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Monitoring Agriculture with Remote Sensing Bulletin

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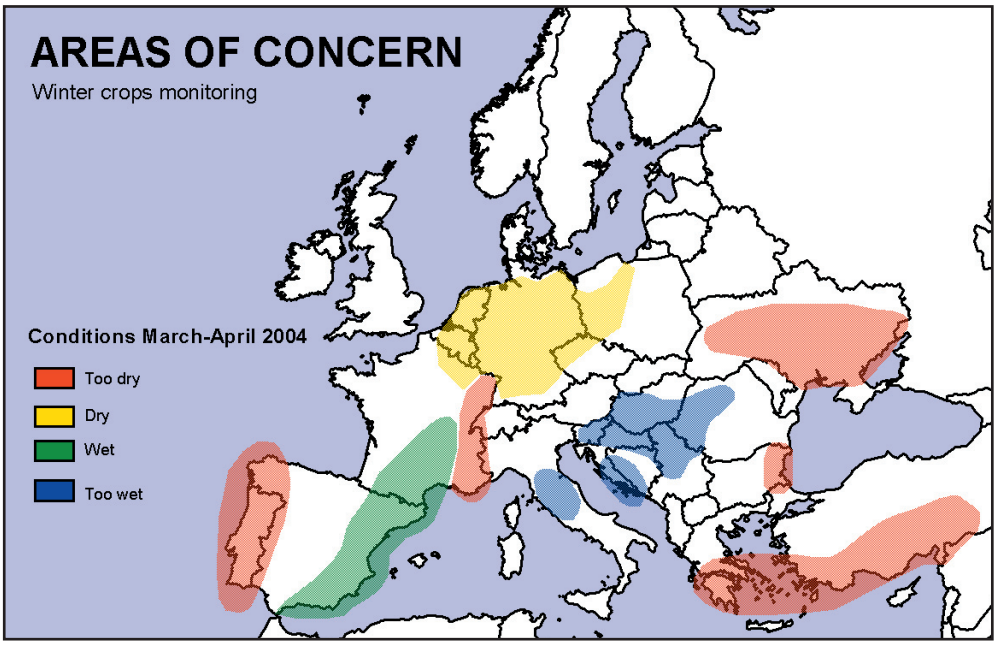
Situation of March - April 2004 Vol. 12 No 2

FAVORABLE CONDITIONS FOR WINTER CROPS, OVERWET IN CENTRAL ITALY AND BALKANS



MARS yield forecast at european level

Yield (t/ha)	EU 15					EU 25		
	2003	2004	%04/03	Avg 5years	%04/Avg	2003	2004	%04/03
Cereals (total)	5.2	5.7	10.3	5.5	4.0	-	-	-
Soft wheat	6.2	6.8	10.2	6.5	4.50	5.5	5.8	5.9
Durum wheat	2.4	2.8	15.6	2.4	15.34	2.4	2.8	15.6
Barley	4.4	4.7	5.8	4.6	2.93	4.1	4.4	6.0
Grain maize	7.9	9.1	15.1	8.8	3.05	7.3	8.3	14.1
Other cereals (1)	3.7	4.1	9.1	4.1	-0.83	-	-	-

Legend:
(1) Sorghum, rye, maslin, oats, triticale, mixed grain other than maslin, millet, buckwheat.
Sources:
Yield: 2003 EUROSTAT CRONOS, 2004 MARS Crop Yield Forecasting System.
Yield figures are rounded to 100 kg

Contents

Climatic overview

Temperature: above average in Eastern and Northern countries, normal on the western side of the European continent, below average in Iberian Peninsula.

The monthly temperature maps depict an evident east-west gradient: the Central-Eastern and Northern countries experienced active temperatures above the climatic average; between Austria and eastern France values close to the normal were recorded; westward from the line connecting Bretagne to Corsica, values below the average were measured.

The highest differences from the long-term average were recorded in Ukraine, Moldavia, Sweden and England, where the positive difference of the cumulated active temperature from the beginning of the year exceed 110-120°C; and in Spain (Aragon, Castilla y Leon) with a deficit around 80-100°C.

The warmer period occurred in March when practically over the whole continent the tempera-tures were above average (in some cases were 8-10°C above the normal, e.g.: in Ukraine the 16th and 24th of March the maximum temperature reached 22°C compared to 6°C expected; in England the 16th of March the minimum temperature recorded was close to 12°C compared to 3°C as normal).

While Eastern Europe experienced these warmer conditions, on the eastern side northern air mass fluxes invested the Iberian Peninsula and western France. In the first and last part of March the temperatures fell significantly below the average both for the minimum and maxi-mum values. In some cases (Aragon, Castilla y Leon) the minimum values were several de-grees below zero (-4/-5°C) compared to 2-3°C typical of the period.

The thermal conditions influenced the development of the active crops: in Spain the advanced stages reached in the previous period were significantly reduced towards more normal val-ues, on the contrary in England all the winter crops from the middle of March experienced a pronounced acceleration of development. The summer crops were marginally influenced by these thermal conditions, due to their reduced stage of development.

Rainfall: Good water supply in southern areas; possible excessive rain in the Balkans and southern Spain. Relatively dry in Russia, Ukraine, Bulgaria, Tur-key, Eastern France, Benelux, Germany, Northern Spain and Portugal.

Beneficial and abundant rain fell on the Central and western Mediterranean areas (on aver-age around 100-150 mm) positively increasing the soil water reservoirs for the next sensitive stages of development of winter cereal (especially durum wheat). In general the rains were well distributed but in some cases (Southern Spain, Sicily, Balkans) the rain intensity was rather high (> 50-60mm/day) and locally and temporary excessive conditions were likely. Considering the relative reduced evapotranspiration values of this period the soil moisture content was mainly influenced by the rain water supply and in the last part of March the abundant rains recorded in Southern Spain (Murcia, Comunidad Valenciana, Cataluna, Cas-tilla la Mancha) and the Balkans could have caused serious obstacles for the summer crops operation (e.g.: sowing).

France, Germany, Benelux, Ukraine, Bulgaria, Russia, Turkey and Greece received less rain compared to the expected values.

At the moment the areas most affected by low water reserves before summer are, southern Portugal, Greece and Turkey where the soil moisture content for winter cereals are falling to-wards lower values for the period. This situation could become critical depending on the fu-ture rain supplies.

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 No1)

Contributions

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MARS stands for Monitoring Agriculture with Remote Sensing

Technical note

The long-term average used within this bulletin as a reference is based on an archive of data covering 1975–2003.
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 issue
Vol. 12 No 3 – 2004: May analysis.

Highlights by region of interest

As early estimate, the Cereal harvest is expected to recover last year's reduction as a consequence of the favourable weather: general mild and dry spring in northern areas and wet conditions in southern areas.

The EU-15 cereal production is expected at about 214 Mio t. (+5.4% above the average of the last 5 years), which is an increase of about 20 Mio t. as compared to the previous year's final result. The increase in yield for the total cereal class is of about 10% (from 5.2 t/ha to 5.7 t/ha). However, this figure is based on many potential values, including trends (i.e. for Grain Maize) for which the season is just starting. EU-15: soft wheat yield is expected at 6.8 t/ha (+10.2% as compared to 2003 and +4.5 as compared to the last 5 years' average); durum wheat at 2.8 t/ha (+15.6% as compared to 2003 and +15.3 as compared to the last 5 years' average); barley at 6.8 t/ha (+10.2% as compared to 2003 and +4.5 as compared to the last 5 years' average). At EU-25 level the soft wheat yield is expected at 5.8 t/ha (+ 5.9% as compared to 2003) resulting in an increase in production of about 11 Mio t.

