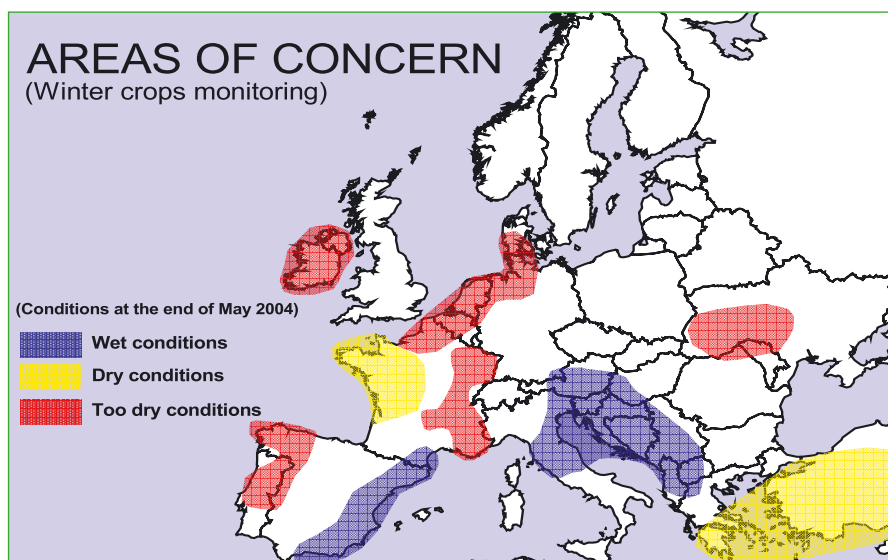


Persistent dry conditions in Portugal and Rhone valley



MARS yield forecast at European level

CROPS	EU-15 yield (t/ha)					EU-25 yield (t/ha)		
	2003	2004	% 04/03	Avg. 5 years	% 04/Avg.	2003	2004	% 04/03
Cereals (total)	5.1	5.7	<i>10.4</i>	5.5	3.1			
Soft wheat	6.2	6.8	<i>9.8</i>	6.5	3.99	5.5	5.8	<i>5.5</i>
Durum wheat	2.3	2.8	<i>19.6</i>	2.4	15.32	2.3	2.8	<i>19.6</i>
Barley	4.4	4.6	<i>4.4</i>	4.6	1.58	4.1	4.3	<i>4.5</i>
Grain maize	7.6	8.9	<i>17.5</i>	8.8	1.25	7.0	8.1	<i>15.4</i>
Other cereals (1)	3.7	4.0	<i>8.9</i>	4.1	-2.59			

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

Sources:

2003 yields come from Eurostat Cronos

2004 yields come from MARS crop yield forecasting system

Contents

Climatic overview (May 2004)	1
Agrometeorological highlights at EU-25 level	2
Agrometeorological highlights by region of interest	2
EU-25 countries	2
Central European countries and Turkey	8
Eastern countries and Russia	8
Maghreb	9
Crop maps	10
Ten-day rain and temperature maps	11
Spot/vegetation satellite analysis	12

Climatic overview

The delayed arrival of the Azoreans' anticyclone within the Mediterranean Basin gave rise to unstable weather conditions in the Basin, associated rainy events and lower than average conditions. In contrast, the northern countries experienced unseasonably milder temperatures, high solar radiation and relatively low cumulated rains.

Temperature: generally fresher than average in eastern and central countries, Germany, the Balkans, Greece, southern Italy, Sardinia, southern Spain and Maghreb; in contrast, the UK, Ireland, Denmark, the Scandinavian Peninsula, Russia and Turkey experienced above average temperatures.

The highest thermal deficits from the long-term average were recorded in Byelorussia, northern Ukraine, eastern Poland, central Germany, the Balkans and Maghreb, where the negative differences of the cumulated active temperature (base temperature 0 °C) exceed 50 to 60 °C. In these areas the thermal deficits that occurred in May almost annulled the surpluses accumulated from the beginning of the year. In contrast, the warmer areas in May (namely Ireland, Scotland and Norway) received a surplus estimable at around 40 to 50 °C, which increased that which had accumulated in the previous months.

During the first dekad of the month, western Europe and the Mediterranean Basin were characterised by much lower than average temperatures (in northern Spain and southern France the average temperatures were also 6 to 8 °C below the average); conversely the Baltic countries, Scandinavia and central Turkey experienced higher than normal temperatures. In the second and third dekads, the synoptic circulation was completely inverted because of a northern cold air flux coming from Finland towards the central Mediterranean Basin: in Ukraine, Byelorussia, Romania and the Balkans the temperatures fell to 5 to 6 °C below the climatic average.

Publication issue

The second printed MARS Bulletin for the 2003/04 agricultural campaign covers the March–April agrometeorological conditions.

It makes a synthesis of the major issues pertaining to:

- growing conditions for winter crops;
- sowing conditions for summer crops.

Previous related analyses available:

- **Conditions at sowing** — beginning of November 2003 (Vol. 11, No 6)
- **November–December 2003 climatic update**
- **Winter crops conditions in January–February 2004** (Vol. 12, No 1)
- **Winter crops and spring sowings in March–April 2004** (Vol. 12, No 2)

Contributions

The MARS Bulletin is an EC publication

(JRC/IPSC/AGRIFISH, Head of Unit: J. Delincé).

Editor: G. Genovesse.

Analysis and reports from AGRIFISH Unit:

G. Genovesse, C. Lazar, F. Micale, A. Royer, I. Savin.

Reporting support: C. Aspinall (JRC/IPSC/AGRIFISH).

Data production: M. Bettio, S. Orlandi (JRC/IPSC/AGRIFISH).

Alterra (Nij/Vito) (B)/Meteoconsult (Nij) Consortium.

Printing and diffusion: Publications Office, Luxembourg

MARS Bulletin reports are available at:

<http://agrifish.jrc.it/marsstat/bulletin/2004.htm>

<http://agrifish.jrc.it/bulletin/Europe>

MARS Agrometeorological web database is accessible at:

<http://www.marsop.info>

For any questions contact the editorial staff at: Mars-stat@jrc.it

Fax (39) 03 32 78 90 29 — Tel. (39) 03 32 78 50 86

JRC - IPSC, T.P. 266 — I-21020 Ispra (VA), Italy

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 1975–2003.

The CNDVI is an unmixed normalised vegetation index on the base of Corine land cover mainly 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.

Legal notice: Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the information.

A great deal of additional information on the European Union is available on the Internet.

It can be accessed through the Europa server (<http://europa.eu.int>).

Luxembourg: Office for Official Publications of the European Communities, 2004
© European Communities, 2004

Reproduction is authorised provided the source is acknowledged.

Printed in Luxembourg: Publications Office, Luxembourg

PRINTED ON WHITE CHLORINE-FREE PAPER

Next issue

Vol. 12, No 4 — 2004: June 2004 analysis.

Thermal conditions influenced the development of the active crops: in Spain the development was again accelerated, after the reduction that happened during the last part of April, towards more normal values. In England all the winter crops continued in the pronounced acceleration of development that had taken place since March. Byelorussia experienced a significant reduction of development.

Rainfall: good water supply in southern areas; possible excessive rain in north-west Italy. Relatively dry in the Baltics, Sweden, Finland, Denmark, England, northern Germany, northern Spain, Portugal, southern France, southern Turkey and western Ukraine.

Abundant rain fell on central and western Mediterranean areas (on average around 80 to 100 mm equivalent to 150 to 200 % above the average for the period) still increasing the soil water reservoirs for the last reproductive stages of development of winter cereal (ripening and grain filling).

Some intense showers occurred in north-western Italy and local and temporary excessive conditions were likely.

In general, the rains were concentrated in the first dekad, interesting the whole continent (except Batiks, southern Portugal and France, Finland and Sweden). In contrast, the second dekad was characterised by generally dry conditions and rains marginally interested only southern Spain, northern Africa, the Ionian Sea areas, Bulgaria, eastern Turkey and the Ukraine.

In the last part of the month, more rain fell on Spain, northern Africa, Austria, the Balkans and eastern countries.

Generally speaking, agrometeorological conditions were favourable both for the Mediterranean countries, which received sufficient water supplies for the remaining winter crops, and also for the continental and northern areas, which received more solar radiation and active temperatures, useful for increasing the general crops' biomass.

Highlights at regional level

EU-25: the cereal harvest, is still expected to more than recover last year's reduction as a consequence of the general mild favourable weather: now some dry areas in France and northern Europe will need some rain in the next days to avoid deterioration of cereals entering reproductive stages and to fill the water reserves for summer crops.

At EU-25 level the soft wheat yield is still expected at 5.8 t/ha (+ 5.5 % compared with 2003) resulting in an increase in production of about 11 million tonnes. Barley yield will increase at 4.3 t/ha (+ 4.5 %) and maize at 8.1 t/ha (+ 15.4 %).

