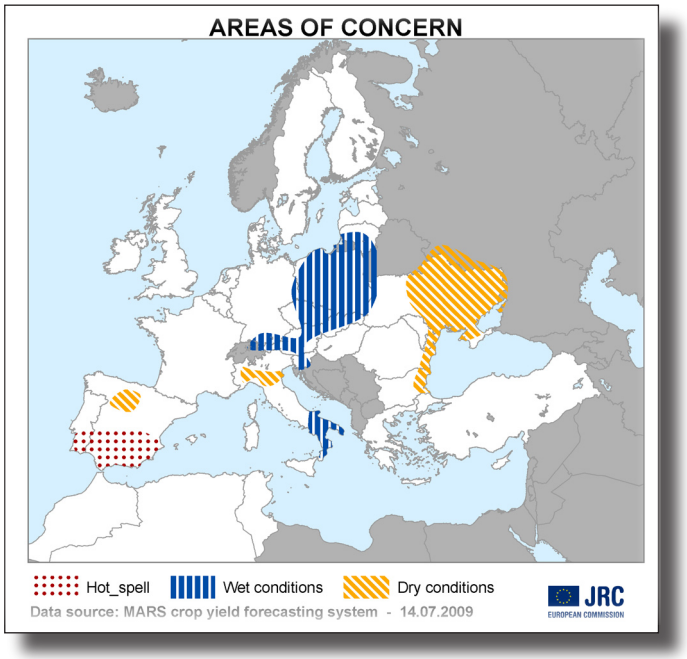
ISSN 1725-5813
EUR 23298 EN-2009

MARS AGROMETEOROLOGICAL Crop Monitoring in Europe

11th June to 10th July 2009

Vol. 17, No. 4
Issued: 14 July 2009

An average production for cereals is forecast with 290 million tonnes



Europe did experience in general seasonal conditions, except in Iberia and the Black Sea, with higher than seasonal temperatures and several consecutive 'hot days'. Temperatures were also unusually high in Scandinavia and Scotland. There was a positive high level of solar radiation in northern latitudes.

Rain was concentrated over eastern Europe, southern Italy and the Dalmatian coast. Intense downpours occurred in Austria, with temporary flooding. Water shortage was very persistent in central-western Spain, northern Italy and the northern Black Sea basin. An average total cereal production is forecast of 290 million tonnes. Good soft wheat yield levels are expected for the main producers Germany and France.

CROPS	EU27 yield forecast (t/ha) as of 14 July 2009				
	2008	2009	Average 5 years	% 2009/08	% 2009/ Average
TOTAL CEREALS	5.2	**5.0**	4.9	-4.6	+1.2
Soft wheat	6.0	**5.7**	5.6	-5.3	+1.3
Durum wheat	3.2	**3.1**	3.0	-5.0	+3.8
Total wheat	5.7	**5.4**	5.3	-5.3	+2.0
Spring barley	4.0	**3.6**	3.7	-9.0	-4.0
Winter barley	5.5	**5.3**	5.2	-3.6	+1.9
Total barley	4.5	**4.3**	4.3	-5.9	-0.8
Grain maize	7.1	**6.9**	6.7	-3.3	+2.5
Other cereals (1)	3.4	**3.2**	3.2	-5.3	+1.0
Rape seed	3.1	**3.0**	3.1	-1.8	-2.2
Sunflower	1.9	**1.7**	1.7	-7.7	+1.2
Potato	29.3	**29.9**	27.9	+2.0	+7.1
Sugar beet	66.0	**65.8**	61.8	-0.4	+6.5

Yields are forecasted 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:
2004-2008 data come from EUROSTAT CRONOS (last update: 15/06/2009) and EES (last update: 15/06/2009)
2009 yields come from MARS CROP YIELD FORECASTING SYSTEM (up to 10/07/2009)

Contents

JRC EUROPEAN COMMISSION

EC publication from JRC/IPSC/MARS/AGRI4CAST (agri4cast@jrc.ec.europa.eu)
MARS bulletin: http://mars.jrc.ec.europa.eu/mars/Bulletins-Publications
MARS agrometeorological database: http://www.marsop.info

ipsc Institute for the Protection and Security of the Citizen

1. Crop yield forecasts

MARS crop yield forecasts at national level for EU27 as of 14 July 2009

Country	TOTAL WHEAT (t/ha)					SOFT WHEAT (t/ha)					DURUM WHEAT (t/ha)				
	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs
EU27	5.7	**5.4**	5.3	-5.3	+2.0	6.0	**5.7**	5.6	-5.3	+1.3	3.2	**3.1**	3.0	-5.0	+3.8
AT	5.7	**5.3**	5.3	-6.7	+0.9	5.7	**5.4**	5.3	-6.3	+1.1	5.1	**4.4**	4.5	-14.1	-2.2
BE	8.4	**8.6**	8.4	+3.1	+3.2	8.4	**8.6**	8.4	+3.1	+3.2	-	**-**	-	-	-
BG	4.2	**3.5**	3.3	-16.0	+4.9	4.2	**3.5**	3.3	-16.0	+4.9	-	**-**	-	-	-
CZ	5.8	**4.8**	5.2	-16.8	-7.7	5.8	**4.8**	5.2	-16.8	-7.7	-	**-**	-	-	-
DE	8.1	**7.9**	7.6	-2.6	+3.9	8.1	**7.9**	7.6	-2.6	+3.9	-	**-**	-	-	-
DK	7.9	**7.3**	7.2	-7.1	+2.4	7.9	**7.3**	7.2	-7.1	+2.4	-	**-**	-	-	-
EE	3.2	**2.9**	2.9	-8.9	-1.5	3.2	**2.9**	2.9	-8.9	-1.5	-	**-**	-	-	-
ES	3.2	**3.0**	2.9	-7.7	+2.1	3.6	**3.2**	3.2	-12.3	-2.0	2.2	**2.6**	2.3	+17.5	+9.0
FI	3.6	**3.6**	3.6	+0.3	-0.6	3.6	**3.6**	3.6	+0.3	-0.6	-	**-**	-	-	-
FR	7.1	**7.2**	6.9	+1.8	+4.4	7.3	**7.4**	7.1	+2.0	+4.4	4.9	**4.9**	4.8	-0.3	+2.6
GR	3.0	**2.8**	2.4	-5.3	+18.9	3.0	**2.9**	2.8	-3.7	+4.3	2.9	**2.8**	2.2	-5.7	+23.0
HU	5.0	**4.0**	4.5	-19.5	-9.3	5.0	**4.0**	4.5	-19.5	-9.3	4.3	**3.9**	4.2	-8.8	-7.0
IE	9.1	**8.6**	9.0	-4.5	-4.3	9.1	**8.6**	9.0	-4.5	-4.3	-	**-**	-	-	-
IT	3.9	**3.5**	3.7	-10.8	-5.6	5.4	**4.9**	5.3	-8.2	-7.0	3.2	**2.8**	3.0	-11.6	-4.9
LT	4.3	**3.8**	3.7	-10.4	+4.5	4.3	**3.8**	3.7	-10.4	+4.5	-	**-**	-	-	-
LU	6.7	**6.4**	6.2	-4.6	+2.2	6.7	**6.4**	6.2	-4.6	+2.2	-	**-**	-	-	-
LV	3.9	**3.5**	3.4	-8.4	+5.3	3.9	**3.5**	3.4	-8.4	+5.3	-	**-**	-	-	-
NL	8.7	**8.7**	8.4	-0.3	+3.7	8.7	**8.7**	8.4	-0.3	+3.7	-	**-**	-	-	-
PL	4.1	**3.9**	3.9	-4.2	+0.1	4.1	**3.9**	3.9	-4.2	+0.1	-	**-**	-	-	-
PT	2.2	**1.4**	1.8	-34.1	-17.6	2.2	**1.4**	1.8	-34.1	-17.6	-	**-**	-	-	-
RO	3.4	**2.7**	2.8	-20.2	-4.0	3.4	**2.7**	2.8	-20.2	-4.0	-	**-**	-	-	-
SE	6.1	**6.2**	6.0	+0.9	+2.2	6.1	**6.2**	6.0	+0.9	+2.2	-	**-**	-	-	-
SI	4.5	**4.3**	4.4	-4.9	-2.6	4.5	**4.3**	4.4	-4.9	-2.6	-	**-**	-	-	-
SK	4.9	**3.7**	4.3	-23.3	-13.5	4.9	**3.7**	4.3	-23.3	-13.5	-	**-**	-	-	-
UK	8.3	**8.0**	7.9	-3.8	+1.1	8.3	**8.0**	7.9	-3.8	+1.1	-	**-**	-	-	-

Country	TOTAL BARLEY (t/ha)					GRAIN MAIZE (t/ha)					RAPE SEED (t/ha)				
	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs
EU27	4.5	**4.3**	4.3	-5.9	-0.8	7.1	**6.9**	6.7	-3.3	+2.5	3.1	**3.0**	3.1	-1.8	-2.2
AT	5.2	**4.3**	4.7	-17.4	-9.3	11.1	**10.8**	10.0	-2.8	+8.0	3.1	**2.8**	3.1	-9.3	-10.1
BE	8.0	**8.4**	8.0	+5.7	+5.1	10.4	**11.5**	11.3	+11.2	+1.9	-	**-**	-	-	-
BG	3.9	**3.2**	3.0	-18.3	+5.8	4.2	**3.9**	4.2	-5.8	-6.7	2.3	**2.2**	2.0	-4.0	+12.0
CZ	4.6	**3.8**	4.2	-18.7	-10.9	7.5	**7.3**	6.9	-3.3	+6.0	2.9	**2.8**	3.1	-6.3	-11.0
DE	6.1	**6.2**	6.0	+1.6	+3.5	9.8	**9.5**	9.1	-3.1	+4.3	3.8	**3.7**	3.8	-0.3	-0.3
DK	4.7	**5.3**	5.0	+13.9	+6.9	-	**-**	-	-	-	3.7	**3.8**	3.5	+1.9	+8.4
EE	2.6	**2.2**	2.4	-11.8	-7.7	-	**-**	-	-	-	1.4	**1.5**	1.5	+5.1	-3.4
ES	3.3	**2.4**	2.8	-26.3	-15.9	9.9	**10.0**	9.9	+0.6	+0.7	2.0	**1.3**	1.6	-32.1	-17.1
FI	3.5	**3.5**	3.4	-0.5	+0.6	-	**-**	-	-	-	1.3	**1.2**	1.2	-7.5	-1.4
FR	6.8	**6.5**	6.4	-3.7	+2.8	9.1	**9.5**	8.9	+4.6	+7.3	3.3	**3.5**	3.3	+4.1	+5.4
GR	2.5	**2.5**	2.5	-1.3	+1.6	10.3	**9.7**	9.5	-6.1	+2.0	-	**-**	-	-	-
HU	4.4	**3.0**	3.9	-31.8	-21.4	7.5	**6.2**	6.5	-16.5	-4.3	2.6	**2.3**	2.5	-12.3	-6.5
IE	6.9	**6.9**	6.8	-0.2	+1.5	-	**-**	-	-	-	-	**-**	-	-	-
IT	3.8	**3.6**	3.8	-5.6	-4.6	9.6	**9.3**	9.3	-2.4	+0.3	2.3	**2.2**	1.9	-5.7	+12.9
LT	2.9	**2.6**	2.6	-12.5	-2.9	-	**-**	-	-	-	2.0	**1.8**	1.8	-12.5	+1.1
LV	2.2	**2.3**	2.3	+0.6	+0.0	-	**-**	-	-	-	2.4	**2.1**	2.0	-11.0	+7.7
NL	6.1	**6.4**	5.9	+5.3	+7.3	11.4	**11.7**	11.3	+2.8	+3.7	-	**-**	-	-	-
PL	3.0	**3.1**	3.1	+2.3	-1.5	5.8	**5.6**	5.6	-4.4	-0.7	2.7	**2.7**	2.7	-0.5	-0.9
PT	2.4	**1.5**	1.8	-38.0	-17.8	5.8	**5.6**	5.4	-3.8	+3.9	-	**-**	-	-	-
RO	3.0	**2.4**	2.5	-20.6	-2.4	3.2	**3.3**	3.4	+1.5	-2.7	1.8	**1.7**	1.6	-8.4	+3.0
SE	4.2	**4.3**	4.2	+3.6	+3.7	-	**-**	-	-	-	2.9	**2.7**	2.6	-5.7	+5.0
SI	4.0	**3.7**	3.8	-6.1	-2.1	7.3	**7.7**	7.6	+4.8	+1.3	-	**-**	-	-	-
SK	4.4	**3.0**	3.7	-30.9	-19.2	7.4	**5.8**	6.0	-22.4	-3.1	2.6	**2.2**	2.4	-13.9	-4.8
UK	6.0	**6.1**	5.9	+3.3	+4.8	-	**-**	-	-	-	3.3	**3.2**	3.2	-3.0	+0.2

Note: Yields are forecasted for crops with more than 10000 ha per country; figures are rounded to 100 kg
Sources: 2004-2008 data come from EUROSTAT CRONOS (last update: 15/06/2009) and EES (last update: 15/06/2009)
2009 yields come from MARS CROP YIELD FORECASTING SYSTEM (up to 10/07/2009)

MARS crop yield forecasts at national level for EU27 as of 14 July 2009

Country	SUNFLOWER (t/ha)					SUGAR BEET (t/ha)					POTATO (t/ha)				
	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs
EU27	1.9	**1.7**	1.7	-7.7	+1.2	66.0	**65.8**	61.8	-0.4	+6.5	29.3	**29.9**	27.9	+2.0	+7.1
AT	3.0	**2.6**	2.6	-12.4	-0.1	71.8	**63.6**	66.7	-11.4	-4.6	33.2	**30.5**	31.7	-8.3	-4.0
BE	-	**-**	-	-	-	68.8	**71.4**	69.5	+3.7	+2.8	44.1	**46.0**	44.2	+4.3	+4.2
BG	1.6	**1.6**	1.5	-1.0	+8.8	-	**-**	-	-	-	17.5	**16.0**	16.2	-8.2	-0.9
CZ	2.5	**2.3**	2.3	-8.5	+1.2	57.3	**56.1**	53.1	-2.0	+5.7	25.8	**24.7**	25.3	-4.5	-2.6
DE	2.0	**2.2**	2.2	+12.6	-1.7	61.9	**63.1**	60.8	+1.9	+3.8	43.8	**42.7**	41.8	-2.4	+2.3
DK	-	**-**	-	-	-	55.4	**55.5**	57.0	+0.2	-2.7	35.0	**38.8**	37.8	+10.8	+2.7
ES	1.1	**0.9**	1.0	-24.2	-16.8	76.3	**73.4**	71.5	-3.8	+2.7	27.8	**28.0**	27.6	+0.6	+1.4
FI	-	**-**	-	-	-	34.4	**36.0**	37.7	+4.5	-4.7	25.8	**25.1**	23.7	-2.9	+5.8
FR	2.6	**2.3**	2.4	-8.9	-3.0	86.5	**88.1**	82.4	+1.9	+6.9	43.2	**44.7**	43.3	+3.4	+3.3
GR	-	**-**	-	-	-	65.4	**63.7**	63.8	-2.6	-0.1	25.3	**21.1**	24.4	-16.9	-13.7
HU	2.7	**2.7**	2.3	-1.0	+15.7	59.2	**55.5**	52.4	-6.3	+5.8	25.7	**23.1**	24.9	-10.2	-7.2
IE	-	**-**	-	-	-	-	**-**	-	-	-	31.1	**33.3**	34.9	+7.0	-4.7
IT	2.2	**2.2**	2.2	-0.7	-1.1	62.3	**53.1**	54.0	-14.8	-1.8	25.6	**25.4**	25.2	-0.7	+0.9
LT	-	**-**	-	-	-	39.0	**40.4**	40.4	+3.5	-0.1	14.8	**12.1**	11.7	-18.1	+3.4
LV	-	**-**	-	-	-	-	**-**	-	-	-	17.8	**15.2**	14.6	-14.8	+3.7
NL	-	**-**	-	-	-	72.2	**75.8**	67.0	+5.0	+13.3	46.0	**43.6**	43.8	-5.2	-0.4
PL	-	**-**	-	-	-	46.5	**47.4**	45.2	+1.9	+4.8	19.8	**19.0**	18.7	-4.0	+1.4
PT	-	**-**	-	-	-	-	**-**	-	-	-	14.8	**15.3**	15.0	+3.4	+2.0
RO	1.4	**1.3**	1.3	-10.8	-3.2	38.3	**33.3**	30.9	-13.3	+7.6	14.3	**14.1**	14.3	-1.4	-1.6
SE	-	**-**	-	-	-	53.7	**52.8**	50.4	-1.7	+4.7	31.6	**28.3**	29.8	-10.5	-5.2
SK	2.6	**2.2**	2.2	-15.0	-0.5	61.1	**50.5**	50.6	-17.2	-0.2	17.2	**15.9**	15.7	-7.6	+1.2
UK	-	**-**	2.0	-	-	62.5	**61.3**	58.3	-2.0	+5.1	42.7	**42.0**	41.6	-1.6	+0.9