As a whole the risk of frost impact this year was very limited and a good (sometimes excessive in southern areas) rain filling was received. Some of the current dry areas in Germany and France will receive rain in the next few days (1st and 2nd week of May) according to the weather forecasts and areas of concern should thus decrease. The sowing operations were made in general under favourable climatic conditions with the exception of some limited over-wet areas (central Italy, the Balkans).

The significant areas of concern are this year so far limited to some dry areas (for instance southern Portugal) and to over-wet regions (central Italy). The excessive moisture received in Mediterranean areas like Spain and Italy positively increased the water reserves, however it also increased the risk of pests and diseases' impact.

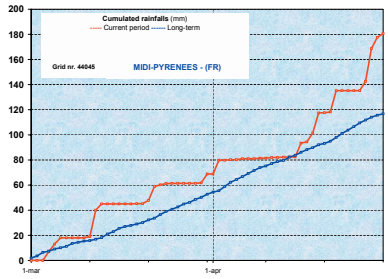
EU-25

FRANCE: dry in the eastern borders, wet in sourth western

The temperature in March was colder than average despite a warm spell during the 2nd dekad with maximum value over 20°C. In April the temperature continued to increase and reached higher values than the seasonal one particularly on the eastern borders.

No extremely low temperatures were recorded. In March the lowest minimum temperature was around -5°C when in April it was around 0°C. The crops were not affected by frost kill.

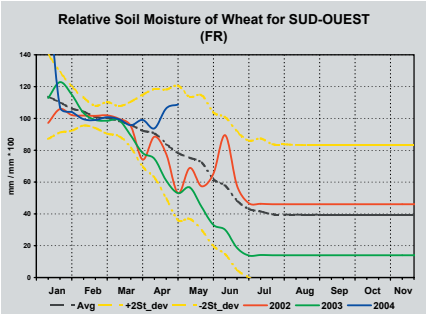
The rainfalls were unequally distributed during the last two months: Alsace and Provence, Côte d'Azur recorded less than 50mm whereas Midi Pyrénées received more than 150mm. However, most of the regions reached a cumulated rainfall of around 100 mm. Drier than average in north eastern and south eastern (<-30%) in March the situation improved a little bit in April with the exception of the German border and the Rhone valley that remained with lower precipitations than the seasonal expectations. These border regions show a deficit of around 50mm for the 2 month compared to the average.



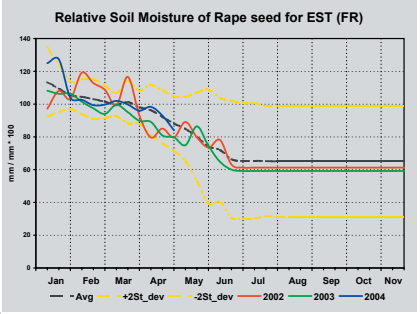
No crop-damaging precipitations were recorded even in the wetter areas; however from mid-April the rainy days increased and could have delayed the field access for the late spring crop sowing particularly for Maize.

Wheat: the winter wheat reached the heading phase at the end of April for most of the country excepted in the northern areas where the crop was at the stem elongation stage. Most of the plants followed the normal rhythm of development except in the North which was slightly delayed.

The crop did not suffer from water stress and the soil moisture benefited from the last rainfalls that will assure the crop water feed for the coming weeks. However Midi Pyrénées could suffer from water logging if the weather conditions remain wet. On the contrary the eastern border regions that had low soil water reservoir could be more sensitive to future dry conditions.



Rape seed: reached the flowering stage in all of the regions as it was in advance in the north. No intensive rainfall should have affected the crop during the flowering stage. As happened for winter wheat, the crop had important soil water reserves for most of the country and over 30% of the usual level for Midi Pyrénées. On the contrary the eastern border had soil moisture below the seasonal level. Future weather conditions will determine either water excess or dry stress in these two zones



Spring barley: the late sowing at the beginning of March could be made normally.

Spring wheat: no excessive precipitations were registered during the sowing period and should have been completed under optimal conditions.

Sunflower: the sowing could be made under normal conditions. The crop reached emergence by the end of April could benefit from good soil moisture for most of the country.

Sugar beet: the climatic conditions particularly in the north western area were relatively dry and optimal for the field work. Early to normal sowing could have been done. Future rainfalls are expected to replenish the low soil moisture (30% below average in the Belgian and German border regions) and allow optimal crop development. The crop reached the normal stage of emergence.

Maize: an early sowing should have allowed an optimal crop. Normal sowing at the end of April should have been delayed or made under non-optimal conditions due to the regular rainfall that occurred from mid April particularly on the south western.

Potato: the potato crop should also have benefited from normal conditions for sowing and the crop growth should continue under optimum conditions.

The favourable crop development condition explained the good forecast for soft wheat which is foreseen for soft wheat with 7t/ha (+9.8% compared to last year). For durum wheat the forecast are even better +15.1% (4.7t/ha). The barley is forecasted with a yield of 6.3t/ha (+12.5%).The rape seed should reach a yield similar to last year with 3.1t/ha (+1.2%). For maize as a very early forecast we get a simulation of 8.6t/ha (+20.5%).

UK AND REPUBLIC OF IRELAND: general favourable conditions

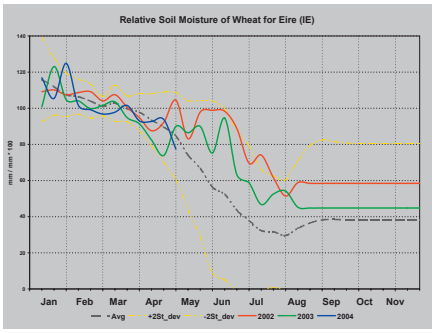
Slightly higher than normal temperatures and scarce rains (-15/-20% compared to the long term average), but frequent (15-20 days with more than 1 mm) and sufficient for crop requirements, are not limiting factors for a positive development of winter cereals.

From the beginning of the period under consideration, with the only exception of the first dekad of March, in both the Countries the active temperatures were above the average. Especially during the second dekad of March and in the second part of April the thermal conditions were particularly mild and favourable for the development of the active crops.

The analysis of the simulated crops' behaviour showed that rape seed rather than wheat positively responded to the more favourable temperatures, and in the second part of April reached the flowering stage, slightly in advance compared to the average and similar to the previous campaign. A negative effect on rape seed in flower could come from some consecutive rainy days over UK and Ireland as reported from the weather forecasts for the next 10 days.

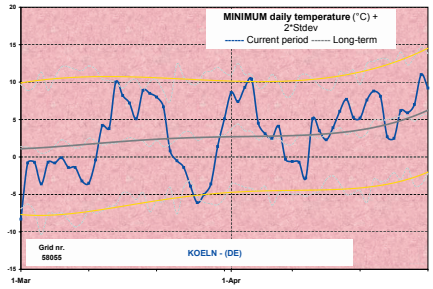
The weather conditions recorded (mild temperatures and light but frequent rains) were also positive for spring and summer crops in the first stage of developments (germination, emergence) and for pastures and grasslands.

