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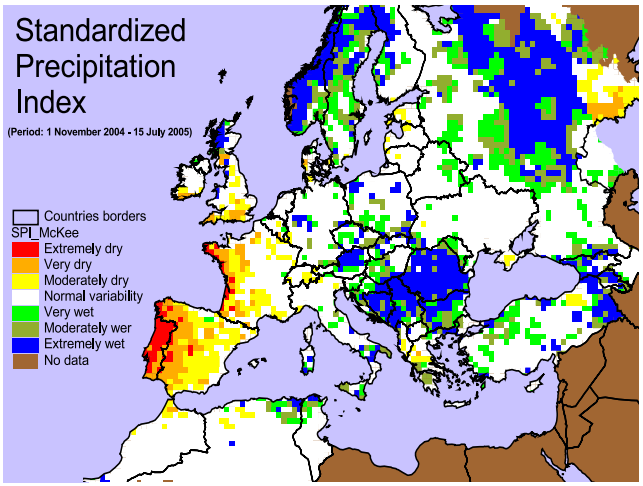
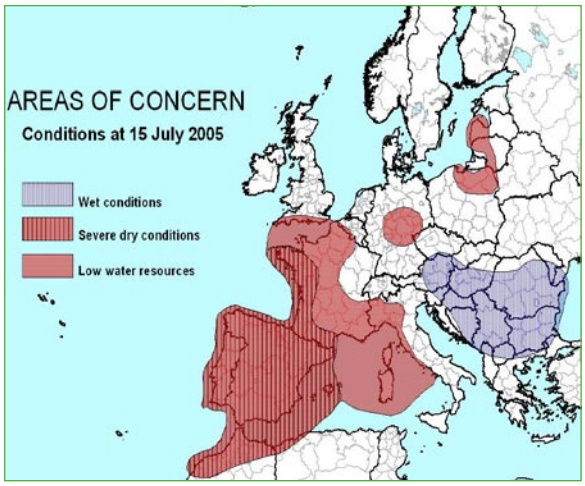
Situation: 1 June to 15 July 2005, Vol. 13, No 4

EU-25 cereal figure at – 10 % production mainly due to drought conditions in western regions. A further decrease will depend on water availability for maize. Balkans still under extremely wet conditions negatively impacting crop production.





MARS yield forecast at European level: 15 July 2005

Crops	EU-25 yield (t/ha)				
	2004	**2005**	% 05/04	Avg. 5 years	% 05/Avg.
Total cereals	5.5	**5.1**	*5.0*	–7.3	*3.0*
Soft wheat	6.5	**6.1**	*5.8*	–6.2	*4.4*
Durum wheat	3.0	**2.3**	*2.5*	–24.2	*–9.0*
Total wheat	5.9	**5.5**	*5.3*	–6.0	*5.0*
Total barley	4.8	**4.3**	*4.3*	–10.1	*–0.8*
Grain maize	8.4	**7.9**	*7.9*	–6.4	*0.6*
Other cereals (1)	3.7	**3.3**	*3.3*	–9.2	*0.6*
Rapeseed	3.4	**3.4**	*2.9*	–2.1	*15.6*
Potato	30.4	**29.8**	*27.2*	–2.0	*9.2*
Sugar beet	57.5	**57.5**	*55.5*	0.2	*3.7*
Sunflower	1.9	**1.9**	*1.7*	–2.4	*6.5*

(1) Sorghum, rye, maslin, oats, triticale, mixed grain other than maslin, millet, buckwheat.
Yield figures are rounded to 100 kg.

Sources:
2004 yields come from Eurostat Cronos.
2005 yields come from MARS crop yield forecasting system.

Contents

Agrometeorological overview (1 June to 15 July 2005)

This report follows a special analysis on this year's drought affecting western countries, published in the form of a press release and available at http://agrifish.jrc.it/marsstat/Bulletins/2005.htm. For further details including on the impact and geographic extension of the drought, refer to this report (accompanying memo).

The general synoptic air circulation was typical for the summer season, characterised by the presence of the Azoreans' anticyclone fluctuating on the European continent. At the beginning of June it was mainly affecting the southern areas but then rapidly joined with the Arctic

MARS STAT yield forecasts at national level: 15 July 2005

CROPS	TOTAL WHEAT					SOFT WHEAT					DURUM WHEAT				
yield (t/ha)	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs
EU-25	5.9	**5.5**	5.3	*-6.0*	*5.0*	6.5	**6.1**	5.8	*-6.2*	*4.4*	3.0	**2.3**	2.5	*-24.2*	*-9.0*
AT	5.9	**5.6**	5.0	*-4.8*	*13.0*	6.0	**5.7**	5.1	*-5.2*	*12.1*	5.0	**5.0**	3.9	*0.4*	*29.9*
BE	9.0	**8.7**	8.3	*-3.3*	*4.1*	9.0	**8.7**	8.3	*-3.4*	*4.0*	-	**-**	-	-	-
CY	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
CZ	5.8	**5.1**	4.7	*-13.5*	*7.4*	5.8	**5.1**	4.7	*-13.6*	*7.3*	-	**-**	-	-	-
DE	8.2	**7.9**	7.4	*-2.9*	*8.0*	8.2	**7.9**	7.4	*-2.9*	*7.9*	-	**-**	-	-	-
DK	7.1	**7.3**	7.2	*2.0*	*0.6*	7.1	**7.3**	7.2	*1.9*	*0.6*	-	**-**	-	-	-
EE	2.4	**2.1**	2.3	*-14.1*	*-7.6*	2.4	**2.1**	2.3	*-14.1*	*-7.4*	-	**-**	-	-	-
ES	3.3	**1.4**	2.9	*-58.1*	*-51.5*	3.5	**1.8**	3.2	*-48.7*	*-42.5*	3.0	**0.8**	2.4	*-74.8*	*-68.4*
FI	3.5	**3.7**	3.5	*5.5*	*6.1*	3.5	**3.7**	3.5	*5.5*	*6.1*	-	**-**	-	-	-
FR	7.6	**7.3**	7.0	*-3.5*	*4.5*	7.8	**7.5**	7.2	*-3.6*	*4.7*	5.1	**5.0**	4.7	*-2.7*	*6.6*
GR	2.1	**2.1**	2.1	*-2.8*	*0.1*	3.1	**2.7**	2.7	*-12.5*	*0.3*	2.0	**1.9**	1.9	*-4.5*	*-1.5*
HU	5.1	**4.4**	3.8	*-14.7*	*13.9*	5.1	**4.4**	3.8	*-14.9*	*13.4*	4.5	**4.5**	3.4	*0.7*	*31.5*
IE	9.9	**9.4**	9.0	*-5.0*	*3.9*	9.9	**9.4**	9.0	*-5.0*	*3.8*	-	**-**	-	-	-
IT	3.7	**3.4**	3.1	*-7.1*	*9.7*	5.3	**4.9**	4.7	*-7.4*	*3.9*	3.1	**2.7**	2.5	*-14.7*	*6.4*
LT	4.0	**3.9**	3.5	*-3.0*	*10.8*	4.0	**3.9**	3.5	*-3.0*	*10.8*	-	**-**	-	-	-
LU	6.8	**6.2**	6.0	*-9.1*	*3.3*	6.8	**6.2**	6.0	*-9.2*	*3.3*	-	**-**	-	-	-
LV	2.9	**3.0**	2.9	*2.0*	*3.1*	2.9	**3.0**	2.9	*1.9*	*3.1*	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	8.9	**9.0**	8.4	*0.7*	*7.5*	8.9	**9.0**	8.4	*0.7*	*7.5*	-	**-**	-	-	-
PL	4.3	**3.9**	3.7	*-8.9*	*6.6*	4.3	**3.9**	3.7	*-8.9*	*6.6*	-	**-**	-	-	-
PT	1.3	**0.8**	1.3	*-35.9*	*-34.4*	1.7	**0.9**	1.6	*-50.1*	*-47.2*	1.2	**0.5**	1.2	*-56.7*	*-54.8*
SE	6.0	**6.3**	5.9	*4.7*	*5.6*	6.0	**6.3**	5.9	*4.6*	*5.6*	-	**-**	-	-	-
SI	4.5	**4.5**	4.4	*-1.5*	*2.5*	4.5	**4.5**	4.4	*-1.7*	*2.6*	-	**-**	-	-	-
SK	4.8	**4.4**	3.8	*-7.1*	*18.4*	4.8	**4.4**	3.8	*-7.2*	*18.2*	-	**-**	-	-	-
UK	7.8	**7.9**	7.7	*1.0*	*1.6*	7.8	**7.9**	7.7	*1.1*	*1.6*	-	**-**	-	-	-

MARS STAT yield forecasts at national level: 15 July 2005

CROPS	TOTAL BARLEY					GRAIN MAIZE					RAPESEED				
yield (t/ha)	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs
EU-25	4.8	**4.3**	4.3	*-10.1*	*-0.8*	8.4	**7.9**	7.9	*-6.4*	*0.6*	3.4	**3.4**	2.9	*-2.1*	*15.6*
AT	5.3	**4.9**	4.4	*-6.5*	*10.8*	9.3	**9.4**	9.2	*1.7*	*2.5*	3.4	**2.9**	2.5	*-14.2*	*17.1*
BE	7.9	**7.6**	7.2	*-3.8*	*5.0*	12.2	**11.2**	11.3	*-8.8*	*-1.2*	-	**-**	-	-	-
CY	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
CZ	5.0	**4.4**	3.9	*-12.3*	*11.5*	6.1	**7.7**	6.7	*25.4*	*15.1*	3.6	**3.1**	2.6	*-15.0*	*19.0*
DE	6.6	**6.5**	5.9	*-1.1*	*10.4*	9.1	**9.3**	8.8	*2.2*	*5.9*	4.1	**3.8**	3.4	*-2.5*	*18.4*
DK	5.2	**5.4**	5.3	*4.5*	*2.5*	-	**-**	-	-	-	3.8	**3.4**	3.1	*-7.2*	*15.7*
EE	2.3	**2.0**	2.0	*-10.6*	*-1.0*	-	**-**	-	-	-	1.4	**1.6**	1.5	*17.4*	*5.9*
ES	3.4	**1.9**	2.9	*-42.4*	*-32.5*	9.9	**9.1**	9.5	*-9.0*	*-4.8*	-	**-**	-	-	-
FI	3.2	**3.6**	3.3	*9.6*	*6.9*	-	**-**	-	-	-	1.1	**1.3**	1.3	*20.2*	*0.3*
FR	6.8	**6.5**	6.2	*-4.4*	*4.0*	9.0	**8.8**	8.6	*-2.5*	*2.5*	3.5	**3.6**	3.1	*-2.5*	*11.8*
GR	2.7	**2.3**	2.2	*-15.1*	*2.3*	8.8	**8.7**	8.9	*-1.5*	*-2.6*	-	**-**	-	-	-
HU	4.3	**3.8**	3.2	*-11.2*	*19.9*	7.0	**5.9**	5.3	*-15.6*	*11.7*	2.8	**2.9**	1.9	*4.0*	*54.7*
IE	7.1	**7.1**	6.7	*-0.3*	*6.5*	-	**-**	-	-	-	-	**-**	-	-	-
IT	3.8	**3.7**	3.5	*-3.7*	*4.0*	9.5	**8.4**	9.1	*-11.5*	*-7.7*	-	**-**	-	-	-
LT	2.9	**3.0**	2.6	*3.4*	*16.9*	-	**-**	-	-	-	2.0	**2.1**	1.7	*3.6*	*26.6*
LU	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
LV	2.2	**2.0**	1.9	*-10.8*	*2.6*	-	**-**	-	-	-	1.9	**2.0**	1.6	*3.2*	*21.3*
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	6.1	**6.3**	6.0	*4.1*	*5.7*	12.5	**13.2**	12.2	*6.0*	*8.8*	-	**-**	-	-	-
PL	3.5	**3.1**	3.0	*-13.1*	*1.0*	5.7	**6.0**	5.9	*4.6*	*1.7*	3.0	**2.6**	2.3	*-14.6*	*11.2*
PT	1.5	**0.7**	1.4	*-54.7*	*-52.4*	5.9	**6.0**	5.8	*1.2*	*4.0*	-	**-**	-	-	-
SE	4.3	**4.4**	4.2	*1.6*	*4.0*	-	**-**	-	-	-	2.7	**2.6**	2.4	*-2.7*	*8.3*
SI	3.9	**3.8**	3.5	*-1.5*	*10.0*	7.8	**7.8**	6.5	*0.0*	*20.4*	-	**-**	-	-	-
SK	4.1	**3.4**	3.2	*-18.4*	*6.6*	5.8	**5.1**	4.5	*-12.5*	*13.6*	2.9	**2.5**	1.9	*-11.6*	*31.9*
UK	5.8	**5.9**	5.7	*1.9*	*3.5*	-	**-**	-	-	-	3.0	**3.4**	3.0	*16.6*	*14.1*

NB:
(a) Countries with areas below 10 000 ha are not counted in.
(b) Yield figures are rounded to 100 kg.
(c) The national yield forecasts are based on agrometeorological model outputs and satellite indicators at NUTS 0 level in combination with time trend analysis.

Sources:
2004 yields come from Eurostat Cronos.
2005 yields come from MARS crop yield forecasting system.