At EU-15 level, total cereal production is now expected to be about 210 million tonnes (+ 3.8 % above the average of the last five years), which is an increase of more than 20 million tonnes compared with the previous year's final result. The increase in yield for the total cereal class remains at about 10 % (from 5.1 t/ha to 5.7 t/ha). For the specific classes at EU-15 level the expectations are: soft wheat yield 6.8 t/ha (+ 9.8 % compared with 2003 and + 4.0 % compared with the last five years' average); durum wheat 2.8 t/ha (+ 19.6 % compared with 2003 and + 15.3 % compared with the last five years' average); barley 4.6 t/ha (+ 4.4 % compared with 2003 and + 1.6 % compared with the last five years' average).

As a whole, May temperatures were recorded within normal values, or slightly below, keeping the crop development within range. Thus, this results in a delay compared with the previous year (see maps). At the end of May, wheat was simulated at ripening/flowering in southern Europe, flowering/heading in France, the UK and Germany and at stem elongation eastward.

Rainfall was abundant in most of the southern areas, keeping a high potential for durum wheat and grain maize, while it was below average in Portugal, northern Spain, France, Ireland, northern UK, Benelux, Denmark and the Czech Republic.

The water balance calculated since the beginning of April is now showing a strong deficit in Portugal, northern Spain, eastern and south-eastern France, western Ireland, Finland and the Baltic countries, Denmark and south-western Germany. Summer crops planted in light soils could start to be affected. Some rain is expected during the first days of June and at the beginning of the second dekad of June in France, Benelux and Denmark; this should partially relieve the dry spell.

Highlights by region of interest

EU-25

France: dry conditions from the second dekad of May

The **temperatures** were lower than average at the beginning of the month and then equivalent to the norm. Despite some fluctu-

ations the temperature continued to increase globally.

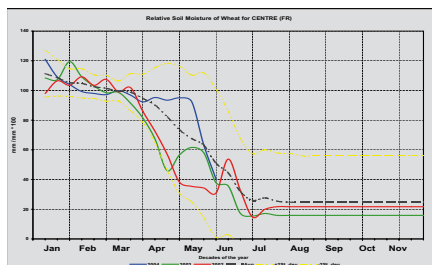
Higher temperatures were recorded in the south-west with a maximum of 30 °C.

After higher precipitations than average during the first dekad of May (except for the Rhone valley) **rainfall** remained much lower than the seasonal value for most of the country. The regions from Alsace to Provence-Côte d'Azur did not recover from the previous deficit; with over 50 mm being the highest absolute deficits recorded in Auvergne and the Rhône valley.

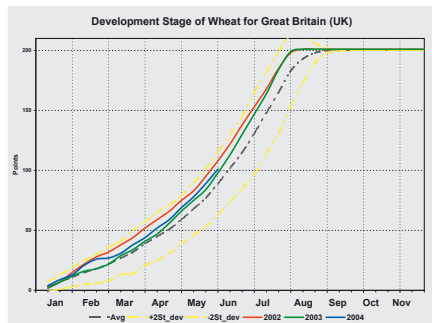
Wheat

Winter wheat reached the flowering phase at the end of May for most of the country except in the northern areas, where the crop was still at the heading stage. All the plants followed the normal rhythm of development.

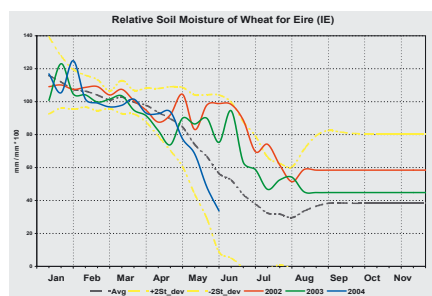
The soil water reserve was drastically reduced from the second dekad of May. It was equivalent to slightly lower than normal at the end of the month. Not yet critical for the yield potential, the further precipitations should determine replenishment of the water reserve and assure an optimal crop development.



advanced development compared with the average. In effect, in May from the second dekad the active temperatures (above 0 °C) were even 5 to 6 °C above the climatic average, and all the crops reacted, increasing the rate of development. But, these conditions were coupled with a clear sky, practically an absence of rain, and a higher level of radiation.



As a consequence, the plants capitalised well on the favourable conditions with high potential yields (especially in Ireland), but the soil's water content was drastically depressed (the evapotranspiration also presented higher than average cumulated values) and the actual estimated yield cannot be maintained without a consistent water supply.

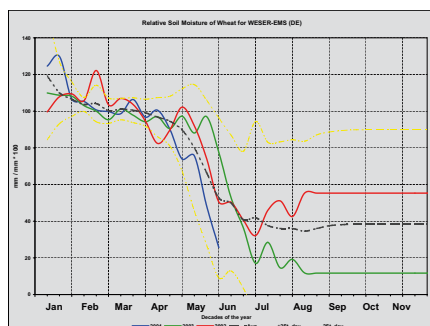


Unfortunately, the preliminary data of June and the weather forecasts show no significant rain over central and southern UK in the first dekad of June, with likely impacts on final yields. Ireland should receive better water supplies.

Germany: generally favourable conditions, with some dry areas

The temperature fluctuated from cold at the beginning and the end of May to warm during the second dekad of May. As a whole it should have slowed down the vegetation growth.

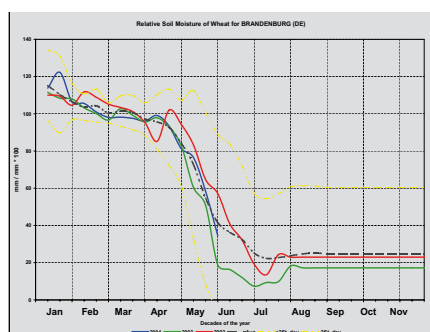
After abundant precipitation for the season during the first dekad of May the rainfalls remained below the average up to the end of May. The highest total rainfall was recorded in Freiburg with more than 150 mm and the lowest was in the Weser and Brandenburg with 4 to 20 mm.



Wheat

At the end of May, winter wheat reached the heading stage all over the country. The colder than average temperature slowed down the crop growth, which reached the normal phase.

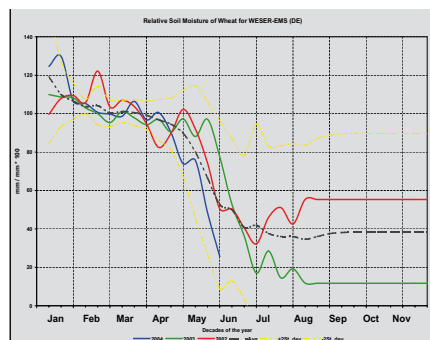
The crop was not affected by the important reduction of the soil water reservoir that went down from the high value at the beginning of the month to the average level. Some areas, such as the Weser and Brandenburg, reached lower soil moisture than normal and further good rainfalls are necessary.



Rapeseed

Rapeseed continued the flowering stage and the ripening stage started punctually. Ahead of normal development at the beginning of May it slowed down to the normal phase of development by the end of the month.

As is the case for winter wheat, rapeseed has not yet been affected by the low precipitations. Despite the reduction of the soil water reservoir from the second dekad of May, its level has remained close to normal. However, the north-west and north-east need further rainfall to compensate for their lower soil moisture.



Spring crops

The good precipitation of the first dekad of May should have allowed a normal spring crop installation that should not have suffered from the low rainfall of the remaining period.

Further rainfall will, however, assure an optimum crop growth.

Maize

During the main sowing period abundant rainfall affected field activities, resulting in possible planting delays.

The crop potential remains high and the **yield forecasts are quite good. Soft wheat** in Germany is foreseen with a yield of **7.1 t/ha** (+ 9.8 % compared with last year). For **barley**, the prevision is much better than last year, with **5.8 t/ha** (+ 14.3 %). Production of **rapeseed** should also be good, with a yield forecast of 3.1 t/ha (+ 7.4 %). For maize the forecast gives a yield of 8.8 t/ha (+ 19.9 %).

Austria: wetter than average

The average temperature was equivalent to slightly lower than average.

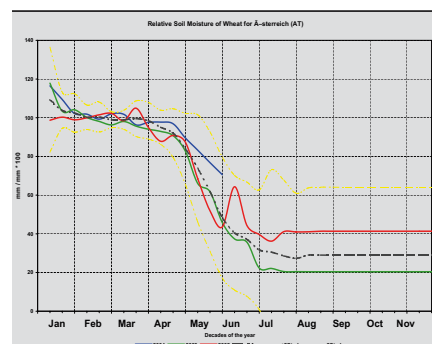
The whole country again experienced higher precipitation than average (> 30 %) particularly in the north-western area, where most of the arable land is located.