As a consequence, good potential yields are expected, especially in Ireland: for wheat 8.9 t/ha (increase of 12.9 % compared to 2003); Barley 6.7 t/ha (+6.0 %). In the UK in general expected values are close to the previous campaign: Barley at 5.7 t/ha; Wheat at 7.9 t/ha and Rape seed at 3.2 t/ha.



GERMANY: partially dry conditions and a mild April.

As a whole the temperatures were lower than seasonal values in March and higher in April which speeded up the start of the vegetation. No extreme minimum temperatures were recorded and the crop should not have suffered from frost kill.



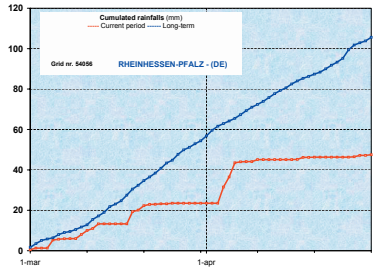
March 2004 was much drier than average for most of the country except along the southern border where precipitation was normal.

At the beginning of April higher precipitation than normal was recorded but the rainfall level became lower than the seasonal value in the 2nd and 3 rd dekads.

From Darmstad, Brandenburg to Thueringen the precipitation did not reach more than 50 mm when most of the regions received around 100mm.

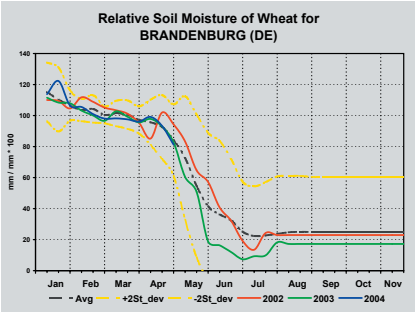
Whatever the level of the precipitation they

remained below the seasonal values by 25 up to 100 mm for the whole country.

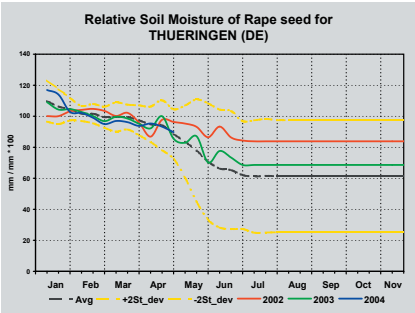


Wheat: the winter wheat reached stem elongation stage for most of the regions excepted in the North West and Central where the crop was slightly later than usual.

Despite the relatively dry period the crop did not suffer yet from water stress due the good soil moisture reservoir at the root depth. However further rainfalls will be necessary to replenish the soil moisture and to face the increasing water needs of the plants.



Rape seed: the rape seed reached the flowering stage in advance of the average. As for winter wheat, the rape seed is not yet affected by the low precipitations, however the soil moisture started to be slightly lower than normal. Further precipitations will be necessary to assure an optimal crop growth.



Spring crops: the different spring crops: wheat, barley, sugar beet could be sown without delay in optimum conditions due to the low precipitations that did not disturb the field work excepted during the beginning of April that was wetter than usual. At the tilling stage the spring crop will require future precipitations to allow an optimal development as the water needs will increase. Maize sowing could also start from the end of April in normal conditions.

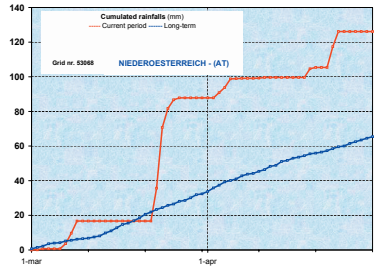
Up to now the crop potential remains high and the yield forecasts are quiet good. The soft wheat in Germany is foreseen with a yield of 7.2t/ha (+9.9% compared to last year). For the barley the prevision is much better than last year with 6.0t/ha (+16.4%). The production of rape seed should be also good with a yield forecast of 3.1t/ha (+7.5%). Very early simulation for maize gives a yield of 8.9t/ha (+23.4%).

AUSTRIA: wetter than average and a mild April.

Colder during the month of March the temperatures became higher than average during April. No significant frost kill condition was recorded and the warmer last dekads accelerated the re-growth of the vegetation.

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

Dry during the 2nd dekad, the rainfalls were higher than the seasonal levels at the beginning and end of April particularly in the north western.



Winter crops: the winter wheat reached the normal stem elongation stage for this period of the year. Due to the important precipitations the crop had sufficient water reserves in the soil. Future abundant precipitations could risk the crop becoming water logged.

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

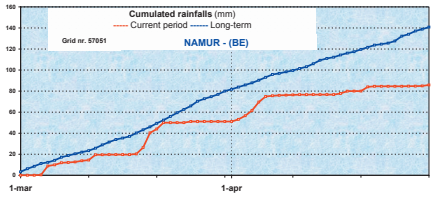
Spring crops: locally up to 100 mm were recorded during the average sowing period and could have delayed the field work particularly in the north western area. However in April the time lapse in between precipitations should have allowed to continue most of the sowings.

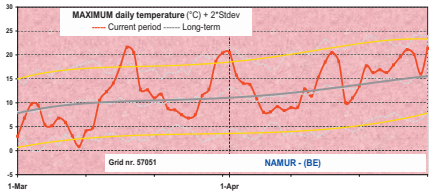
As for Germany the crop forecasts in Austria are very good with 5.0t/ha(+12.5%) for the soft wheat; 4.4t/ha(+4.7%) for the barley; 2.3t/ha (+29.4%) for the rape seed and for the grain maize: 9.4t/ha (12.4%).

BELGIUM, THE NETHERLANDS, LUXEMBOURG: Early spring with mild and dry conditions.

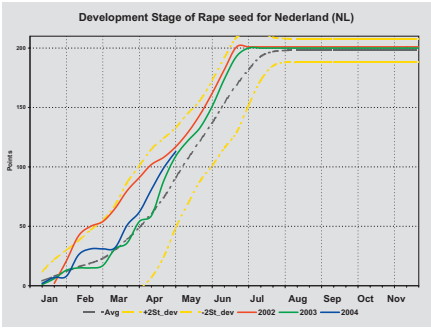
The cereal yields are forecasted at similar values to the 2003 campaign, respectively in Belgium: 8.5 t/ha (+0.1%) for Soft Wheat, 7.4 t/ha (11.5%) for Barley. Luxembourg yield forecasts are: 6.0 t/ha (-1.8%) for Soft Wheat, 5.3 t/ha (-0.5%) for Barley and for The Netherlands: 8.3 t/ha (-9.0%) for Soft Wheat, 6.1 t/ha (-7.6%) for Barley.

After a fresher than normal first dekad of March, three consecutive quite warm waves invested that area determining unusually high temperatures that, in some cases, passed the threshold of 20°C. Each of these waves was followed by rainy phenomena which caused the temperatures to drop again rapidly.





However, as a whole, the cumulated rains were below the climatic values (-30/40% compared to the Long term average). The crops' development was boosted by the more favorable temperatures and, considering the moderate levels of evapotranspiration, the soil moisture content was maintained always within optimal levels in relation to the winter crop consumptions. The dry days recorded in March and April permitted the spring-summer crops sowing under good weather conditions. Moreover, in the next days the forecasts show some likely beneficial rains.