Note: Yields are forecasted for crops with more than 10000 ha per country; figures are rounded to 100 kg
Sources: 2004-2008 data come from EUROSTAT CRONOS (last update: 15/06/2009) and EES (last update: 15/06/2009)
2009 yields come from MARS CROP YIELD FORECASTING SYSTEM (up to 10/07/2009)

MARS crop yield forecasts at national level for Black Sea and Maghreb as of 14 July 2009

Country	WHEAT (t/ha)					BARLEY (t/ha)					GRAIN MAIZE (t/ha)				
	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs
DZ	-	**1.6**	1.4	-	+11.4	-	**1.7**	1.5	-	+16.1	-	**-**	4.4	-	-
MA	-	**2.1**	1.4	-	+51.7	-	**1.4**	0.8	-	+74.3	-	**1.1**	0.9	-	+24.6
TN	-	**1.9**	1.6	-	+18.6	-	**1.1**	0.9	-	+18.4	-	**-**	-	-	-
TR	-	**2.3**	2.3	-	-0.5	2.5	**2.5**	2.5	-2.3	+0.2	7.5	**6.8**	6.8	-9.0	+0.6
UA	-	**2.2**	2.7	-	-19.2	-	**1.6**	2.0	-	-21.3	-	**4.2**	3.8	-	+10.6

Country	RAPE SEED (t/ha)					SUNFLOWER (t/ha)				
	2008	2009	Avg 5yrs	%09/08	%09/5yrs	2008	2009	Avg 5yrs	%09/08	%09/5yrs
UA	-	**1.1**	1.4	-	-17.3	-	**1.0**	0.9	-	+9.3

Note: Yields are forecasted for crops with more than 10000 ha per country; figures are rounded to 100 kg
Sources: TR: 2004-2008 data come from EUROSTAT CRONOS (last update: 15/06/2009) and EES (last update: 15/06/2009)
DZ, MA, TN, UA: FAO statistical database - 2008 data not yet available, therefore the 5-yrs average is computed on 2004-2007
2009 yields come from MARS CROP YIELD FORECASTING SYSTEM (CGMS output up to 10/07/2009)

Abstract

The 4th 2009 printed MARS Bulletin (Vol. 17, No. 4) covers meteorological analysis and crop yield forecasts for the period 11 June to 10 July 2009.

Previous related analysis available:

—**Complete Bulletin, 11/05/2009 to 10/06/2009, (Vol. 17, No. 3)**

—Climatic update, 20/05/2009 to 07/06/2009, (CU2009/5)

Next printed issue

Vol. 17, No. 5: 11 July - 31 August 2009 analysis and forecasts.

Contributions

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

Head of Unit: S. Kay.

Editor: B. Baruth.

Analysis and reports: M. Bettio, M. Erlandsson Holsteyns, W. Kasperska-Wolowicz, F. Micale, G. Narciso, L. Nisini, A. Rosenmund, L. Seguini.

Reporting support: C. Aspinall.

Data production: P.A. Bianchi, I. Cerrani, D. Fanchini (JRC/IPSC/MARS); Alterra (Nl)/Vito (BE)/Meteoc-It (Nl) Consortium, Meteofrance (FR).

MARS Bulletin reports, press releases and climatic updates are available at: http://mars.jrc.ec.europa.eu/mars/Bulletins-Publications

MARS Agrometeorological web database is accessible at: http://www.marsop.info

MARS stands for Monitoring Agricultural Resources.

Technical note

The long-term average used within this bulletin as a reference is based on an archive of data covering 1975–2008.

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

Disclaimer

The geographic borders are purely a graphical representation and are only intended to be indicative. These boundaries do not necessarily reflect the official EC position.

Contact information

For any questions contact the editorial staff at: JRC — IPSC, T.P. 483, I-21027 Ispra (VA), Italy

E-mail: agri4cast@jrc.ec.europa.eu - Tel.: (39) 03 32 78 60 70 - Fax: (39) 03 32 78 30 33

http://ipsc.jrc.ec.europa.eu/ - http://ec.europa.eu/dgs/jrc/index.cfm

Legal Notice

JRC 50337- EUR 23298 EN, EUR – Scientific and Technical Research series – ISSN 1725-5813

Luxembourg: Office for Official Publications of the European Communities,

2009 – 20 pp. – 21.0 x 29.7 cm, © European Communities, 2009

Printed in Luxembourg. (PRINTED ON WHITE CHLORINE-FREE PAPER)

THE MISSION OF THE IPSC IS TO PROVIDE RESEARCH RESULTS AND TO SUPPORT EU POLICY-MAKERS IN THEIR EFFORT TOWARDS GLOBAL SECURITY AND TOWARDS PROTECTION OF EUROPEAN CITIZENS FROM ACCIDENTS, DELIBERATE ATTACKS, FRAUD AND ILLEGAL ACTIONS AGAINST EU POLICIES.

THE MISSION OF THE JRC IS TO PROVIDE CUSTOMER-DRIVEN SCIENTIFIC AND TECHNICAL SUPPORT FOR THE CONCEPTION, DEVELOPMENT, IMPLEMENTATION AND MONITORING OF EU POLICIES. AS A SERVICE OF THE EUROPEAN COMMISSION, THE JRC FUNCTIONS AS A REFERENCE CENTRE OF SCIENCE AND TECHNOLOGY FOR THE UNION. CLOSE TO THE POLICY-MAKING PROCESS, IT SERVES THE COMMON INTEREST OF THE MEMBER STATES, WHILE BEING INDEPENDENT OF SPECIAL INTERESTS, WHETHER PRIVATE OR NATIONAL.

2. Agrometeorological overview

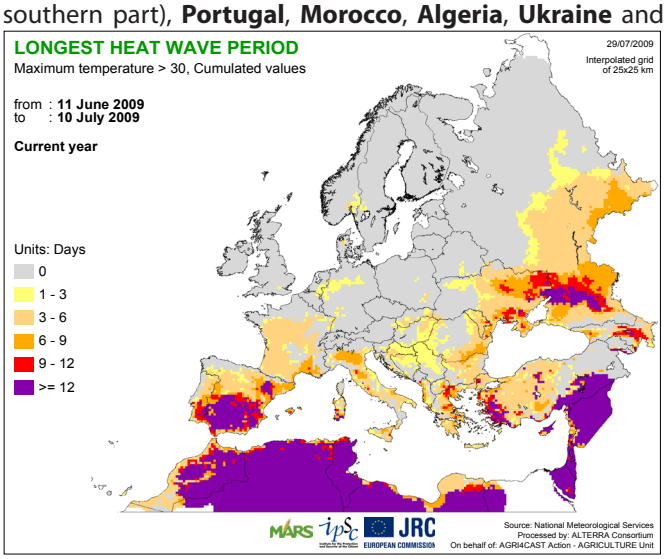
2.1. Temperature and evapotranspiration

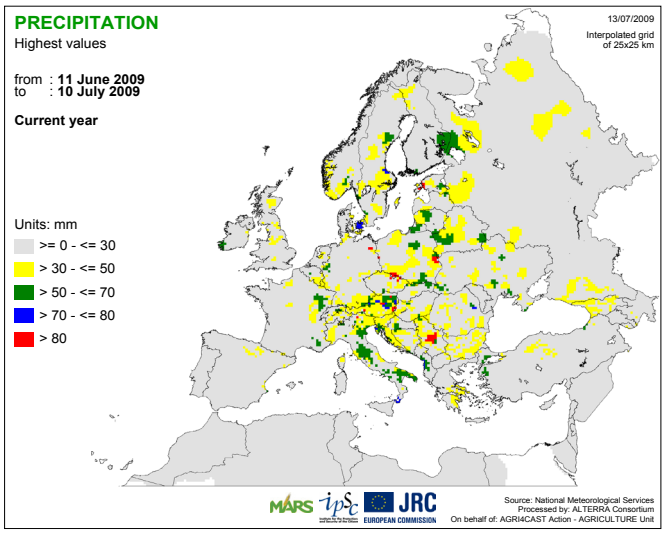
General seasonal conditions, except in Iberia and the Black Sea, with higher than seasonal temperatures and several consecutive 'hot days'. Temperatures were also unusually high in Scandinavia and Scotland. There was a positive high level of solar radiation in northern latitudes.

From the beginning of **June** up to middle of the month the synoptic circulation pattern was characterised by a strong influence of the Azorean anticyclone on the Iberian peninsula and Morocco, a low pressure system centred on the North Atlantic. This system pushed warm air on to Spain and Portugal whilst cooler air masses interested Scandinavia, the Baltic States, Denmark and northern Poland and Germany. In the latter part of the month, the Azorean anticyclone was pushed northwards and a low system was generated on the central Mediterranean: warmer air blew in the northern latitudes and on the northern and eastern sides of the Black Sea; in contrast, cloudy and cooler conditions characterised the central Mediterranean basin.

Following those conditions, in **Spain** (in particular in the southern part), **Portugal**, **Morocco**, **Algeria**, **Ukraine** and **southern Russia**, at the end of the month the cumulated active temperature values were even largely above the long-term average: around 80–100° GDD. In these areas, during several consecutive days, the maximum daily values were decidedly above 33°–34 °C, with values even over **41 °C in Andalucía** and in Alentejo. There were very high temperatures also Scandinavia and the British Isles: e.g. 31.2 °C in southern Sweden on 29 June (almost 14 °C above the long-term average) and 30.4 °C in Scotland (9° above the long-term average). In all the other areas, in general, seasonal GDD cumulated values were recorded.

Again, as at the beginning of June, in all the coastline areas of the northern Europe and in all the western side of the Black Sea, higher than average values of cumulated **solar radiation** were estimated. Obviously, the cumulated values of the **evapotranspiration** were strongly influenced by the high temperatures and higher level of solar radiation and large differences (> + 30 %) in relation to the long-term average were estimated in eastern Romania, south-eastern Spain, Sardegna, north-western Ireland and along the shores of the English Channel.





2.2. Rainfall and climatic water balance

Rain was concentrated over eastern Europe, southern Italy and the Dalmatian coast. Intense downpours occurred in Austria, with temporary flooding. Water shortage was very persistent in central-western Spain, northern Italy and the northern Black Sea basin.

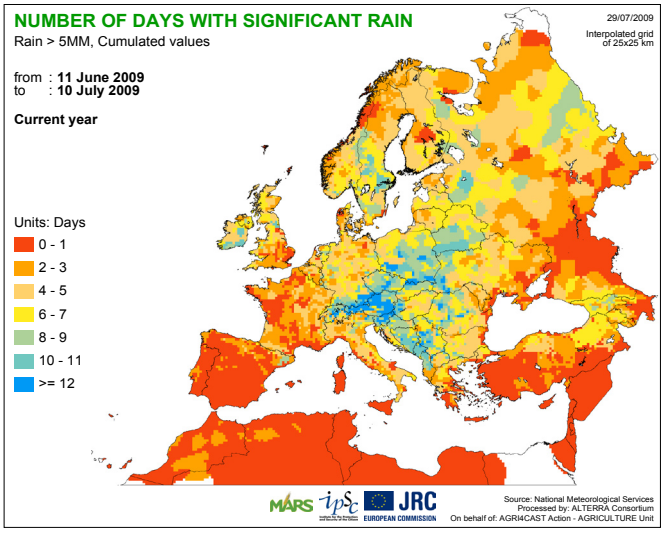
In the second part of June, the Azorean anticyclone influence was stronger than in the first part and its action was mainly on the western and northern side of the European continent. Moreover, a cyclone barometric system between the Adriatic and the Balkans remained during several days, creating conditions for persistent and abundant rains along the eastern EU borders.

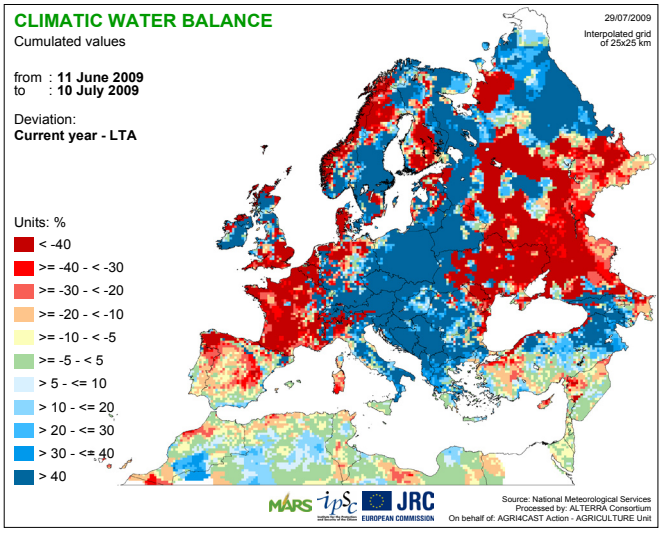
In these areas a l**arge surpluses** were recorded compared with the long-term average: more than 200 mm in **Austria** — where between the 22 and 23 June very intense and abundant rain occurred (around 180–200 mm in two days) creating serious problems and possible crop damage; + 180 mm in Poland (Małopolskie): + 150 mm in north-west Ukraine and Slovenia; + 130 mm in the northern part of the Czech Republic.

In general, in the majority of other areas, a seasonal amount of precipitation was received, except in southern Italy (**Apulia**) with 80–100 mm of rain compared with the 15–20 mm expected. This rain probably disturbed the winter crops harvesting, reducing furthermore crop yields.

In contrast, persistent rain shortages were again recorded in Spain, the northern Black Sea and southern France. The effects of this phenomenon are more evident when analysed with the cumulated rain since the beginning of May: **in Spain**, **the Po valley**, **southern France** and

Ukraine, the limited water supplies combined with high evapotranspiration values determined anomalous climatic water balance deficits, estimable at 80–100 mm and more. This period was the driest in the Po Valley since 1975.