Winter crops

Winter wheat reached the normal heading stage for this period of the year. Due to the important precipitations, the crop had high water reserves in the soil (+ 30 % compared with the seasonal value). Some crops could have suffered from excess of water.

Rapeseed was in advance and reached the flowering stage at the end of April. The growth condition was normal despite the abundant precipitations.

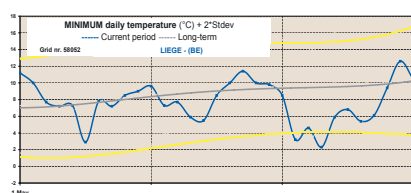
As for Germany, the crop forecasts in Austria remained at a good potential, with 5.0 t/ha (+ 12.5 %) for soft wheat, 4.2 t/ha (+ 1.0 %) for barley, 2.3 t/ha (+ 29.4 %) for rapeseed and 9.4 t/ha (12.4 %) for grain maize.



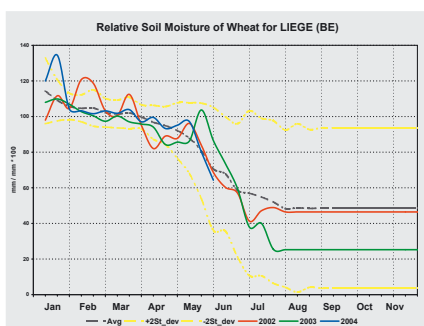
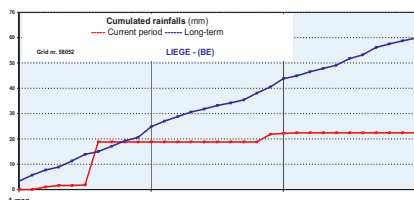
Belgium, Netherlands, Luxembourg

In Belgium, despite the reduced water supplies, no limiting conditions were present in May, and the soft wheat yield is expected at 8.6 t/ha (+ 0.9 % compared with 2003), barley at 7.3 t/ha (+ 10.0 %); in the Netherlands the reduced rains determined soft wheat yield at 8.3 t/ha (– 12.2 % compared with 2003) and barley at 5.9 t/ha (– 12.8 %). The yield estimations in Luxembourg are closer to the average: soft wheat yield at 6.0 t/ha (– 1.7 %) and barley at 5.3 t/ha (– 0.5 %).

Below average temperatures (especially the minimum values) and dry conditions characterised the period. Conversely, in northern Holland warmer than average conditions were recorded.



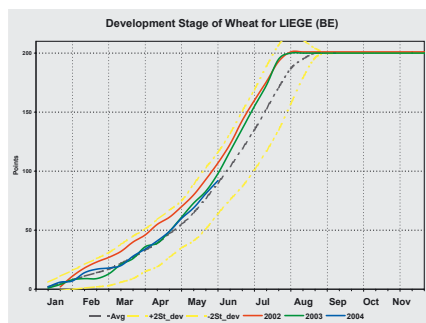
The most relevant phenomenon was anyway the reduced amount of rain that was particularly marked in the second half of the month in central–northern Belgium (Limburg, Antwerpen) and southern Holland (Noord-Brabant). As a whole, these areas received on average 30 to 60 % less rain compared with the climatic cumulative values. The soil moisture was strongly influenced by the distribution of the rain and, at the end of May, in the abovementioned areas, reached values significantly below the average for the period.



According to the future rain supply, these conditions could pose problems for winter cereal due to the future very sensitive stage of grain filling.

In contrast, if the relatively lower than average temperatures, on the one hand, scarcely influenced the development, considering the short water availability, on the other hand,

they beneficially influenced the active crops into reducing their water consumption.

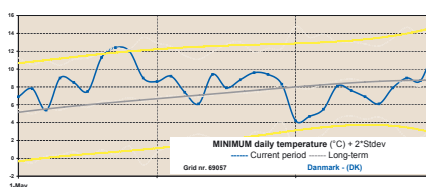


Because of thermal conditions, the spring–summer crops sown in April decelerated their growth but kept within the normal values for the period. The absence of rains created good conditions for the new sowing and for the rapeseed at flowering stage since the end of April. The future rain will be decisive for the positive results of the last sowings.

Denmark, Sweden and Finland: warm and dry conditions

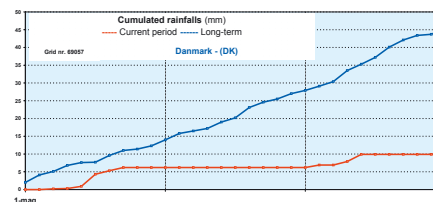
The possible impact of the lack of rain is not yet estimable and in Denmark the expected yields are now at: soft wheat 7.1 t/ha (– 0.4 % compared with 2003), barley 5.1 t/ha (– 5.1 %) and rapeseed 3.1 t/ha (– 6.1 %); in Sweden: soft wheat 5.8 t/ha (+ 4.4 % compared with 2003); in Finland: soft wheat 3.6 t/ha (+ 0.9 % compared with 2003).

Following a very mild April, in the first dekad of May the temperatures were also warmer than average (in southern Sweden the maximum values were 8 to 10 °C above normal for the period) and all the active crops were positively influenced: the winter crops in general presented a slight advanced stage of development (heading for cereals and end of flowering for rapeseed) compared with the average. In contrast, in the second dekad, a drastic change in the synoptic air circulation pushed the temperatures below the climatic average values.

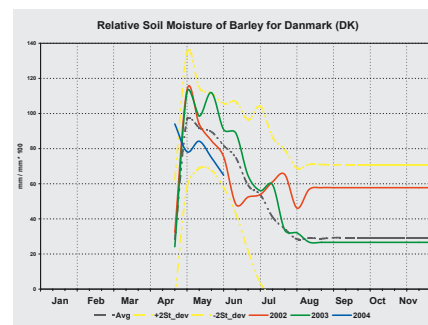
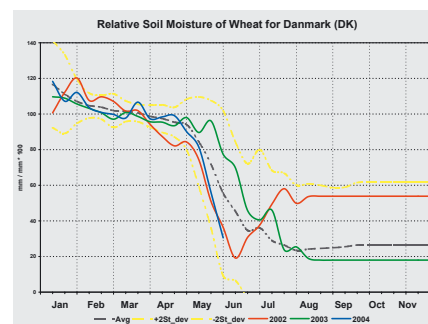


The rainfalls were scattered, distributed in space and time, but in general were under the norm. The worst conditions were recorded in central and western Denmark and Finland, where less than 50 % of the expected rains were received. In those areas the soil moisture was drastically depressed toward unusual values. Unfortunately, the preliminary data of June and the weather forecasts (up to 14 June) indicate only limited water supplies in the following

days. Consequently, considering also the soil characteristics of these areas, negative impacts on winter crop yields are possible.



On the other hand, the dry conditions were favourable in Finland for spring sowings and in Denmark for the latest spring sowings and rapeseed flowering.

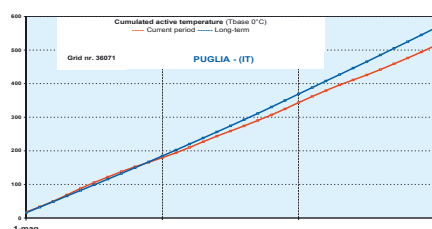
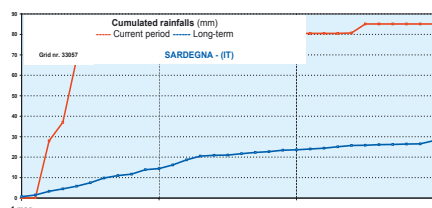


Italy: very good conditions in central and southern areas, more normal in northern areas

Wheat forecasts are revised upward: durum wheat is now expected at about 3.0 t/ha (+ 34.0 %), soft wheat 4.8 t/ha (+ 9.5 %) and barley 3.5 t/ha (+ 7.5 %). At the moment, grain maize is projected at about 9.5 t/ha (+ 28.0 %).

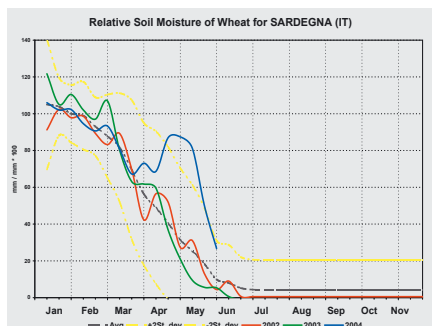
The Appennini Mountains marked a climatic barrier between the northern and southern meteorological conditions: in the Po valley temperatures close to normal characterised the whole period. The rains were concentrated (Lombardia, Piemonte) in the first dekad and in the same period presented high intensity (70 to 90 mm), causing possible local and temporary excess or erosion; the central and southern territories experienced lower than average temperatures for both minimum and maximum values (on average 2 to 4 °C below normal) particularly during the first and last dekads of the month. The south-

ern areas (except Sicily) received abundant rains mainly concentrated in the first half of May. The rains were particularly copious in Sardinia where the cumulated values passed 50 to 60 mm, equivalent to + 100 to 150 % compared with the long-term average for the period.