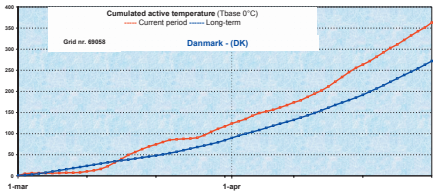


DENMARK, SWEDEN AND FINLAND: higher than average temperatures, no frost risk, normal rain.

In Denmark the expected yields are now at a very good probability: soft wheat 7.4 t/ha (+ 4.8 % compared to 2003), Barley 5.3 t/ha (+2.0 %) and rape seed 3.1 t/ha (-5.4%). In Sweden, respectively, soft wheat 6.0 t/ha (+7.6% compared to 2003), Barley 4.3 t/ha (+1.1 %) and

rape seed 2.5 t/ha (+13.1 %). In Finland, soft wheat 3.6 t/ha (+0.9% compared to 2003), Barley 3.3 t/ha (+2.0 %) and rape seed 1.3 t/ha (-14.5 %)

Similar to the 2003 campaign, warmer than normal conditions characterized the two months in Denmark and Sweden (4-5°C above the average), the temperatures in Finland were more close to the normal. In particular during the second dekads of March and April significantly high temperatures were recorded (6-7°C above the expected values for both maximum and minimum). In Denmark and Sweden in the whole period the maximum temperatures were constantly above 0°C and often also the minimum values.

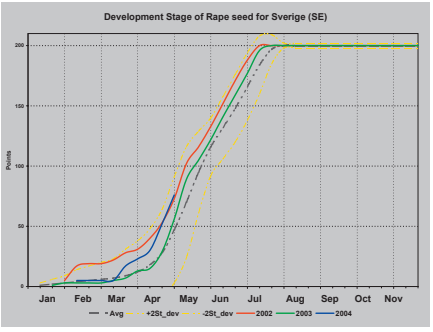


In Finland because of the warmer conditions the active temperatures started to be accumulated from the middle of March and similarly also the dormancy of winter cereals likely finished in advance compared to the canonical period.

The rainfalls were quantitatively within the normal range of variation (90-100 mm in Denmark, 60-80 mm in Sweden) and distributed in 15-18 rainy days. Finland received less rain than average (only 20-30 mm). However, a deep snow cover in March should have ensured an appropriate water supply.

The simulated crop indicators show a limited effect of temperatures on the winter cereal development, while an accelerated effect is depicted in the development of rape seed.

The spring sowing activities matched good conditions and could be conducted without problems.

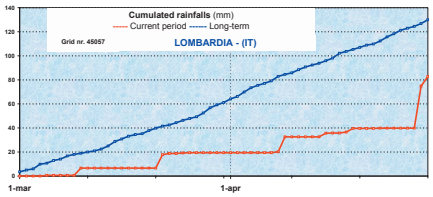


During the period of analysis the thermal conditions did not present any anomalies compared to the norm; all the main crops show a development within the average range of variation. A slightly advanced stage of development is present for winter crops only in limited areas, i.e. in the Central and Southern part of the country.

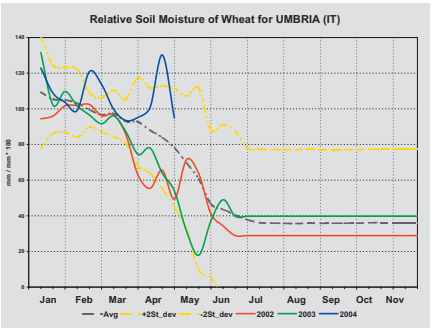
ITALY: Normal thermal conditions and wetter than average.

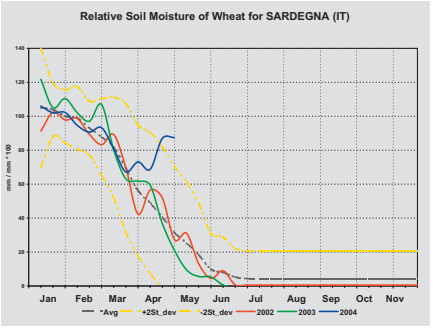
During the period of analysis the thermal conditions did not present any anomalies compared to the norm; all the main crops show a development within the average range of variation. A slightly advanced stage of development is present for winter crops only in limited areas, i.e. in the Central and Southern part of the country.

Rains were quite abundant in central areas and particularly in the main islands; were closer to the normal in the south (Puglia, Campania) and north-eastern regions and relatively lower as compared to the expectation in north-western regions (Lombardia, Piemonte).



The rains were particularly frequent and abundant in April when the sowings of the spring-summer crops are usually more concentrated (particularly for Maize). Early sowings were made in optimal climatic conditions; on the contrary the delayed sowings, especially in the Central areas (Toscana, Umbria, Lazio) could be hindered or further delayed by excessive soil moisture. In April, the soil moisture was boosted towards unusual values and this could support the appearance of above average pests and diseases. In general the weather course was also quite favourable for grasslands and pastures.





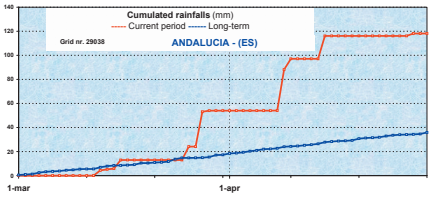
For the next days abundant water supplies are still foreseen, creating concern for excessive soil moisture and rape seed flowering.

The very good water supply in the south allowed to foresee an increase of production for Durum Wheat at 3.0 t/ha (+23.5 % compared to 2003). Good yield are foreseen also for Barley is expected at 3.5 t/ha, and Soft Wheat, at 4.7 t/ha (+2.5%).

SPAIN AND PORTUGAL: Temperatures slightly below average (especially in northern areas), in Spain very wet at the end of March and early April, relatively dry in Portugal.

Both March and April were characterized by oscillating thermal conditions: March started and finished with fresher than average conditions (also some limited local frosts were likely), in the middle of March warmer than average temperatures were recorded. Also in the middle of April a new cold wave passed over the Iberian Peninsula. The reduced thermal availability decelerated the crop development reducing the advance accumulated in the previous months.

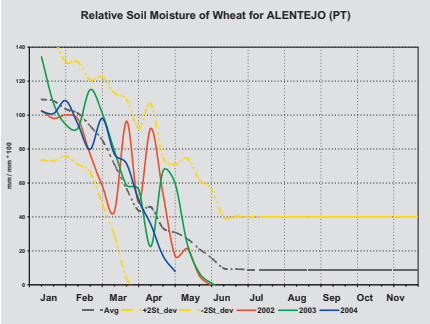
The rain presented a marked spatial gradient distribution from north-west to south-east, respectively: the Atlantics areas received lower than normal rainfalls; the Central part of Peninsula (Castilla y Leon, Extremadura) close to the average; higher precipitations were received in the eastern areas (Aragon, Cataluna) and exceptionally abundant in the south-eastern (Murcia, Comunidad Valenciana, Castilla la Mancha), where local and temporary saturated soil were quite likely (in Andalucia the cumulated rainfalls exceeded 120 mm, equivalent to +240% as compared to the long term average). In these areas the rain, only in some cases intensive (more the 35 mm) could have affected the rapeseed flowering and delayed the sowing activities for spring-summer crops (spring barley, maize, sugar beet, etc.).

