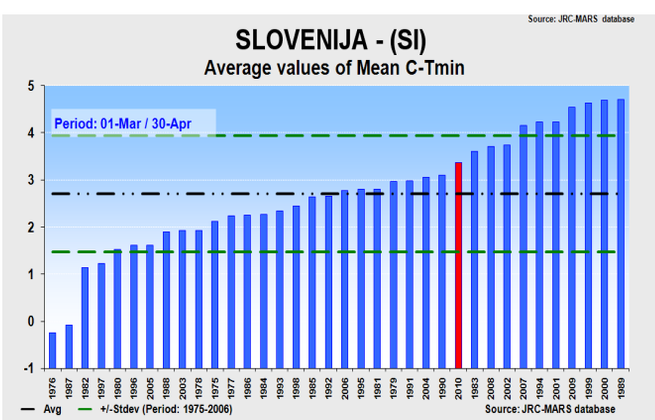
A good season is expected for both winter and spring crops. The forecasts for Slovenia are now 4.4 t/ha for soft wheat and 3.9 t/ha for barley (2.9 % and 4.9 % above the five-year average respectively), with grain maize now set for 7.6 t/ha. Similar conditions are predicted for Austria where expectations for winter crops are higher than the average and than last year. Durum wheat is estimated at 4.5 t/ha and soft wheat at 5.5 t/ha (6.1 % and 6.9 % above the five-year average respectively), with rapeseed and winter barley forecast at 3.2 t/ha (4.2 % above) and 5.6 t/ha (2.5 % above) respectively. Because of the good sowing conditions predicted for spring barley, the simulations give values of 4.2 t/ha, 5.8 % above the average. Grain maize and sunflower are set for 10.4 t/ha and 2.7 t/ha respectively.

After the intense snowfalls at the beginning of March, precipitation was sparse in both countries during the period which followed. Cumulated rainfall values have been slightly (10 %) higher than the long-term average only in Ostösterreich, whereas in all other regions the total rainfall was consistently below the average (by not more than 30 %). This has led to low climatic water balance values.

However, due to the late thaw, soil moisture values do not yet reflect this shortage. Starting from the last ten days of March, temperatures have been mild, especially the daily minima. This has made it possible to catch up on the delay in development built up at the start of the season. The thermal sum has been consistently above the LTA in Austria, whereas in Slovenia, probably as a consequence of lower irradiance levels, values stayed close to average.

Winter wheat and winter barley are completing the vegetative stage and show good potential. Spring barley was sown under optimum conditions and reached the tillering stage a few days early. Maize sowing will benefit from the current soil moisture conditions because they will allow machinery access to the fields and avoid anoxia of the young seedlings. Although the quick recovery in the development stage for rapeseed turned into sudden expansion of the canopy, which might lead to suboptimum grain filling, conditions are also good for this crop.





Portugal: Wet conditions during recent months have lowered winter crop yield expectations.

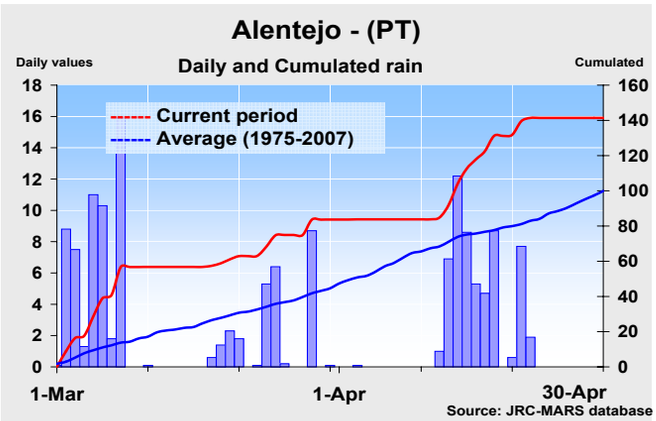
The yield forecast for soft wheat is 1.5 t/ha (16.6 % below the five-year average). Winter barley yield is forecast at 1.7 t/ha (10.6 % below the five-year average). The yield forecast for grain maize is put at 6.1 t/ha.

The first half of March was slightly cooler than the seasonal values. After this period, temperatures were around average. Despite these temperatures, development close to average was observed for winter crops, with a slight delay in the north of Alentejo and the south of the Centro region.

Moreover, the high temperatures recorded at the end of April (around 29 to 30°C) could have affected the grain-

filling of winter crops and, thus, their final yield. The rain continued during March and April, but not as heavily as in the preceding months.

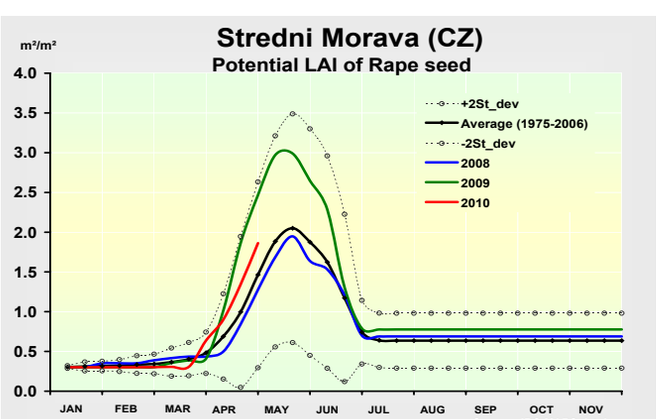
However, the cumulated values for this period are 40 % higher than the seasonal values. Thus, the cumulated rainfall recorded since 1 January makes this year the second wettest for the last 35 years.

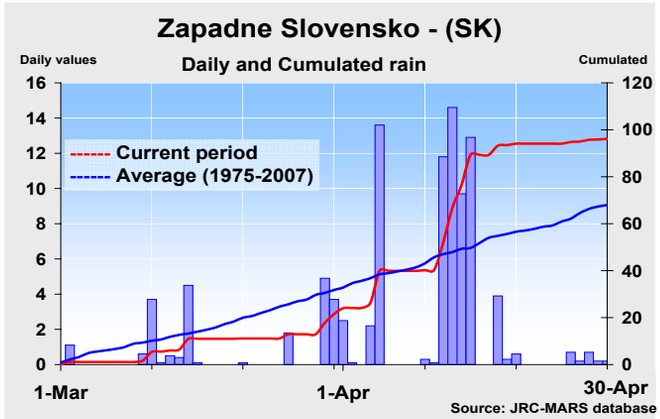


Czech Republic and Slovakia: Favourable year, especially for rapeseed.