MARS STAT yield forecasts at national level: 15 July 2005

CROPS	SUNFLOWER					SUGAR BEET					POTATO				
yield (t/ha)	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs	2004	2005	Avg. 5 yrs	%05/04	%05/5yrs
EU-25	1.9	**1.9**	1.7	*-2.4*	*6.5*	57.5	**57.5**	55.5	*0.2*	*3.7*	30.4	**29.8**	27.2	*-2.0*	*9.2*
AT	2.7	**2.7**	2.6	*0.4*	*2.8*	64.9	**65.4**	62.8	*0.8*	*4.1*	31.6	**29.6**	29.6	*-6.4*	*0.1*
BE	-	**-**	-	-	-	70.8	**66.1**	67.2	*-6.7*	*-1.6*	48.4	**45.6**	44.7	*-5.8*	*1.9*
CY	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
CZ	2.2	**2.1**	2.2	*-4.3*	*-5.3*	50.3	**48.3**	47.3	*-4.1*	*2.2*	24.0	**22.8**	21.7	*-4.7*	*5.1*
DE	2.2	**2.5**	2.2	*13.5*	*15.3*	53.5	**56.0**	56.4	*4.5*	*-0.8*	44.2	**43.6**	40.4	*-1.3*	*7.9*
DK	-	**-**	-	-	-	58.0	**59.3**	57.3	*2.2*	*3.4*	39.8	**41.0**	40.1	*3.1*	*2.2*
EE	-	**-**	-	-	-	-	**-**	-	-	-	12.0	**14.3**	14.1	*18.9*	*1.4*
ES	1.1	**1.0**	1.0	*-6.8*	*-5.2*	62.6	**64.4**	65.0	*3.0*	*-0.8*	28.3	**27.5**	26.9	*-2.9*	*2.2*
FI	-	**-**	-	-	-	35.1	**34.6**	33.8	*-1.4*	*2.4*	22.7	**23.8**	23.9	*4.9*	*-0.2*
FR	2.4	**2.4**	2.4	*1.0*	*2.5*	79.1	**79.8**	73.5	*0.9*	*8.6*	45.4	**43.5**	41.0	*-4.2*	*6.1*
GR	-	**-**	-	-	-	63.5	**61.4**	63.1	*-3.2*	*-2.7*	24.0	**21.5**	24.2	*-10.5*	*-11.2*
HU	2.5	**2.2**	2.0	*-12.5*	*9.6*	51.3	**44.2**	41.2	*-13.9*	*7.2*	25.3	**23.5**	21.9	*-7.3*	*7.1*
IE	-	**-**	-	-	-	59.9	**53.4**	50.9	*-10.8*	*4.8*	40.3	**37.9**	35.1	*-6.0*	*7.8*
IT	2.2	**2.0**	2.0	*-10.3*	*-1.2*	45.6	**45.2**	44.3	*-0.9*	*1.9*	25.2	**24.9**	24.1	*-1.1*	*3.1*
LT	-	**-**	-	-	-	38.8	**40.3**	35.6	*3.7*	*13.1*	12.9	**14.6**	14.1	*13.1*	*3.6*
LU	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	36.6	**37.5**	35.9	*2.5*	*4.5*	12.9	**13.6**	13.3	*5.6*	*2.1*
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	-	**-**	-	-	-	64.4	**64.7**	59.5	*0.5*	*8.8*	45.7	**46.0**	43.8	*0.6*	*5.0*
PL	-	**-**	-	-	-	42.8	**42.6**	40.7	*-0.3*	*4.8*	19.6	**16.6**	18.5	*-15.2*	*-10.0*
PT	0.5	**0.5**	0.5	*-0.6*	*-8.3*	-	**-**	-	-	-	14.2	**14.5**	14.2	*2.4*	*1.9*
SE	-	**-**	-	-	-	48.0	**48.3**	48.3	*0.5*	*-0.2*	30.9	**27.0**	29.3	*-12.6*	*-7.6*
SI	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
SK	2.2	**1.9**	1.9	*-12.8*	*0.1*	45.4	**44.7**	39.7	*-1.4*	*12.8*	15.7	**16.1**	15.7	*2.8*	*2.5*
UK	-	**-**	-	-	-	57.5	**56.0**	54.5	*-2.6*	*2.8*	42.5	**44.8**	41.5	*5.5*	*8.1*

NB:
(a) Countries with areas below 10 000 ha are not counted in.
(b) Yield figures are rounded to 100 kg.
(c) The national yield forecasts are based on agrometeorological model outputs and satellite indicators at NUTS 0 level in combination with time trend analysis.

Sources:
2004 yields come from Eurostat Cronos.
2005 yields come from MARS crop yield forecasting system.

MARS STAT yield forecasts for Black Sea and Maghreb areas: 15 July 2005

CROPS	TOTAL WHEAT					TOTAL BARLEY					GRAIN MAIZE				
yield (t/ha)	2004	2005	%05/04	%05/04	%05/5yrs	2004	2005	%05/04	%05/04	%05/5yrs	2004	2005	%05/04	%05/04	%05/5yrs
Bulgaria	3.6	**3.1**	3.0	*-13.6*	*2.3*	3.7	**2.8**	2.9	*-23.9*	*-5.5*	4.7	**4.5**	3.2	*-4.8*	*38.7*
Romania	3.4	**2.8**	2.4	*-16.7*	*17.4*	3.3	**2.0**	2.4	*-40.6*	*-18.4*	4.5	**3.3**	3.0	*-27.0*	*8.2*
Turkey	2.2	**2.1**	2.1	*-5.4*	*-1.1*	2.6	**2.5**	2.3	*-4.8*	*6.2*	4.3	**4.9**	4.3	*15.1*	*14.0*
Ukraine	3.7	**3.0**	2.7	*-18.8*	*13.5*	2.5	**2.3**	2.2	*-8.1*	*4.1*	3.8	**3.7**	3.4	*-2.8*	*9.2*
Algeria	1.4	**1.3**	1.2	*-13.1*	*4.7*	1.6	**1.2**	1.2	*-20.5*	*2.7*	-	**-**	-	-	-
Morocco	1.0	**0.5**	1.2	*-54.8*	*-59.0*	1.2	**0.6**	0.8	*-53.3*	*-29.1*	-	**-**	-	-	-
Tunisia	1.4	**1.7**	1.7	*18.9*	*4.3*	0.7	**0.9**	0.9	*29.0*	*6.1*	-	**-**	-	-	-

NB:
(a) Countries with areas below 10 000 ha are not counted in.
(b) Yield figures are rounded to 100 kg.
(c) The national yield forecasts are based on agrometeorological model outputs and satellite indicators at NUTS 0 level in combination with time trend analysis.

Sources:
2004 yields come from Eurostat Cronos or FAO database.
2005 yields come from MARS crop yield forecasting system.

anticyclone and extended its influence for several days over the majority of the continent. Around the middle of June a twin cyclone was forming over the North Sea and the North Atlantic, pushing rainy fronts onto the central part of Europe. The high pressure area was a resistant obstacle and the Mediterranean Basin was not touched by the rainy events. In July, a low pressure system centred between the United Kingdom and Iceland extended its influence beyond central Europe and a rainy front crossed the continent. Then progressively the Azoreans' anticyclone retrieved its centre over the continent re-establishing the typical dry and warm summer conditions.

Temperature: on average, general normal thermal conditions. In June, in western France, the Iberian peninsula and Maghreb, warmer than average. Unseasonably high values recorded in Spain. In July, warmer than normal in Baltic States and Scandinavia.

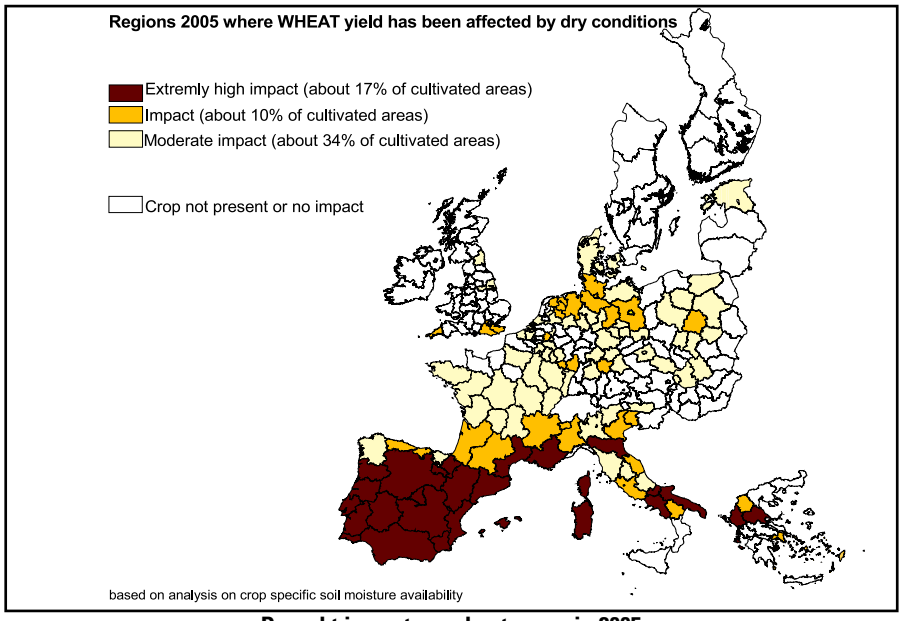
The accumulation of active temperatures during June and mid-July was close to normal with the exception of the western EU, where it was about 10 % warmer than the long-term average (equivalent to 80–120 GDD). The Balkans, east Ukraine and Russia were fresher than average, but still in the normal range of variation.

June started with high temperatures (above 36 °C and picked up to 41 °C) in central Spain and Portugal and was fresher than average in the eastern part of the EU and Scandinavia. A second 'hot wave' was recorded in the last part of June, which interested the central part of the EU (with 8–10 °C temperatures above the average) and in some cases exceptionally high temperatures were recorded (37 °C in northern Italy, 36 °C in central France and 38 °C in the southern part). July was characterised by seasonal conditions over the

majority of the continent with the exception of the northern part (Denmark, Scandinavia, Baltic Sea areas) and in Portugal where higher than average active temperatures were recorded.

Rainfall: still unseasonably dry in Iberian peninsula, western France, northern Italy; extremely wet in Austria and (with floods) in Romania and Bulgaria

The severe drought affecting the western EU still persisted in June and July. In these areas the highest rain deficit was estimable at 70–90 mm (on average, from the beginning of the year the deficit is estimable at 280–300 mm). Relatively dry conditions were also recorded in northern and central Germany, Poland, Belarus and western Ukraine.



Drought impact on wheat areas in 2005

The opposite situation was present in Austria, the Czech Republic and the Balkans, which experienced wetter than seasonable conditions. These areas on average received 250–300 mm distributed over a few rainy days causing damage both due to the floods (extended and severe were reported in Romania and Bulgaria) and the persistent over-wet soil (asphyxia, crops lodging, fungus diseases). In Romania, Bulgaria, north-east France (Nord-Pas-de-Calais) and in north Slovakia also some extreme rainy events (more than 100 mm a day) were recorded.

Climatic water balance and drought: in western EU the current campaign is one of the driest of the last 30 years

The reduced rain supplies (since last November) and the high crop water consumption (due to the high temperatures and solar radiation) amplified the climatic water balance deficit. In many countries the current year is one of the worst for 30 years.

The 2005 drought presents several differences compared with that recorded in the summer of 2003.

The geographic area affected by the current drought is smaller than that of the extreme drought in 2003. However, some of the affected regions show a worse situation. The Iberian peninsula faces the worst conditions of the last 30 years and the situation appears critical. In the west and south-west of France, the 2005 drought is as bad as in 2003.

So far, for winter cereals (the crops mostly hit by drought) the affected area is more limited: 27 % of the wheat-producing areas in 2005 against 53 % in 2003 (see maps above).

On the other hand, the current dry period extends much further in time: the drought onset conditions started in November 2004 and are still continuing. In 2003, the dry period started only at the beginning of March and lasted until the end of the summer.

The 2005 drought also presents similarities with 1976, which is considered one of the worst agricultural years for Europe. Both years suffered from dry conditions from the beginning of the year, but in 1976 the deficit of rain prevailing during the spring season was much more pronounced than the one experienced this year.

Highlights EU-25

After the impact of hot and extremely dry conditions in June–July, the European total cereal potential production is foreseen now at about 260 Mt which is – 10.3 % as compared with the production level reached in 2004 and corresponds to a reduction of about 30 Mt.

This value is highly influenced by the forecasted decrease in cereal crop yield, – 7.3 % compared with 2004, in other words, 5.1 t/ha instead of 5.5 t/ha reached in 2004. However, the final production level that is expected to be reached will be very close to average (– 0.3 % compared with the last five-year average).

Soft wheat yield, as an almost-final EU figure (harvests are still occurring or will occur in the next weeks in northernmost areas) is expected at 6.1 t/ha (– 6.2 % compared with 2004 and 4.4 % compared with the average of the last five years). Durum wheat remains the most affected crop as it is concentrated in the areas affected the most by drought; the yield foreseen is now at 2.3 t/ha versus

Publication issue

The fourth printed *MARS Bulletin* for the 2004/05 agricultural campaign covers the period 1 June to 15 July agrometeorological conditions.

It makes a synthesis of the major issues pertaining to:

— temperature stresses
— water and drought stresses.

Previous related analyses available:
— Conditions at sowing — November 2004 (Vol. 12, No 6)
— Climatic updates — December 2004 to July 2005 (Nos 1–9)
— Winter crops conditions in January and February 2005 (Vol. 13, No 1)
— Winter and spring crops conditions in March and April 2005 (Vol. 13, No 2)
— Winter and spring crops conditions in April and May 2005 (Vol. 13, No 3)
— MARS press release on drought

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MARS stands for Monitoring Agriculture with Remote Sensing

Technical note

The long-term average used within this bulletin as a reference is based on an archive of data covering 1975–2004.
The CNDVI is an unmixed normalised vegetation index on the base of Corine land cover mainly for arable land or grassland.