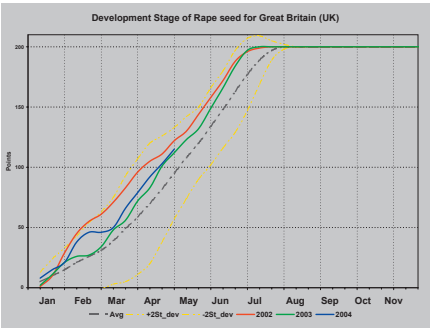


The Soft Wheat yield is estimated at 3.2 t/ha (+2.2 % compared to 2003), Durum Wheat at 2.5 t/ha (+0.9 %), Barley at 3.0 t/ha (+5.5 %).

In Portugal the scarce rainfalls (April was practically without rain) caused a depletion of the soil moisture and at the end of April in the southern regions this indicator for winter cereal reached values close to

the lower limit of 20%. It is evident that the final results are strongly dependent on the future water supplies. Unfortunately, in the next 10 days the weather forecasts report only limited rain. However, at the moment the yields are estimable at 1.6 t/ha (+14.0 % compared to 2003) for Soft Wheat, 1.1 t/ha (+14.0 %) for Durum Wheat, and 1.2 t/ha (+8.2 %). for Barley.





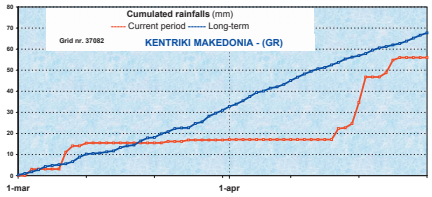
GEECE: Oscillating temperatures and scarce rain

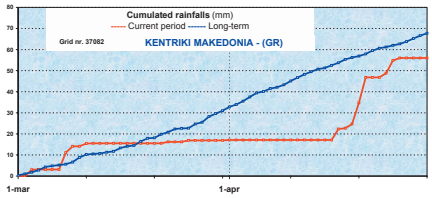
An acceptable yield value is expected for soft wheat (2.6 t/ha, -0.6% vs. 2003), while for durum wheat the national result would be 2.4 t/ha (+34.7 % as compared to the performances of 2003), and for Barley 2.2 t/ha (+17.2%).

Fresh temperatures (3-4°C below average, especially for the maximum values) and wet conditions characterized the first dekad of March. Then the weather changed drastically. Warmer than average temperatures (the maximum reached 24°C) and dry conditions characterized the central part of the month of March, which was closed by a new passage of fresh air, but still dry conditions. April started with a new warm and dry wave and finished with some beneficial rainfalls (after more than 40 dry days) and closer to the normal thermal conditions. The highest reduction of rain was recorded in the southern areas (Peloponnisos, Attiki). In the whole period the cumulated values of rains were around 60-80 mm in the north-east, 140-60 mm in the western part and only 20-30 mm in south-east.

At the end of April, considering the relatively low level of the evapotranspiration despite the reduced rains, the soil moisture is still within the acceptable range of values. But the success of the very close future reproductive stage of development for the winter crops will be strongly dependent on the future rainwater supplies. Unfortunately, in the next 10 days weather forecasts indicate only limited rain .

According to the described weather conditions, the sowing activities for the spring-summer crops have been conducted without obstacles.

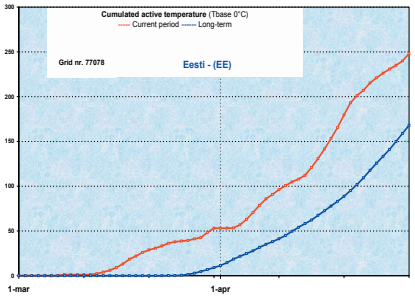




ESTONIA, LATVIA, LITHUANIA: Drier than normal but low frost risk

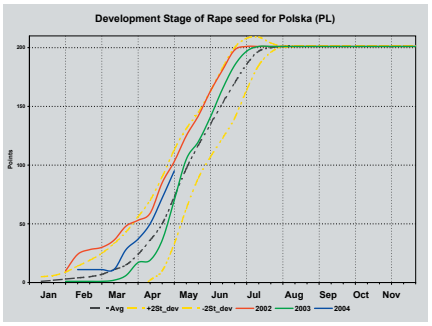
The sowing of barley in the Baltic area was performed this year under drier and warmer than usual conditions but the climatic water balance, starting from the beginning of 2004 was negative (below -30% long-term average except Southern Lithuania where the water balance was close to normal).

Although some decreases in leaf area index occurred, thermal conditions for the winter wheat were more favourable than in the previous year and the simulations did not point out any significant frost risk able to produce a direct plant kill during March/April. The yield forecast for soft wheat for Estonia is 2.2 t/ha, for Latvia 2.9 t/ha and for Lithuania, 3.8 t/ha. Barley forecasts are 1.9 t/ha for Estonia and Latvia and 2.8 t/ha for Lithuania.



POLAND: Good conditions for the emergence of the spring crops; development of winter crops in advance.

Starting with the second decade of March the development stage of winter wheat was slightly in advance (+9%) compared with the normal situation. Water limited biomass for winter wheat was +20% higher than long-term average in some central areas of Poland, meanwhile in the Eastern part of the country it was lower by the same percent (-20%). Wheat yield forecast is 3.6 t/ha and for barley the expectations are for a yield 2.9 t/ha.



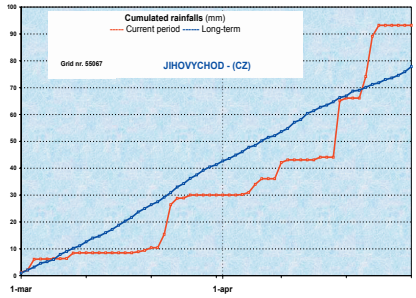
Rape seed development was in advance with + 42% and water limited above ground biomass is 30% higher than long-term average (forecasted yield for 2004: 2.2 t/ha).

In the South-Eastern part of the country the rains from the end of March may have delayed the sowing of the spring barley by several days, but in other parts of the country (excepting South-Western parts of Poland were the weather was drier) this crop benefited from the rains which occurred after sowing.

CZECH REPUBLIC: Lower biomass in Central areas for wheat crops;

Rainfalls received from the beginning of the year are below the long-term average for the centre of the country. At the beginning of March minimum air temperatures below -12ºC occurred in the Central areas

The simulated biomass is above the long-term average (observation valid for the wheat crops which had the chance of good emergence because there was an unfavourably low soil moisture condition at sowing time). Yield forecasts are 4.2 t/ha for wheat, 3.6 for barley and 2.3 for oil seed rape.

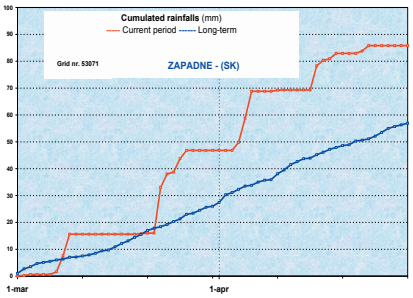


SLOVAKIA: Generally favourable conditions.