The above-average growing season is reflected by the forecasts for the Czech Republic: 5.4 t/ha for soft wheat (5.0 % above the five-year average), 4.6 t/ha for winter barley (1.4 % above), 4.3 t/ha for spring barley and 3.1 t/ha for rapeseed (4.2 % above). In the case of summer crops, yields of 8.2 t/ha are expected for grain maize (12.7 % above) and 2.3 t/ha for sunflower (1.1 % above). Slightly below-average yields for winter cereals are forecast for Slovakia: 4.1 t/ha for soft wheat (2.1 % below average) and 3.6 t/ha for winter barley (2.9 % below). Nearly normal yield is forecast for spring barley with 3.5 t/ha (0.6 % below average) and 6.3 t/ha for grain maize which is exactly equal to the five-year average. Good yields are expected for rapeseed and sunflower with 2.6 t/ha (15.6 % above average) and 2.3 t/ha (5.1 % above average) respectively.

The first two months of this spring could be summed up as evenly distributed, sufficient rain both in the Czech Republic and Slovakia.





Precipitation remained slightly below average in most of Bohemia. The cumulative climatic water balance is still positive. The cumulated active temperatures from mid-March exceeded the normal values, resulting in faster crop development.

The cumulative solar radiation curve followed nearly the long-term average course. The development stage of winter wheat is one week early in both countries, while the phenological status of rapeseed is normal. Models are predicting good conditions for canopy development and light interception for winter crops.

The biomass accumulation of winter crops exceeded the average at the end of April. The sowing and germination conditions for spring crops could be considered normal.

Hungary: Simulation models predict a good season for winter crops.

The yield forecast for soft wheat in Hungary is 4.4 t/ha, a significant (13.8 %). improvement on the dry 2009 and still 4.3 % above the five-year average. Similarly, the forecast of 4.1 t/ha for winter barley is 13.5 % up on the previous year and 3.3 % above the five-year average. Winter rapeseed, with 2.6 t/ha, is also performing better than the five-year average (by 10.6 %). The current weather conditions point to a positive forecast for spring barley, with a yield of 3.6 t/ha expected (10.7 % above average). Grain maize yield is predicted at 6.5 t/ha, just 1.7 % above average. Sunflower yield is expected to be around 2.4 t/ha, which is slightly higher than the five-year average (by 4.7 %).

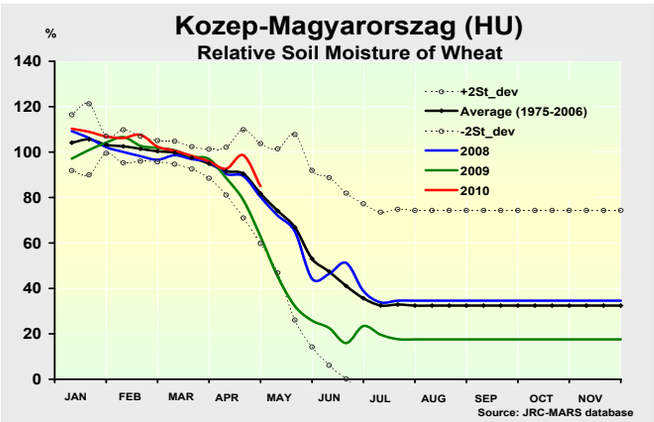
The less rainy March partly eased the extensive inland floods. The weather turned wet again in the first and second ten-day periods of April, causing water logging problems, mainly in the eastern part of Hungary.

There are fears that thousands of hectares of winter crops could have been damaged again. The high soil moisture content — even without flooding — facilitated development of winter crops, but delayed soil preparation and sowing of grain maize. The moist weather conditions could unleash plant diseases, thus adding to pest control costs.

The last ten days of April were less rainy, but the climatological water balance was still decidedly above normal in the first few days of May. The temperature conditions and irradiation levels could be considered near average for this time of

year. Model simulations point to very high leaf area indices promising good yield formation potential.

The phenological development of winter crops is normal. Winter wheat has reached the stem elongation phase all over the country, but there are big geographical differences. Rapeseed is in the middle of the flowering phase. Spring barley is in the second part of the tillering phase, even along the southern border of Hungary where heading has started.



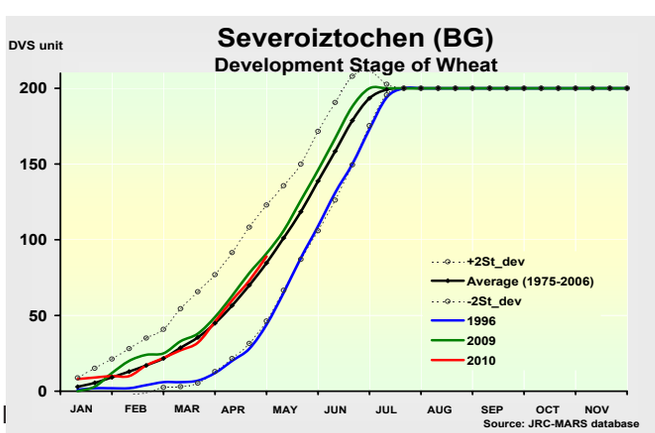
Bulgaria: Above-average year for winter crops.

The yield forecasts are 3.6 t/ha for soft wheat (12.6 % above the five-year average), 3.3 t/ha for winter barley (10.6 % above) and 2.7 t/ha for rapeseed (24.0 % above). The expectations for spring crops are more modest at this very early stage of the season: 4.2 t/ha for grain maize (8.3 % above average) and 1.5 t/ha for sunflower (0.7 % above).

Near-average thermal conditions were reported in Bulgaria this spring. On the lowlands no frost was recorded in April. The country received abundant precipitation. In western Bulgaria, i.e. in the Severozapaden and Yugozapaden regions, the cumulated rain in March and April was the third highest in the last 35 years. Bulgaria's climatic water balance for 2010 was significantly above average.

The precipitation was well distributed, providing good conditions for spring field work and for crop development.

There were enough dry days between the significant spells of precipitation to finish sowing spring crops in time.