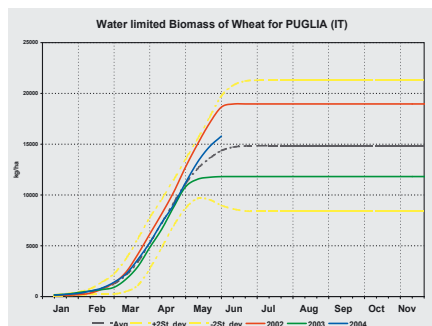


Winter crops and grassland

In central and southern areas, the relatively fresh temperatures and the rains' water supplies were particularly favourable for winter crops in the last phase of the productive stages (grain filling for cereals and rapeseed, tap-root growth for rapeseed), decelerating the development and raising the soil's water content. Grassland also matched positive conditions with a significant increase of the biomass.



The preliminary meteorological data of June indicates in south-eastern areas (Puglia, Basilicata) very intense showers during the first dekad that could have caused significant damage to winter cereals close to harvesting.

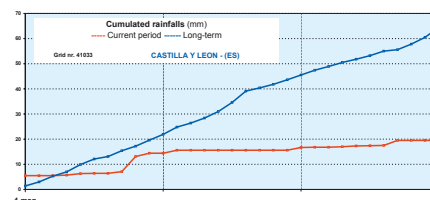
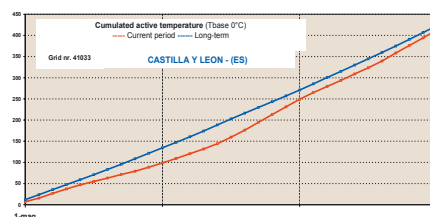


Spring-summer crops

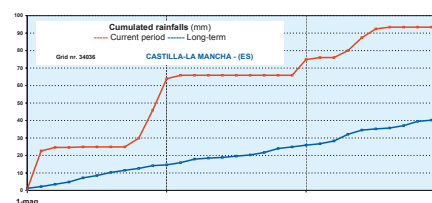
For this group of crops the agrometeorological conditions were favourable only for the last sown, which found good thermal conditions and adequate soil moisture. The rains during April and the beginning of May could be a serious obstacle for the early sowings. In fact, during the first days of May 150 mm of rain fell in central Italy, spread over 5 to 8 days with a peak of 40 mm in one day. In northern Italy a maximum exceptional daily rainfall of between 150 and 200 mm was observed during the first part of May.

Spain and Portugal: abundant rain and fresh temperatures in south-eastern Spain; still dry in northern areas and Portugal

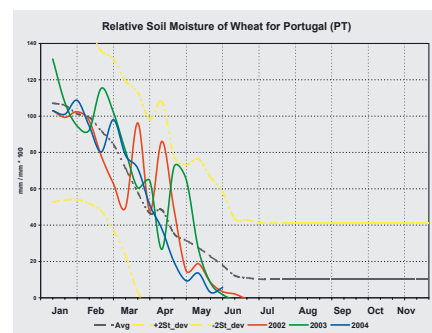
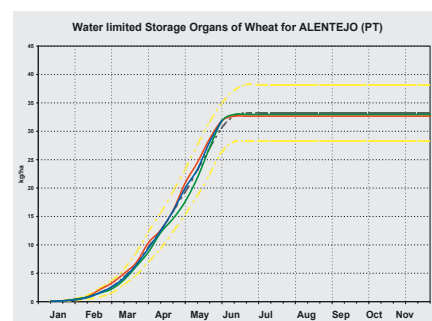
Despite a reduction due to the effect of a drying period in northern areas, good levels of yields are maintained in Spain: soft wheat at 3.2 t/ha (+ 5.2 %), durum wheat at 2.4 t/ha (– 3.7 %) and barley at 3.5 t/ha (+ 7.4 %). In Portugal the durum wheat is expected at 1.1 t/ha (+ 14 %) and soft wheat at 1.3 t/ha (– 5.7 %)



In May, the Iberian Peninsula was divided into two parts by a line connecting Algarve with the French border at Catalunya: the northern part experienced fresher than normal temperatures (on average 2 to 3 °C below the climatic values) and rain during the first dekad followed by more normal thermal conditions but drier than average (except Castilla y Leon); in contrast, in southern parts practically throughout the period temperatures were below average (in same cases the maximum temperatures remained 8 to 10 °C below the climatic values) and several rainy events occurred during the first and second dekads and were scattered during the last dekad, increasing more and more the rain surplus compared with the long-term average (+ 80 to 100 % from the beginning of April).

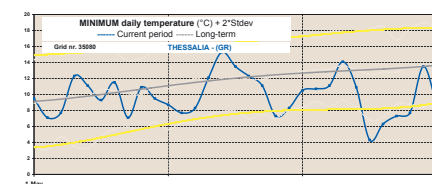


In the northern areas of Portugal a normal amount of rain fell during the first dekad and was followed by a dry period with practically an absence of rainfalls. In contrast, southern areas experienced a dry May until the beginning of the last dekad, when beneficial showers (30 to 35 mm) re-equilibrated the monthly water balance, but was insufficient to compensate the deficit cumulated in the previous period (– 30 to – 60 % from the beginning of April).



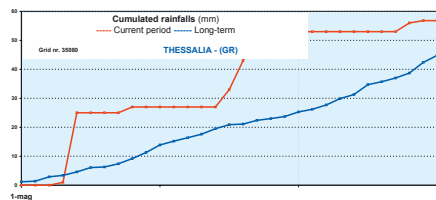
Greece: no limiting conditions

A yield value above 2003 is expected for soft wheat (2.7 t/ha, + 2.9 %), and for durum wheat the national result should be around 2.3 t/ha (+ 25.0 %) compared with the low performances of 2003).

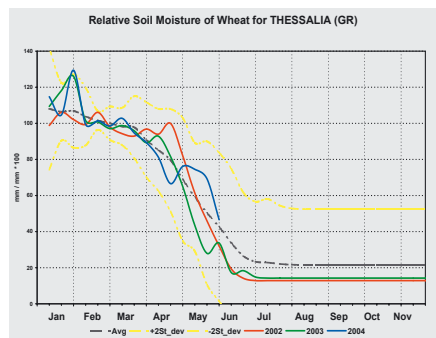
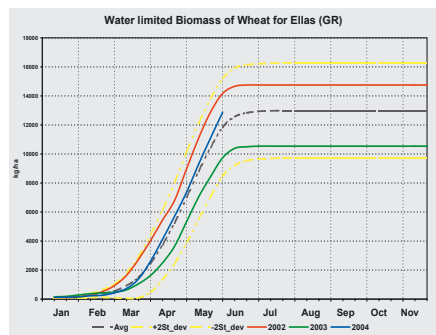


Normal temperatures and sufficient water supplies characterised the month considered. The temperatures were all over the country close to normal or slightly below; only in the last dekad was a noticeable reduction recorded. The rainfalls were well

distributed during the first and second dekads and the cumulated values were in many cases (central and eastern areas) above the climatic average.



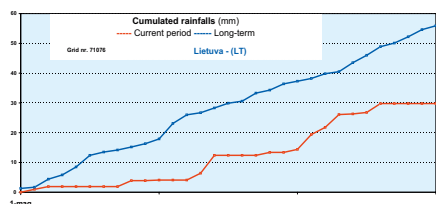
The rainfalls positively increased the soil water reservoirs both for winter crops during a very sensitive stage of development of winter cereals (flowering and ripening) and spring crops still in vegetative stages. The simulated crops parameters also show a positive impact on general crops' biomass which presented values significantly higher compared with the previous campaign.



Estonia, Latvia, Lithuania: close to normal crop status

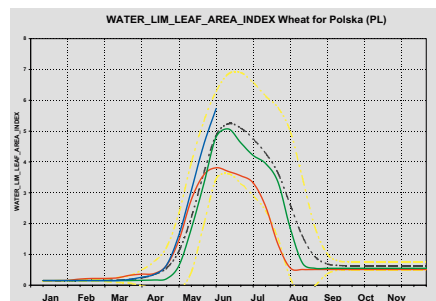
For Lithuania and eastern Latvia, the accumulation of the temperatures above 0 °C was below the value of the long-term average (– 15 %). Rainfall was lower than average. In the Baltic area, the relative soil moisture for wheat crops, which was below the normal level from April to mid-May but far above drought level, again reached the normal level in the last decade of May. Water limited biomass and the development stage for wheat crops were close to normal. Expectations for winter wheat yields are 2.2 t/ha for Estonia, 3.1 t/ha for Latvia and 3.8 t/ha for Lithuania and for barley the figures

are 1.9, 1.9 and 2.8 t/ha respectively. Yield estimation for oil rapeseed in Baltic countries is about 1.7 t/ha.