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Next printed issue

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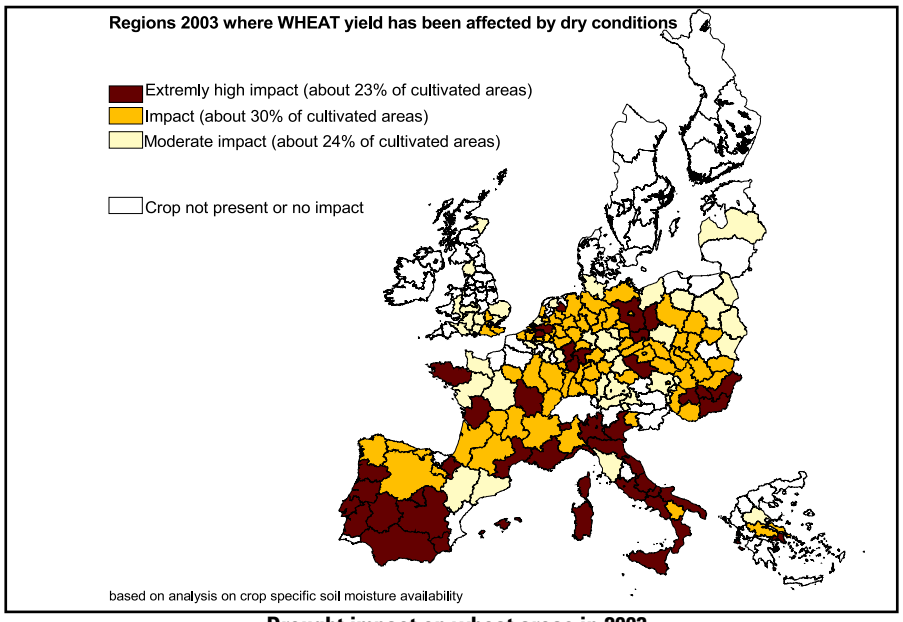


Drought impact on wheat areas in 2003

3.0 t/ha in 2004 (– 24.2 %) and versus 2.5 t/ha as an average of the last five years (– 9.0 %). Both winter and spring barley are expected to be affected respectively by about 10 % (5.5 t/ha instead of 5.8 t/ha in 2004) and 10.6 % (3.8 t/ha instead of 4.2 t/ha in 2004). Both score below average (last five years) by about 1 %.

What could still significantly affect the cereal forecast is the water availability to the maize grain in the next weeks. In fact, especially Spain and western and south-western areas in France (and partly Italy) could suffer from irrigation limitations which could make a difference in yield further lowering the level forecast, which is now at an EU level of 7.9 t/ha (– 6.4 % compared with 2004 and + 0.6 % compared with the average of the last five years). On the other hand, the recent rain at the beginning of July partly alleviated the potential problems in Italy (for the moment) and caused an increase in the potentiality of maize production in the light soils of Hungarian areas.

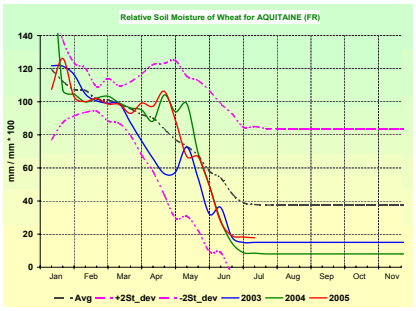
Further analysis on drought impact is contained in t**he press release and accompanying memo** available at http://agrifish.jrc.it/marsstat/Bulletins/2005.htm.

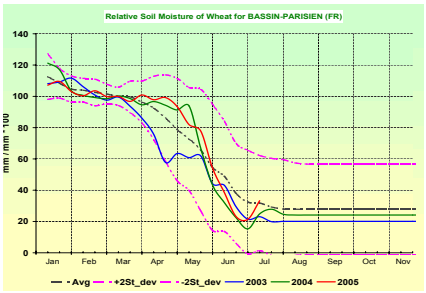
Highlights by region of interest

EU-25 countries

France: still severe drought in western and southern areas, more normal in central and north-east France; occasional heat excesses

Compared with the last bulletin the soft wheat forecast has decreased to 7.5 t/ha (– 3.6 % compared with 2004 and 4.7 % more than average), durum wheat remains at 5.0 t/ha (– 2.7 % compared with 2004 but + 6.6 % compared with the last five-year average). Also the barley yield forecast is reviewed at a lower value with 6.5 t/ha (– 4.4 % compared with 2004), rapeseed yield is stable at 3.6 t/ha (– 2.5 % compared with 2004). Summer crops could suffer from the lack of moisture and depleted water reserves. Grain maize yield is expected at 8.8 t/ha (– 2.4 % as compared with 2004 but still higher than the average of the last five years by 2.5 %).





June started with seasonal **temperatures,** but they climbed progressively over the average from the second dekad onwards and on several days maximum temperatures of over 30 °C were recorded. In the Midi-Pyrénées, Aquitaine, Provence, Bourgogne and the Pays de la Loire in the last part of the month temperatures up to 36–37 °C were recorded for a few days. At the end of the period a second hot wave invested those areas.

The active crops reacted to the higher cumulated active temperature accelerating their development and winter cereal senescence. At the same time crops still in vegetative stages were likely affected by the heat excesses (temporary reduced assimilation).

Rainfall was almost absent until the last dekad of June, while in the first part of July some rain occurred (mainly in the eastern areas) but globally remained much lower (– 30–35 %) than seasonal values with higher deficits in the western and southern areas by around – 50 mm for that month. In June, the combination of high crop water consumption and reduced rain determined an exceptional climatic water balance deficit, calculated from the beginning of the year.

The situation improved in the northern part during the first dekad of July. Here higher precipitation than average was recorded. However, most of the country remained below normal.

Winter cereals: In southern and western France the crop development accelerated during the period considered, recovering from the previous delay, and reached the ripening/maturity stage close to the canonical calendar. Due to the lack of rainfall the crops could rely only on soil moisture that reached, in July, very low levels. The rainfall of July arrived too late for the winter crops (in particular durum wheat and barley) to benefit, as they were at the end of their cycle. However, late varieties in the Paris Basin were still able to benefit on entering the ripening period. The harvest could start in the southern part of the country in July without the obstacle of rain. In the northern districts, thanks to the longer and delayed crop cycle, the drought effects were likely quite weak compared with southern districts.

Spring cereals: As for the winter varieties, the spring cereals (mainly barley) suffered from the lack of precipitation during the ripening phase. The limited soil moisture significantly reduced the biomass elaboration. However, the plants should have benefited from the rainfall of July as they were not too advanced in the cycle.

Rapeseed: From ripening in June, this crop reached the maturity stage at the very beginning of July. The grain filling stage relied only on the soil water content. Considering the spatial crop distribution on the territory and the crop water consumption, the limited rain supply should have a relatively negative impact on the yield expectation.

Sunflower and maize: Rain-fed maize and sunflower were affected by dry conditions in the western and south-western areas and likely by the extreme high temperatures

recorded in June and July. The cumulated irrigation requirements during the period were higher than average and the future water availability will determine if the current potentiality will be kept.

Potato: The dry situation recorded in June and still in July could have a negative impact on the final yields.

Germany: confirmation of the good expectations marked since the last bulletin

Germany appears to have avoided the scarcity of water which has been affecting south-western Europe. Yields are expected to be higher than the average, 7.9 t/ha for wheat (+ 7.9 %), 6.5 t/ha for barley (+ 10.4 %), 4.0 t/ha for rapeseed (+ 18.4 %), 9.3 t/ha for grain maize (+ 5.9 %), and are expected to reach the extraordinary values recorded in 2004.

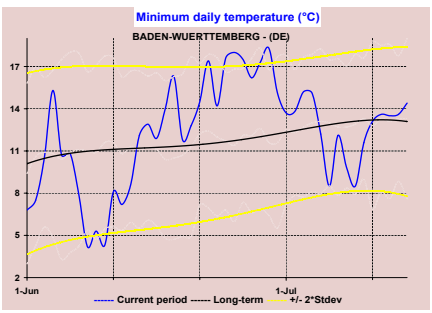
In the southern regions, rainfall which started at the end of July is leading to yield values close to the long-term average, after a relatively dry period in the second half of June. Low night temperatures before the start of the second dekad, both in June (8 and 10) and in July (6 and 9), could have caused cold damage in some areas.

Winter wheat: The crop is in the first part of the ripening phase in the southern regions and completing flowering in the north; in all cases with a slight advance. Good yields are expected: equal or even better (in central and southern regions) than 2004. Records are forecast in the south-east despite a slight drop in the second part of June due to scarce precipitations.

Almost a record year for **rapeseed** (also compared with 2004 in central and southern regions).

Spring crops: Simulated yields are similar to last year and consistently above the average especially in the southern regions.

Fortunately, it looks as if July rainfalls have averted the risk of yield losses due to the insufficient water availability in June.



Austria: wet beginning of July

As a whole, favourable conditions are observed in the country. Expected yields (5.7 t/ha for wheat, 5.6 t/ha and 4.5 t/ha for winter and spring barley, 2.9 t/ha for rapeseed, 9.4 t/ha for grain maize) are higher than the last five-year average (respectively + 12.1 %, + 10.6 % and + 10.5 %, + 17.1 %, + 2.6 %). However, 2004 yields were higher (– 5.2 % for wheat, – 1.6 % and – 9.7 % for winter and spring barley, – 14.2 % for rapeseed), with the exception of grain maize (+ 1.7 %).

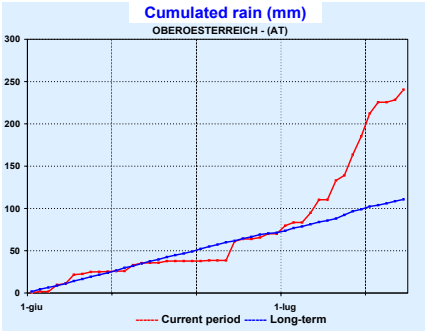
Abundant rainfall occurred since 6 July, but daily events were never particularly intensive. In some cases, rainfall (probably storms) has been accompanied by abrupt temperature falls in the Oberoesterreich region.

Winter wheat: The crop is simulated to be correctly in the first part of the ripening phase. At the end of June in the north-east a slight decrease in the rate of biomass accumulation was simulated. However, yields are expected to remain considerably above the last five-year average. Excellent productions are simulated for the Oberoesterreich.

Rapeseed has regularly completed its development under normal growing conditions.

The situation is satisfactory for **spring crops,** above all for the north-east, although the record simulations of May and June have been slightly downsized.

The excess of wetness in the last period has raised the risk level of pests and diseases.



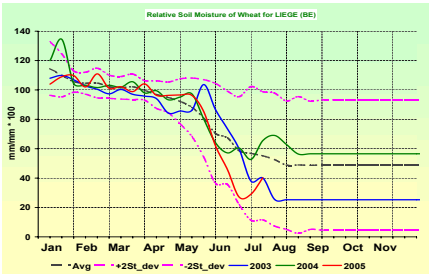
Belgium, the Netherlands and Luxembourg: dry and mild June especially in Belgium and Luxembourg, good water supplies in July

In Belgium due to the relatively dry conditions recorded in June the soft wheat yield is revised downward at 8.7 t/ha (– 3.4 % compared with 2004), barley at 7.6 t/ha (– 3.8 %); in the Netherlands the favourable agrometeorological conditions permit to revise upward the soft wheat yield at 9.0 t/ha (+ 4.6 % compared with 2004) and barley at 6.3 t/ha (+ 4.6 %). A slight difference is also foreseen in the estimation in Luxembourg for soft wheat yield at 6.2 t/ha (– 9.2 %).

June was characterised by temperatures slightly above average for the period (only in the second part of June the maximum temperatures were for a few days significantly above the norm reaching also 31–32 °C) and rain was scarce. Therefore, in southern Belgium, Luxembourg and in the major part of the Netherlands, a slight deficit was detected, estimable on average at around 30–40 mm (equivalent to – 30–40 % compared with the LTA). July presented a good rain supply and warmer than seasonal temperatures.

Consequently, **in Belgium** in June the soil moisture was depleted and reached its critical value in the last part of the month. Negative impacts on potential winter cereals yields were quite likely, considering also the very sensitive reproductive stage of development reached at that time. Fortunately, between the end of June and beginning of July, beneficial rain restored the soil water content. The warmer than average temperatures in July boosted the crops' development reducing negatively the **grains filling** period and therefore the potential production.

In the Netherlands the rain deficit was limited (thanks to the rain recorded at the beginning of June), and in general the agrometeorological conditions registered can be assessed as not limiting for winter crops and it is possible to slightly increase the yields' levels forecast in the previous bulletin.



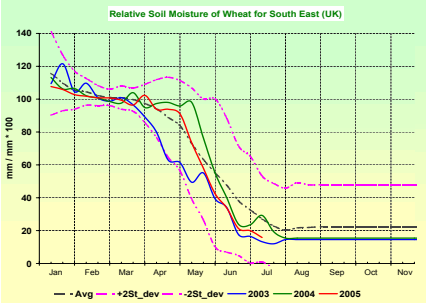
In contrast, the reduced soil water availability could have affected the more sensitive spring crops (e.g. potato) cultivated on soils with limited water retention capacity.

The meteorological evolution in June was also limiting for grassland in Belgium. However, in this area the rainfall during the last part of the considered period can permit a more normal evolution in the next stage of development.