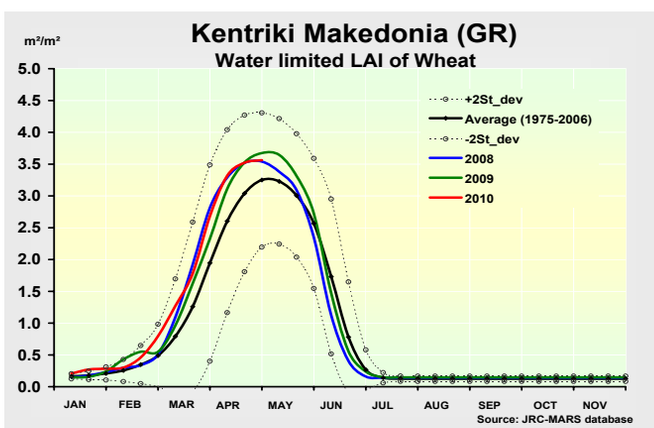
leaf area was optimum, promising higher photosynthetic activity in future. The biomass accumulation of winter crops exceeded the average, while the phenological development status of these cultivated plants hardly deviated from the average at the end of April. Yield expectations are high for the Danube Plain, as confirmed by remote sensing.

Seasonal development of spring crops could be described as normal, considering the early stage of the growing season. Sunflower is at the emergence stage; maize has also reached this stage in the most favourable areas near the River Danube and in the south-eastern part of the country. Spring barley is either tillering or has just entered the heading phase.

Greece: Normal conditions in the main cereal-growing areas, dry in the remainder of the country.

The winter cereal season is progressing normally. The forecast for durum wheat is stable at 2.6 t/ha (9.2 % above the five-year average), while the estimate for soft wheat is 2.9 t/ha (7.4 % up on the five-year average). The forecast for winter barley is 2.5 t/ha (7.6 % up on last season). Maize is at a very early stage of development, with yields forecast at 9.7 t/ha, in line with the five-year average.

Precipitation in the barley-growing areas of the north (Kentriki Makedonia) was abundant in March but more scarce in April. Simulations show relative soil moisture decreasing sharply, but still around 50 % and within the 2 standard deviation. Temperatures remained within the norm and accumulated radiation shows a surplus. The cycle for wheat is slightly ahead of schedule, as in 2008, and simulated crop growth indicators show a positive progression.



Worrying relative soil moisture values are forecast for Thessalia and Dytiki Ellada, due to the dry spell in April, which could potentially have a negative effect on spring crops. Here too, the impact on the winter cereals simulations is visible, with lower water-limited biomass accumulation, but still well above the average. The high soil water content observed during March could also affect yields, especially because it makes it difficult to apply the fertiliser necessary for winter crops. However, the distribution of rainfall during April would have allowed sowing of grain maize and sunflower.

3.2 Spring sowing conditions

Favourable conditions for sowing, but some obstacles possible in southern Europe and for spring barley in north-western Europe.

Spring barley

In general, spring barley has been sown under good weather conditions. The long-lasting snow cover in central Europe meant that sowing started later than usual in some areas, but the soil moisture reserves were higher than average. The weather was dry in Ukraine, but germinating plants could have taken water from post-winter soil water resources. Most of Europe reported between 10 and 30 mm of rainfall around sowing, not a level likely to hamper field work. Locally over-wet conditions (more than 70 mm in 21 days) were recorded in Scotland and north-eastern England and in the south of Europe and western Turkey.

Rain was mostly concentrated after sowing. Combined with favourable thermal conditions, this allowed good germination and emergence.

Grain maize

Grain maize sowing has almost finished, except in some areas in the north of central Europe. Wet conditions (> 30 mm) delayed field preparation and sowing in Hungary, Slovakia and the Balkans. Locally in parts of Spain (southern Andalucía and some areas of Aragón) and southern France large amounts of rain (> 50 mm) were recorded. In general, in France, Spain and Italy the favourable weather conditions allowed good sowing and plant germination. In Romania and Bulgaria sowing took place under good soil moisture conditions. Temperatures were also favourable for germination and emergence.

Sunflower

In the major producing areas of Spain (central Spain and Andalucía) and France (south-west) sunflower was sown under good soil moisture conditions. In some areas nearby, over-wet conditions were recorded. Sowing was late in Romania (except for the eastern part), Bulgaria, Hungary and Slovakia and could have been done in wet soil. In these areas the high soil water content could have delayed field preparation and the early development of plants.

Sugar beet

In the main EU sugar beet producing countries, soil moisture conditions were good for sowing. Especially in Germany and Poland, optimum soil water content made it possible to start field work without delay. Conditions were worse in the centre of the UK and the south of France, where locally around the time of sowing the cumulated rain exceeded 70 mm. In Slovakia and western Romania heavy showers could have created some obstacles leading to late sowing and germination and emergence of plants.

(Illustrations at page 19)

3.3 Black Sea area

Turkey: Average yields forecast.

The season is proceeding normally and average yields are forecast. Winter wheat is forecast at 2.2 t/ha confirming the previous level. Winter barley is set for 2.3 t/ha, level with the longterm average. Maize is forecast at 6.7 t/ha, currently 4.2 % below the five-year average.

The positive trend observed this season is continuing. In general, the country and especially the central Anatolian regions which form the main wheat-producing area received sufficient rain (even a surplus over the LTA is reported) and the simulations show good relative soil moisture values. By contrast, the simulations for Guney Dogu Anadolu indicate very low relative soil moisture, but values are now recovering thanks to rainfall at the beginning of May.

Cumulated temperatures are above the LTA, but high temperatures with a negative impact on plants have not occurred so far. As a result, wheat is advanced in all the main growing regions, e.g. by two ten-day periods in Orta Anadolu, where it is now at the flowering stage. During the period analysed, two more frosts occurred: one on 19 March with minimum temperatures plunging to –8oC in the cereal-growing areas and a light late frost on 10 April. Cumulated radiation for Orta Anadolu and Bati Anadolu is below the LTA.

Ukraine: Warm dry period allowed normal development of winter crops and favourable conditions for spring crop sowing.

The yield forecast for wheat in Ukraine is 3.1 t/ha and barley is estimated at 2.3 t/ha. Maize and rapeseed are forecast at 4.2 t/ha and 1.7 t/ha respectively.

The period analysed was warmer than usual. In the western oblasts, the cumulated active temperature reached 100 degrees Celsius above the long-term average. At the same time, northern-central oblasts (Cherminivs'ka, Sums'ka, Poltavs'ka and Zhytomyrs'ka) received very little precipitation. Cumulated rainfall during March and April was 50 to 60 mm lower than average.

Development of winter wheat is close to average, with better results in the western oblasts due to higher temperatures. This season looks promising for rapeseed and spring barley, as they enjoyed good conditions in April and developed quickly. Up to the end of the period covered by this analysis, no water deficiency was observed and therefore a good productive season is forecast for Ukraine.

3.4 Eastern countries

Belarus: A promising season with a warm and dry March and April.