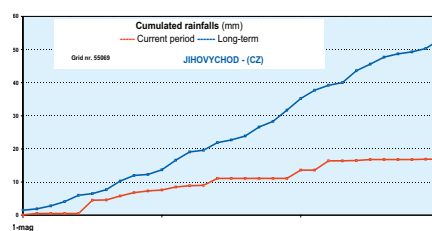
Poland: good vegetation condition

North-eastern areas of Poland experienced cooler weather conditions than usual. The northern half of the country received abundant rainfall, meanwhile in southern Poland, the weather was drier. Water limited above ground biomass for winter wheat exceeded the long-term average. Simulated leaf area index for the same crop was quite high. Relative soil moisture for winter wheat during May was higher than normal, close to the level of the previous year. The yield forecast is 3.6 t/ha for winter wheat and 2.9 t/ha for barley. Oil rapeseed development was close to normal at the end of May (it was in advance for almost all the vegetation season), and the weight of storage organs under water limited conditions was higher than the long-term average. For this crop the yield expectation is 2.2 t/ha.



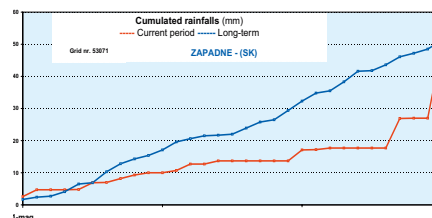
Czech Republic: decreasing soil moisture

Except for the north-western part of the country, the May rainfalls were lower than normal. The accumulated active temperatures were about – 50 degree/days lower than the long-term average. Simulated water limited biomass and development stage of winter wheat were close to normal values but in the eastern part of the country the relative soil moisture was decreasing during the month and if this tendency continues the grain filling will be affected. But, for the moment, the forecast is 4.2 t/ha. Forecasted yield for barley is 3.7 t/ha. Weight of water limited storage organs for oil rapeseed is higher than the long-term level but the accumulation process is not yet finished (forecasted yield: 2.3 t/ha).



Slovakia: drier in western Slovakia, wetter in the east

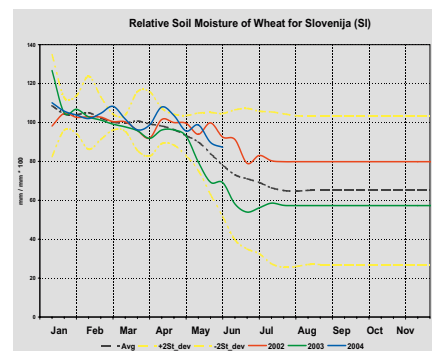
The weather was colder than usual and rainfalls were abundant in eastern Slovakia, but for south-western Slovakia only the rainfalls from the end of May improved the water balance. Water limited biomass and leaf area index for winter wheat and oil rapeseed were above the long-term averages. Barley growth and development were close to normal. Yields forecast for winter wheat and barley are about 3.1 t/ha.



Slovenia: crop development shows a small delay

The weather was colder than usual and drier in the east of the country.

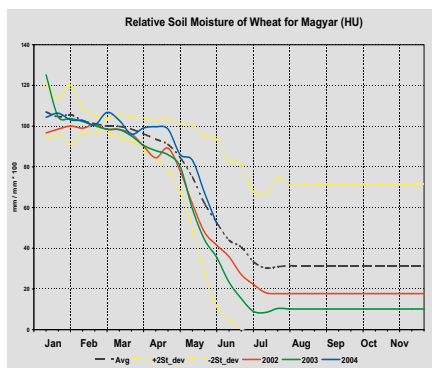
Both potential and water limited biomass for winter wheat are slightly below normal levels. The water limited weight of storage organs of the same crop is 13 % below the long-term average and the development stage shows a small delay. Relative soil water content was still above the normal level for May, mainly due to the water reserves accumulated in March/April. For winter wheat a 4.3 t/ha yield is expected, while 3.5 t/ha is foreseen for barley. Spring crop development shows a small delay. (The forecast for oil rapeseed yield is 2.3 t/ha.)



Hungary: close to normal crop status

Northern and western parts of Hungary were cooler than usual and precipitations were lower than the long-term average.

The development stage of winter crops was close to normal. The relative soil moisture of winter wheat crops was close to or above normal level and a similar evolution was simulated for water limited biomass. Spring crops development shows a small delay compared with the long-term phenological calendars. The forecasted yields are 3.8 t/ha for winter wheat, 3.0 t/ha for barley and 1.6 t/ha for oil rapeseed.

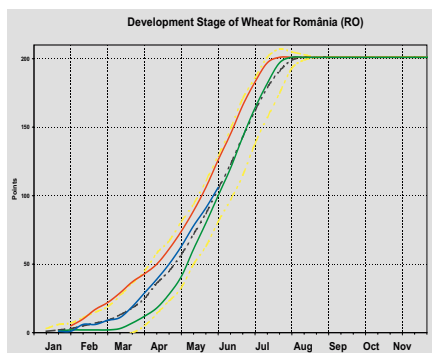


Central European countries

Romania: good development of winter crops in the south-east

Except for some cooler areas in western Romania, thermal conditions were close to normal. South and south-eastern parts of the country received some extremely useful rainfall.

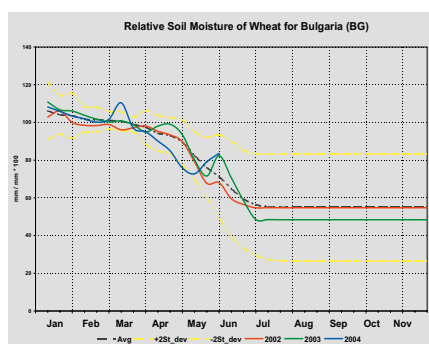
Development of winter wheat at the end of May was close to normal. Water limited biomass of winter crops was increased this year and, according to simulations, a 2.3 t/ha yield is probable for wheat, but if the weather conditions are very favourable during grain filling, this level may be exceeded. Relative soil moisture of maize crops was below the long-term average; meanwhile the sunflower crops presented a slightly better water balance. For all spring crops, the rainfalls expected for the first half of June will bring the soil moisture close to the optimum. The forecast for barley yield is 2.5 t/ha



Bulgaria: good yield expectations for winter crops

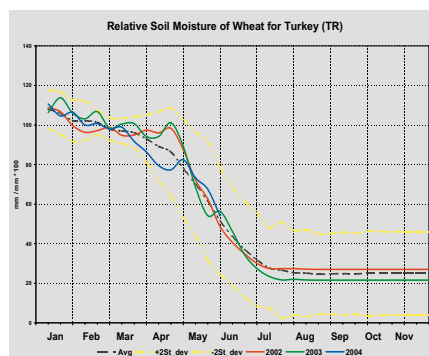
South-western areas of Bulgaria were cool and dry. Meanwhile the rest of the country was experiencing normal weather conditions and received increased rainfall.

The water limited biomass of winter wheat is above the long-term average (+ 9 %) and yield expectation is 23 % higher, the crop development stage being close to normal. Yield simulations are quite optimistic (+ 30 % from the long-term average) for northern and central Bulgaria. At country level, a yield of about 3 t/ha for winter wheat may be probable. The water limited biomass of barley was also increased (2.9 t/ha forecasted yield).



Turkey: close to normal crop status

Thermal conditions were close to normal for all the country and there was higher than normal rainfall in eastern Turkey; meanwhile in western Turkey the rainfalls were lower than the long-term average (– 30 %). Over the whole country, the water limited biomass of winter wheat is practically equal to the long-term average but the weight of storage organs is 11 % higher in the case of non-irrigated crops and 4 % higher for potential yield in conditions of a slightly advanced vegetation stage (+ 7 %). For this crop the relative soil water content remained above the long-term level during May.



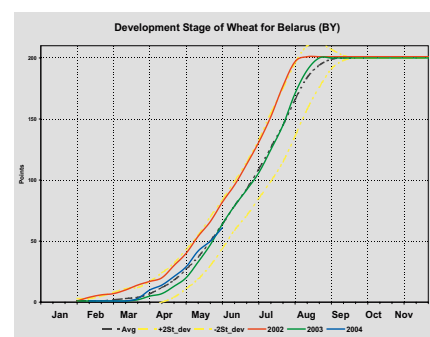
For barley, the relative soil water was above the long-term level for the first two dekads

of the month, and in the third dekad it decreased to slightly below this level (– 6 %). Water limited biomass for barley crops was higher than the long-term average (17 %), the development stage being only 3 % in advance. The forecast for winter wheat is 2.15 t/ha.