3. Campaign analysis at country level

E U - 27

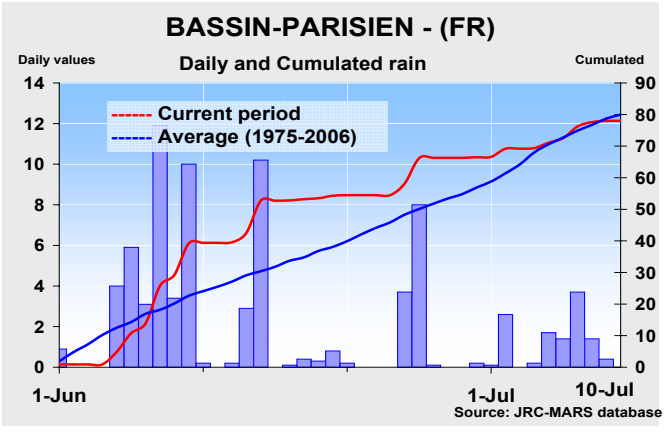
France: good yield levels, except sunflower affected by relatively warmer and drier conditions

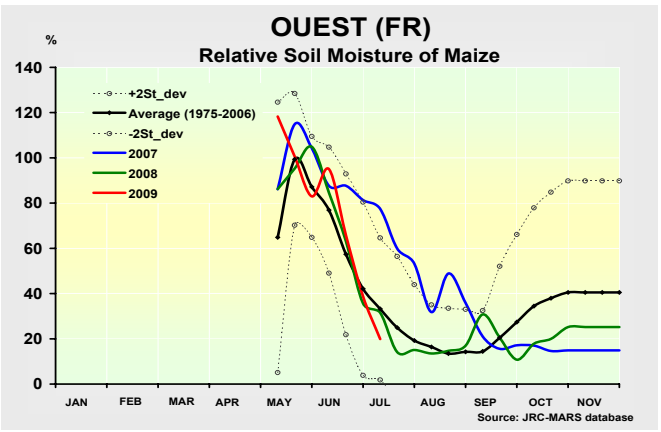
Favourable conditions led to forecasting good yields for many crops: soft wheat is forecast at 7.4 t/ha, higher than the five-year average (+ 4.4 %) and also than last year (+ 2.0 %); the durum wheat yield is now at 4.9 t/ha (equivalent to 2008, + 2.6 % on the five-year average); winter barley yield is foreseen at 6.7 t/ha (– 1.9 % compared with 2008 but + 2.3 % on the average); rapeseed is at 3.5 t/ha, higher than both the average (+ 5.4 %) and 2008 (+ 4.1 %); sugar beet is at 88.1 t/ha (+ 1.9 % compared with 2008 and + 6.9 % on the five-year average); grain maize stands at 9.5 t/ha (+ 4.6 % compared with 2008); potato is at 44.7 t/ha (+ 3.4 % on 2008). Sunflower yield, mainly cultivated in the south, is forecast at 2.3 t/ha (– 8.9 % on 2008 and – 3.0 % on the five-year average) having been limited by warmer and drier conditions.

Throughout the whole month the agrometeorological conditions were quite favourable and close to the seasonal values.

On the northern side, temperatures always remained within the normal ranges of variation and the cumulated active temperatures presented seasonal values. The rain was mainly concentrated during the first dekad and scarce or absent during the remaining part, favouring early winter crop harvesting activities and the regular growth of summer crops. Those agrometeorological conditions led to forecasting good yield levels for winter crops and a favourable growth for summer crops although advanced compared with the long-term average. Also **in the southern areas** the rain was quantitatively very close to the seasonal values and distributed in a limited number of rainy days. Therefore the winter cereal harvesting was conducted under non-limiting conditions.

Also the summer crops (sunflower, maize, sugar beet) received adequate water supplies and only at the very end of June did maximum temperatures pass over 30–31 °C, but only for one or two days.





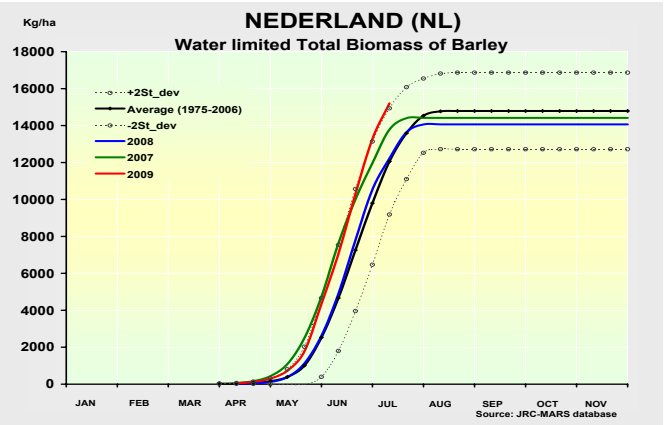
Belgium, the Netherlands, Luxembourg: high solar radiation and advantageous conditions in Belgium and the Netherlands

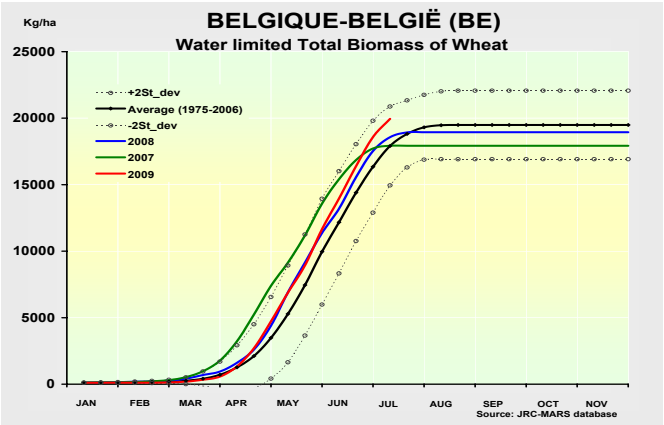
Soft wheat is forecast at 8.6 t/ha (+ 3.1 % compared with 2008) in Belgium, 8.7 t/ha (– 0.3 % compared with 2008) in the Netherlands and 6.4 t/ha in Luxembourg. For winter barley in Belgium a yield of 8.4 t/ha is forecast (+ 5 % on the five-year average). Sugar beet is forecast at 71.4 t/ha in Belgium, and at 75.8 t/ha in the Netherlands (+ 13.3 % compared with the long-term average).

Spring barley in the Netherlands is forecast at 6.2 t/ha, in line with last year. Grain maize is expected to be 11.5 t/ha in Belgium (+ 11.2 % on 2008) and 11.7 t/ha in the Netherlands (+ 2.8 % on 2008).

In **the Netherlands**, the total precipitation in the period analysed (10 June to 10 July) was according to the long-term average with precipitation mainly at the beginning and the end of the period and a rather dry second half of June. In Belgium, the rainfall was more evenly distributed throughout the period. The cumulated solar radiation levels were higher than the long-term average, giving a good potential for the crops. In the Netherlands, the minimum recorded temperature varied strongly, only 6 °C on 13 June (5 °C below the long-term average) and 15.8 °C on 27 June. Spring barley in the Netherlands is simulated with a potential biomass 35 % higher than average at this time of the year and the development stage is slightly advanced. Also soft wheat shows good potential in both countries.

In **Luxembourg**, the precipitation was higher than the long-term average and temperatures and solar radiation were normal. The development of wheat is on average with good potential yield biomass.





Germany: confirmation of the good expectations

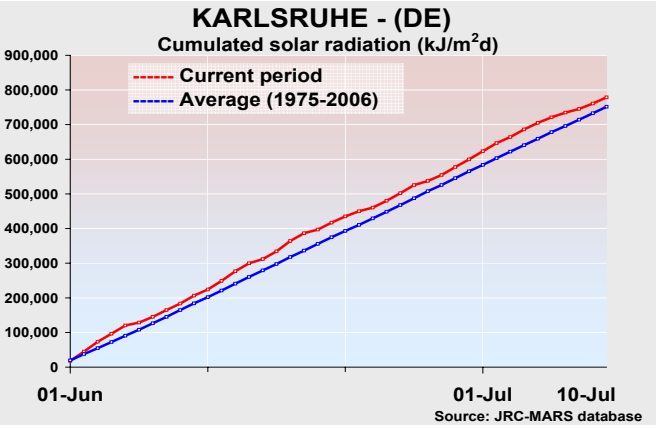
In Germany, the yields forecast are generally at a high level: 7.9 t/ha for soft wheat (+ 4 % above the five-year average), 6.6 t/ha for winter barley (+ 2.5 % on the five-year average and the same level as 2008), 4.8 t/ha for spring barley (average level), 3.7 t/ha for rapeseed (same level as last year) and 9.5 t/ha for grain maize (– 3 % compared with last year, + 4 % on the five-year average). The forecast yield for sunflower is set to 2.2 t/ha (+ 13 % compared with last year) and potato is forecast at 42.7 t/ha.

The temperature sum for the period considered (10 June to 10 July) has been close to the average, and minimum and maximum temperatures have been fluctuating around the long-term average without large deviations and no particular heat stress occurring. Only a small strip, from Niedersachsen to Sachsen-Anhalt, experienced temperatures above 30° C for a maximum of two days.

Due to the nature of the convective summer rainfalls, a scattered pattern between surpluses and deficits can be observed, as expected throughout the summer months. But there are some general tendencies — in the north-eastern part of the country. Mecklenburg-Vorpommern again recorded a deficit in rainfall (around 30 mm in the period considered) and same counts for Niedersachsen. The southern part of the country accumulated a considerable surplus of rainfall. Cumulated solar radiation is close to the average.

In general winter wheat benefited from rainfall that replenished partially the soil moisture in this period. The crop did not suffer from water stress, except on light soils in the north and north-east and the yield elaboration could go on under good conditions during the grain filling phase. A clear surplus (+ 20 %) compared with the average is simulated for the potential and water limited storage organ for the majority of the country. Yield potential is set at a high level.

Like wheat, winter barley continued its development under good growth conditions but, lately, rainfalls have hampered



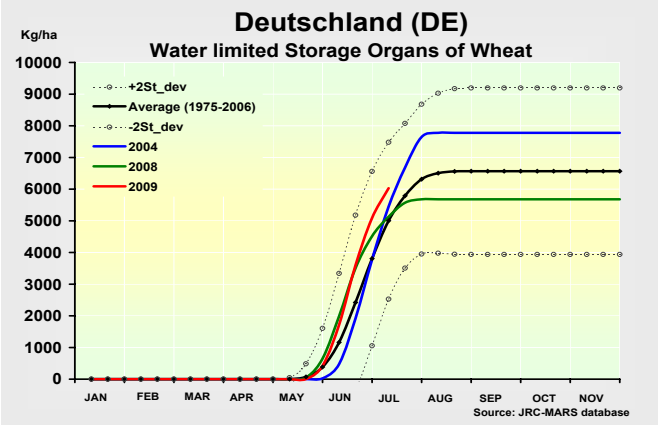
the harvest. The yield is set at last year's level.

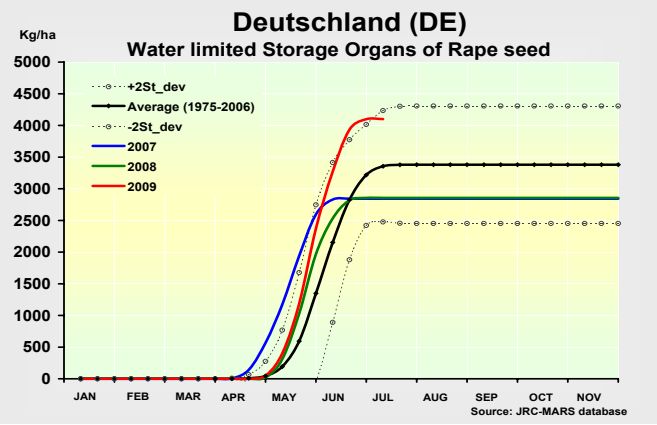
Rapeseed has entered maturity: except the dry spell in April that might have reduced the yield potential but at the same moment also allowed for undisturbed flowering, the growing season has continued under good conditions.

Maize, being in its vegetative phase, is showing average indicators and a very good leaf area simulation. The yield potential is promising.

The remaining spring and summer crops so far could benefit from good soil moisture (with the exception of northern and north-east Germany) and show optimal development.

A couple of rainy days are forecast for the north-eastern part as well as southern Germany, putting some constraints on harvesting activities.





UK and Republic of Ireland: seasonal temperatures in the UK and partly in Ireland; slightly drier with a high level of solar radiation

UK: some yield forecasts were revised slightly downwards due to the limited water supplies: 8.0 t/ha for soft wheat (+ 1.1 % compared with the previous five-year average), 6.8 t/ha for winter barley (+ 4.0 %), 42.0 t/ha for potato (+ 0.9 %). The others showed good potential: 3.2 t/ha for rapeseed (equivalent to the previous five-year average), 5.8 t/ha for spring barley (+ 7.5 %) and 61.3 t/ha for sugar beet (+ 5.1 %).

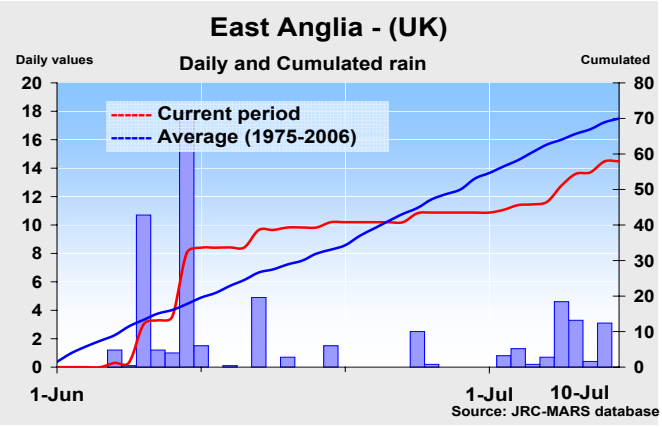
Ireland: soft wheat is forecast at 8.6 t/ha (– 4.3 % compared with the five-year average), winter barley at 7.8 t/ha (– 2.0 %), spring barley at 6.8 t/ha (+ 2.4 %) and potato at 33.3 t/ha (+ 7.0 % compared with the previous year).

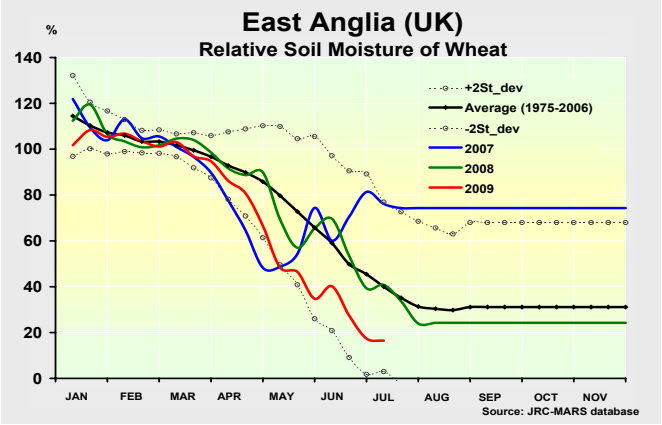
In general, June had a quite seasonal course both concerning the **temperatures** and the **rain amount.** In fact, at the end of the month the cumulated active temperatures (Tbase = 0 °C) did not present any significant difference compared with the long-term average accumulation. Nevertheless, during the last dekad, a relative increase of temperatures occurred both on minimum and maximum values: 5–6 °C above the seasonal average and the effect on crop development was evident: the limited advance accumulated before was slightly increased, speeding up the senescence of the straw cereals.

The rain was concentrated during the first dekad of June and was again absent in the remaining part of the month. This permitted a correct desiccation of the cereal spikes, avoiding fungus onslaughts. Since the beginning of July rainfall has taken place at moderate levels. Therefore, good levels of cereal yield and quality are forecast.

The cumulated **solar radiation** presented higher values than average, stimulating the biomass synthesis but also increasing the crops' water requirements. Because of that, the soil water content was again depleted but in general remained above stressing thresholds.

As usual, in **Ireland**, more abundant amounts of rain were recorded compensating well the recorded higher level of global solar radiation and evapotranspiration. The accelerating effect on crop development was even more evident than in the UK.