The estimated yield looks like being better than the five-year average. Wheat is forecast at 3.8 t/ha, barley at 3.3 t/ha and rapeseed at 1.2 t/ha, with maize estimated at around the five-year average of 4.3 t/ha.

Since the third ten-day period of March, Belarus has been enjoying warm conditions with average daily temperatures higher than the long-term average. During March and April, the cumulated active temperature reached 100 degrees Celsius more than usual. The best thermal conditions occurred in the very agricultural south-east part of the country. In contrast to the good thermal conditions, the period covered by this analysis was fairly dry, particularly in the Mogilev, Gomel and Minsk oblasts. The cumulated rainfall in March and April put 2010 among the driest years. However, the winter soil water stores seemed sufficient for crop development over this period. Consequently, in the period covered by this analysis winter wheat developed normally after a rather extended period of dormancy. This season looks like being fertile for rapeseed, as development has been rapid so far.

Sowing of spring crops was completed under relatively dry conditions, and soil moisture could decrease significantly unless precipitation levels return to normal. The soil moisture available to crops in the next period will be crucial.

Russia: Favourable conditions for both winter and spring crops.

In March and April, the air temperature was close to average in the agriculturally important southern half of European Russia. Eastern oblasts reported slightly higher temperatures, adding up to 50 degrees Celsius more than the LTA during the two months analysed. Soil moisture was sufficient for crop development, despite the low rainfall over the period, mainly in the area between the Kurskaya and Ulyanovskaya oblasts. Winter wheat has developed in line with the average. Spring barley started promisingly in the southern oblasts. Rapeseed shows potential to produce high yields this season.

3.5 Maghreb countries

Maghreb: Overall average season for winter cereals.

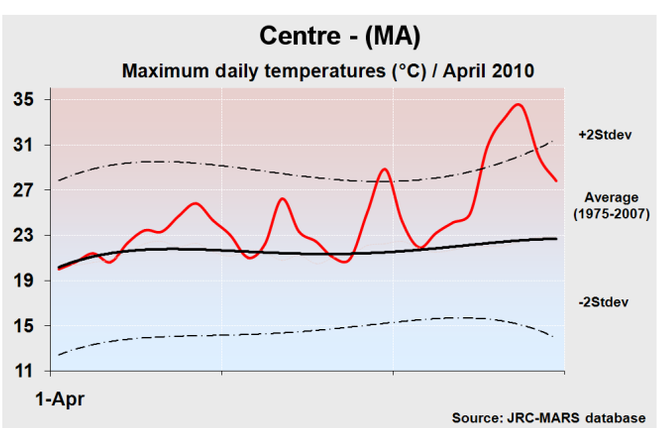
After an excellent performance in 2009, especially in Morocco, the Maghreb countries will record only average yields in 2010. The main reason for this is the shortening of the development cycle due both to late sowing and to the advanced development stage. Wheat is forecast at 1.8 t/ha (23.7 % above the last five-year average) in Morocco, 1.5 t/ha (10.3 % below) in Tunisia and 1.4 t/ha (1.2 % above) in Algeria. Barley is forecast at 1.3 t/ha in Morocco (44.5 % above the last five-year average), 1.2 t/ha (11.3 % below) in Algeria and 1.4 t/ha (2.4 % above) in Tunisia. In Morocco, maize is still in its initial phase and the yield is expected to be 0.8 t/ha, slightly better than the last five-year average.

Rainfall in Morocco has been the highest on record for the last 35 years. In the main cereal-growing regions rainfall was exceptionally high (more than 620 mm in Nord Ouest, for example) and well distributed from December to mid-March. The situation in Algeria was also very positive but significant differences between the cereal areas could be observed (for example, the cumulated precipitation in Sétif is below the average). By contrast, the overall rainfall situation in Tunisia is slightly below the long-term average.

Despite the generally good rainfall conditions, precipitation in early autumn was lower than the 30 mm expected in a ten-day period in order to start sowing. Sowing of winter cereals started at the very end of the autumn at best and even in the last ten days of December in Morocco. Later in the winter, the good soil moisture and mild temperatures favoured quick development of the winter crops in the three countries, reaching a higher stage of development than in the previous year.

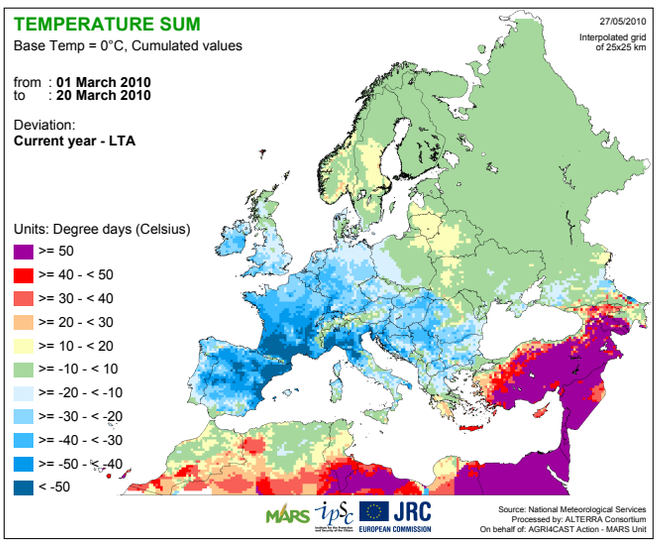
In Morocco, where wheat and barley were at the most advanced stage of development compared with Algeria or Tunisia, the grain-filling period was shortened because of the temperatures in April, which were the highest on record in the 35-year time series. Wheat and barley harvests generally started about ten days earlier than normal. Taking into account that excess precipitation generally leads to nitrogen leaching and emergence of disease, yields of both crops are forecast to be lower than in the 2009 season.

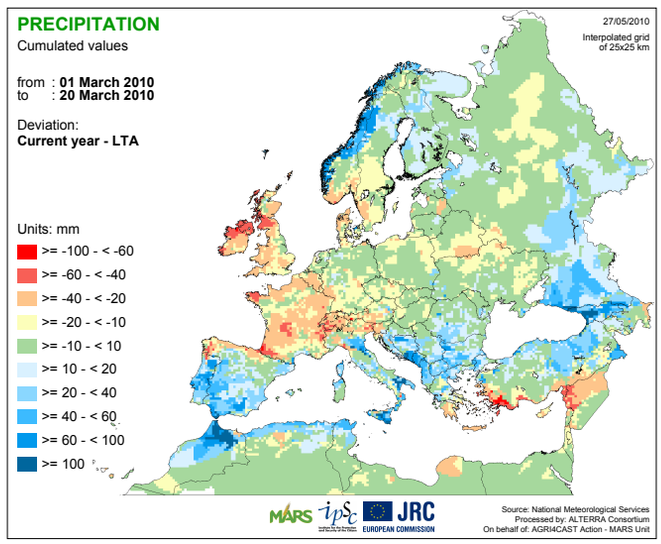
In Algeria and, even more so, in Tunisia, the situation is a little less critical. Sowing occurred sooner than in Morocco and winter cereals are not at such an advanced stage of development. But the general climatic conditions are very different from one cereal-producing area to another. Some regions recorded very good levels of precipitation (for example, Le Kéf in Tunisia), but others much worse (e.g. Sétif and Tiaret in Algeria or Béja in Tunisia). If the temperatures in both countries remain much higher than average, as they did in April, grain-filling will lead to average yields.