Western and Central Slovak Republic

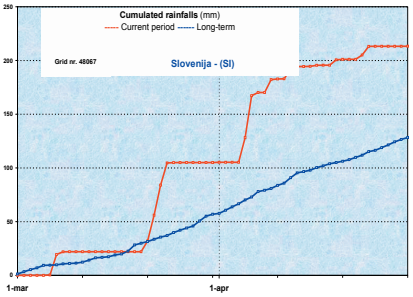
received more rainfalls than normal. Development stage of wheat is at the long-term average level and biomass simulations are close to this level. Wheat yield forecast is 3.4 t/ha.

For rape-seed the crop development, water limited above ground biomass and relative soil moisture are above the long-term averages.



SLOVENIA: Possible spring sowing delays due to rain.

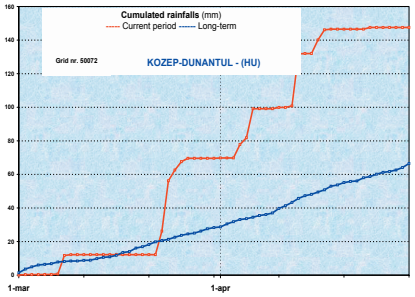
Heavy rains were recorded for most of the agricultural areas at the end of March and also in the first half of April. Spring field labours were delayed by these rainfalls. The above ground water limited biomass exceeded normal values in the north and it was lower than this level in south. Wheat yield forecast is 4.3 t/ha.



HUNGARY: Wet spring, close to normal status for winter crops.

In the southern half of Hungary some rain (30-50 mm) occurred in the decades usually allocated for field preparation and the sowing of maize, sunflower and sugar beet, and this may delay this event or on the contrary this may be an advantage for the portion of the field sown in advance.

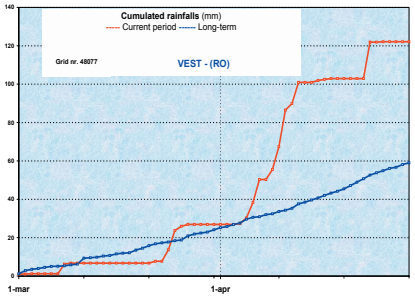
Simulated relative soil moisture is above long-term average and development stage and above ground biomass (both potential and water limited) for wheat are close to the long-term average. The wheat yield forecast is 3.8 t/ha, barley yield expectations is 3.5 t/ha.



CENTRAL COUNTRIES

ROMANIA: Good development of winter crops in south, sowing postponed by rains in the North-West.

Western and Central parts of Romania received unusual rainfalls (> 30%) for the second dekade of April but after this the general conditions turned favourable for sowing and germination of the spring crops especially in the Southern part of the country.

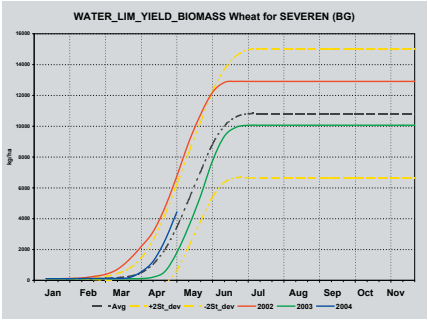


The above ground water limited biomass for winter cereals at the end of April was below long-term average in Northern and Eastern Romania, whereas in the south of the country it was higher (25%). The forecasted winter wheat yield (2.5 t/ha) is + 76% higher than that of 2003 when the winter was very hard. Yields foreseen for barley and rape are respectively 2.4 t/ha and 0.8 t/ha.

BULGARIA: Generally a drier March but spring crops sowing delayed in Western Bulgaria.

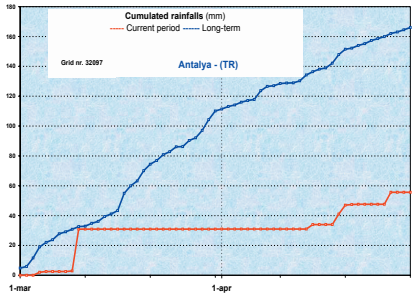
In March the rainfalls received by Eastern Bulgaria were lower than average (<-30%), the areas in the centre of the country were close to normal, meanwhile Western Bulgaria received heavier than usual precipitations (+30%) hampering the field activities but improving the soil water supply for existing crops.

Simulated water limited above ground biomass of winter wheat and barley crops from Northern Bulgaria at the end of April, was higher than the long-term average (a yield of 2.9 t/ha is foreseen for wheat and 2.7 t/ha for barley).



TURKEY: Hot and dry period except costal areas

March was hotter than the long-term average (>+30% for Central and Western areas) but during April the thermal conditions were close to normal. Rainfalls received from the beginning of year were above normal for the coastal areas but the last two month were drier. The water limited biomass for barley is at the level of the long-term average. The water limited above ground biomass of wheat for the Central Anatolian Plateau is lower than long-term average but the situation for areas alongside the seashore seems close to long-term average. A wheat yield of 2.5 t/ha is expected for this vegetation season.



EASTERN COUNTRIES

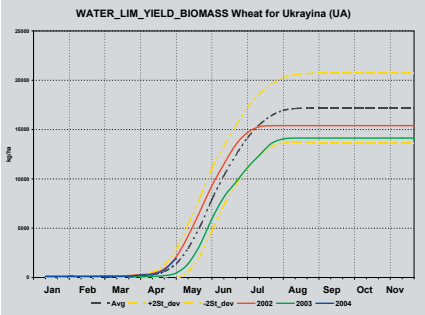
BELARUS: Optimistic simulations for winter crops

The cold weather, usual for the begining of March was associated with a protective snow layer. Occurrence of rains during the usual sowing period of spring barley in the Southern Belarus may delayed this action. Simulations for winter barley show a better situation than the long-term average especially in the Western half of Belarus. Biomass of wheat crops from the Southern Belarus exceeds the long term average, meanwhile in the North it remains at the long-term level, but it is too early for a forecast.

UKRAINE: Dry spring but a good crop evolution is still possible

For the most part of the country water limited above ground biomass of winter wheat crops at the end of April was higher (+30%) than the long-term average. In Eastern Ukraine

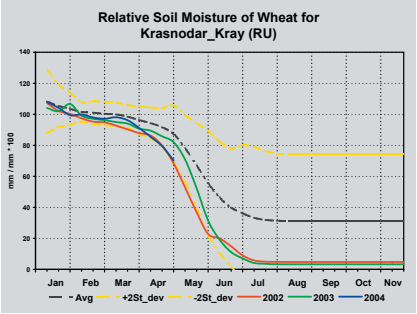
and and in Crimea, the simulated biomass was below the normal values. Winter barley crops achieved a higher biomass only in the centre of the country, the other areas being in a close to normal situation. According to available data a potential yield of 2.8 t/ha is probable.



RUSSIA: good conditions for spring crop sowing

Snow cover disappeared in the northern half of the European part of Russia only at the beginning of April, and in the southern regions in February. Thus, the period under analysis is the time for starting of the winter crop growth after the winter dormant period, and the time for spring crop sowing in all regions.