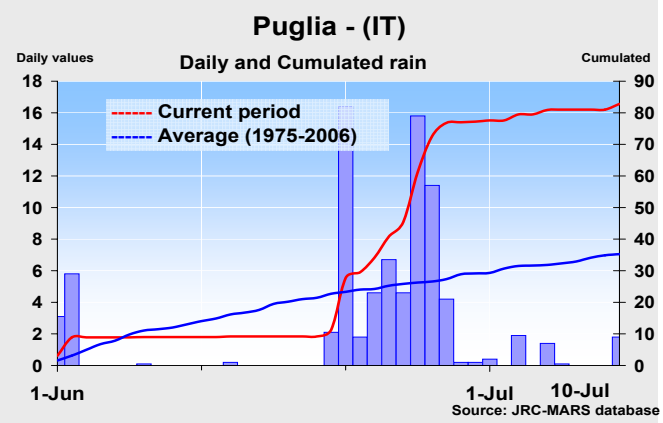
Italy: seasonal temperatures but unfavourable rain distribution

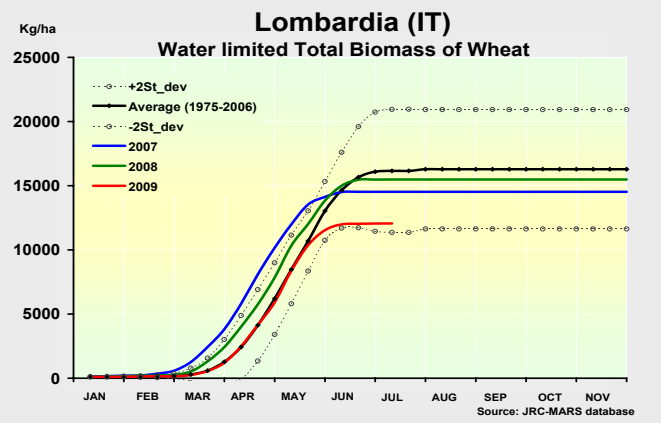
Winter crop yields have been revised downwards: durum wheat is estimated at 2.8 t/ha (– 11.6 % compared with 2008 and – 4.9 % on the five-year average); soft wheat at 4.9 t/ha (– 8.2 % on the five-year average and – 7.0 % compared with last year); barley at 3.6 t/ha (– 4.6. % compared with the average and – 5.6 % against last year's value). Turnips (rape) have been estimated at 2.2 t/ha (+ 12.9 % on the five-year average). Grain maize is expected as last year: 9.3 t/ha. Potato is at 25.4 t/ha, sugar beet at 53.1 t/ha (– 1.8 % compared with the five-year average) and sunflower at 2.2 t/ha.

While a quite seasonal thermal course occurred, again an anomalous spatial distribution of the rainfall characterised the period: there was still rain shortage in the Po valley and on the two main isles, while it was extremely wet in the southern areas where the winter cereals (**durum wheat**) harvesting was likely to have been disturbed. These agrometeorological conditions coupled with those unfavourable ones that occurred in the previous month (i.e., late sowing due to wet conditions, intense rainfall even during the first stages of development, increased risk of disease, heat stress in May during the ripening stage, etc.) led to quite a low expectation for the durum wheat yield. Moreover, even due to opposite reasons (water scarcity, high temperatures in May), also in the northern side the forecast yields for winter cereals (**winter barley**, **winter wheat**) were revised downwards. For the same reason, the rapeseed harvest should be conducted under generally dry conditions.

The crops' water requirements in the north-west and in Sardegna were also relatively higher than the long-term average, with a higher level of irrigation demand for summer crops (**potato**, **grain maize**). However, thanks to the winter rainfall, water availability should not represent a limiting factor.

Despite the seasonal temperatures, for the main summer crops (grain maize, sunflower, etc.) the advanced development stages cumulated in the previous warmer period were maintained throughout the considered period.

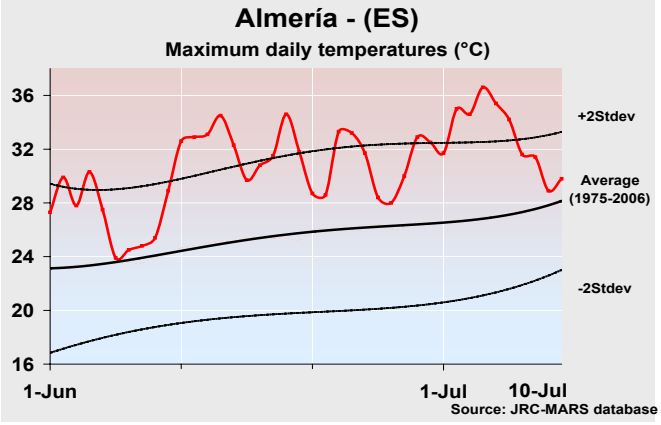


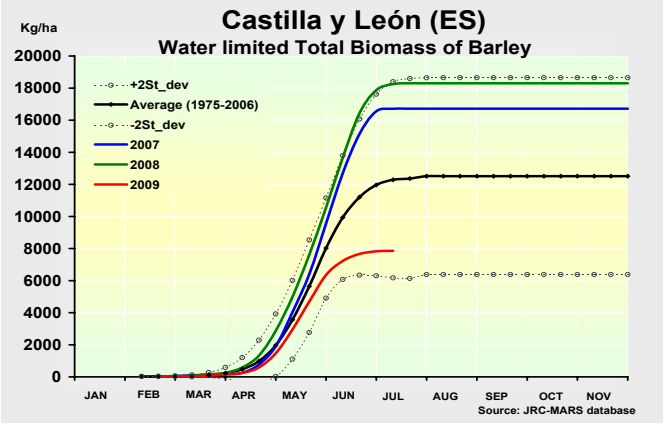


Spain: dry and hot conditions favoured cereal harvesting but led to a further yield decrease

The average yield of durum wheat is now estimated at 2.6 t/ha and the estimate for soft wheat is decreased to 3.2 t/ha (– 2.0 % compared with the five-year average and – 12.3 % compared with last year). The estimate for winter barley is 2.6 t/ha. Oilseed rape yield is now forecast at 1.3 t/ha, which is – 17.1 % on the five-year average and – 32.1 % on 2008. Also spring barley was revised downwards at 2.4 t/ha (– 30.0 % on 2008 and – 18.8 % on the five-year average). Grain maize and potatoes are forecast respectively at 10.0 t/ha and 28.0 t/ha, in line with the five-year average. Sunflower, at 0.9 t/ha, is 16.8 % below the average, and sugar beet, at 73.4 t/ha, is + 2.7 % above the five-year average.

The effects of the persistent drought which has occurred in recent months in the **central and northern part** of the country appear evident. Both winter and spring crop yields are deeply and negatively influenced by the very limited





water supplies. Considering the cumulated rain since 1 April, the current campaign is the second driest since 1975 (2001 was even slightly drier). Therefore, in general, yields of the main crops cultivated in these areas (winter and spring barley, soft wheat and sunflower) were revised even further downwards from those in the previous MARS Bulletin. However, the dry and hot conditions that occurred in June were favourable for harvesting activities.

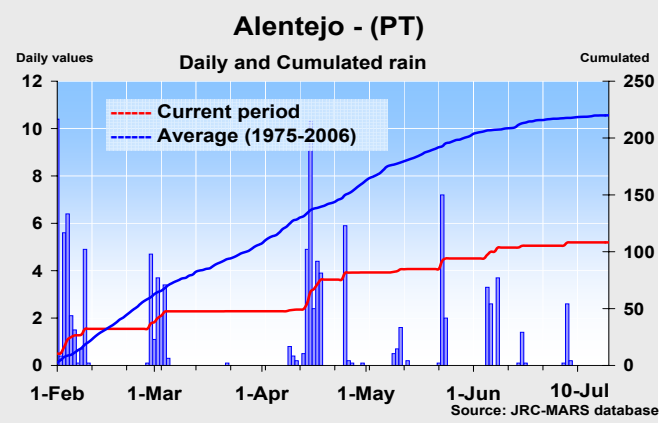
Also in the **southern part** (Andalucía, Aragon, Murcia, etc.) the weather conditions favoured a regular harvesting of durum wheat, preserving the good yield level reached at the end of the crop cycle.

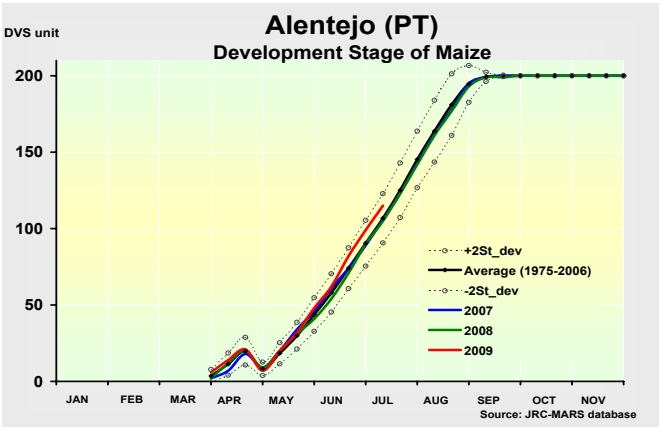
In these areas very high temperatures were recorded (largely above 33 °C with a maximum even above 41 °C). Those conditions permitted an optimal cereals desiccation but on the other hand accelerated the summer crops development and created 'heat stress' conditions, blocking the biomass accumulation and increasing the crop water consumption. Consequently, their potential productivity was also influenced.

Portugal: rainfed crops impacted by dry conditions

Yields of rainfed crops are quite lower than both last year and the five-year average: soft wheat is estimated at 1.4 t/ha (– 34.1 % on last year and – 17.6 % on the five-year average); winter barley is at 1.5 t/ha (– 38.0 % compared with last year and – 17.8 % on the five-year average); grain maize is at 5.6 t/ha (– 3.8 % compared with last year but still + 3.9 % more than the five-year average). Potato is forecast at 15.3 t/ha (+ 3.4 % on last year and + 2.0 % on the five-year average); in contrast, sunflower is estimated at 0.5 t/ha (– 48.2 % compared with last year and – 22.6 % on the five-year average).

Typical summer conditions characterised June 2009: high temperatures and limited rain supply. On the whole, the cumulated active temperatures at the end of the month presented seasonal values. However, during the second dekad in particular, the maximum temperatures climbed significantly above average, reaching values even higher than 36–37 °C. The active summer crops (grain maize) were likely to have been stressed, with reduced biomass accumulation, and their water requirement was increased in this period. Considering the persistent rain shortage in Portugal since February, water availability for irrigation could be a matter for concern in the coming months. Anyhow, the simulated development stage and potential biomass accumulation of the summer crops are still average and therefore the possible impact on final yield is not yet detectable.

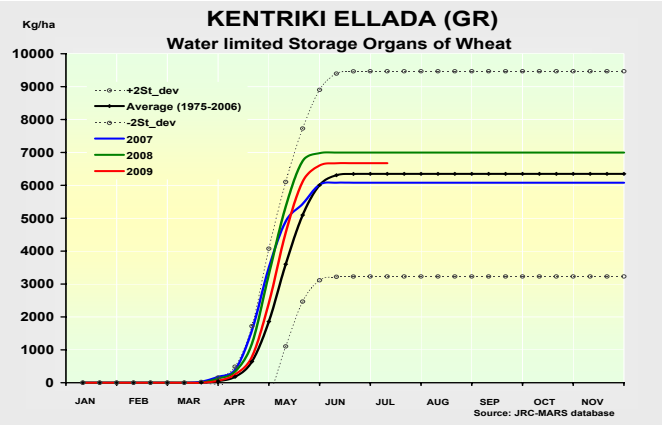




Greece: an average year for winter cereals

The forecast for soft wheat in Greece is 2.9 t/ha (close to the five-year average of 2.8 t/ha). Durum wheat is estimated at 2.8 t/ha (+ 23 % compared with the five-year average). Winter barley is forecast for 2.5 t/ha, reaching average level. The forecast yield for grain maize is 9.7 t/ha, 6 % below 2008. Potato is set at 21.1 t/ha (– 14 % on the five-year average) and sugar beet is forecast at 63.7 t/ha, in line with the average.

The beneficial rainfall continued with a couple of rainy days towards the end of June in the cereal production areas of the north-east. Temperatures remained within the norm, fluctuating around the average for the period considered. Nevertheless, temperatures above 30 °C occurred up to a duration of 13 days in Thessalia and peaks of almost 40 °C where recorded, causing heat stress. Winter cereals have reached maturity almost one dekad in advance, showing good values for storage organ weight (water limited and potential) but below the 2008 simulation results. Maize has finished flowering almost everywhere and soil moisture values are deemed satisfactory. The yield level still has the potential for further increase. Sugar beet has entered yield formation, showing a good canopy development.



Denmark, Sweden and Finland: favourable conditions in Denmark and Sweden; average conditions in Finland

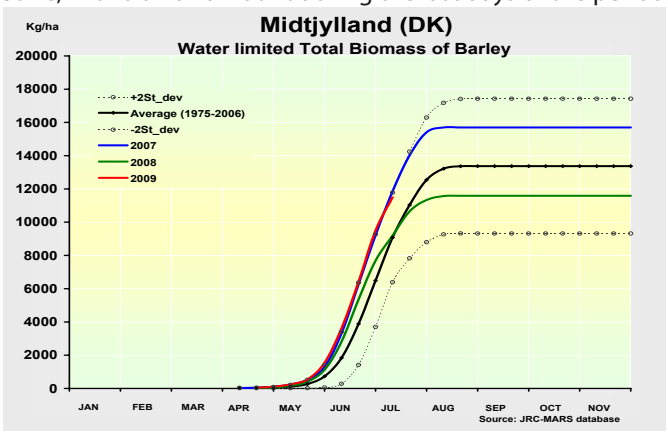
Denmark: yield forecasts are 7.3 t/ha for soft wheat (– 7.1 % compared with last year), 3.8 t/ha for rapeseed (+ 1.9 %) and 5.7 t/ha for winter barley (– 1.5 %). The forecast for spring barley is revised upwards to 5.2 t/ha (+ 17.9 % on the previous year and 9 % above the long-term average).

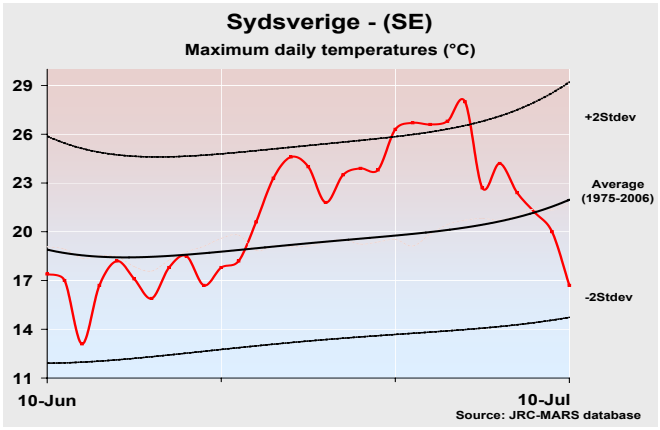
Sweden: yield forecasts are 2.7 t/ha for rapeseed (– 3.1 %) and 5.7 t/ha for winter barley (– 0.4 %). The forecast for soft wheat is revised upwards to 6.2 t/ha (+ 2.2 % compared with the long-term average) and spring barley is increased to 4.3 t/ha (2.4 % above the long-term average).

Finland: yield forecasts are 3.6 t/ha for soft wheat (+ 0.3 % compared with the previous year), 1.2 t/ha for rapeseed (at the level of the five-year average) and 3.4 t/ha for spring barley (– 2.9 %).

The weather has been **favourable in Denmark and Sweden** during the period analysed (10 June to 10 July). Rainfall occurred mainly in the beginning of the second dekad of June, with a small amount during the last days of the period analysed. The soil moisture levels showed a clear deficit in Denmark during June, but the July rainfalls have corrected this and no stress should have been caused to the crops. In combination with the high solar radiation this gives favourable conditions during the last weeks before harvest. The maximum temperatures during the last week of June were however 3–6 °C higher than normal, which might have a negative impact on grain filling and yield. If these high temperatures have not influenced the grain filling, there might be a potential for an upward revision of the final yield, especially in Denmark.

In **Finland** the rainfall was more evenly distributed, with a surplus of precipitation at the end of the period analysed but, looking at the whole year, the precipitation is around 20 % below average. Also here there was a surplus of solar radiation but the **maximum daily temperatures varied strongly**; 10.5 °C (8 °C below the long-term average) on 18 June and 4 July and 27 °C around 28 June. Such a strong variation in temperature might have a negative impact on the final yield.