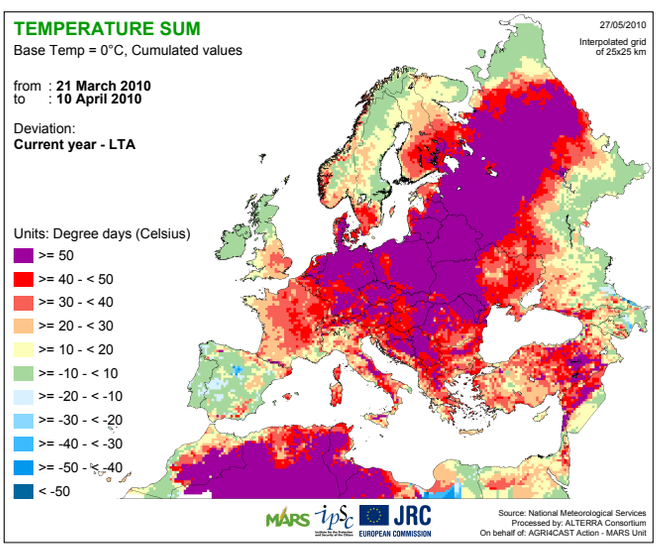


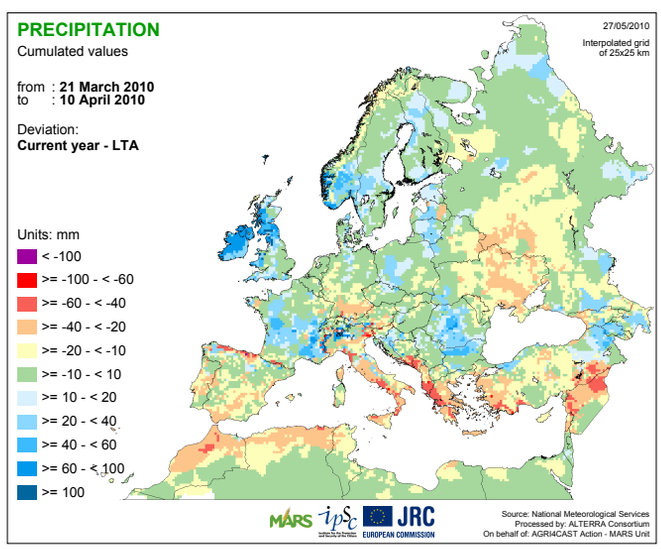
4. Map analysis

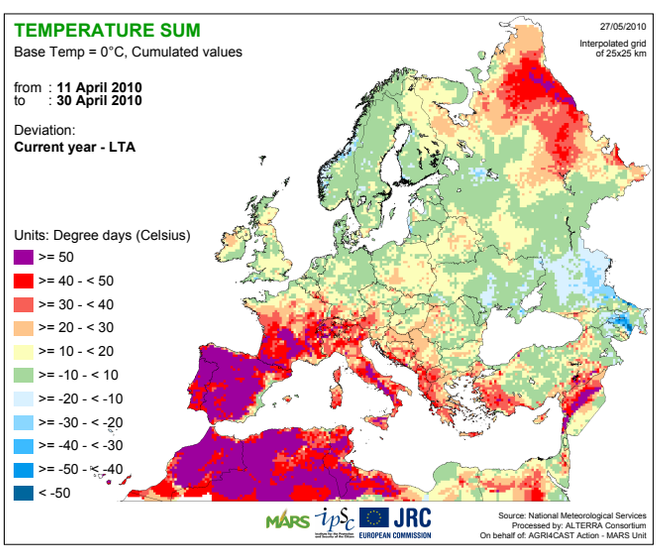
4.1. Temperature and precipitation

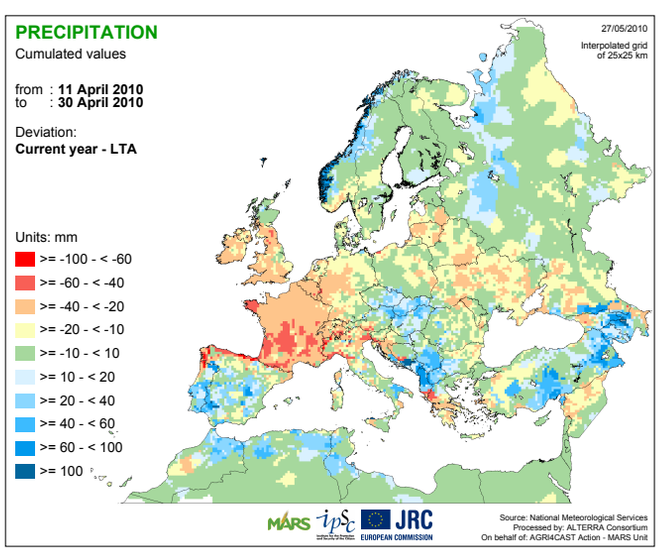




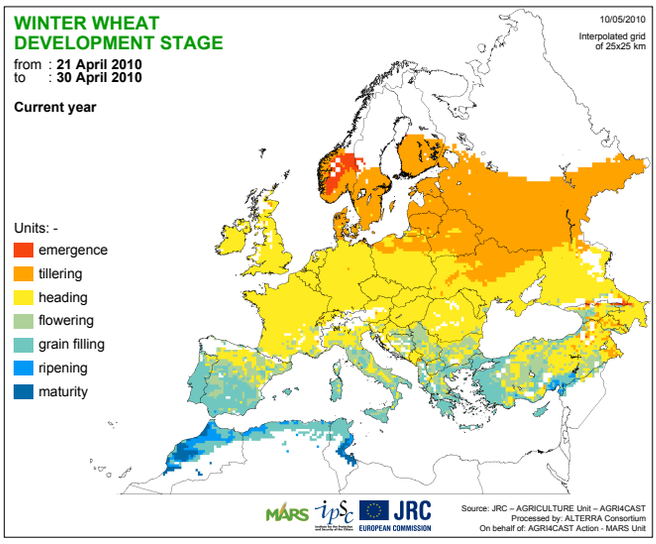