The UK and the Republic of Ireland: mild temperatures with scarce rain in southern United Kingdom and Ireland

The favourable conditions permit to maintain the forecasted yields, however close to the average level. In the United Kingdom and Ireland, soft wheat yield is respectively foreseen at 7.9 t/ha (+ 1.1 % as compared with 2004) and 9.4 t/ha (– 5.0 % compared with 2004, but + 3.8 % compared with the five-year average). As regards barley, an improvement is expected for the United Kingdom

(5.8 t/ha, + 2.0 % compared with 2004) and a slight decrease in Ireland (7.1 t/ha, –0.2 %). Rapeseed yield is expected at 3.4 t/ha (+ 16.6 %) in the United Kingdom.



In the first part of June the temperatures were close to the seasonal values, but from the second half of the month, both for daily minimum and maximum, higher values were recorded (2–4 °C above the average), with picks in some cases even to above 30–31 °C (East Anglia, Bedfordshire, Kent). In July a new hot wave pushed the maximum temperatures again over the 30 °C mark. On average, the mean daily temperatures in the period were 1.5–2 °C above the norm.

All the active crops reacted positively to these favourable thermal conditions and at the end of the period presented a general advance (7–10 days) compared with the LTA, but comparable to the previous year.

Rainfall, although sporadically present during the considered period, was quantitatively scarce in southern United Kingdom and Ireland, and more abundant in eastern United Kingdom. In general, the soil moisture maintained optimal levels, only the south-east United Kingdom reached values that could represent an element of concern and play as a limiting factor according to the future supply.

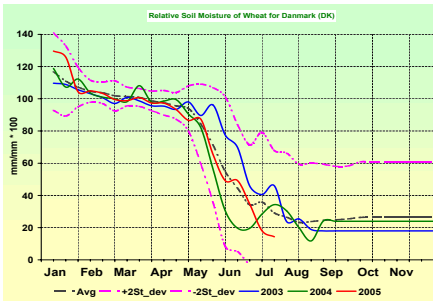
In Ireland, despite the reduced water availability, favourable temperatures impacted positively on the grassland biomass production.

Denmark, Sweden and Finland: worrying insufficient rain supply, seasonal temperatures

At the moment in Denmark no significative impacts are considered because of the lack of rain, and the expected yields are at: soft wheat 7.2 t/ha (+ 1.9 % compared with 2004), barley 5.5 t/ha (+ 3.0 %) and rapeseed 3.0 t/ha (– 8.5 %). In Sweden: soft wheat 6.3 t/ha (+ 4.6 % compared with 2004). In Finland the yield forecast for soft wheat is foreseen at 3.7 t/ha (+ 5.5 % compared with 2004).

In the whole region, **temperatures** within the normal ranges of variability were recorded and the cumulated values of active temperatures (Tbase = 0 °C) presented no significative differences compared with the average. Consequently, the active crops presented a normal development.

On the contrary, **the rainfall** presented unseasonable behaviour: it was mainly concentrated at the beginning of June (30–40 mm) and then was scarce or absent in July. In southern Sweden, at the very end of the considered period, some scattered showers improved the situation locally.



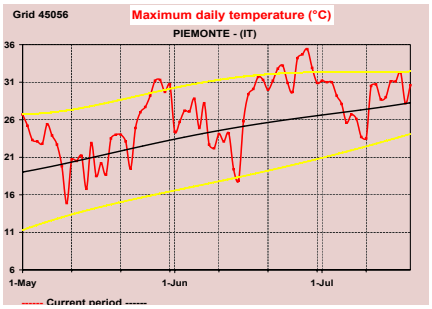
The clean sky determined a higher contribution of solar radiation and consequently higher water consumption by the crops.

In Denmark and south-east Sweden the soil water content was depleted to critical value causing concern for the more sensitive crops (e.g. potato or cereal at **grain filling** stage of development). Fortunately, the 10-day weather forecasts report probable rain in the next days, even if in modest amounts. In Finland better conditions were present.

Italy: dry conditions in the north-west of the country, marginally affecting the outcome of winter cereals. Still uncertain expectations for summer crops

The drought persisted in the north-west but did not significantly influence the rest of the country. Durum wheat achieved yields of 2.7 t/ha, with a 15 % reduction in 2004 but still 6.3 % better than the five-year average. Soft wheat in northern and central Italy was marginally affected by the dry conditions with an expected yield of 4.9 t/ha; this is a reduction of 4.7 % from 2004 but still above the five-year average. Expectations for spring–summer crops are still reliant on rainfall in July.

In Italy average temperatures followed a normal seasonal trend through June and mid-July and this condition was homogeneous all through the peninsula. However, some peaks of over 30 °C were recorded in most of the country at the end of June, potentially causing some heat stress on winter cereals in the final stages of development.



Rainfall was markedly reduced in north-western Italy (Piemonte), with overall reductions of up to 150 % of cumulated rainfall compared with the long-term average.

Rainfall was reduced also with respect to 2004, though it showed some improvement from 2003, which was an exceptionally dry year. The rainfall deficit was less marked in north-east, central and southern Italy and diffuse rainfall in the first weeks of July seems to be improving soil moisture conditions for spring crops.

The meteorological evolution through June and the first half of July did not appear to affect heavily the productive outcome of winter cereals. **Expected yield for durum wheat is at 2.7 t/ha** which is less than the 2004 levels (– 14.6 %) but better than the five-year average of 2.5 t/ha (+ 6.3 %). **Soft wheat,** which has its main cultivation areas in the centre and north of the country, saw its **average yield slightly reduced with respect to 2004 (4.92 versus 5.3 t/ha)** though still in line with average levels (4.7 t/ha). Expectations are uncertain for summer crops, especially for grain maize, when it is not cultivated under irrigation. **Yield is expected to reach 8.41 t/ha,** with a marked reduction of around 10 % on 2004 and even 7.6 % from the five-year average.

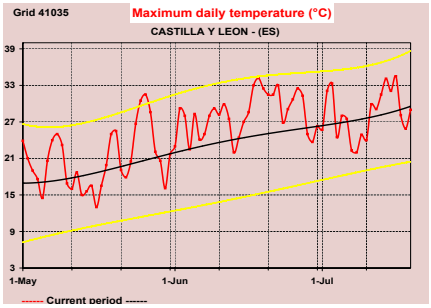
Spain: drought and sporadic late rains heavily reduced the yield of winter cereals

The persisting drought and some late rains worsened the situation for winter cereals. A consequence of this is a yield forecast of 0.8 t/ha for durum wheat, compared with the 2.98 t/ha in 2004. There are some positive expectations for irrigated summer crops if water availability does not become a limiting factor.

In most of the summer crops production areas of north and central Spain (Castilla-León, Aragon and Castilla-La Mancha), **maximum temperatures fluctuated around 10 °C above the long-term average.** There was a temporary cooling at the beginning of July but in most of the country temperatures peaked again in the second dekad.

Cumulated rainfall remained at absolute minimum levels compared with the **long-**

term average (– 60–70 %). There were some rains in June and the beginning of July, especially in central Spain, but these were not enough to compensate the overall deficit and could actually have worsened the situation, causing diseases and some lodging locally before harvest. **Yield of durum wheat stands at 0.8 t/ha** which is a dramatic drop from 2004 (2.98 t/ha) and even on the five-year average of 2.4 t/ha.



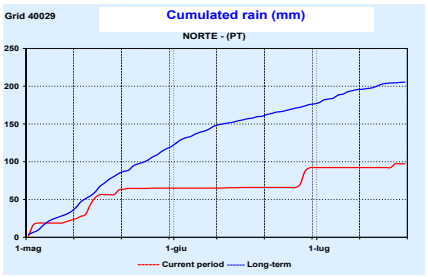
This trend will also heavily affect the production of non-irrigated spring cereals, especially barley, which are presently in the grain filling phase. Yield for this crop is expected to drop to 1.9 t/ha, with a reduction of over 40 % with respect to 2004 and over 30 % on the five-year average. The situation appears to be better for **grain maize, sugar beet and other summer crops under irrigation.** For **maize** there is an expected yield of **9.05 t/ha** (with a five-year average of 9.5 t/ha) and for **sugar beet** the expectation is at **64.44 t/ha,** around the five-year average (65 t/ha). However, much will depend on limitations to irrigation as water reserves are depleted.

The overall situation may have improved in northern Spain due to sporadic rain. In any case, these events will not compensate the heavy deficit.

Portugal: the severe drought is continuing with possible damaging effects also on irrigated summer crops

The drought severely affected yield of winter cereals with an overall reduction for wheat from 1.29 t/ha in 2004 to 0.8 t/ha this year. If the rainfall shortage continues it could have damaging effects also on rainfed and irrigated summer crops.

In Portugal, **temperatures** remained above the normal seasonal level during the month of June, **with peaks of over 10 °C above the long-term average. This situation may have caused heat stress with damaging effects on winter cereal in the final stages of development.** A drop of maximum temperatures was recorded all over the country at the beginning of July. Thermal levels began rising again in mid-July in the north and on the Atlantic coast but stabilised at the seasonal average in the south.



In the north **cumulated rainfall was 80 % below the long-term average** with similar levels also for the rest of the country. This means that the drought experienced through most of the spring continues and dramatically affects the yield of winter cereals. Durum wheat is expected to yield 0.5 t/ha as compared with the five-year average of 1.2 t/ha, while soft wheat stands at 0.85 t/ha compared with the average of 1.6 t/ha. Expected yield for barley is 0.7 t/ha (1.4 t/ha, the five-year average).

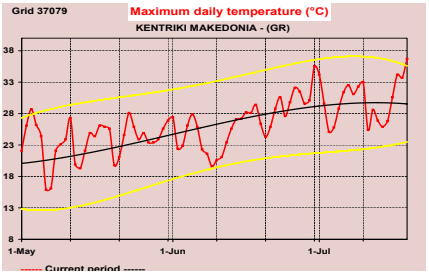
The lack of rain should also affect the rainfed production of summer crops in the north of the country. **The expected yield, at the moment, for grain maize is 5.9 t/ha**, where the figure includes the irrigated varieties.

The water balance deficit since the beginning of 2005 is at its worst level.

Rains in July may have slightly improved the condition of topsoil moisture without improving significantly the drought condition.

Greece: positive yield level for winter cereals; persisting drought in the central areas though largely non-influential on irrigated summer crops

There was a noticeable distinction between north-western and central Greece. Favourable conditions in the north mitigated yield decrease at national level (1.9 t/ha for durum wheat, 4.4 % below the 2.00 t/ha of 2004 but the same level as the long-term average). A persisting drought in the centre is of scarce effect on summer crops which are mostly irrigated (8.66 t/ha for grain maize, – 1.5 % on 2004).



Very **intense rain** took place around the second week of July in the **north of Greece** which is the main winter cereal production area (Kentriki Makedonia and Dytiki Makedonia). This rain largely compensated the relative decrease in rainfall that had taken place in May. These exceptional events, which could have greatly damaged winter cereals, fortunately took place when most of the harvesting had already taken place and consequently did not affect the productive outcome. This can be considered an overall positive season with the **expected yield of durum wheat at 1.9 t/ha,** more or less in line with that of 2004 (2.00 t/ha) and the five-year average (1.99 %). **Temperature,** which had followed an average trend all across the season, **reported a decrease of more than 5 °C at the beginning of July,** in coincidence with the rains.

Opposed to this, in **central Greece (Thessalia)** cumulated **rainfall kept steadily 40 % below average during the first half of July.** Temperature also reported a certain drop in central Greece at the beginning of July, but if this condition did not last too long it should be of little effect on the overall production. **Expected yields for grain maize stands at 8.66 t/ha,** slightly reduced with respect to the five-year average and even with the 2004 yield.

Estonia, Latvia and Lithuania: fresher, exceptionally sunny and dry (particularly in Estonia)

The unfavourable conditions in Estonia pushed downward the forecasted yields. Soft wheat yield is foreseen at 2.1 t/ha (– 14.1 % as compared with 2004), and barley at 2.0 t/ha (– 10.8 %). On the contrary, considering the relatively better conditions, Lithuania and Latvia have been able to maintain or revise upward their yields. For soft wheat respectively, at 3.9 t/ha (– 3.0 % as compared with 2004) and 6.2 t/ha (– 9.5 %); for barley 3.0 t/ha (+ 3.3 % compared with 2004) and 2.0 t/ha (– 10.5 %)

Over June the temperatures were generally slightly below the average and only in July returned progressively close to normal. The weather conditions were also characterised by a very clear sky and consequently very high solar radiation and scarce or absent rain from the second dekad of June until the end of the considered period. According to the MARS database, in Estonia the current period was one of the driest out of the last 30 years.

The soil water content was heavily depleted and in particular in Estonia reached a critical and unusual level. In this country this situation represents a concern considering the very sensitive stage of development reached by the cereals (grain-filling). The final yields will be likely influenced by the future rain supply. The 10-day weather forecast shows possible rain in the forthcoming days, but unfortunately they will probably be limited

and not sufficient to restore appropriate soil moisture.

Poland: good expectations for maize

Winter crops (mainly wheat and rapeseed) are expected to yield more than the average, respectively 3.9 t/ha (+ 6.6 %) and 2.59 t/ha (+ 11.2 %). Anyway, as in the Czech Republic, 2004 records will not be reached. The situation for spring crops is less homogeneous, with a good year for maize (5.9 t/ha) and average yields expected for barley (3.0 t/ha).

As regards temperature behaviour, abrupt night temperature falls (except in the south-eastern regions) are to be noted between 9 and 13 June and an extraordinarily warm 25 June. Abundant precipitations except in the second half of June assured the crops of a satisfactory water supply.