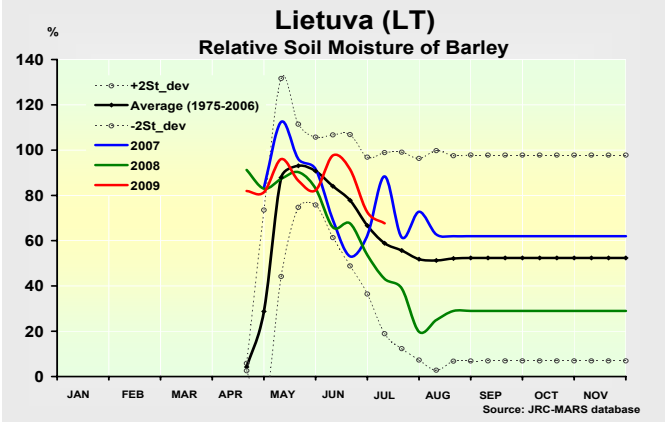


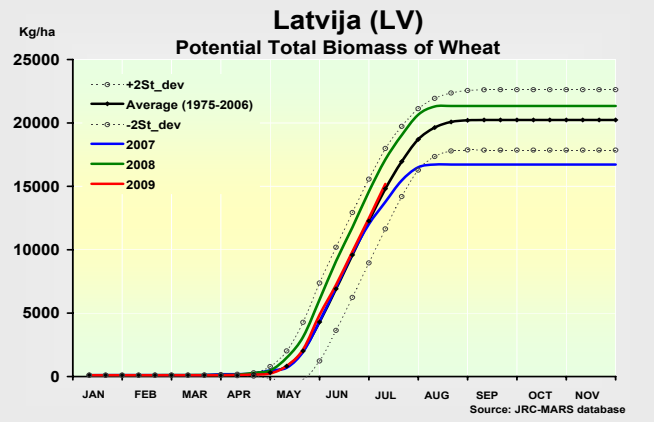
Estonia, Latvia, Lithuania: moderate yield expectation

Estonia: yield forecasts are revised at 2.9 t/ha for soft wheat (– 8.9 % on 2008 and – 1.5 % on the five-year average), 2.2 t/ha for spring barley (– 11.8 % and – 7.7 %) and 1.5 t/ha for rapeseed (+ 5.1 % and – 3.4 %).

Latvia: yield forecasts are 3.5 t/ha for soft wheat (– 8.4 % on 2008 and + 5.3 % on the five-year average), 2.3 t/ha for spring barley (+ 0.6 % and in line with the five-year average), 2.1 t/ha for rapeseed (– 11 % and + 7.7 %) and 15.2 t/ha for potato (– 14.8 % and + 3.7 %).

Lithuania: yield forecasts are 3.8 t/ha for soft wheat (– 10.4 % on 2008 and + 4.5 % on the five-year average), 3.3 t/ha for winter barley (– 15.7 % and + 1.2 %), 2.5 t/ha for spring barley (– 13.1 % and – 4.3 %), 1.8 t/ha for rapeseed (– 12.5 % and + 1.1 %), 40.4 t/ha for sugar beet





(+ 3.5 % and in line with the five-year average) and 12.1 t/ha for potato (– 18.1 % and + 3.4 %).

In all the Baltic countries rain was persistent in the considered period, but cumulated precipitation in Estonia and Latvia was equal to the seasonal values. In Lithuania it was 10 mm higher than average. Total rainfall since the beginning of the year is close to the average. Cumulated active temperature and solar radiation are on the average line. The countries experienced two irruption of cold air, first in the second dekad of June and another in July, when minimum and maximum temperature peaked down below the – 2 standard deviation line. It could have an impact on biomass formation.

Now winter rapeseed is in the ripening development stage; winter wheat is filling grains; spring barley has started the grain filling stage in Lithuania and is flowering in Estonia and Latvia; potato has started yield formation; and sugar beet is still in the vegetative stage. The relative soil moisture for winter and spring crops, after improving in the middle of June, started to decrease and is actually slightly above the long-term average line. The potential storage organs yield for winter crops is on the average line.

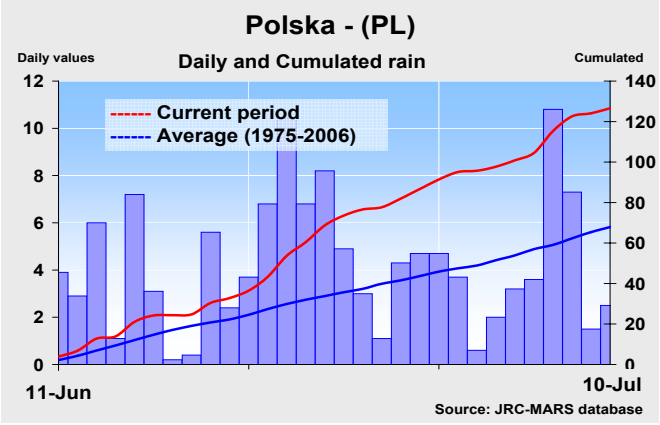
Poland: wet conditions in the whole country

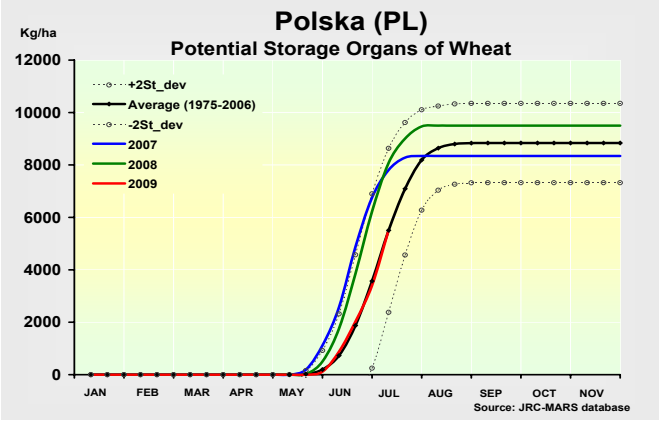
The yield expectations for Poland are: soft wheat 3.9 t/ha (– 4.2 % on 2008 and in line with the five-year average), winter barley 3.7 t/ha (– 7.0 % and – 1.7 %), spring barley 2.9 t/ha (+ 3.7 % and – 2.6 %), rapeseed 2.7 t/ha and grain maize 5.6 t/ha; tuber crops have a good potential, potato at 19.0 t/ha (– 4.0 % on 2008 and + 1.4 % on the five-year average) and sugar beet at 47.4 t/ha (+ 1.9 % and + 4.8 %).

The year presents unusual weather conditions in Poland. After a dry winter with a short cold spell, March rains renewed soil moisture. In April up to the beginning of May dry conditions returned and, finally, a very wet period started which has lasted until now. Since the beginning of the year, cumulated precipitation exceeded the average value by > 35 %.

The country experienced persistent and extensive rain in June (twice as much as the long-term average). The rainfall remained at least 35 % higher than seasonal values in the north and north-western part of the country (Kujawsko-pomorskie, Lubuskie, Pomorskie, Warmińsko-mazurskie and Zachodniopomorskie). Abundant rainfalls were recorded in the south and east of the country, where some areas were flooded. In Lubelskie, Małopolskie, Opolskie and Podkarpackie precipitation exceeded 150 mm. In the whole country cumulative values of solar radiation were below the seasonal values. The second dekad of June was wet and colder than normal. From the third dekad of June until 7 July relatively warm and over-wet conditions were registered. Now, the soil moisture under all the crops is very high, especially in the regions that experienced the highest precipitation, where it is close to the + 2 standard deviation. The cumulative active temperatures are slightly above the long-term average. Such weather conditions will have boosted crop development but also led to the possibility of disease appearance. Further precipitation could lead to water excess and the yield of cereals and rapeseed could go down. The coming days will be crucial for the quality and quantity of the grain.

In Poland, winter wheat and spring barley are in the grain filling development stage; winter rapeseed is in the maturity stage and is completing the ripening stage in the north; grain maize is still in the vegetative development stage; sugar beet and potato have started yield formation. The models are simulating satisfying potential biomass for potato and sugar beet but lower than normal for maize. The values of the potential storage organs are above the long-term average for rapeseed but in line with seasonal values for cereals.





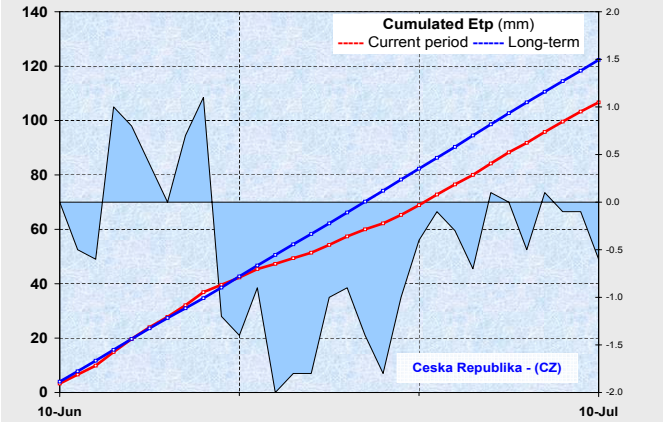
Czech Republic and Slovakia: reduced amount of irradiance level, lowered evapotranspiration rate

After an earlier period that was critical for the scarcity of water, the yield potential of winter crops seems now additionally lowered by the heavy rains registered in the last dekads. Forecasts for the Czech Republic and Slovakia are respectively 4.8 t/ha and 3.7 t/ha for soft wheat (– 7.7 % and – 13.5 % on the five-year average), 4.2 t/ha and 3.2 t/ha for winter barley (– 7.8 % and – 15 %), 2.8 t/ha and 2.2 t/ha for rapeseed (– 11 % and – 4.8 %) and 3.6 t/ha and 3.0 t/ha for spring barley (– 12.1 % and – 19.6 %).

Slightly better conditions are depicted for summer crops. The depicted yields for the Czech Republic are

sunflower 2.3 t/ha (1.2 %), potato 24.7 t/ha (– 2.6 %), sugar beet 56.1 t/ha (5.7 %) and grain maize 7.3 t/ha (+ 6.0 %), while for Slovakia they are sunflower 2.2 t/ha (– 0.5 %), potato 15.9 t/ha (+ 1.2 %), sugar beet 50.5 t/ha (– 0.2 %) and grain maize 5.8 t/ha (– 3.1 %).

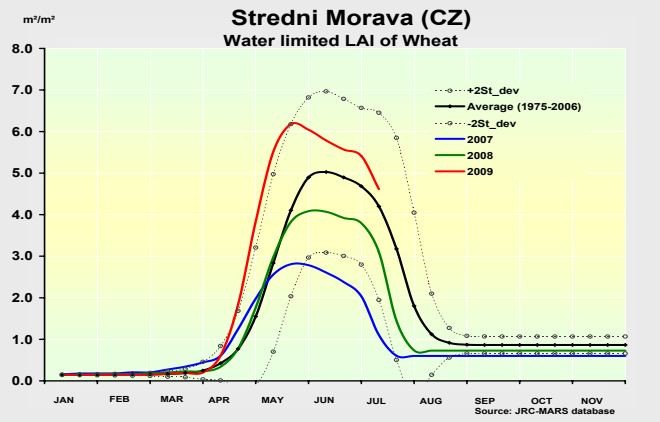
The last two dekads have been characterised both in the Czech Republic and Slovakia by rainy weather which has boosted cumulated precipitation values from the beginning of the year above the average (respectively + 34.1 % and 15.9 %). Even in those Slovakian regions where the drought of the previous dekads was more critical, the soil water content came back to normal values. With the exception of eastern regions of Slovakia, temperatures have been below average during the whole period of analysis, leading to reduced accumulation of GDD. This, in conjunction with a reduced amount of irradiance levels, has lowered the evapotranspiration rate in most regions.



The simulated leaf area index of winter crops showed a sudden drop in correspondence to the most critical period of the drought but the values reached might be sufficient for supporting the grain filling phase, which took place under improved soil moisture conditions.

Grain maize is in the middle of the vegetative stage under optimal water supply; however, the lowered canopy expansion due to the reduced irradiance levels depicts a suboptimal development of above-ground biomass and could decrease yield expectations.

Relatively good conditions are depicted for potato, sugar beet and sunflower.

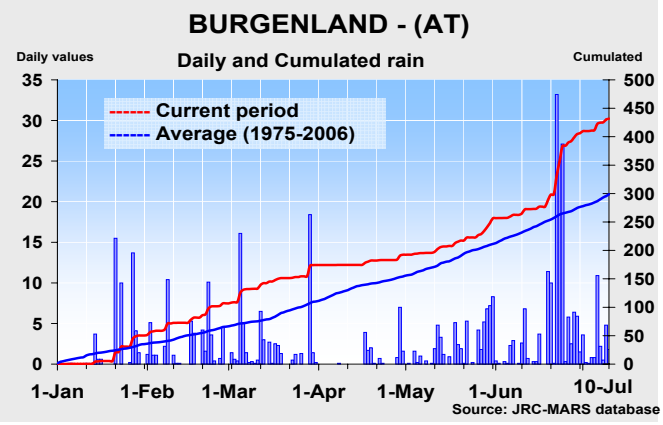


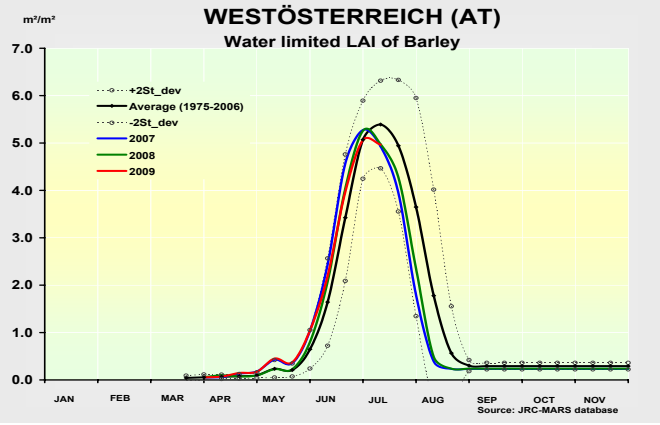
Austria and Slovenia: rains replenished soil moisture but could negatively affect the harvest

Except for grain maize in Slovenia at 7.7 t/ha (+ 4.8 % compared with 2008), the crop yield potential seems to be lowered now by the excess of rain during the last dekads. In Austria, forecasts are lower than in 2008: 5.4 t/ha for soft wheat (– 6.3 %), 4.4 t/ha for durum wheat (– 14.1 %), 5.50 t/ha for winter barley (– 4.9 %), 2.82 t/ha for rapeseed (– 9.3 %), 3.3 t/ha for spring barley (– 30.7 %), 10.8 t/ha for grain maize (– 2.8 %), 30.5 t/ha for potato (– 8.3 %), 63.6 t/ha for sugar beet (– 11.4 %), and 2.60 t/ha for sunflower (– 12.4 %). In Slovenia, as well, the forecasts both for soft wheat and winter barley are lower than the five-year average, with values which are, respectively, 4.3 t/ha (– 2.6 %) and 3.7 t/ha (– 2.1 %).

In both countries the last two dekads were characterised by wet conditions which have been beneficial for the crops, especially in those regions (Burgenland and Wien) which suffered drought during the previous period of analysis. Despite these abundant rainfalls, which could delay harvesting and affect quality, crop yields are placed slightly higher than in the previous forecast. Temperatures in the second half of June have been lower than average (especially the daily maximum temperature) but if the whole season is considered the cumulated values of active temperature keep on showing a consistent surplus in GDD with respect to the long-term average. This is even more evident in Slovenia where, despite the reduced irradiance levels, the mild thermal conditions have led to high evapotranspiration rates.

Winter crops have reached maturity in Slovenia, maintaining the one-dekad advance, while in Austria development has





slackened, avoiding a lowering in yield expectation due to the shortening of the grain filling period.

A suboptimal canopy expansion is depicted for spring barley as a consequence of the shortening of the vegetative stage, which in association with the dry conditions registered during the flowering phase will probably consistently reduce the yield potential of the crop.

Instead, the high values of soil moisture for potato and sugar beet, which are now consistently higher than the long-term average, could slightly hinder yield formation.

Grain maize entered the second part of the vegetative phase under good conditions, although not optimal as in 2008.