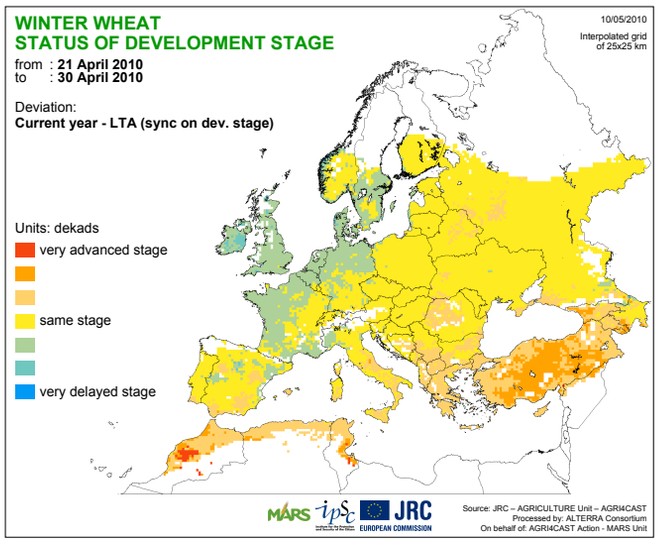


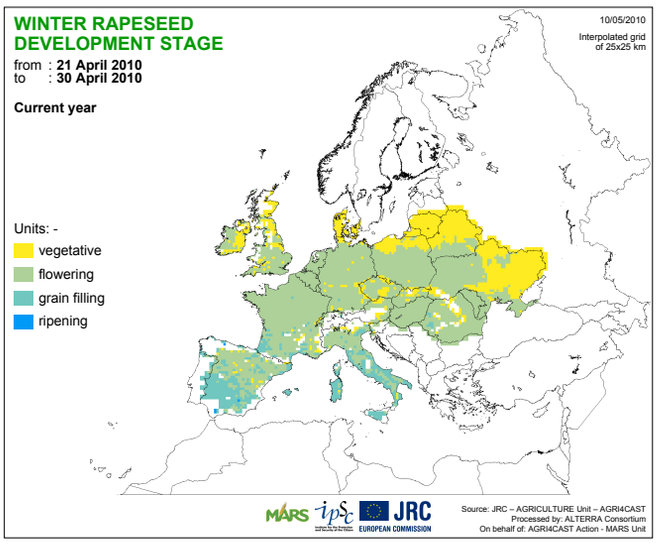


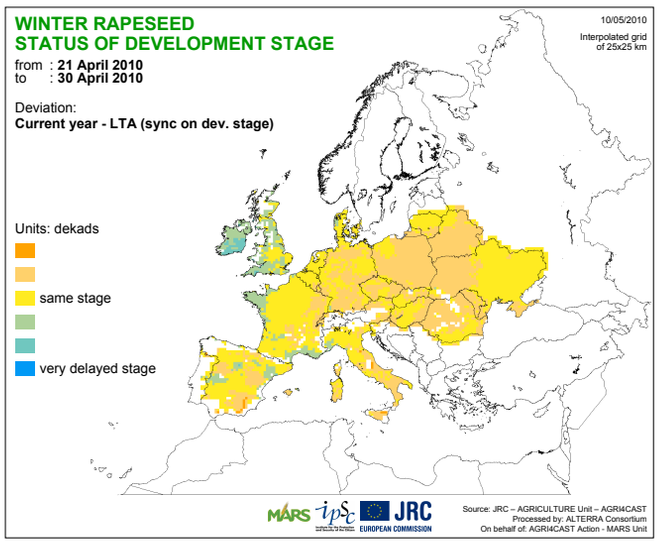


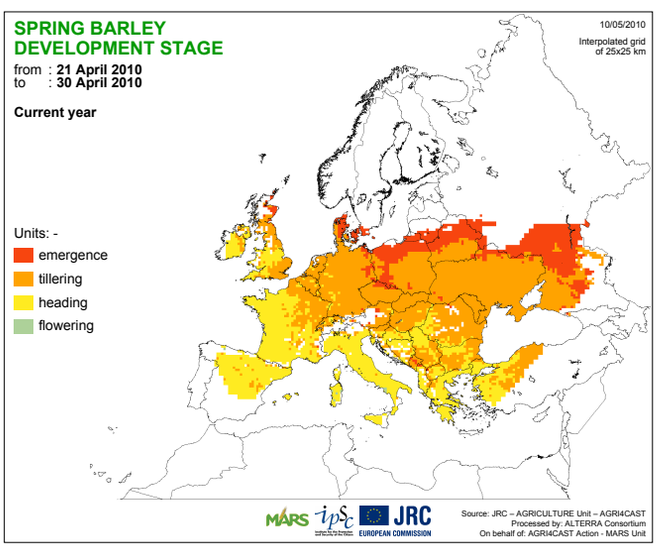
4.2. Crop development stage

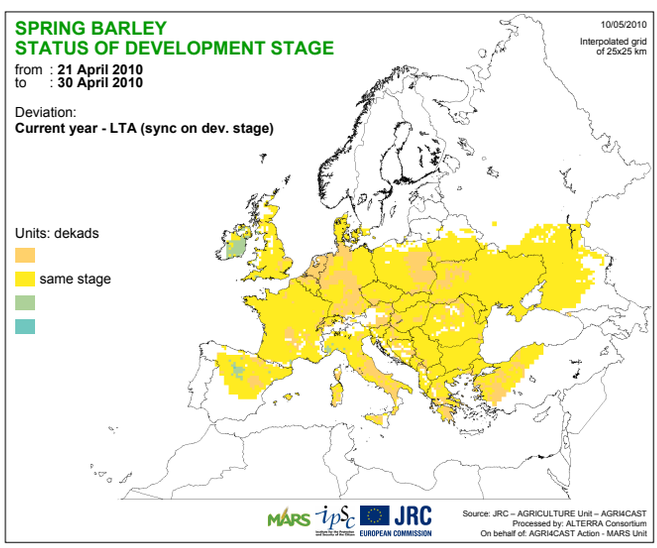