Wheat is completing the flowering stage supported by adequate soil moisture conditions. Simulated yields are slightly lower than 2004 but normal if compared with the last five-year average. The crop could have suffered from sterility problems related to the heat shock in the third dekad of June.

Standard situation for **rapeseed:** the crop is regularly maturing under average soil water content conditions. Yields are expected to be lower than 2004 and higher than the last five-year average.

Barley has overcome the mid-flowering. Soil moisture is slightly lower than average but enough to prevent problems for the crop.

Czech Republic: increasing soil water content

Yields are expected to be higher than average but below 2004 (record year) values: 5.0 t/ha for wheat (7.3 % higher than the average), 4.4 t/ha for barley (+ 11.5 %), 3.1 t/ha for rapeseed (+ 19 %).

During a warm June, except for the first 10 days, limited rainfall occurred. Despite this, a wet beginning of July (abundant and frequent precipitations) has led the cumulated rainfall since 1 June to be considerably above the average.

Wheat is regularly entering the ripening phase. The scarcity of rainfall during the second part of June has caused a slight decrease in the simulated biomass accumulation rate. This is leading to lower yields with respect to 2004 except in the south-west.

Rapeseed has completed its development. Production is expected to be higher than the last five-year average and, in Jihozapad and Jihovychod (south), also than in 2004.

Barley is completing flowering with higher yields compared with the average. Soil water content (rapidly increasing) is the only factor which could threaten what is looking like a good year.

Slovakia: a wet beginning of July

Average year for sunflower (1.9 t/ha), while the situation for the other crops is similar to the one already described for the Czech Republic (yields are between 2004 and average). Wheat is expected to yield 4.4 t/ha (+ 18.2 % on the last five-year average), spring barley 3.4 t/ha (+ 6.9 %), rapeseed 2.5 t/ha (+ 31.9 %).

The relatively dry second and third dekads of June were partially compensated for by the wet beginning of July. In the eastern part of the country, very low thermal daily maximums during the first dekad of June (probably related to storm activities) have led to slightly low cumulated active temperatures which could have slowed the rate of development.

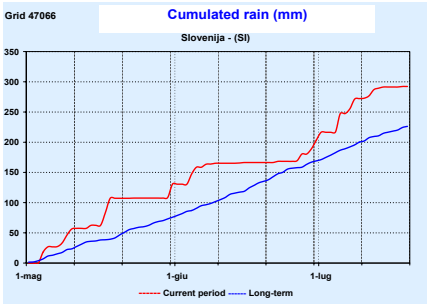
Wheat is regularly entering into the ripening stage. The scarce precipitations recorded in the second part of June have influenced biomass accumulation rates, although the current situation is still better than the last five-year average.

Good yields and sufficient soil water contents are simulated for **rapeseed,** which has correctly reached maturity.

The decrease in **barley** biomass accumulation already observed for wheat at the end of June is also shown by simulations for the west of the country.

Slovenia: a positive season for winter cereals and positive expectations for summer crops

Abundant rain and moderate temperatures guaranteed a good outcome for winter cereals (4.46 t/ha for soft wheat) and good expectations for summer crops (7.78 t/ha for grain maize).



Temperature levels, which had been fluctuating around the average until the end of June, reported an abrupt drop in the first dekad of July. This situation is, however, recovering to more normal levels and this should not affect too much the outcome of summer crops.

Rainfall was abundant and cumulated levels reported increased with respect to the long-term average, but more or less on the same level as in 2004. The main rain events took place in the final stages of maturity of winter cereals and this could have favoured the insurgence of diseases as well as diffuse lodging. **Expected yield for soft wheat stands at 4.46 t/ha,** more or less on the same level as 2004 and the five-year average.

As opposed to the overall effects on winter cereals, abundant rains in July should have a very positive effect on summer crops and especially grain maize in the central and crucial phase of its development. The **expected yield** for this crop stands at **7.78 t/ha,** also at the level of 2004 but showing a marked increase on the five-year average (6.5 t/ha).

Hungary: a dry second part of June

Yields are expected to be lower than 2004. Anyway, average values should be abundantly overcome both for winter crops (+ 13.4 % for wheat, 4.4 t/ha) and for summer ones (+ 11.6 % for grain maize, 5.9 t/ha) and + 9.6 % for sunflower (2.2 t/ha).

The wet beginning of June and beginning of July have compensated for the scarce precipitations of the last two dekads of June in the south-eastern regions. During the first dekad of June low maximum daily temperatures could have delayed crops' development.

Wheat: Satisfactory simulated biomass (above all for the western regions) in spite of the relatively dry end of June in the south-east. The crop is regularly at mid-ripening.

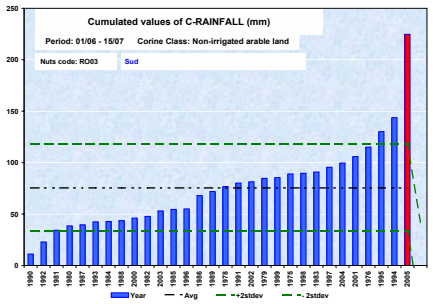
Maize has regularly entered the heading phase. Despite the relative permeability of soils and the scarce precipitation of June, water content is currently enough to adequately support high yields.

Sunflower is flowering under favourable growing conditions.

Black Sea area

Romania: exceptional heavy rains, local flooding problems

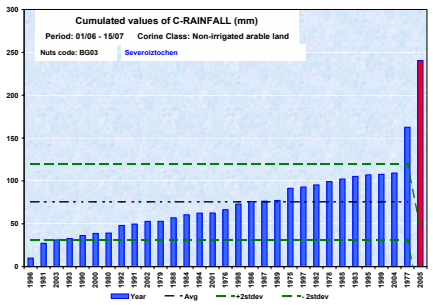
Forecast yield is at 2.8 t/ha (– 17 % as compared with the previous year record) for wheat, 2.0 t/ha (– 41 %) for barley and 3.3 t/ha (– 27 %) for grain maize. These forecasts are likely to be decreased according to the actual level of applied agricultural practices (especially fertilisation, weed and disease control).



Besides south-west Romania which was previously affected by excessive wet conditions, heavy rain hit also the southern and eastern regions of this country. The accumulation of active temperature was slightly below the long-term average, but during mid-June the maximum temperature exceeded 30 °C for several days. Although dramatic flooding problems occurred only in limited agricultural areas, most of the winter crops in the country (except north-western Romania) were affected by a delayed harvest, high risks of diseases, water lodging and a stronger weed competition. The quality of yield may be affected by pre-harvest seed sprouting. Simulated barley yield is above the long-term average but the negative effects of frost and the favourable autumn conditions for a possible development of aphids are not taken into account. Simulated above-ground biomass of sunflower is quite good at this stage but insect pollination was probably hampered to a certain degree by rain and strong wind. Maize crops have good growing conditions especially where required weed control measures were applied. Under the mentioned weather conditions, one may consider that the yield of various stone-fruits was possibly reduced and vineyards from southern and eastern areas were also affected.

Bulgaria: very wet conditions

Forecast yield is at 3.1 t/ha (– 14 % as compared with the previous year record) for winter wheat, 2.8 t/ha (– 24 %) for barley and 4.5 t/ha (– 5 %) for grain maize. These forecasts may vary according to the actual level of applied agricultural practices (especially fertilisation, weed and disease control).



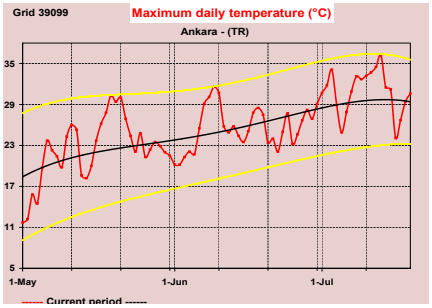
Torrential rains have caused soil saturation and flooded fields in northern Bulgaria since the beginning of July. In north-east Bulgarian areas rainfall exceeded again (see the previous MARS Bulletin, covering the 21 April to 31 May 2005 period) all the records from our database for the June to mid-July interval. Minimum temperatures below 10 °C were recorded for agricultural areas at the end of the first dekad of June. Wheat harvest was hampered by wet conditions. Simulated yield for winter cereals was slightly below the long-term average (except in north-western areas where the drop in expected yields is about – 25 % of the LTA), but these simulations cannot take into account the negative influence of excessive wet conditions. Simulations of above-ground biomass for sunflower and grain maize are above the long-term average, especially in eastern areas.

Turkey: climatic improvements in late spring with some negative effects on the harvest of winter cereals, but positive for summer crops

There was a significant improvement in climatic conditions, evolving from a dry and hot spring, with abundant rain in June and July and a normalisation of temperatures. This evolution though was negative for winter cereals in the harvesting phase, with expected yield for total wheat at 2.12 t/ha (– 5.4 % compared with 2004). On the contrary, grain maize should benefit from the summer rain so far. Yield is expected at 4.93 t/ha (+ 15 % compared with 2004). Forecasts are also encouraging for other summer crops such as pulses.

The climatic conditions largely improved for the most important agricultural area of central Turkey. A fairly dry spring with above average temperatures evolved in June to average seasonal levels. There was even a certain cooling with a decrease from the long-term average in early July. This trend was homogeneous throughout central Turkey but also in the north and south of the country which are vocational areas for summer crops. Rainfall increased in June for central Turkey, though not fully compensating the deficit cumulated in spring. More favourable conditions were reported on the Black Sea coast where abundant rain in July brought the cumulated rainfall input to levels above the long-term average.

Yield of winter cereals has been affected at the end of the productive cycle. Central Turkey is a fairly cool and high region where harvest takes place through June and July, delayed with respect to other Mediterranean countries. The overall water deficit in spring during the more delicate development stages was followed by rain in July during final maturation while harvesting which is conducive to diseases and lodging.



Better expectations can be made for summer crops, especially for those which are not under irrigation. In the northern part of the country, spring crops such as pulses (lentils, sweet peas, etc.) which have a significant weight in the Turkish agricultural economy, but also grain maize, will take advantage of the July rains.

Ukraine: western areas drier than usual

Forecast yields are at 3.0 t/ha (– 19 % as compared with the previous year) for wheat, 2.3 t/ha (– 8 %) for barley and 3.7 t/ha (– 3 %) for grain maize. These forecasts are likely to decrease according to the actual level of applied agricultural practices (especially fertilisation, weed and disease control).

The accumulation of active temperatures (Tbase = 0 °C) was close to long-term average. The western half of the country received less rainfall than usual (– 30 %) but the impact of this dry period was reduced due to the rain received in the previous period, whereas some areas in north-western Ukraine were wetter than usual. Development of winter crops is close to normal (flowering in northern and western areas and ripening in the south). Simulated wheat and barley yield is higher than the long-term average but the simulated rapeseed yield is below average. Development of sunflower and maize is close to normal. The relative soil moisture for maize is at the level of the long-term average while the soil moisture for sunflower crops is still above this level.

Eastern countries

Russia: favourable conditions for winter crops and good yield expectations

The period under analysis is the time for winter crop maturing and harvesting, and the first stages of the summer crop development in all regions of the European part of Russia.

The air temperature during June 2005 was close to normal, and slightly higher than in

the previous year, but it was not extreme for crop development.

The amount of precipitation was higher than normal in central and Volga regions of Russia and especially near the western border of the country and slightly lower in northern Caucasus and northern regions. As a result, soil moisture content at the beginning of July 2005 was close to normal practically everywhere, excluding northern regions of the European part of Russia where it was lower than normal and lower than in the previous year.

An analysis of remote sensing data and results of crop growth simulation demonstrate better than in previous years wheat status in many oblasts of Volga and northern Caucasus regions. The winter wheat status in the central part of the European part of Russia is likely to be close to the previous year with a good yield.

As a result, the meteorological conditions were optimal for winter crops' development practically in all main winter crop sowing regions of Russia. The yield of winter crops seems to be higher than normal, but slightly lower than in the previous year (due to a too mild winter period). Simultaneously due to high amounts of precipitation and relatively low amounts of incoming radiation the quality of the grain should not be very high.

The meteorological conditions for summer crops were good in practically all regions, except the northern region of Russia, where low amounts of precipitation will probably delay crop development, leading to decreases of summer crop yields in this region, especially the yield of potatoes. The yield of potatoes should also decrease in some regions of western Russia, due to surplus precipitation.

Belarus: drier than usual

Thermal resources accumulated during this period were at normal level. The rainfall regime was lower than normal for northern and southern areas (about – 25 %). Meanwhile in western Belarus it was drier than usual. Flowering of wheat and barley occurred under dry conditions. Simulated development stages and yields for these two crops are close to the long-term average.

Maghreb countries

Going into the summer, the drought is worsening in the west and is starting to make its effects felt to the east. Sporadic rains did not improve the situation. Temperatures are also reporting an exceptional increase. Winter crops have already been harvested so the recent evolution will not affect the outcome. The few summer crops, which are mostly under irrigation, could be affected by the high temperatures.

Morocco

The drought which started in the winter and progressed through the spring is still affecting the whole country. The season of winter crops was completed at the beginning of June with a very negative outcome. Yield for wheat was estimated at 0.47 t/ha, with an almost 60 % reduction on the five-year average and even 54 % on 2004. Summer crops in Morocco are essentially pulses in the highland areas and cotton under irrigation. Besides these, there are permanent crops such as olives and citrus fruit. There was some rain at the end of May but there has been almost none since then. All this was combined with temperatures rising to exceptional levels. The outcome of summer crops is foreseen not to be positive in this context.