Eastern countries

Belarus: cold weather delayed development but no other problems detected

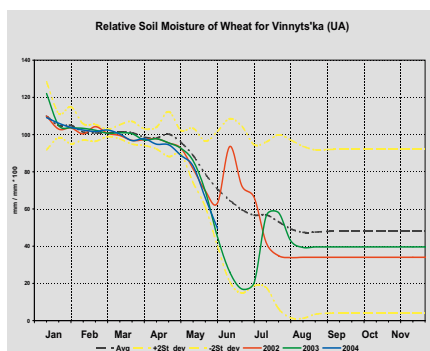
Occurrence of rains during the usual sowing period of spring barley in southern Belarus may delay this action. Simulations for winter barley show a better situation than the long-term average, especially in the western half of Belarus. The biomass of wheat crops from southern Belarus exceeds the long-term average; meanwhile in the north it remains at the long-term level.



Ukraine: unequal distribution of rainfalls; low soil moisture in limited areas in the south; normal development of wheat crops for the rest of the country

North-western Ukraine was cooler than the long-term average (– 15 %). The rainfalls were higher than the long-term average for some central areas and regions from the Black Sea coast. In other limited central and southern areas (like Vinnyts'ka) the precipitations were below normal (– 30 %) and this is reflected in the lower soil moisture (– 30 % from the long-term average, but slightly better than previous year). But for the rest of the territory the simulated relative soil moisture is above the long-term level.

Winter wheat development is close to normal. Simulated water limited biomass for winter wheat is continuing the tendency from the previous month, remaining above the long-term average level. At the end of May, development of foliar apparatus of the maize crops was delayed. The estimations with available data are suggesting a probable yield of up to 2.8 t/ha for winter wheat.

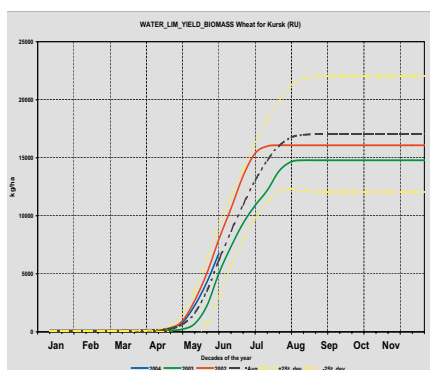


Russia: favourable conditions for winter wheat

The period under analysis is the time for winter crop tilling and shooting and the end of the summer crop sowing in all European regions of Russia.

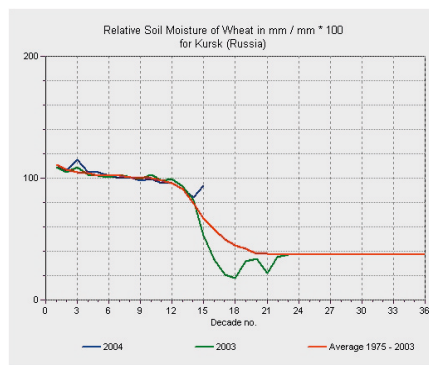
The air temperature during May 2004 was 2 to 3 degrees lower than normal, especially in the central and western regions, but it was not extreme for winter crop development.

The amount of precipitation at the beginning of May was low everywhere excluding the western region. Then low precipitation was observed in the Volga and northern Caucasus regions. A high amount of precipitation occurred at the western border of Russia. As a result, the amount of precipitation during May was 30 to 40 % higher than normal and than in the previous year in western parts of the Central and central Chernozemic regions, and in the northern part of the Rostov region. The amount of precipitation in the Volga and Urals regions, and in some regions of the northern Caucasus, was below the long-term average values.

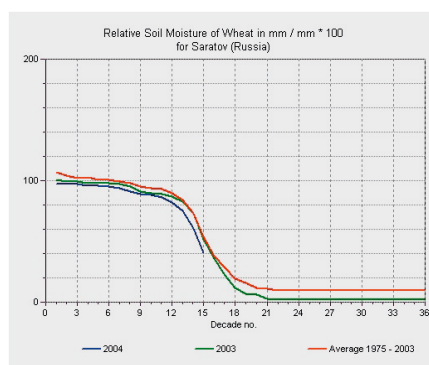


Relatively low air temperature and the high amount of precipitation led to good accumulation of water in the soil. As a result soil moisture content at the end of May was higher compared with the previous year in the central Chernozemic region and in the western part of the northern Caucasus, where the main sowing areas of the winter crops are concentrated. But more precipita-

tion in coming dekads could create problems with crop diseases, and the quality of the grain could be lowered.



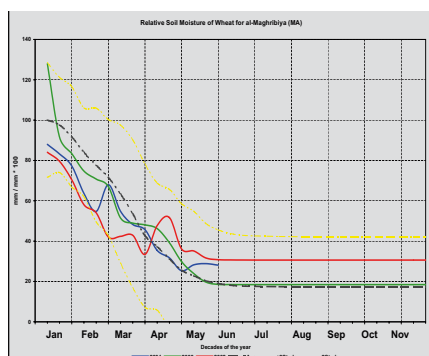
The meteorological conditions for summer crop sowing were good in practically all regions, except the Urals region, where the low amount of precipitation should slightly delay the sowing period.



Magrheb

Algeria: beneficial rainfalls

The precipitations were higher than normal all over the northern area. They contributed to replenishing the soil moisture and provided the required water for the ripening — maturity phase of the wheat. The yield elaboration should continue with optimal conditions.

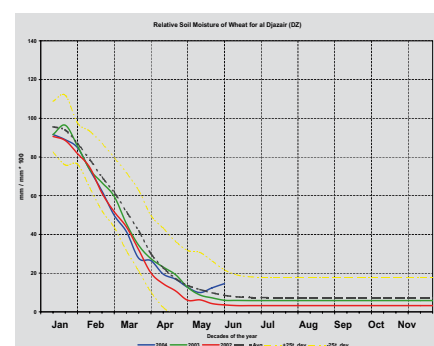


In March the rainfalls were abundant in the east and lower than the seasonal values in

the central and western parts. In April the precipitations were higher than average. This partially replenished the soil moisture, which was within a normal level. It benefited the winter wheat, which reached ripening stage in April. The yield is expected to be better than last year but lower than the average.