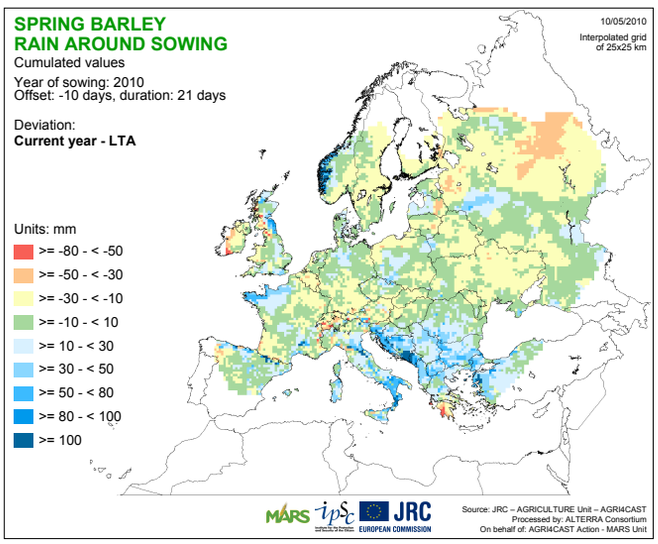


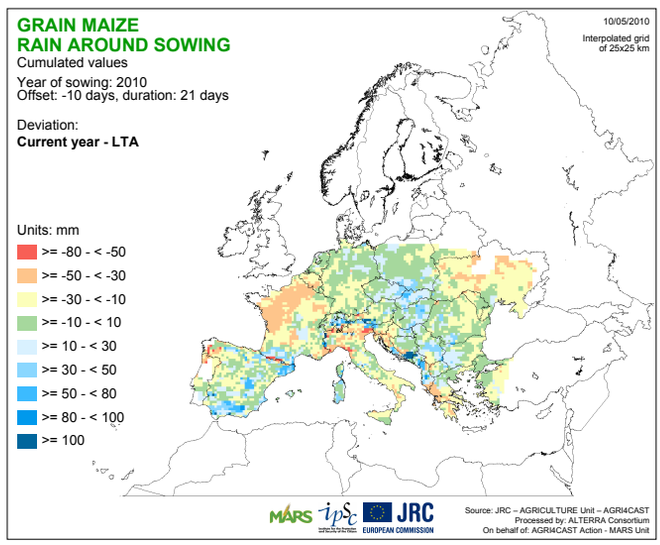


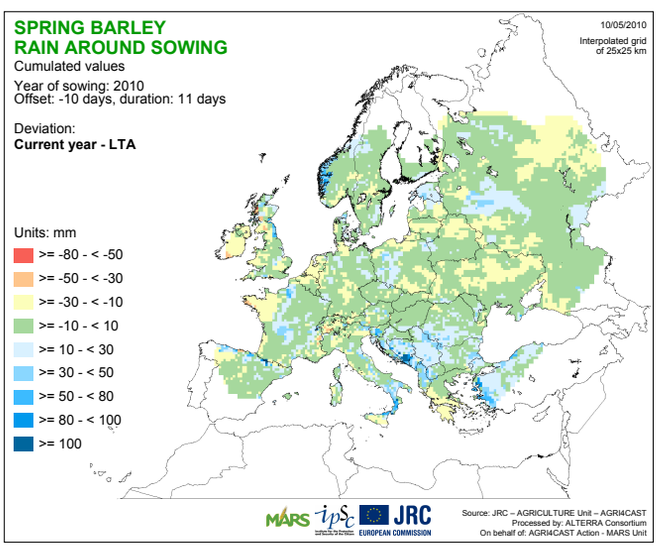


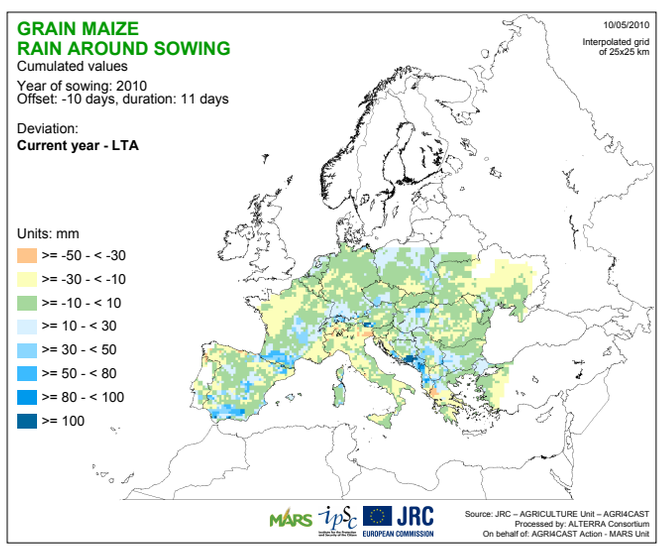


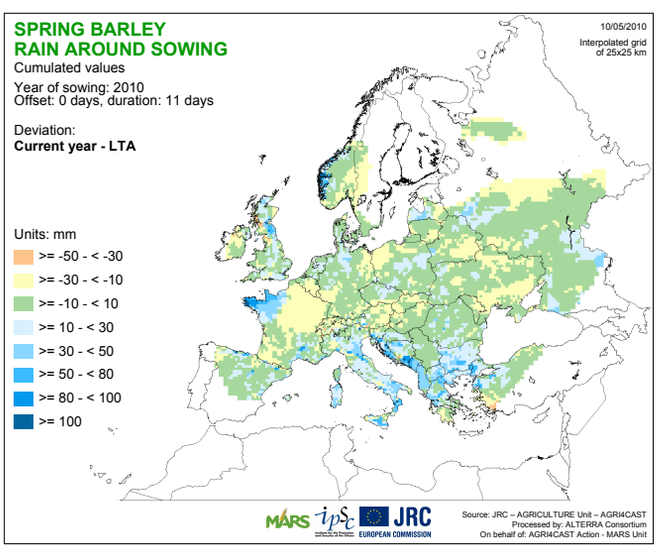
4.3. Weather conditions at spring sowing