Tunisia

The winter season in Tunisia was rather positive with sufficient rains. Proceeding into the summer, however, the effects of the drought, which affected the western Maghreb countries, started to make its influence felt further to the east. There was some rain around mid-June, too late to have an effect on the harvest of winter cereals (usually negative at that stage). The yield for wheat was estimated at 1.72 t/ha. The increase was marginal on the five-year average but significant with respect to 2004 (+ 18.9 %). Barley achieved 0.93 t/ha (+ 29 % on 2004). Summer crops such as cotton and some sugar beet are mostly under irrigation and, as for Morocco, these could be affected by the high temperatures.

Algeria

The limited agricultural areas of the country are spread along the Mediterranean coast with climatic influences which are transitional from the west (Morocco) to the east (Tunisia). There was an effect by the ensuing drought on the outcome of winter cereal though not as dramatic as in Morocco. The yield of wheat was estimated at 1.26 t/ha, with a reduction of 4.7 % on the five-year average and – 13.1 % on 2004. Barley achieved 1.23 t/ha (+ 2.7 on the five-year average and – 20.5 % on 2004). The effects of the drought are increasing and, coupled with high temperatures, will most probably have a negative influence even on irrigated summer crops and permanent crops such as olives and citrus fruit.

Pasture monitoring: drought in south western areas, normal season eastward

EU-25

In the south-west the drought affected also the condition of the grazing land, causing significant reduction of dry matter production, especially in southern Spain (Extremadura). It was a normal to positive season in most of the pasture and grassland areas of north, central and south-eastern Europe

Grasslands and pastures cover an area of over 50 000 000 ha in the EU-25 countries and are relevant in the agricultural economy as they are the base of the whole livestock sector.

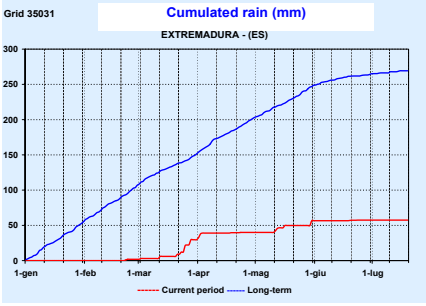
The definition of pastures includes the proper pastoral system of permanent grassland, and also, in part, those herbaceous cultivations which are directly consumed by the livestock or can also be harvested for fodder. The best means of assessing productivity in both cases is represented by the amount of dry matter production and the speed of its recovery from consumption or harvesting.

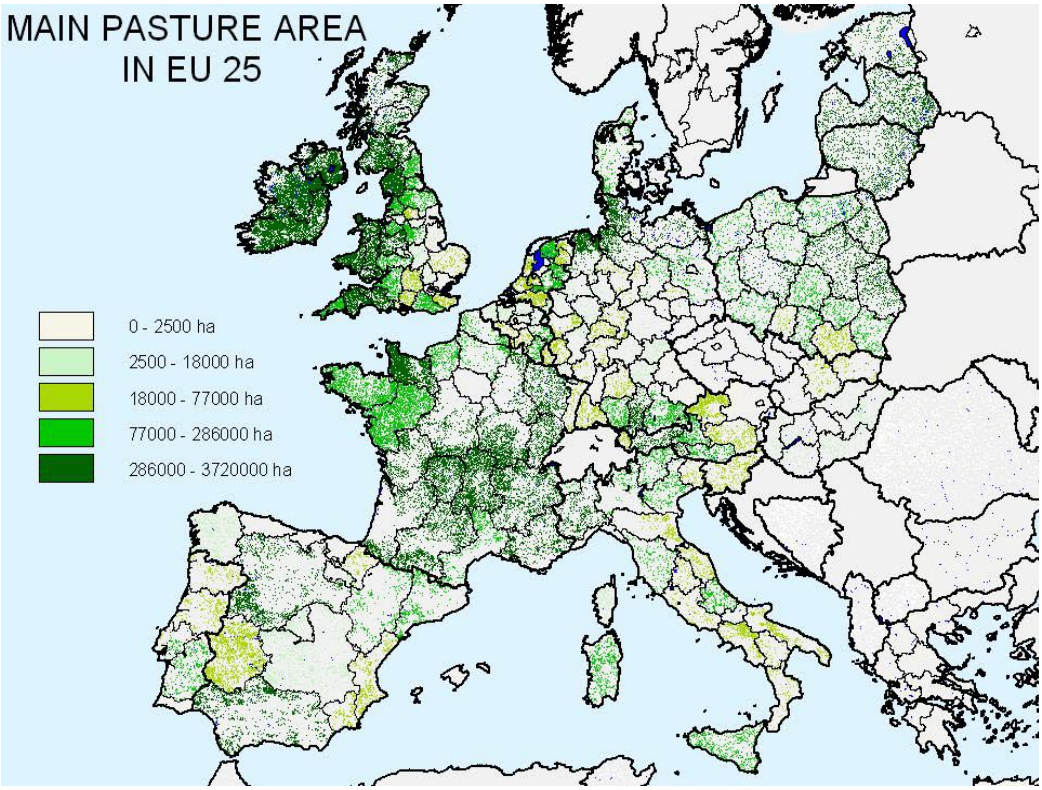
In 2005, some regions, for the greater part located along the southern Atlantic coast, in Spain, Portugal and western and south-western France, were affected by a drought that lasted for most of the winter and spring. These areas represent almost 7 % of the total of pasture surface in the EU-25 (~ 3 260 000 ha) and their condition could have a local but significant impact on other sectors and, specifically, the whole production cycle of milk and meat.

In the rest of Europe, climatic conditions were fairly normal and, in some areas, can also be considered better. Dry matter production in these areas can potentially compensate for possible losses in the drought affected areas.

Spain and Portugal

Spain and Portugal were the two countries that most suffered from the long water shortage. The main pasture areas are in south-western Spain, in Extremadura. In this region, rainfall was extremely scarce all through the winter with isolated events which, on average, never exceeded 7 mm of precipitation.

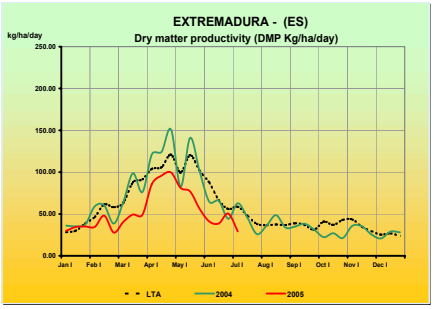




Pasture areas in EU-25 based on Corine land cover data

There was an exception at the beginning of June with a 12 mm rainfall event which did not compensate for the ensuing shortage. The deficit of cumulated rainfall was significant if compared to the long-term average, reaching almost 170 mm overall.

Starting from early March and for most of the spring, there was a reduction of dry matter production of around 100 kg/ha per day as compared to the long-term average. This corresponds to a decrease of around 30 %.



The situation returned to the seasonal average only at the beginning of July when, in the region, the normal summer heat and reduced rainfall reduced grazing potential to its minimum yearly levels.

France

The situation varied across the main pastoral areas of France. Some of these areas are located in Normandy and some in the central regions of Auvergne and Limousin. The worst conditions were actually reported in the North (Normandy) where a relative scarcity of rain during the winter resulted in a downturn in the production of dry matter. This decline took place in the crucial months of May and June, when it is potentially at its maximum. The overall reduction, however, did not exceed 15 % compared with 2004.

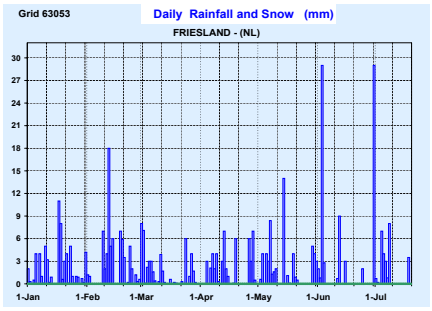
In the central regions (Auvergne and Limousin) the seasons have proceeded normally. Rainfall actually picked up from April to July even though the maximum temperatures were above average for most of the period. Dry matter production levels were slightly reduced as compared to the long-term average but on the same levels as in 2004.

Ireland and United Kingdom

Ireland and the western coast of the United Kingdom are the most relevant grassland areas in Europe. In Ireland, the 2005 winter and spring seasons were characterised by regular rains, distributed all across the period. Temperatures too ranged around the norm. The result of this was the dry matter production levels were in line with the average though reduced with respect to 2004. Wales and the whole west coast of the UK followed a similar trend with an outcome on the same levels as those of the long-term average.

The Netherlands

In the main pasture and grassland areas in the north of the Netherlands (Friesland) the production season was particularly positive, characterised by well-distributed and abundant rains which resulted in above the average dry matter production.



Germany

There are two main pasture areas in Germany, one in the north, in Schleswig-Holstein and the other in southern Bavaria in the sub-Alpine districts (Swabia). In both areas the situation was on average levels. In Schleswig-Holstein the dry matter production was actually quite positive and significantly above average. This was favoured by moderately high temperatures during the winter, coupled with normal rainfall amounts.

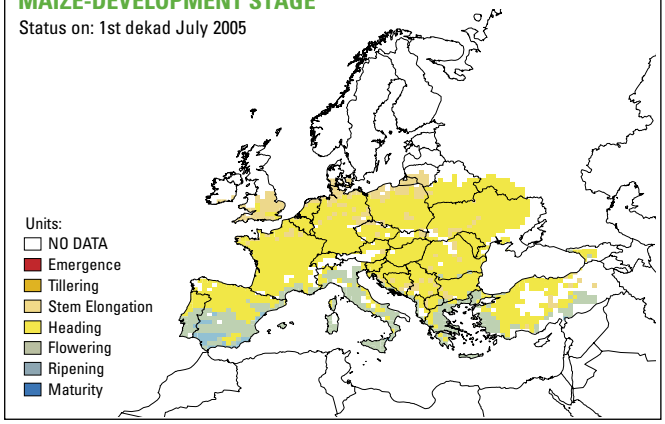
Austria, Slovenia and Italy

The effects of the Atlantic hot and dry air were not felt in the north-eastern Mediterranean regions and the trend was normal, if not positive, in the pasture areas distributed between the western Austrian Alps, Slovenia and all along the Apennine range in Italy.

Crop maps — 10 July 2005

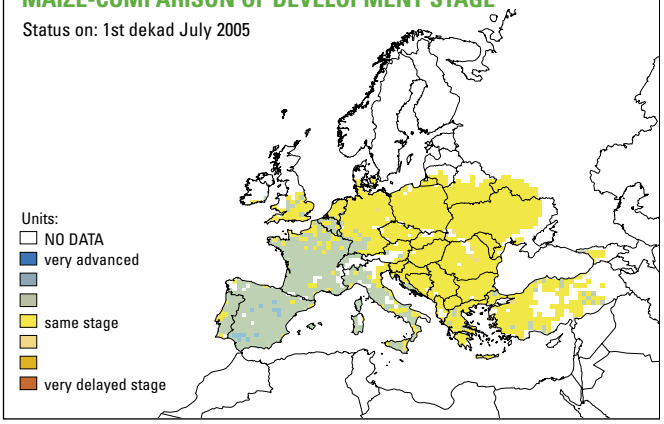
MAIZE-DEVELOPMENT STAGE

Status on: 1st dekad July 2005



MAIZE-COMPARISON OF DEVELOPMENT STAGE

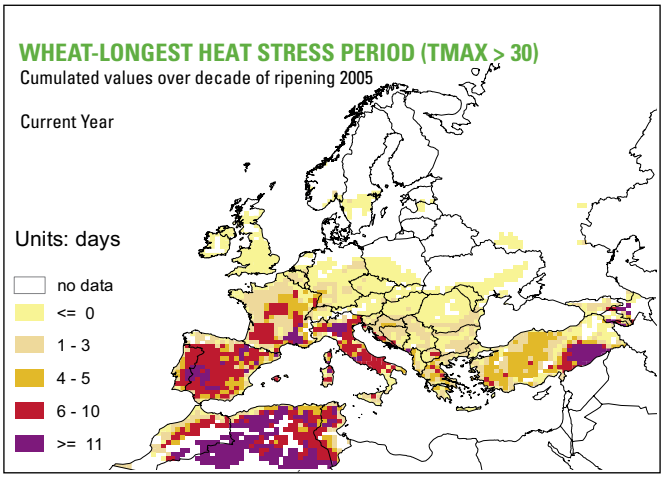
Status on: 1st dekad July 2005



WHEAT-LONGEST HEAT STRESS PERIOD (TMAX > 30)

Cumulated values over decade of ripening 2005

Current Year



WHEAT-COMPARISON OF DEVELOPMENT STAGE

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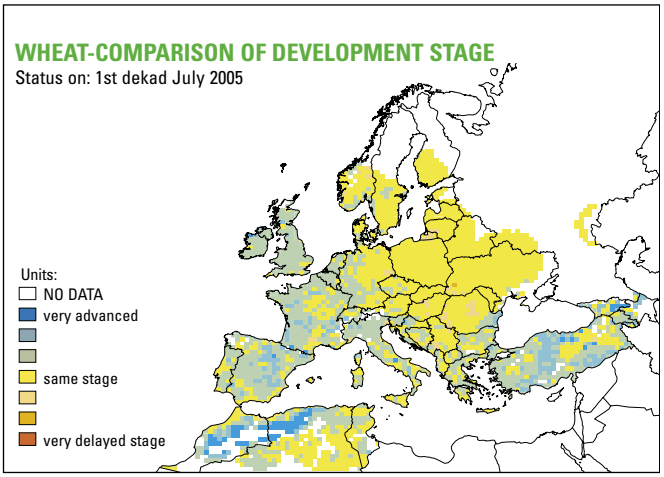
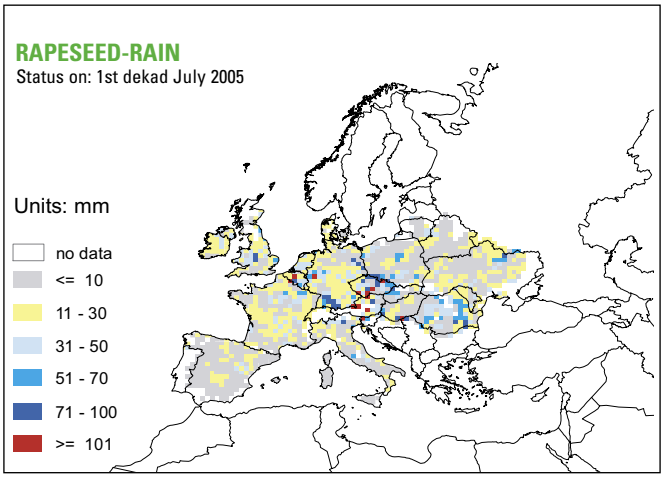