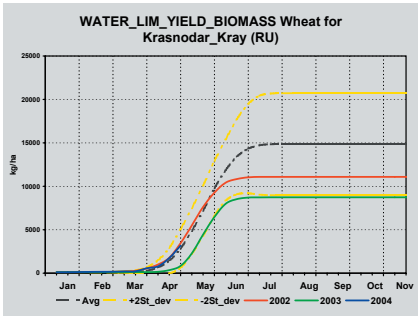
The air temperature during March-April 2004 was higher than in the previous year in all regions of European Russia, excluding Near Volga region, where it was slightly lower. A short wave of cold air took place at the beginning of April in the south-eastern regions of European Russia (especially in Stavropol krai), this should slightly affect winter crops there, which were grown during this period without snow protection.



The amount of precipitation in March was higher than in the previous year practically in all regions, which leads to the good soil water conditions for winter crop development, and for spring crop sowing. The amount of precipitation in April was low in all regions except Central Chernozemic, where it was close to the normal.

As a result, good weather (rainy in March, and dry in April) creates favourable conditions for spring crop sowing practically in all regions, and the sowing campaign for the current year seems likely to be more advanced compared with the previous year.

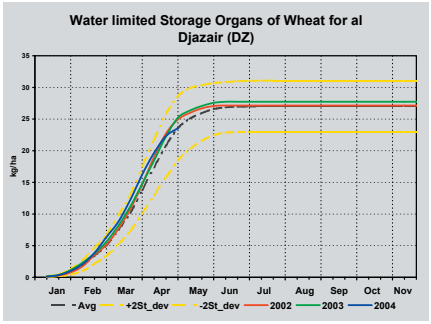
Crop growth simulation results demonstrates advanced winter wheat development compared with the previous year practically in all regions of European Russia, and this conclusion is confirmed by the analysis of the remote sensing indicators of crop growth.



MAGHREB

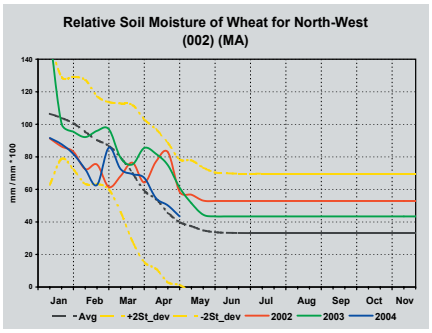
ALGERIA: beneficial rainfalls

In March the rainfalls were abundant in the Eastern and lower than seasonal values in the Central and Western part. In April the precipitations were equivalent to higher than average. It partially replenished the soil moisture that was within a normal level. It benefited to the winter wheat that reached the ripening stage in April. The yield is expected to be better than last year but lower than the average.



TUNISIA: still good yield potential

In March the rainfalls were abundant all over the country (>30% the normal) when in April the precipitation remained important in the northern part. It replenished the soil moisture that was low and benefited to the winter wheat that reached flowering to ripening stage. The yield potential is still high and similar to last good year.



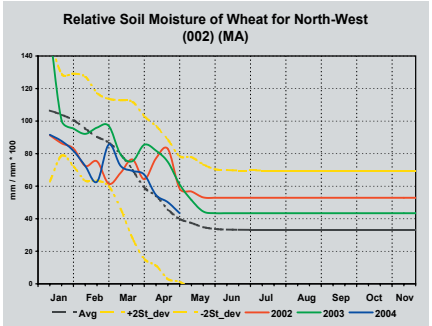
MOROCCO: shortened ripening phase

Normal to slightly higher temperatures were recorded during the 2 month March and April.

March was drier than normal in the central and south west and wetter in the western and eastern. Then April was dry in the Central and Eastern when in the eastern the situation was much wetter than usual. As a whole the eastern part received more rains than normal when the western got less precipitation than usual except on some part of the coast line.

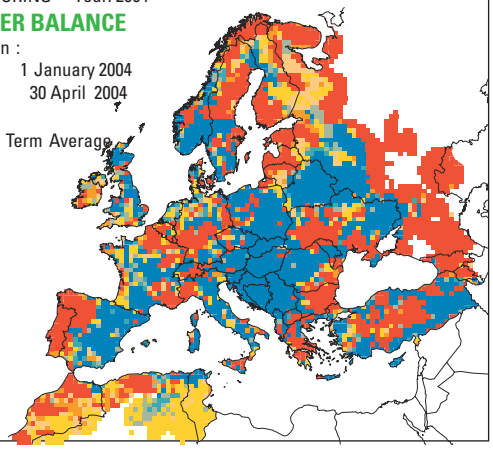
The winter wheat reached the ripening maturity stage at the beginning of April from the western coast. Due to the low precipitation the final crop yield elaboration phase was shortened. The crop that had a very high yield potential will probably get lower production.

On the Eastern the late rainfall maintain the vegetation activity extended the development phase of the crop. However as the Eastern has a lower yield potential and surface in wheat it will not balance the yield potential drop in the Western.

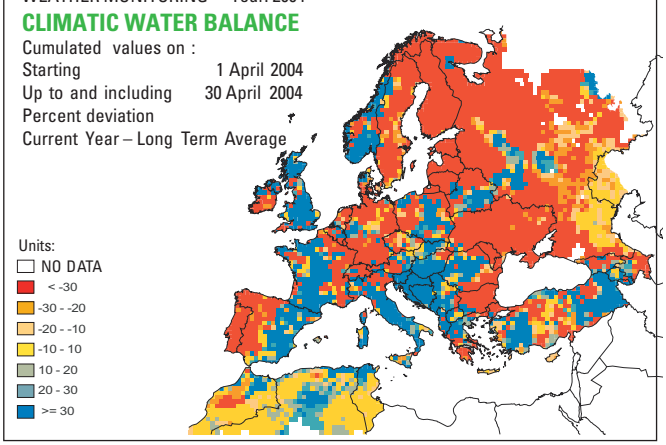


Crop maps — March - April 2004

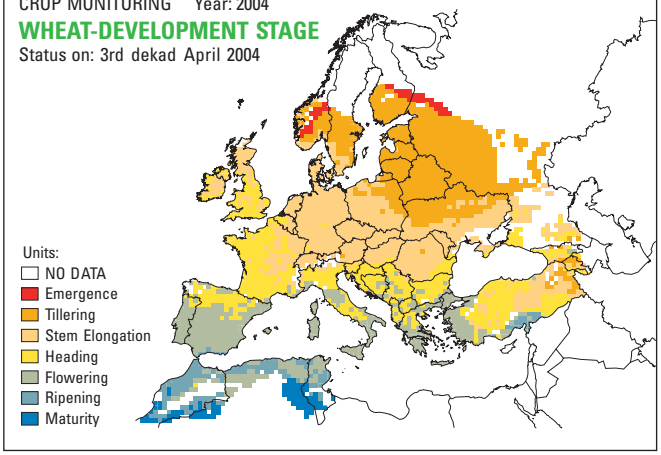
WEATHER MONITORING Year: 2004
CLIMATIC WATER BALANCE
Cumulated values on :
Starting 1 January 2004
Up to and including 30 April 2004
Percent deviation
Current Year – Long Term Average