Tunisia: still good yield potential

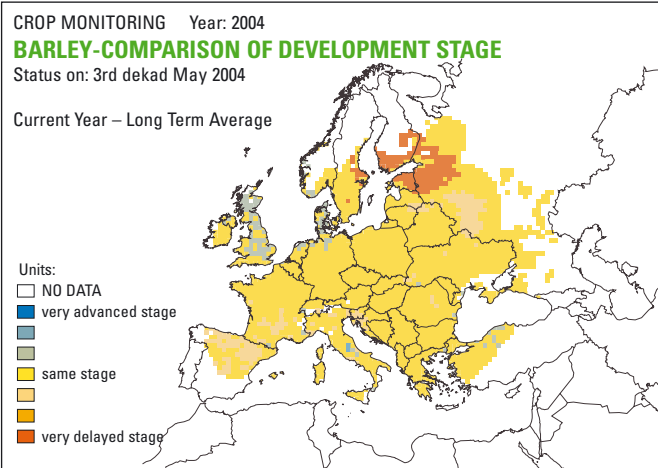
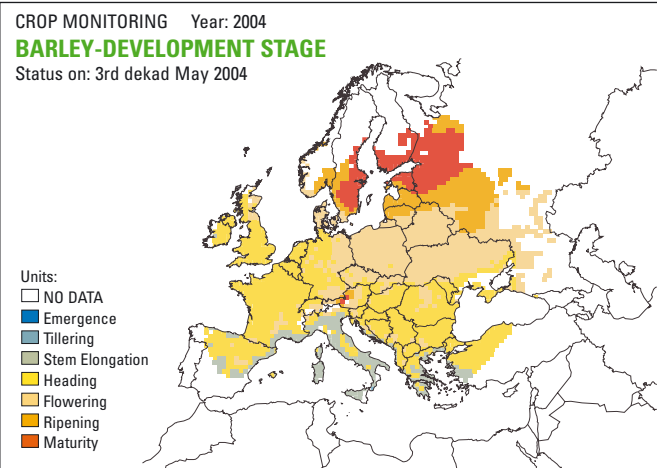
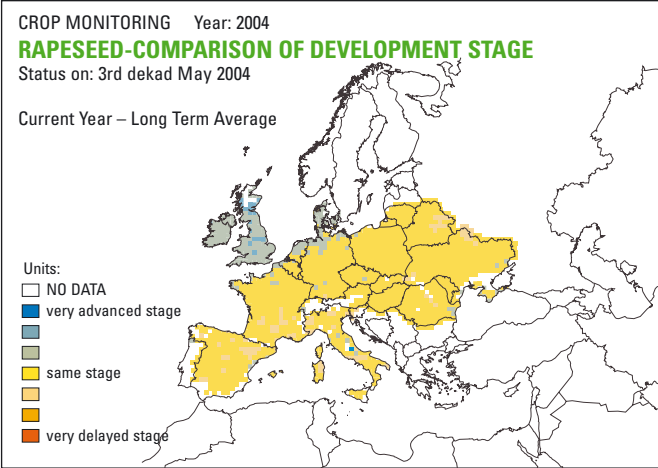
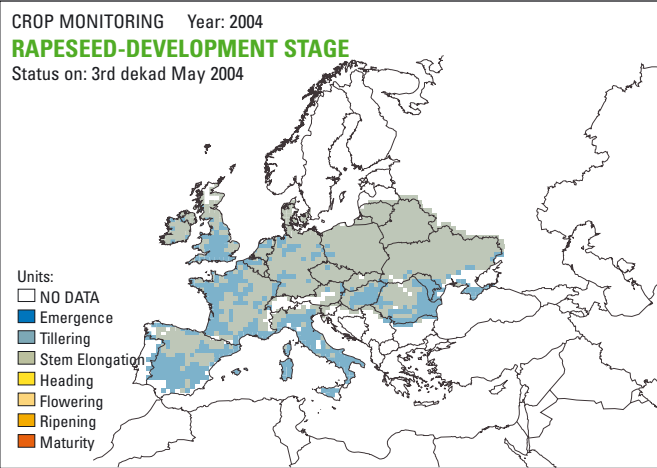
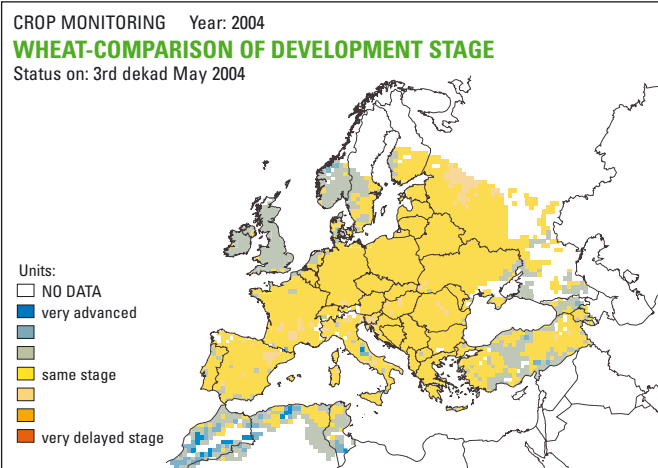
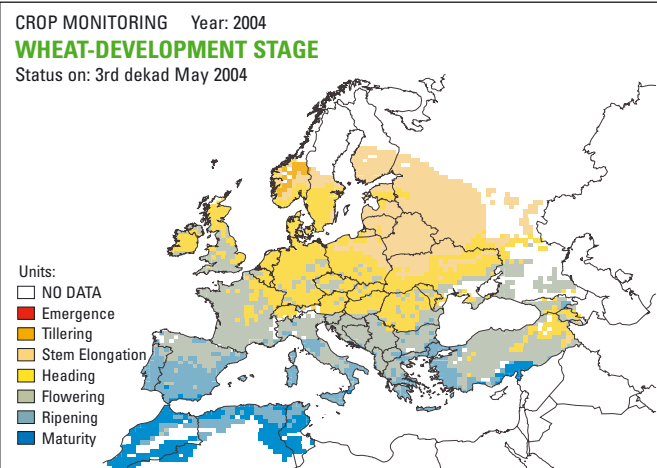
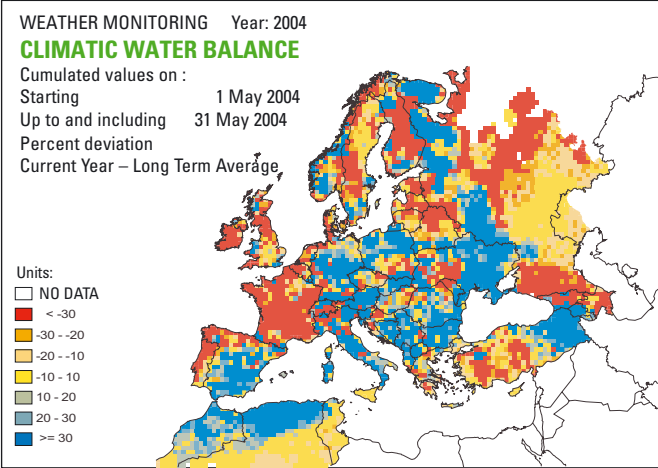
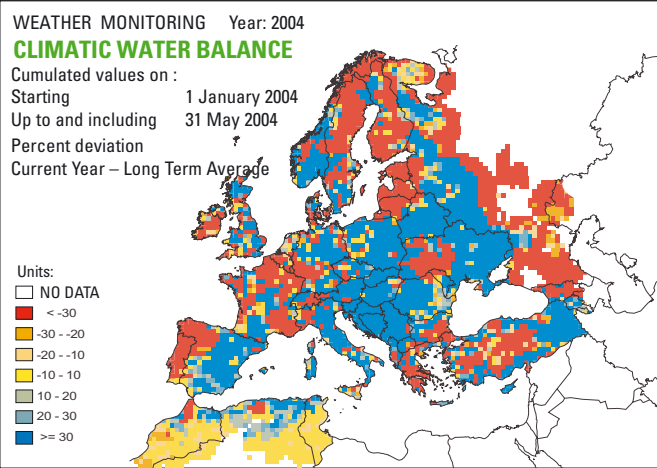
Tunisia experienced higher rainfall than normal in May. It contributed to replenish the soil moisture and benefited the wheat at ripening — maturity stages. The wheat should continue the yield elaboration in optimal condition with temperatures that are within the seasonal values.