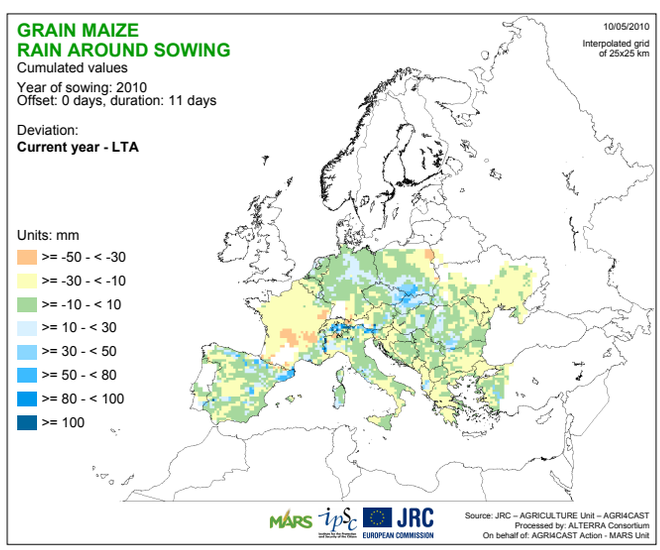






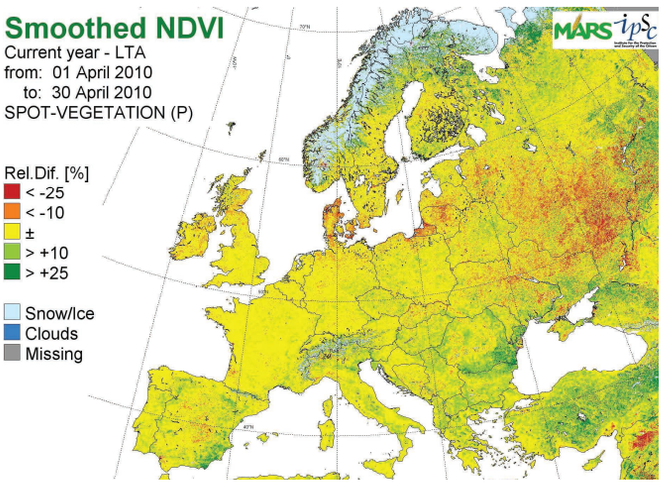






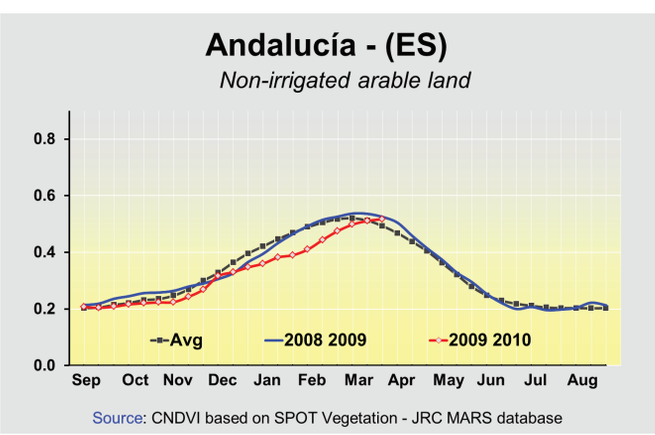
5. Satellite analysis: SPOT Vegetation

NDVI values extend around the average in Western and Central Europe. Good vegetation development along Black Sea area.



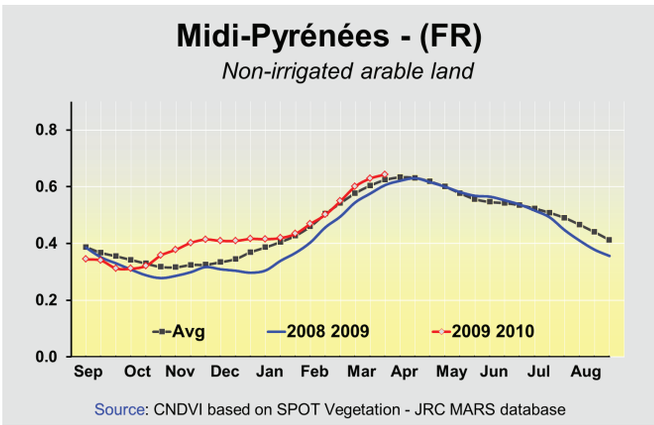
The NDVI map shows relative differences between the current NDVI and the long-term average (1998–2008) for April 2010. The NDVI values for the Iberian peninsula are around the average. Nevertheless in the southern part of Spain biomass accumulation is lower than average and slightly delayed. This is probably due to the low temperatures and wet conditions.

The NDVI profile of non-irrigated arable land in Andalucía accurately reflects crop behaviour. Italy shows a normal to good situation across the entire peninsula with the exception of the north-western regions. In Pianura Padana, despite the lower-than-average spring temperatures, the vegetation is benefiting from good conditions with NDVI values slightly higher than average.



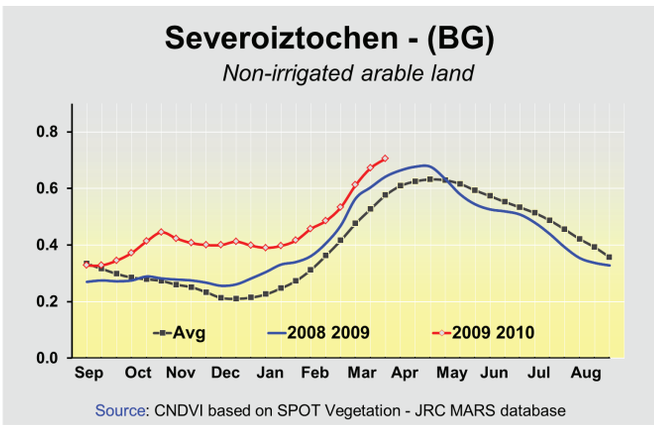
The warm conditions in late April allowed average development of vegetation in France. The profile of Midi-Pyrénées followed the average trend of the NDVI values for the current season. In the United Kingdom vegetation is performing well. In the main agricultural areas of southern and south-western UK canopy development advanced from delayed to average. The NDVI profile of East Anglia for the current season highlights the higher rate of vegetation growth between March and April, due to the higher than seasonal temperatures. Germany is heading for an average season. The prolonged snow cover slightly delayed development of the early spring crops.

In spite of this, thanks to the mild temperatures from May onwards the vegetation advanced to normal development with biomass accumulation even slightly higher than average.



Throughout central Europe normal conditions are shown by the NDVI map. Favourable development is visible across Hungary, where the satisfactory soil water moisture during spring led to good canopy development creating positive expectations. The NDVI graph for the Del Alfold region is given as an example.

Conditions are even better in the Caspian basin. The favourable weather conditions along the Danube valley have pushed biomass accumulation significantly above average. In Romania and Bulgaria canopy development is in the early stages. The good vegetation status is clearly shown in the NDVI profile for Severoitztochen. A slightly less favourable season is shown by the NDVI profile for Ods'ka (Ukraine); the positive trend is triggered by the warmer than seasonal temperatures.



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