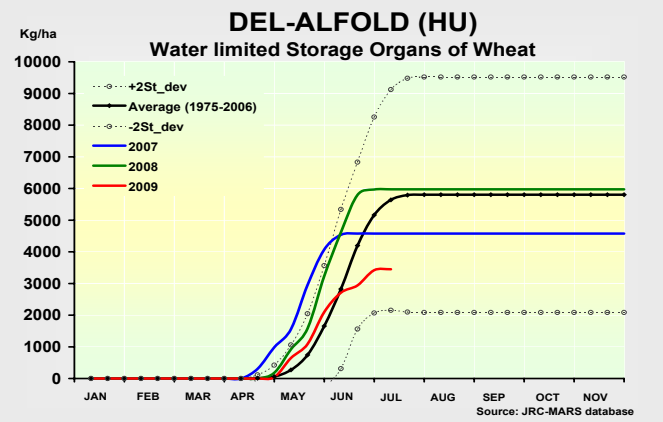
Hungary: below-average yields are expected for cereals while summer crops are showing good potential

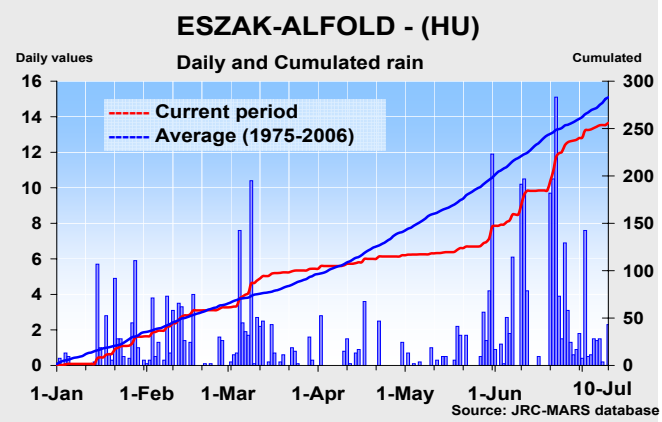
Yields are forecast to be lower than both the five-year average and those recorded in 2008: 4.0 t/ha for soft wheat (– 19.5 % compared with last year), 3.9 t/ha for durum wheat (– 8.8 %), 3.3 t/ha for winter barley (– 30.9 %), 2.3 t/ha for rapeseed (– 12.3 %), 2.7 t/ha for spring barley (– 33.5 %) and 6.2 t/ha for grain maize (– 16.5 %). In contrast, summer crops are showing good potential: 55.5 t/ha for sugar beet (+ 5.8 %), 2.7 t/ha for sunflower (+ 15.7 %) and 23.1 t/ha for potato (– 7.2 %) with respect to the five-year average.

After a longer dry period the recent rains recorded in most regions brought the cumulated precipitation values closer to the long-term average but the climatic water balance remains still strongly below the average. Moreover, in the regions mainly affected by the drought (Dél-Alföld, Észak-Alföld and Észak-Magyarország), these rains were insufficient to replenish significantly the soil water reservoir.

Despite some sudden drops in daily maxima the cumulated values of active temperature remain consistently above the long-term average, boosting at the same time the evapotranspiration rate and enhancing the problem of water stress.

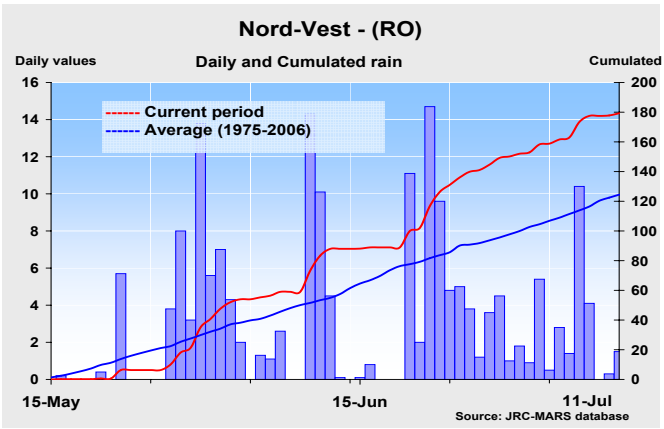
Winter cereals are completing the grain filling stage under suboptimal canopy development and soil moisture values, which may adversely affect the yield and the crop quality. Also, simulations for both total and grain biomass of rapeseed are consistently below the long-term average. However, grain maize seems not to be suffering a scarcity of water and the simulated values of leaf area index are above average, depicting a good yield potential of the crop. Nevertheless, this may increase the evapotranspiration demand, raising the risk of suboptimal water availability especially as few rains are forecast for the next dekad.





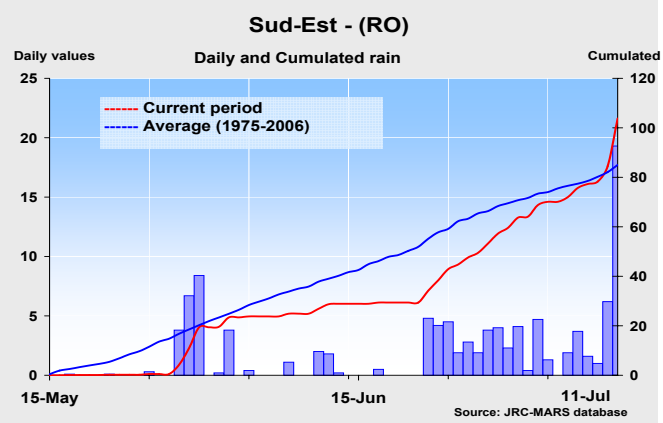
Romania: the variability in weather conditions introduces a margin of uncertainty for crop estimates

Yield estimates for soft wheat are revised and increased with respect to the previous estimate, mostly in consideration of the climatic trend, which may prolong the maturation phase. Possible side-effects due to associated hazards cannot be considered yet. The estimated yield for soft wheat is 2.7 t/ha, reduced on 2008 (– 20 %), but that can be considered as average to positive levels despite reporting – 4 % on the five-year average which is affected by the exceptional level of the 2008 bumper season. The same considerations are true for winter barley; the current estimate is 2.55 t/ha (– 25 % on 2008). Spring barley, due to its cycle, may actually take advantage of the current climatic trend; the estimate is 2.16 t/ha, still reduced on 2008 (– 14 %) but slightly increased on the five-year average (+ 5 %). The forecast for turnips is 1.66 t/ha (– 8 % on 2008 and + 3 % on the five-year average). Expectations for grain maize and sunflower are not negative; maize is currently



forecast at 3.3 t/ha, more or less as in 2008, while sunflower is at 1.3 t/ha (– 3 % on the five-year average) due to wider distribution in the rain affected regions.

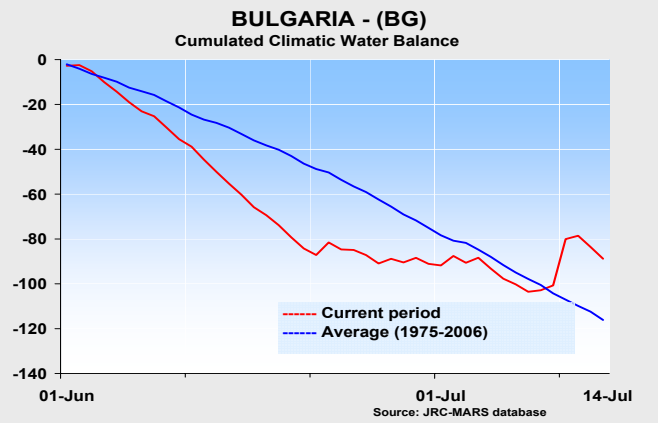
The weather during the month of June was characterised by a dry spell that incepted during the second dekad and was followed by a period of intense rain enduring to the present. The areas most affected by these events are the western and central regions, with a lower impact on the most relevant agricultural districts of the south-east and north-east. The association of these high moisture conditions with the related drop in maximum temperatures may have delayed the achievement of the final yield maturity for both winter wheat and barley and this status, in combination with potential field accessibility problems, insurgence of diseases and lodging, brings a measure of uncertainty to the final yield estimate. The trend may in contrast be favorable to spring crops such as maize and sunflower in their central and most relevant development phases. The overall effects on widely diffused crops such as potatoes are linked to their distribution across the country and possible variations in the expected yield may be balanced, maintaining rather average levels.

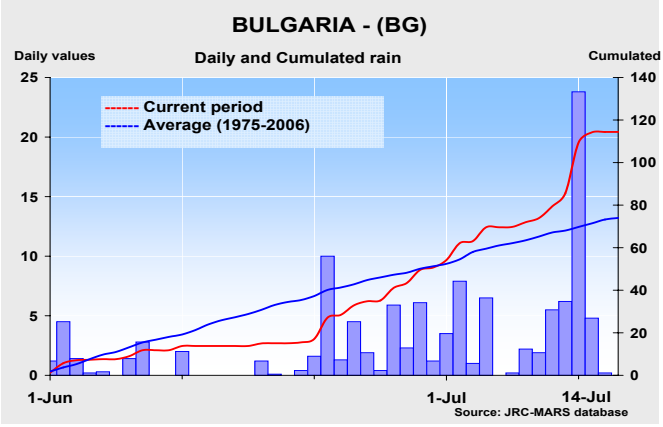


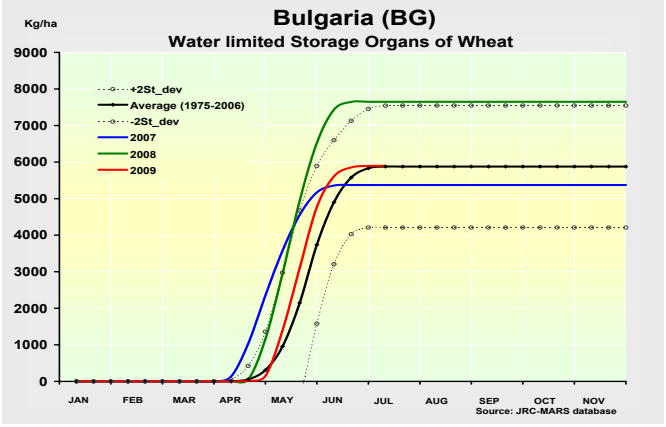
Bulgaria: rainfall mainly in the north-eastern part beneficial for summer crops

The yield forecast for winter cereals are not further revised down due to the rain of recent weeks, but they remain below the 2008 exceptional level. Winter wheat is set to 3.5 t/ha (4.9 % above the five-year average). Winter barley is forecast at 3.3 t/ha (– 19 % on last year) and spring barley has been kept at 2.4 t/ha t (– 2 % on the five-year average). Winter rape with 2.2 t/ha also performs better than the five-year average (+ 12 %). The grain maize yield forecast is 3.9 t/ha, slightly reduced with respect to both 2008 (– 6 %) and the five-year average (– 7 %). Sunflower is set to 1.6 t/ha (+ 9 % compared with the five-year average). Potato is forecast at 16.0 t/ha.

After the prolonged drought, considerable rainfall amounts were recorded in the country in the second part of June and the beginning of July. Rainfall remained scarce in the Black Sea coastal areas. Cumulated temperatures in the period considered are slightly above the long-term average and remained mainly below 30 °C for the second half of June but increased in the first dekad of July. There were no additional heat stresses on the plants. Winter cereals are now mature and the latest rainfalls might have had a negative impact on the quality and will most probably delay harvesting activities. An average year is simulated for the water limited storage organ, as well as for the potential. Sunflower has concluded the flowering stage and the relative soil moisture has started to recover, now showing beneficial values. A well-above-average water limited leaf area index is simulated. The yield potential for the time being is clearly set above the average. Maize has entered into flowering and soil moisture has recovered as well, with the exception of Severoiztochen, where the situation is less beneficial but less critical now than in early June.





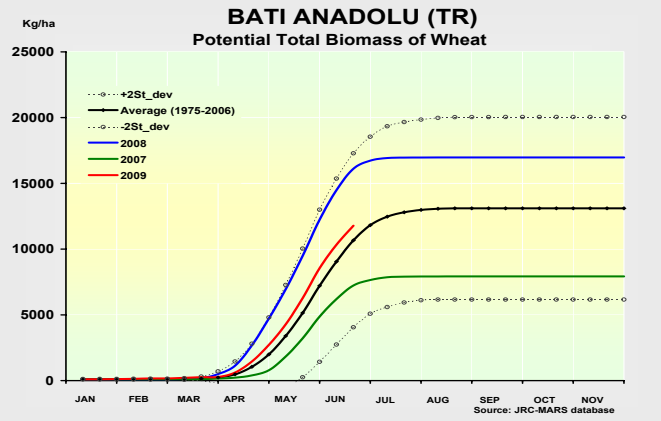


BLACK SEA AREA

Turkey: the final phases of the 2008–09 agricultural season confirmed an average outcome for winter cereals

The overall weather condition preceding harvest did not significantly change yield expectations. Wheat is expected to yield 2.3 t/ha, more or less on average levels though over 10 % below the exceptional levels of 2008. Barley in the final phases lost part of the relative advantages derived from the delay in the phenological calendar which had allowed overcoming some winter hazards. Yield is forecast at 2.5 t/ha, stable with respect to the five-year average and 2008. Grain maize, concentrated in the irrigated coastal areas, is estimated to yield 6.8 t/ha, stable on average levels.

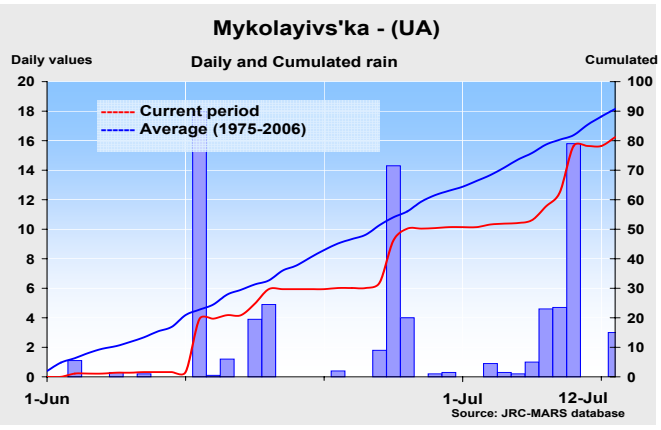
Winter cereals reached maturity over most of Central Anatolia and no particular events affected the crops in the last three dekads. There was, however, a north to south reduction gradient in precipitation and the south-western portions of the country actually experienced relatively dry weather. The dry spell was soon overcome in the centre and the west. The relative reduction in precipitation was not enough to influence productivity of winter cereals in the final phenological phases. Productivity levels could actually have been favoured by the combination of moderately dry weather and stable or slightly above-average maximum temperatures. Recent rains in the west (Bati Marmara) allowed a prompt recovery from possible damages of spring crops and, although some effects may still be felt, it is still too early for a definitive statement on productivity levels.



Ukraine: a dry spell in June was followed by wet conditions in early July, reducing expectations for winter cereals while improving those for spring crops

The recent rains have not balanced the effects of the dry period between late May and mid-June in the main cereal production regions, and the yield forecast for wheat is confirmed at 2.2 t/ha. There is an estimated yield reduction on the last five-year average (– 19 %); this figure is, however, less negative than it appears as it is altered by the exceptional yield levels of the previous season. The forecast for barley has been updated and reduced to 1.6 t/ha (a biased – 21 % on the five-year average). The estimate for rapeseed yield was also reduced to 1.1 t/ha (– 17 % on the five-year average). The recent rains were, however, favourable to spring crops and the forecast yield for grain maize has been updated and increased to 4.22 t/ha (+ 10 % on the five-year average) while the estimate for sunflower is 1.03 t/ha (+ 9 % on the five-year average).

The 2008–09 agricultural seasons, following an exceptional 2007–08 and consequent stock carry-over, probably experienced a reduction of surface planted to winter cereal and a concentration of the crop in the most favoured areas of the south and Black Sea coast. The month of June and the first half of July were characterised by very variable weather and, while conditions remained wet in the west of the country, the dry spell which had affected these areas from the second dekad of May was followed, during the third dekad of June, by abundant precipitations. The rain, which affected the country with a west to east progression, only partially made up for the cumulated deficit. Moderately high radiation and reduced soil moisture content may anticipate the maturation phases of winter cereals which are currently in the grain filling stages and anticipate harvest, which usually occurs between July and August. In the central and eastern regions, dry conditions are more persistent and may significantly reduce the potential yield. The described trend can be, in contrast, considered positive for spring crops, which should report higher than average yields due to the precipitation and warm weather influencing development in the crucial phases of potential yield establishment.