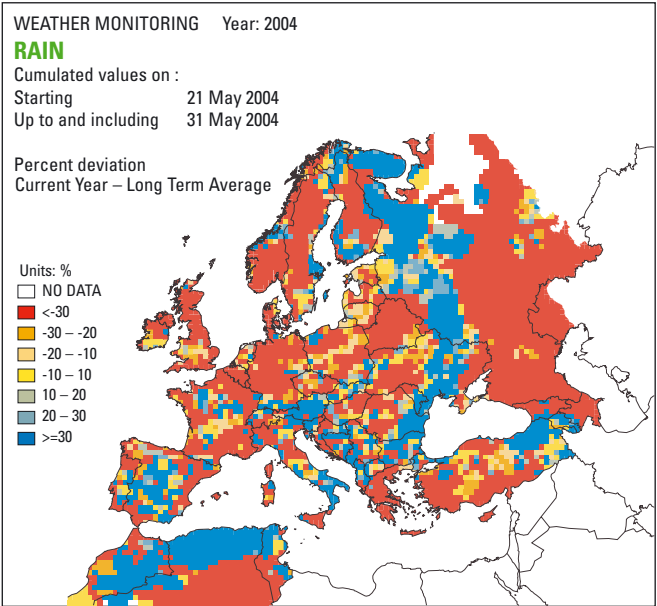
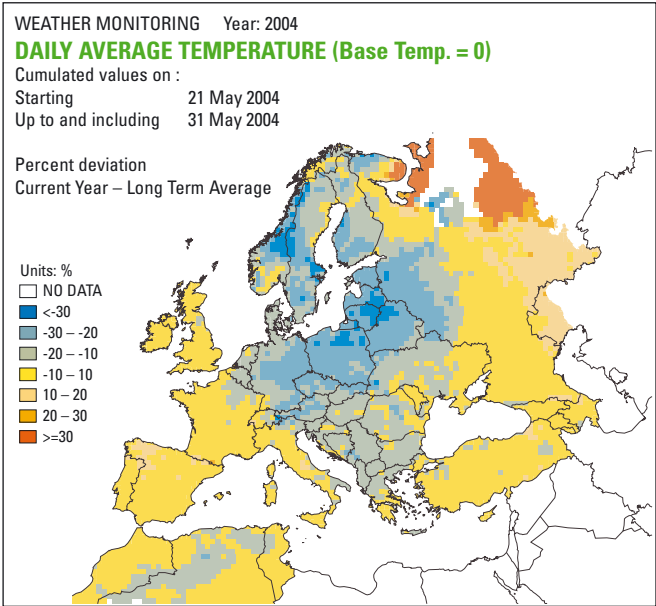
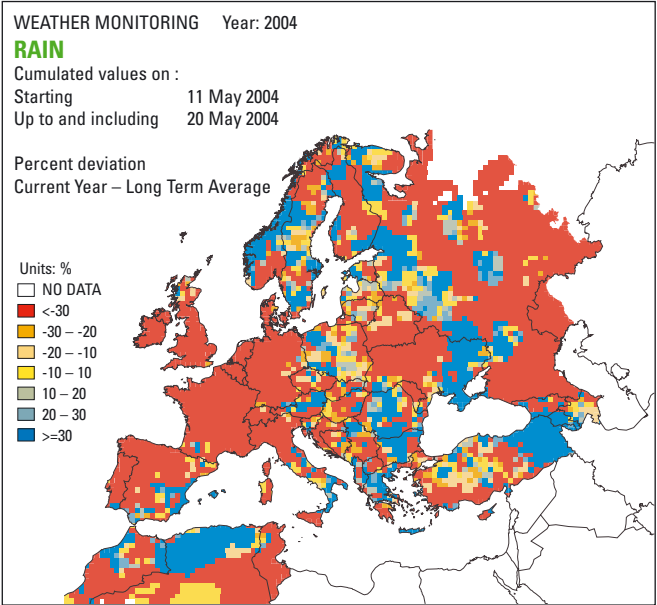
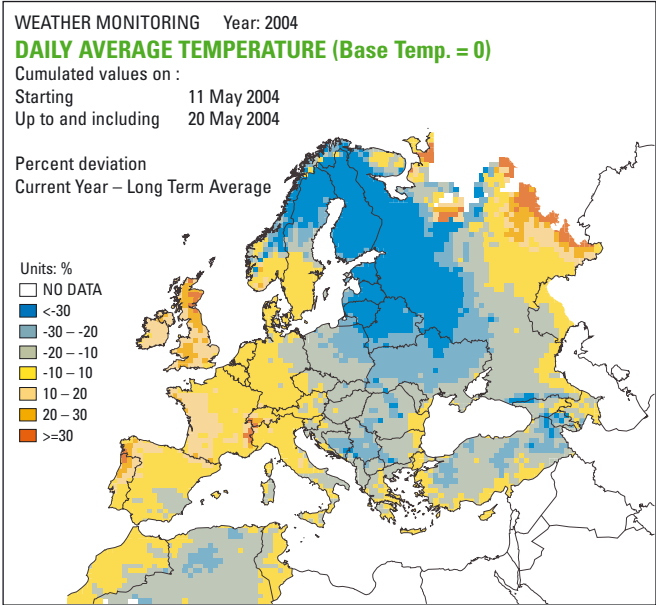
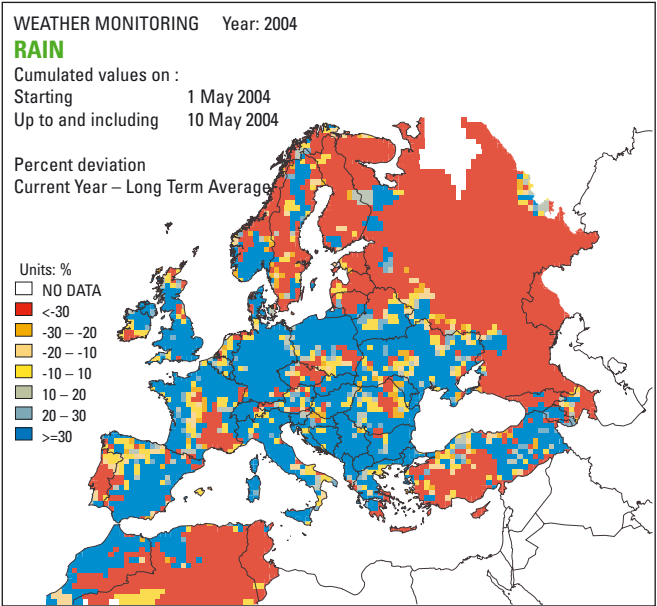
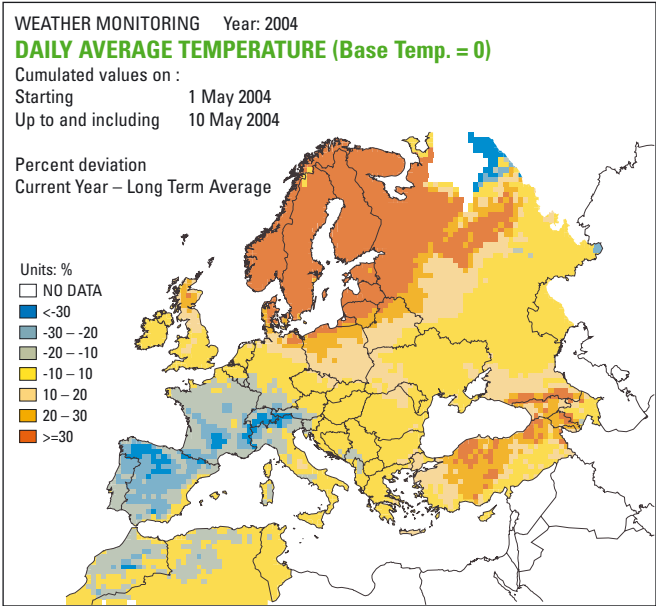
Morocco: wetter and colder than average

The country experienced higher precipitation than normal particularly during the first period of May. It should have a limited positive impact on the end of wheat maturity. The temperatures were below the seasonal value and should have slowed down the maturity: not the optimal condition for the yield elaboration.

Crop maps — May 2004



Ten-day rain and temperature maps — May 2004



Spot-vegetation satellite analysis

Map highlights

The NDVI image of May 2004, compared with last year, highlights in green the areas with better vegetation development. Spain, Maghreb, central and southern Italy, Sicily and, even more so, Sardinia, Greece, Bulgaria, Romania and Hungary are the main countries and regions where the conditions of development are better than the previous year.

CNDVI profile highlights: normal to good vegetation growth cycle for all southern Europe

Midi-Pyrénées (France) showed a general good vegetation growth with a better potential than average. The vegetation index reached its maximum earlier than usual.

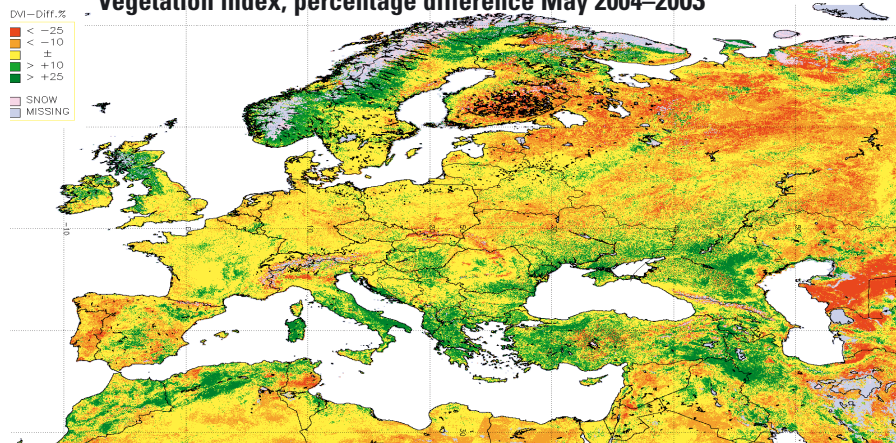
In Castilla y Leon (Spain), the senescence phase started within the normal period. The CNDVI profile showed a good biomass growth.

In Andalusia (Spain), the vegetation senescence is advanced and the curve indicated an excellent plant development promising a good yield potential.

In southern Portugal the drought started to be visible with a fast senescence phase with a shorter crop yield elaboration period.

In Puglia (Italy), the crop season appeared to have good potential. The vegetation remained at its maximum development dur-

Vegetation index, percentage difference May 2004–2003



ing a longer period than normal. The crops should start their senescence phase under excellent conditions.

In Sicily (Italy), the potential is lower than last year but better than average. The vegetation initiated its senescence phase for the final yield elaboration.

Greece showed a shift in the date of maximum biomass development that started the decreasing phase. The yield potential should be close to that of the 2001/02 campaign.

In Bulgaria, the vegetation was still growing and showed a better aerial biomass development than in other years. The conditions seemed to be optimal.

In Romania, the vegetation index profile was better than average and the previous year. The crop growth seemed to be made in very good condition. The crop yield potential remained at a high level.

In Hungary, the situation looked even better than in neighbouring countries. The vegetative phase reached its maximum development much easier than in previous campaigns.

In Morocco, after an earlier senescence, the crops had almost completed their cycle within normal conditions.

In Tunisia, the biomass production was higher than in previous years with a shorter cycle. The crops reached an advance stage of senescence under normal conditions.