RAPESEED-RAIN

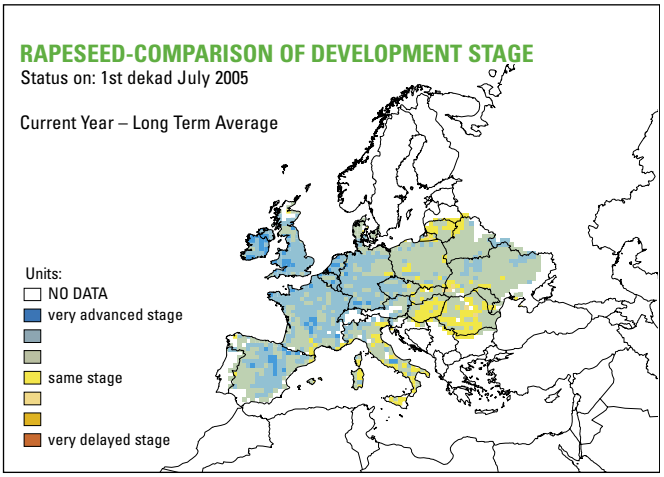
Status on: 1st dekad July 2005



RAPESEED-COMPARISON OF DEVELOPMENT STAGE

Status on: 1st dekad July 2005

Current Year – Long Term Average



BARLEY-DEVELOPMENT STAGE

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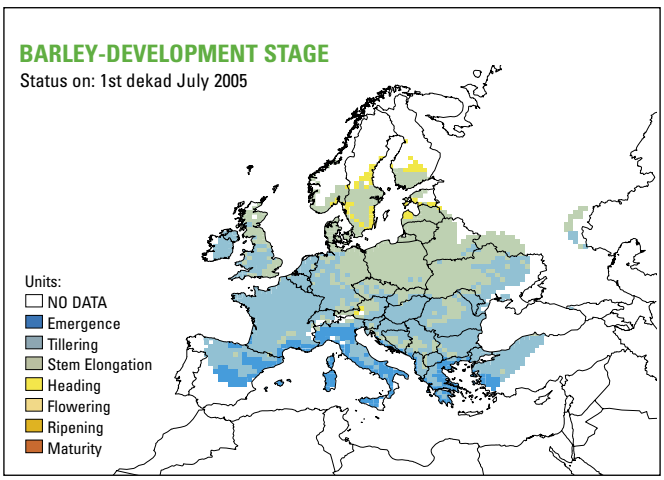
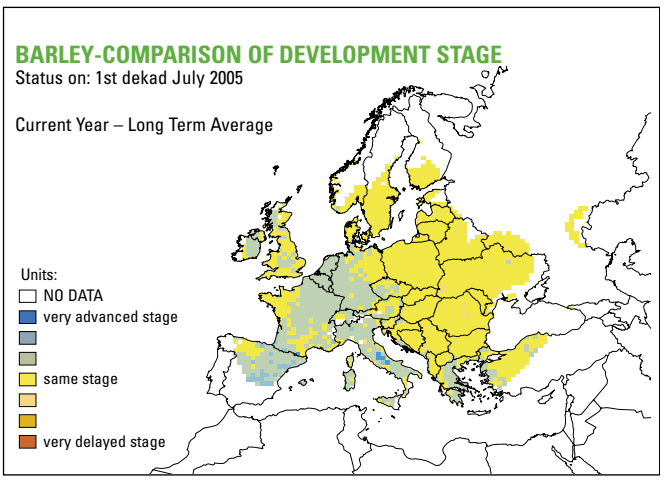


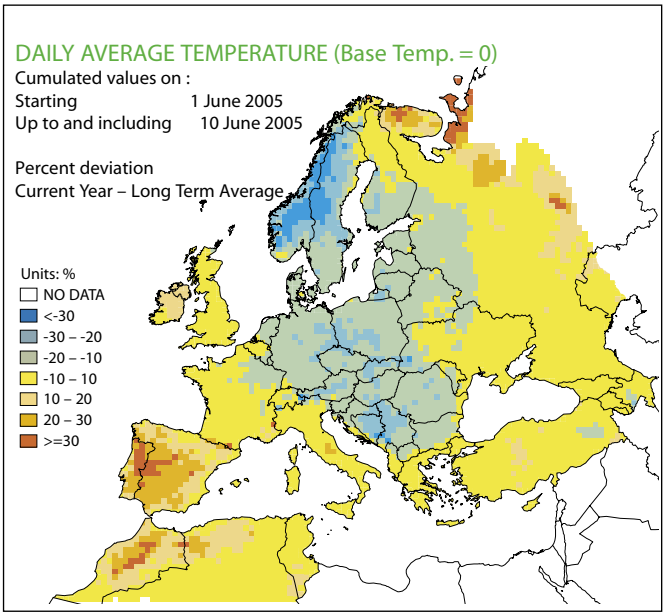
BARLEY-COMPARISON OF DEVELOPMENT STAGE

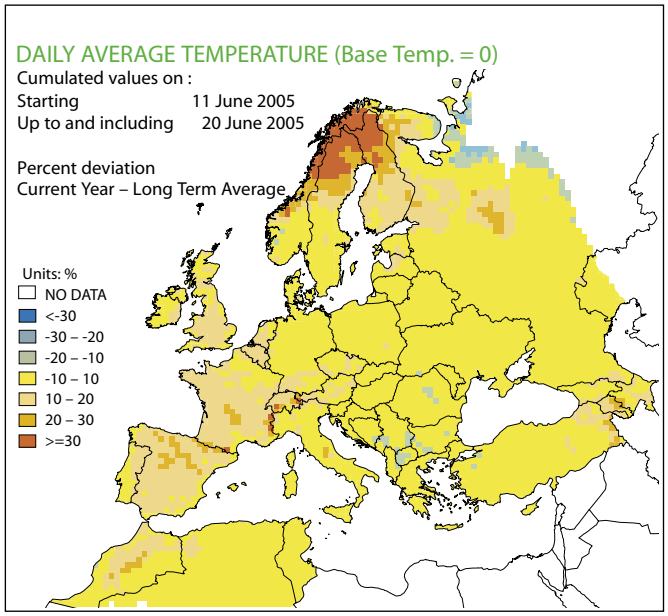
Status on: 1st dekad July 2005

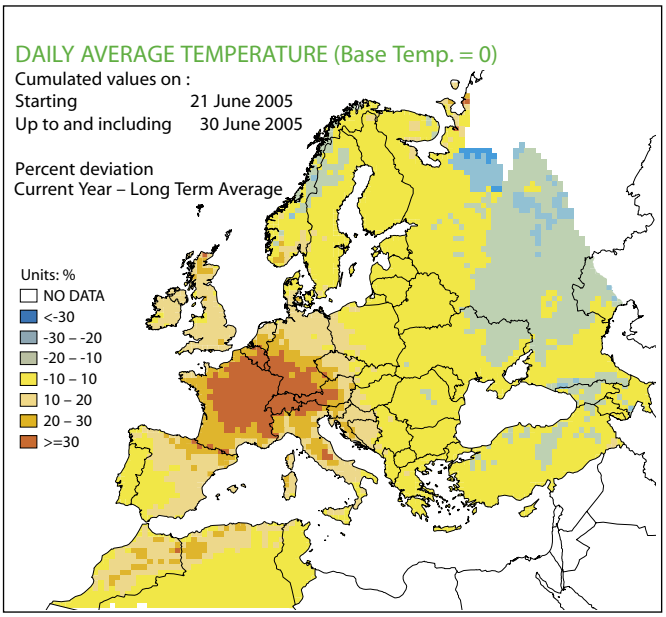
Current Year – Long Term Average

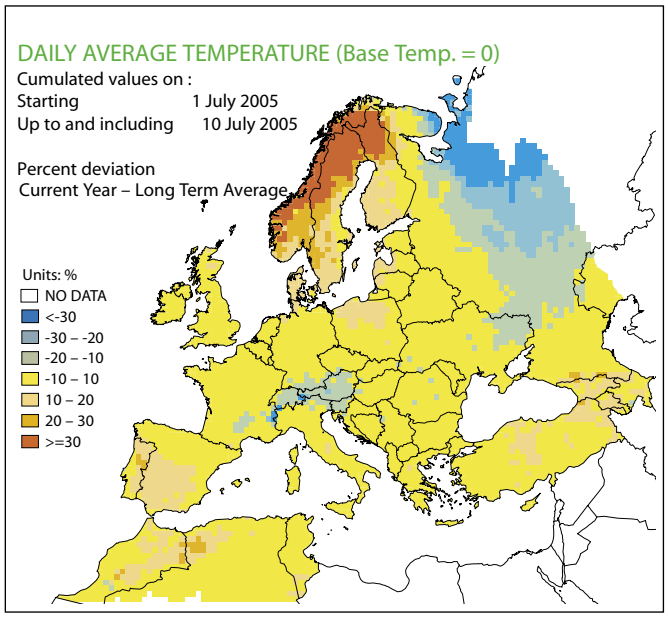


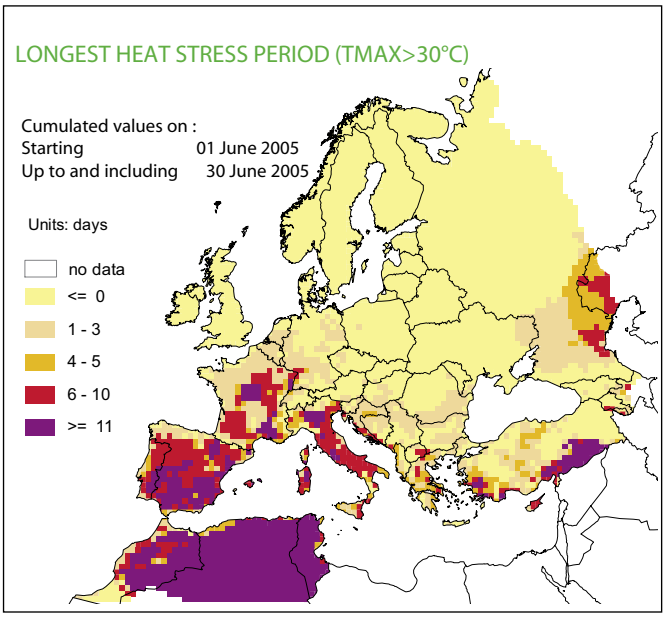
Ten-day rain maps — 1 June to 10 July 2005