EASTERN COUNTRIES

Belarus: persistent wet conditions

The yield expectations are: wheat and barley at 2.8 t/ha, rapeseed at 1.0 t/ha and grain maize at 3.8 t/ha.

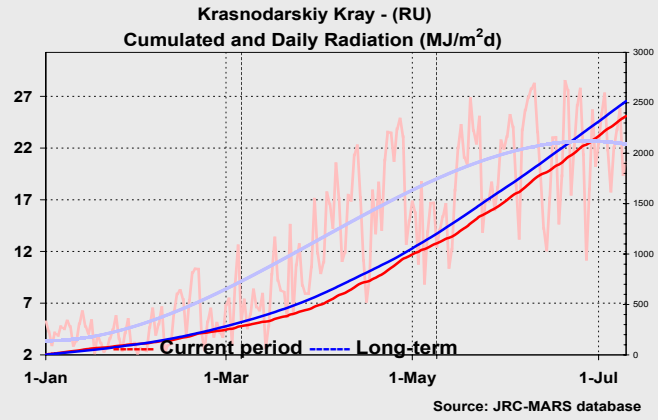
In Belarus, following a dry spell from April to mid-May, persistent rainfall has been recorded until now. Cumulated rain from the beginning of the year is 10 % higher than usual, but since May it has exceeded the long-term average by more than 70 %. Cumulated solar radiation was continuously below the long-term average. Cumulated active temperatures were slightly above the seasonal values because of a warm spell in the third dekad of June. If the wet conditions in conjunction with low irradiance levels continue, troubles in desiccation of rapeseed — which is now in the maturity development stage — might occur. Winter wheat and barley are in the grain filling stage; grain maize is in the vegetative stage, but in the south it has started flowering. Simulated potential storage organs' yield of winter wheat are below the normal values, so the forecast yield has been revised slightly downwards. Potential yield for spring barley and rapeseed is in line with the average. Grain maize is developing according to the long-term average.

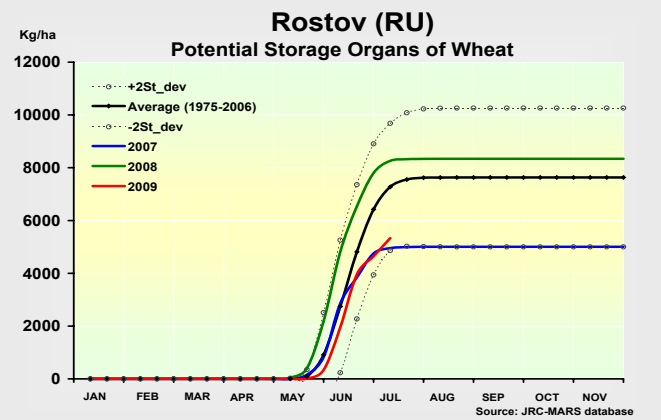
Russia: a negative year for southern and Volga regions

Despite the one-dekad delay in development of winter crops, which is still evident in the Central and Central Chernozermic regions where the crops have not yet completed the flowering stage, wheat is ending the ripening phase in the south while in eastern Volga regions it has just entered the grain filling stage. In contrast, for spring crops a slight delay is shown only in southern regions, probably due to the insufficient irradiance levels reached in the last two dekads.

With the exception of some central regions (Tambovskaya Oblast and Lipetskaya Oblast) the weather has been extremely dry, leaving the cumulated precipitation values and the climatic water balance consistently below the long-term average; this is more evident in Moscow and in southern regions (Stavropol, Krasnodar and Volgograd). These regions have also been significantly warmer than the average showing a surplus in GDD of up to + 30 % with respect to the long-term average in the period of analysis. However, given that potential evapotranspiration values stayed close to the average, actual soil moisture values guarantee an adequate supply.

Crop growth indicators still depict an unfavourable situation in the south of the country and in the Eastern Volga region for both winter and spring crops. In fact, in southern regions, even if the canopy expansion of spring barley seems to be optimal, simulations for total and grain biomass were significantly below the average. In contrast, in Central and Central Chernozermic regions NDVI profiles show that the negative difference between the current values and the long-term average has now recovered, leading to normal yield expectations.





MAGHREB

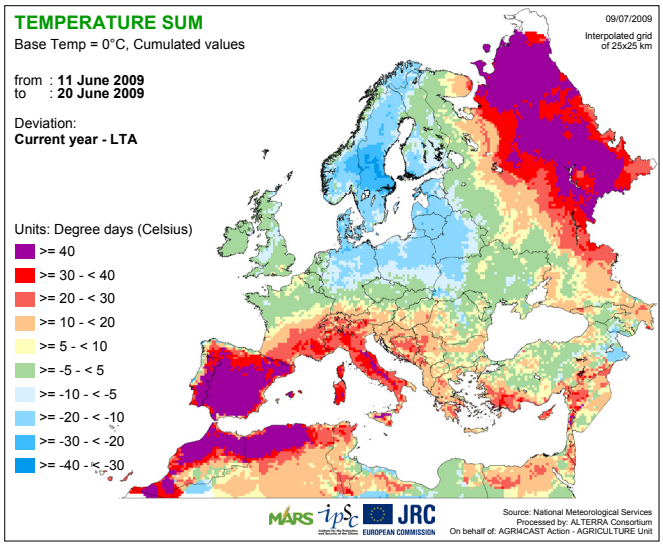
Maghreb: the positive outcome of the season is confirmed

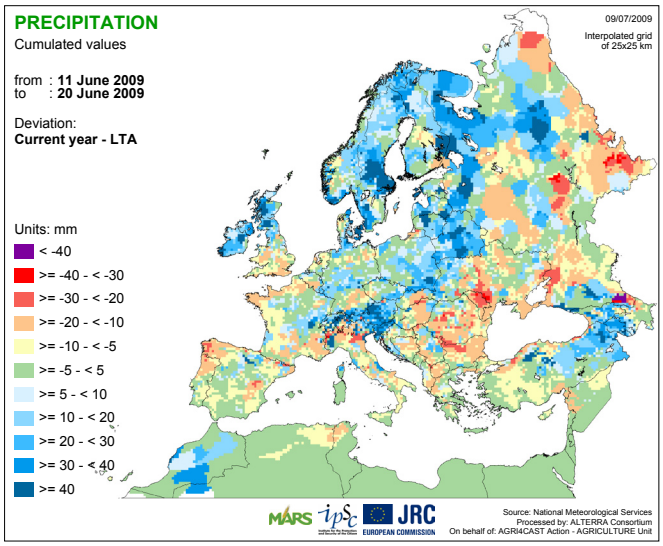
The yield estimates are confirmed as significantly higher than those of the long-term average. In Morocco, the average yield of wheat (durum and soft wheat) remains at 2.08 t/ha and barley is at 1.41 t/ha. Similarly, in Algeria, wheat is confirmed at 1.62 t/ha and barley at 1.73 t/ha. Wheat in Tunisia is forecast at 1.87 t/ha and barley at 1.07 t/ha, both with an almost 20 % increase on the five-year average.

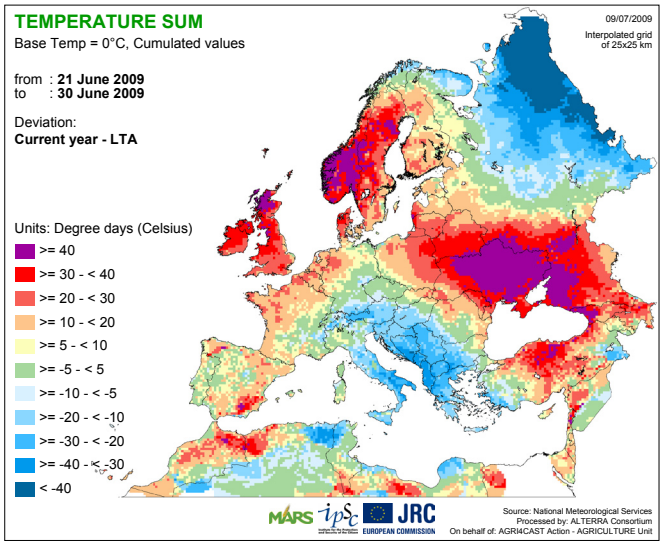
The agricultural season can be considered as concluded over most of the Maghreb region and no variations need to be highlighted with respect to the previous reports.

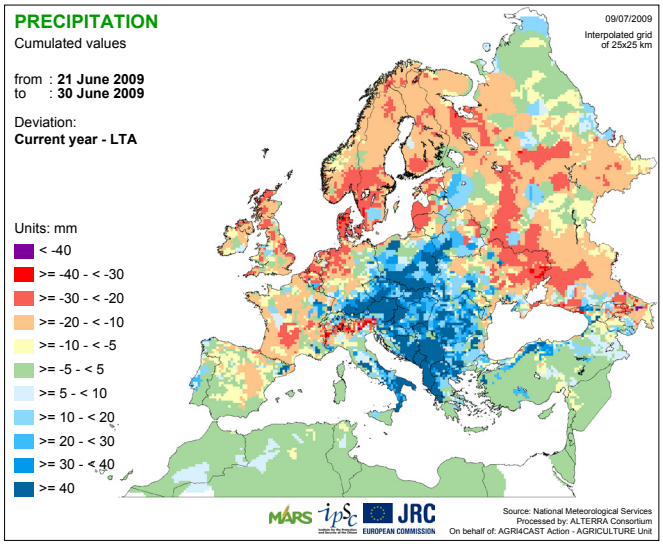
4. Map analysis

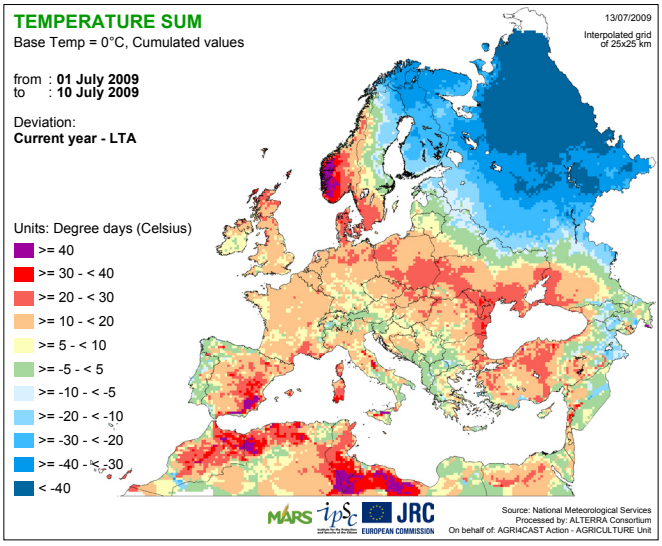
4.1. Temperature and precipitation - 2009 compared with Long Term Average -