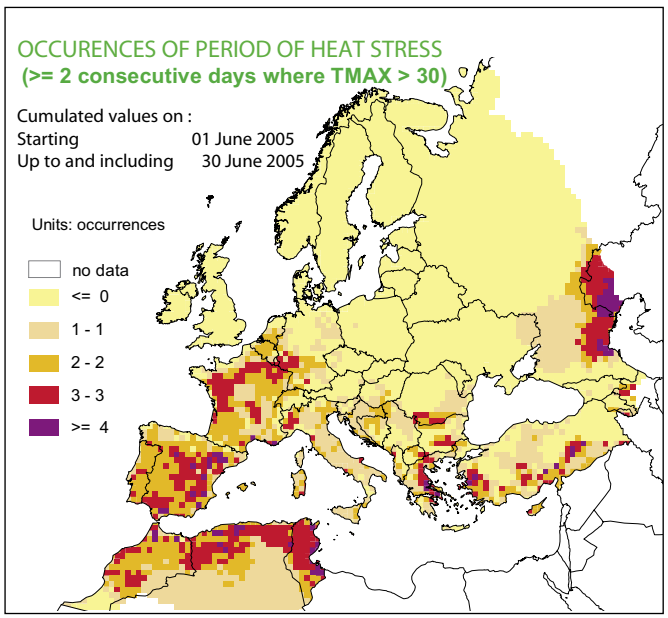




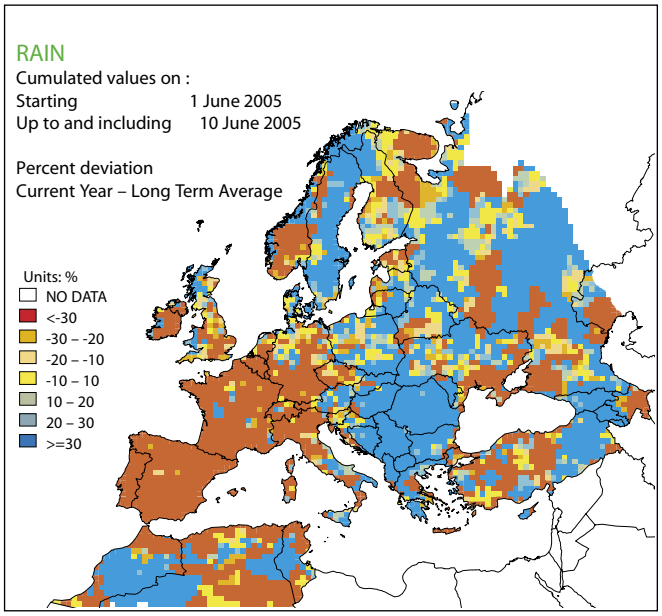


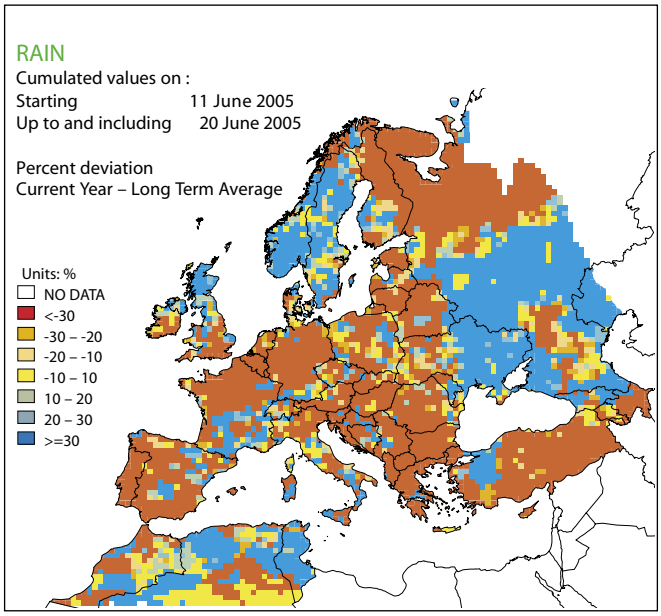


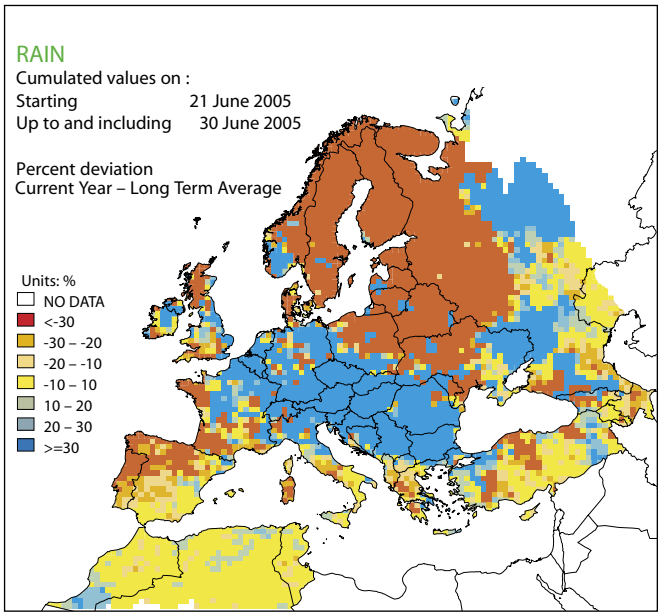


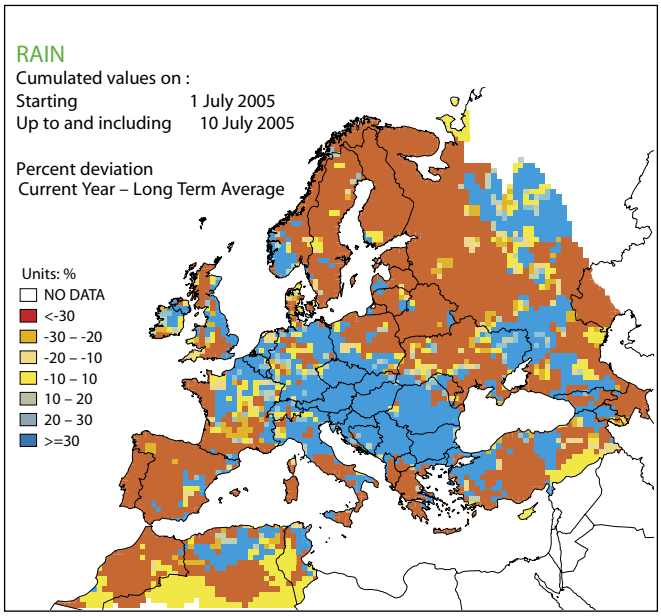


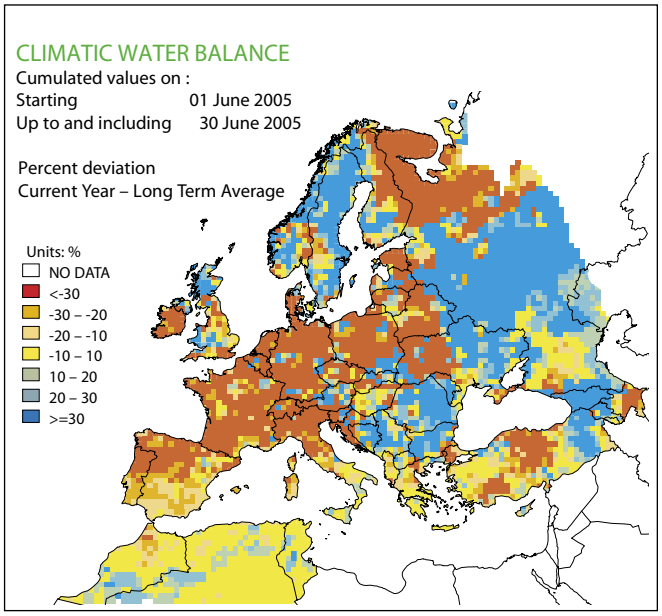
Ten-day temperature maps — 1 June to 10 July 2005

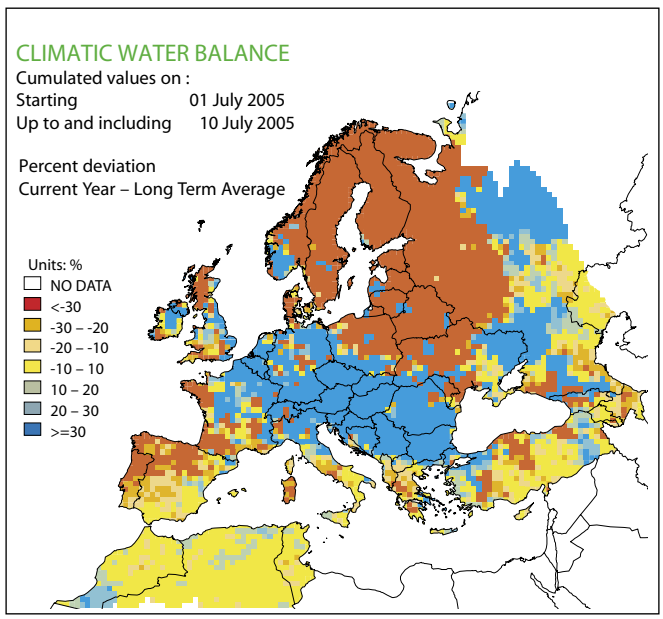












Spot-vegetation satellite analysis

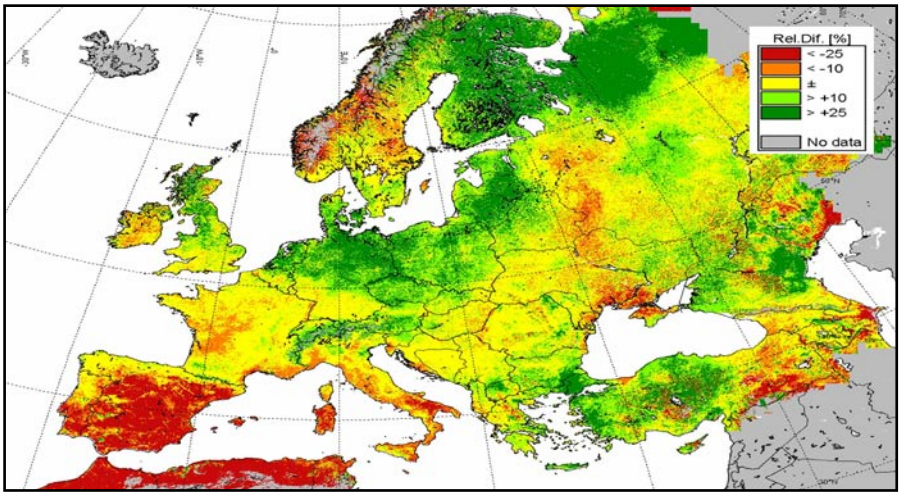
Map highlights: Strong negative effects for Spain and Portugal due to the drought. Slightly hampered in France

The map visualises the dry matter productivity (DMP) for the month of June compared with the long-term average for that month. Red areas such as large parts of Spain and Portugal show relatively negative differences in productivity of more than 25 %. Germany, the Netherlands, Denmark and the Baltic States reveal a DMP for the month of June well above the long-term average indicated with green values. For large parts of Europe values oscillate between plus and minus 10 % of the long-term average and show a normal behaviour for that stage of the development cycle. Here either normal climate conditions have dominated the period or less optimal conditions have not yet influenced the vegetation development severely.

According to this map the situation for Greece (except central Greece) and Turkey has improved, whereas in our last bulletin it was alarming from the point of satellite imagery interpretation, but there was a significant improvement in climatic conditions, evolving from a dry and hot spring, with abundant rains in June and temperature normalisation.

CNDVI profile highlights: Poor crop growth vegetation cycles for the Iberian peninsula reach maturity stage at a low level

The crop growth cycles as interpreted from satellite imagery cover the whole range from optimum conditions in central Europe to insufficient conditions for large parts of southern Europe hit by the drought.



DMP, relative difference to the long-term average, June 2005

The crop growth development in **Andalusia (Spain),** which we followed almost over the complete cycle approaches an end at a very low level as a consequence of the drought.

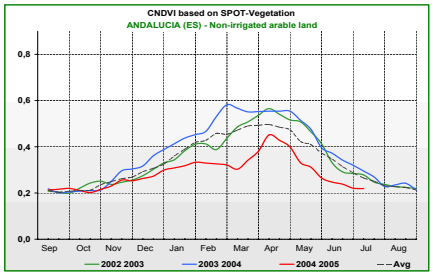
Suffering also from dry conditions, but at a less severe stage, the NDVI profile of **Poitou-Charentes (France)** shows a normal vegetation cycle slightly above the average with no particularly noticeable problems from March to the end of May. But as the NDVI values dropped sharply below the average within the maturity phase from June onwards the good yield potential might be not maintained.

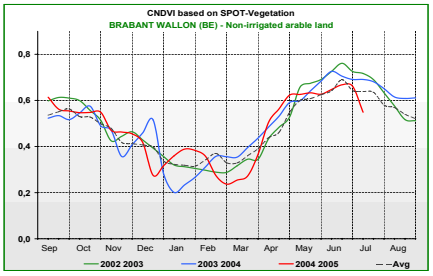
For **Walloon Brabant (Belgium)** the biomass development has been less good. Showing a good start into the season the vegetation development slowed down from May onwards, when actually a further vegetation boost could have been expected followed by an anticipated sharp entering into the senescence phase below the average. Here the negative climatic conditions seem to have influenced the biomass to a greater extent.

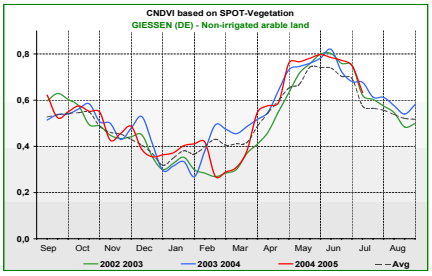
In accordance with the positive yield expectations for **Germany** the profile of **Giessen**, which was presented as well in the last bulletin reflects an optimum vegetation growth cycle with a broad summit at a high NDVI level indicating vivid biomass development followed by a timely start of the senescence phase.

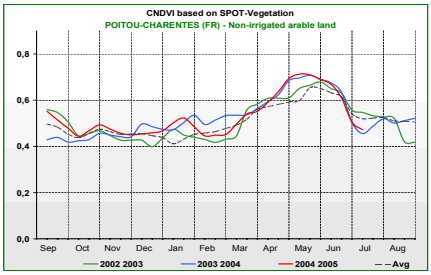
Despite the sometimes negative climatic conditions, especially rain deficit, the NDVI profile for **Piedmont (Italy)** is oscillating around the average profile, and biomass development is recovering since May where almost no vegetation growth had been observed.

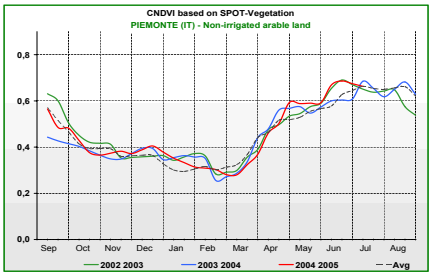
The profile of **Thessaly (Greece)** is well advanced; vegetation development had been slightly lower than in the previous two years, but still above the average for the rising phase of vegetation development. The senescence phase started earlier and was followed by a sharp decrease of NDVI values dropping below the average and pointing to less optimal conditions.

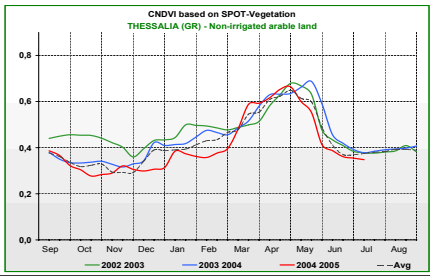












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