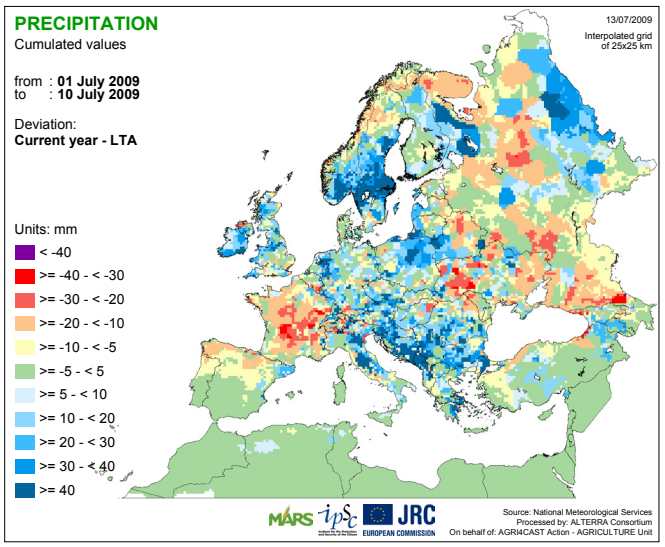




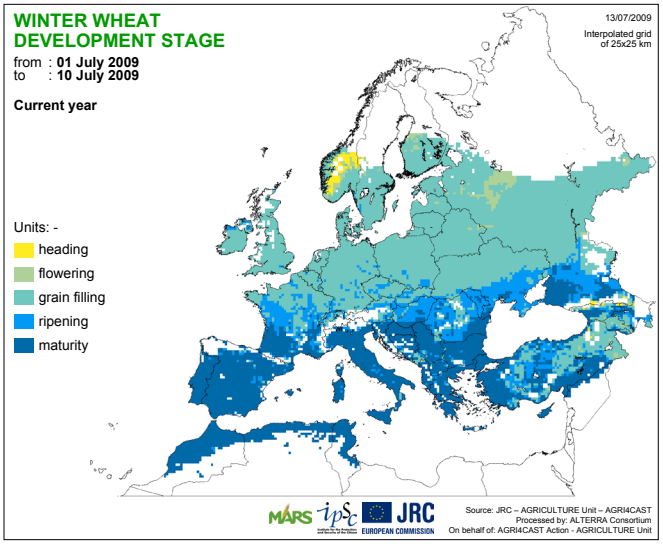


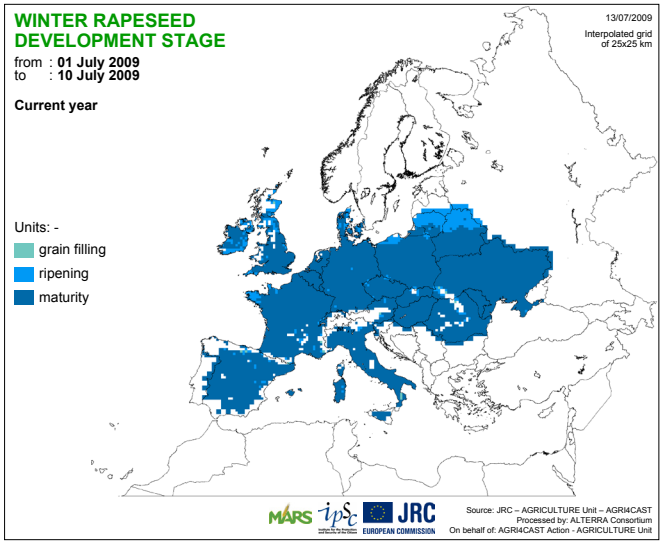


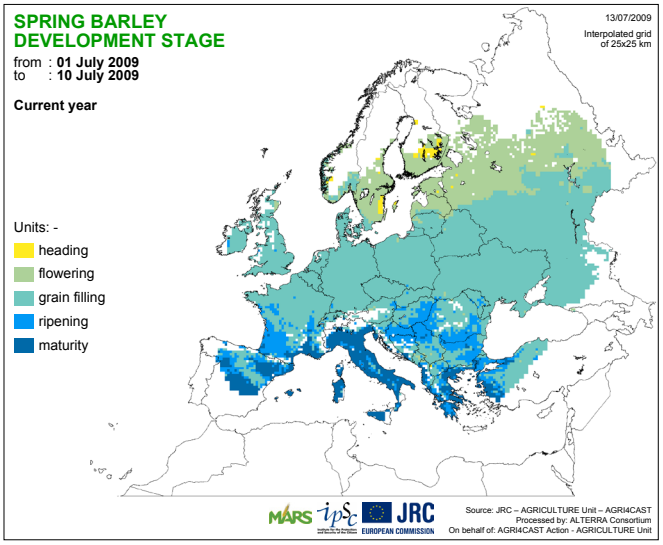


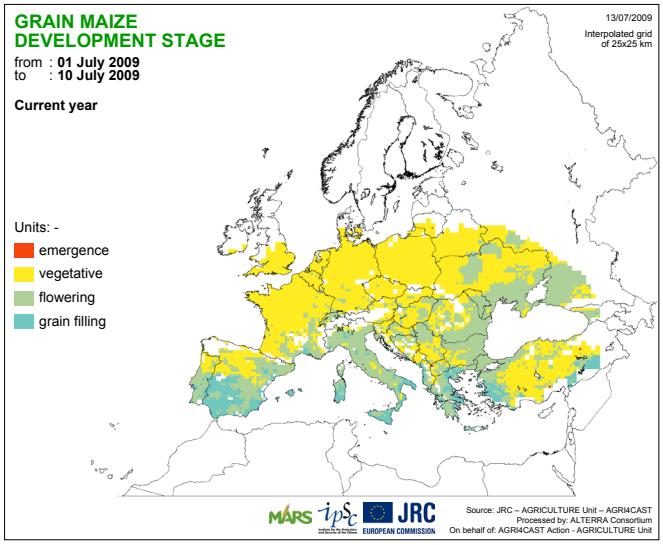


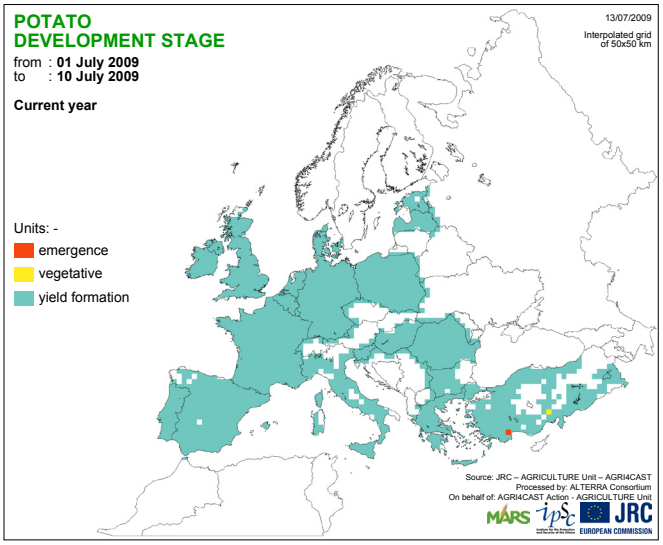
4.2. Crop development stage

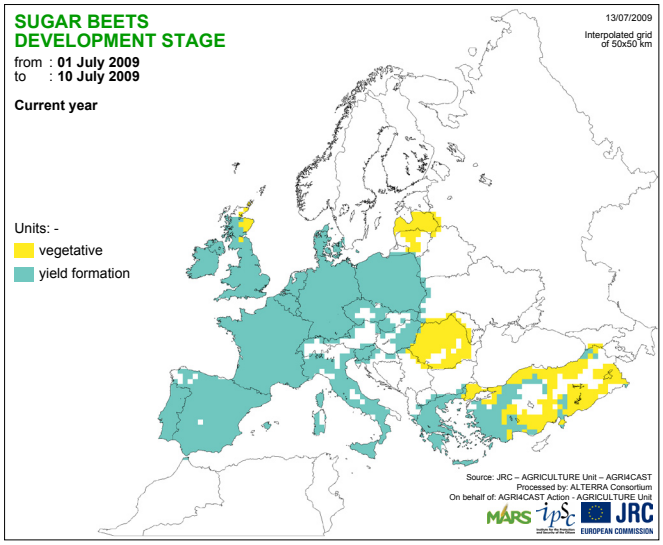




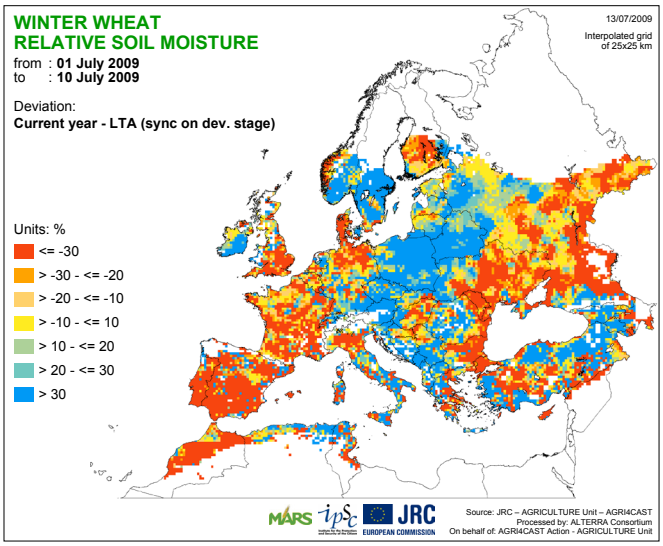


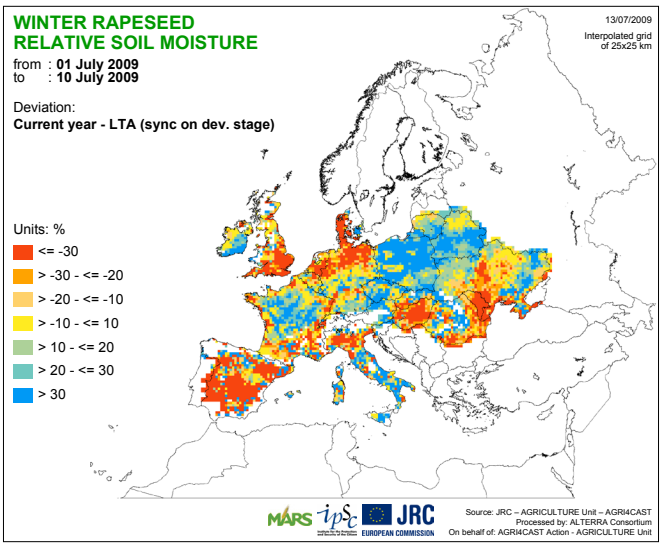


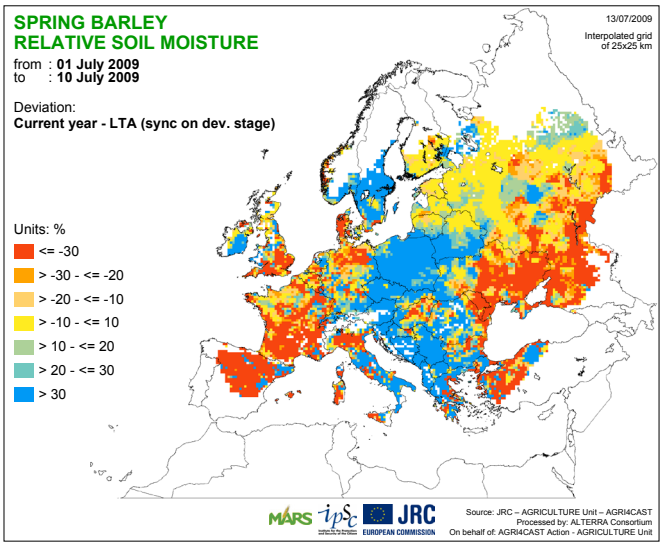


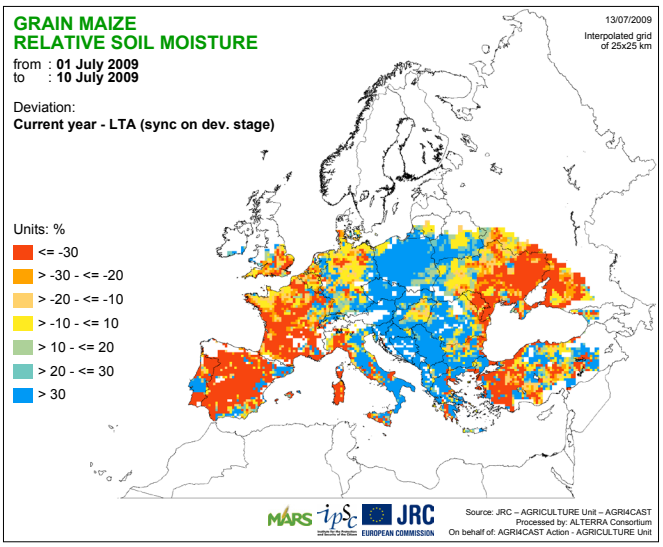


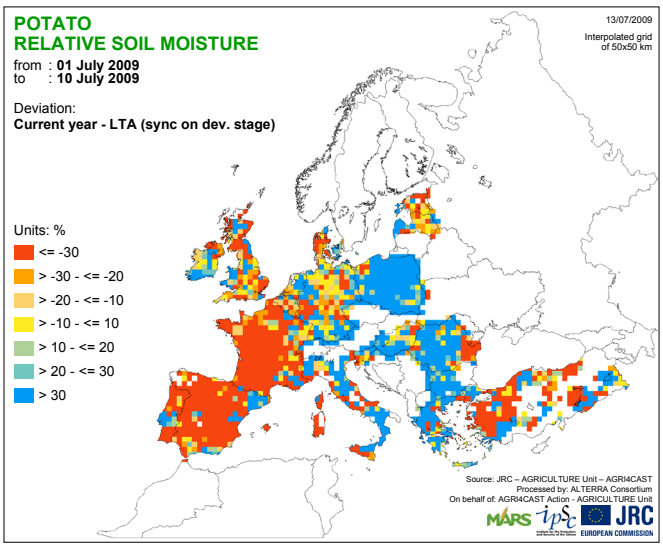
4.3. Relative soil moisture

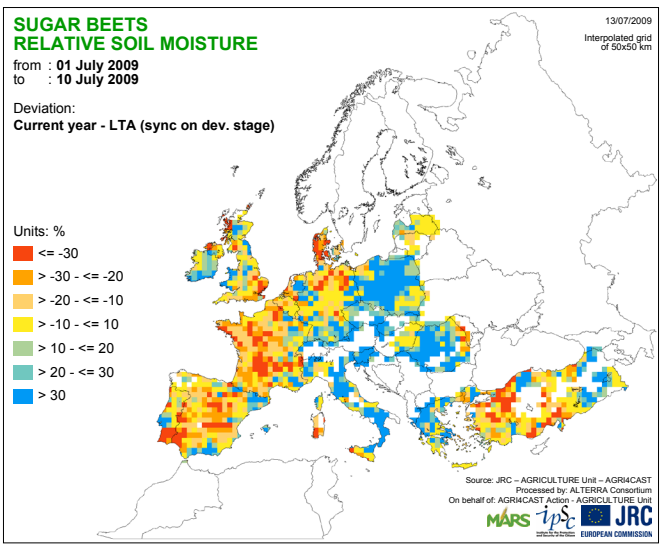








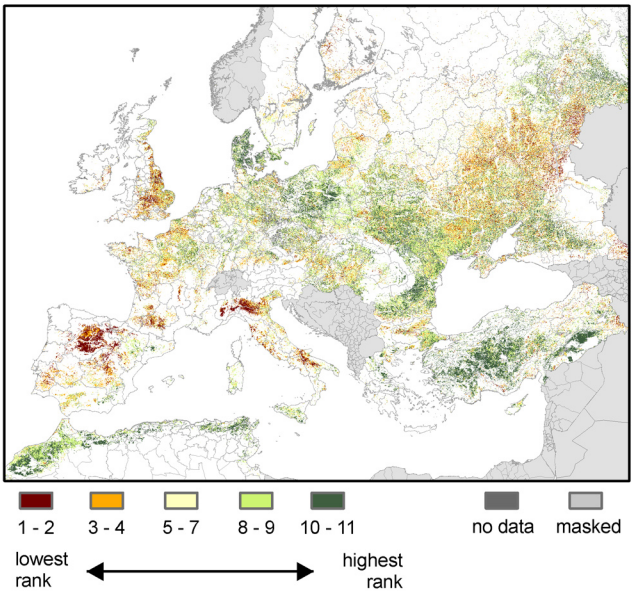




5. Satellite analysis: SPOT Vegetation

Normal to slightly good conditions across central and eastern Europe. Low cumulated NDVI on the Iberian region and in northern west Italy

Comparison of cumulated NDVI values (March - June)



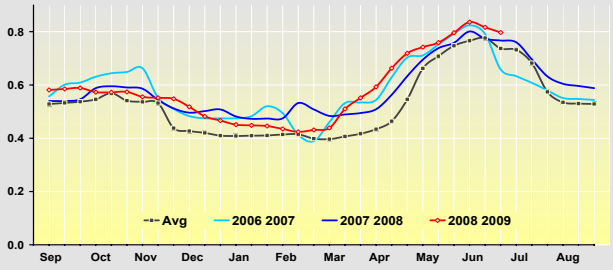
Cumulated NDVI of 2008/2009 ranked within all historic years (1998/1999 - 2007/2008) for arable land

Sources: MARS Remote Sensing Database, SPOT-VEGETATION, 10 daily / © EuroGeographics for the administrative boundaries / CLC2000, Copyright EEA, Copenhagen, 2007, http://www.eea.europa.eu / Global Land Cover 2000 database. European Commission, Joint Research Centre, 2003, http://www-gem.jrc.it/glc2000

The map shows the comparison of the **cumulated NDVI values** of the current year ranked within the 11 previous agricultural seasons (1998/99 to 2007/08). Red areas relate to bad vegetation development: the current season has cumulated values lower than most of the previous years. Green colours have the opposite meaning, while light yellow indicates that biomass condition is near the average. The classification is performed only for non-irrigated arable land. A bad season is visible for the northern **Iberian peninsula**: scarce water supplies continued throughout June, probably damaging winter and spring crops and lowering even more the yield expectation. The southern part faces better conditions, from slightly below to near-average values, while in southern west regions high temperatures probably reduced the biomass development. In northern west **Italy** the cumulated NDVI values are significantly low: the scarce precipitation rate probably affected vegetation development. Green biomass has a better behaviour in Emilia-Romagna, where the dry conditions have influenced the NDVI values only in the last two dekads. A good season is depicted in Sicily and Sardegna, while the cumulated NDVI values remain below average in the rest of the country. In **France**, NDVI values range around the average with an improvement of biomass conditions in the north-east of the country. Average temperature and rainfall in June triggered a positive season. Normal vegetation development is visible in the central **United Kingdom** while eastern areas and main crop regions have a better behaviour. The advanced season is now more evident with an early senescence caused by the prolonged warm temperatures. This trend is well described by the NDVI Essex profile with the drop of NDVI values under the saturation threshold in the last dekads. In **Denmark** good to very good conditions are displayed. Warm temperature in late May led to a boost of biomass. In June, NDVI values remained higher than average and around the saturation thresholds even in spite of a lack of precipitations. Good conditions are found in **Germany**. The water shortage of the third and fourth dekad of June seems not to have affected biomass accumulation. Along the **western Caspian coast** the drought in June affected biomass development, reducing the cumulated NDVI values from very good to good. In **Romania**, the NDVI profile Sud-Est slumps toward the average in June: dry conditions in the first half of the month, probably reduced biomass development while wet conditions in the last dekad lowered even more the NDVI values. Slightly good to normal vegetation conditions are visible in **Ukraine**. In June, the prolonged drought period determined a shortening of the crop cycle with an early senescence phase. In **Russia**, the bad late sowing period led to a cumulated NDVI value lower than average.

Danmark - (DK)

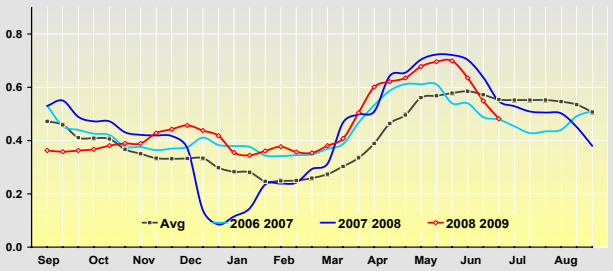
Non-irrigated arable land



Source: CNDVI based on SPOT Vegetation - JRC MARS database

SUD - (RO)

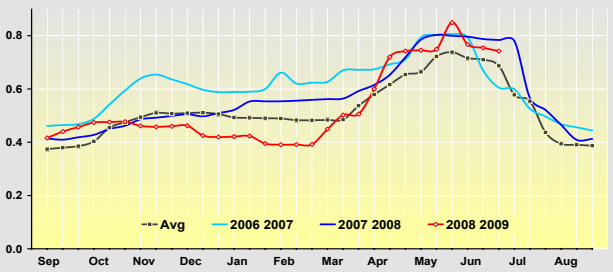
Non-irrigated arable land



Source: CNDVI based on SPOT Vegetation - JRC MARS database

ESSEX - (UK)

Non-irrigated arable land



Source: CNDVI based on SPOT Vegetation - JRC MARS database

LB-AA-09-004-EN-C

Publications Office
Publications.europa.eu

JRC EUROPEAN COMMISSION