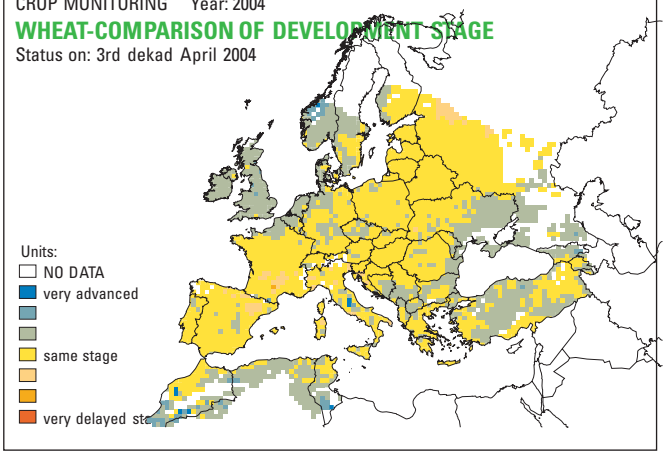
WEATHER MONITORING Year: 2004
CLIMATIC WATER BALANCE
Cumulated values on :
Starting 1 April 2004
Up to and including 30 April 2004
Percent deviation
Current Year – Long Term Average



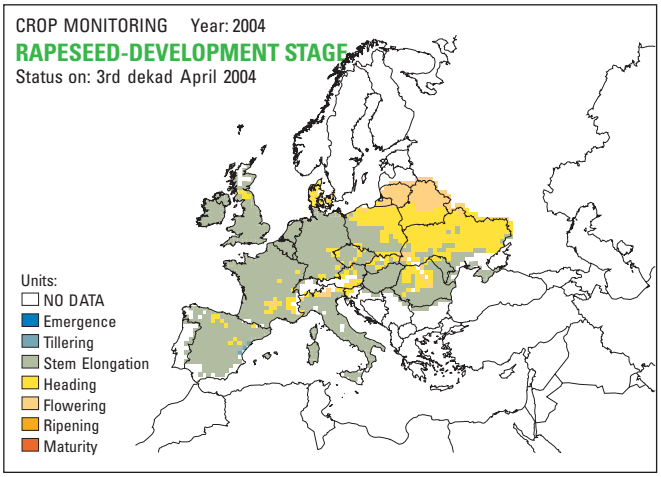
CROP MONITORING Year: 2004
WHEAT-DEVELOPMENT STAGE
Status on: 3rd dekad April 2004



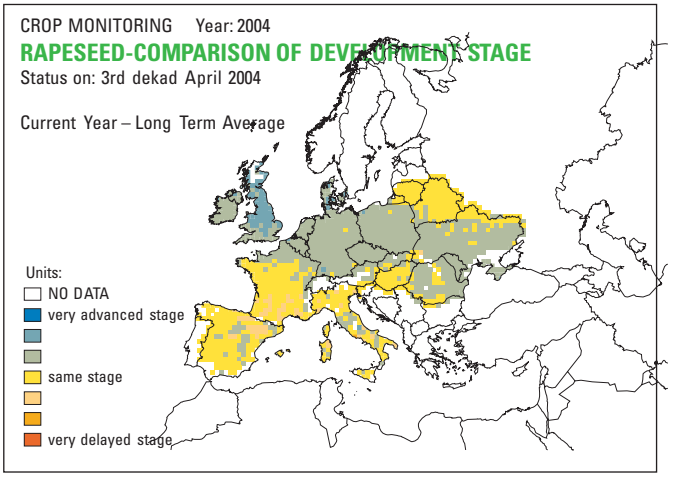
CROP MONITORING Year: 2004
WHEAT-COMPARISON OF DEVELOPMENT STAGE
Status on: 3rd dekad April 2004



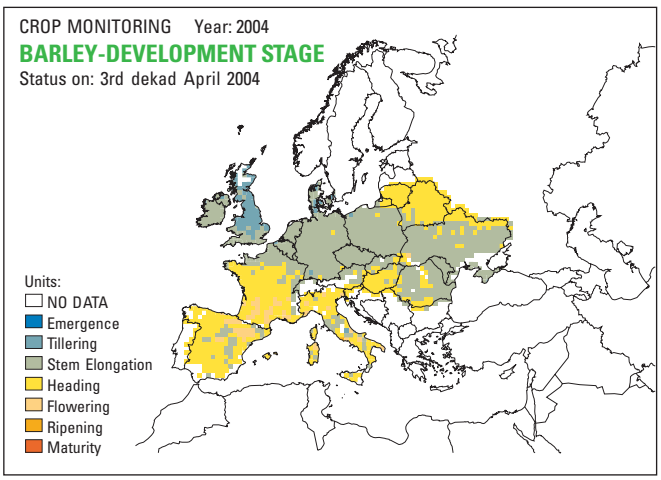
CROP MONITORING Year: 2004
RAPESEED-DEVELOPMENT STAGE
Status on: 3rd dekad April 2004



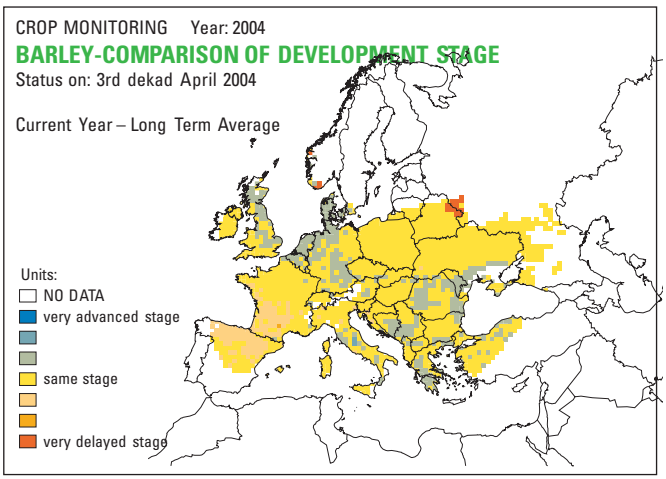
CROP MONITORING Year: 2004
RAPESEED-COMPARISON OF DEVELOPMENT STAGE
Status on: 3rd dekad April 2004
Current Year – Long Term Average



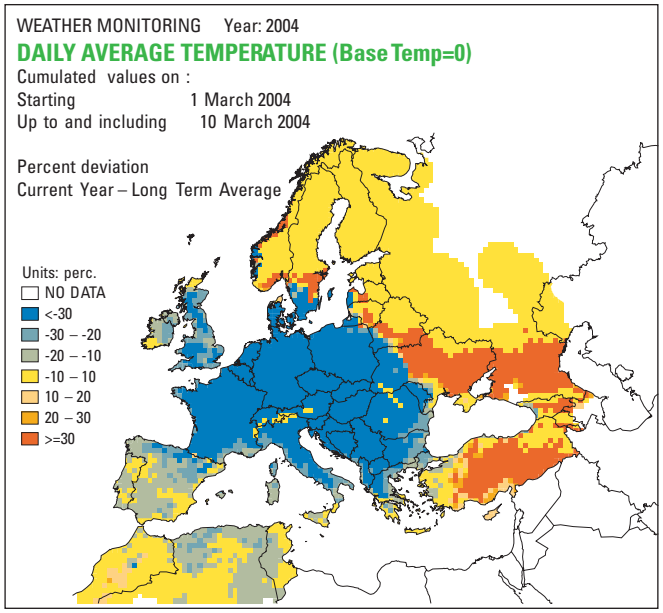
CROP MONITORING Year: 2004
BARLEY-DEVELOPMENT STAGE
Status on: 3rd dekad April 2004

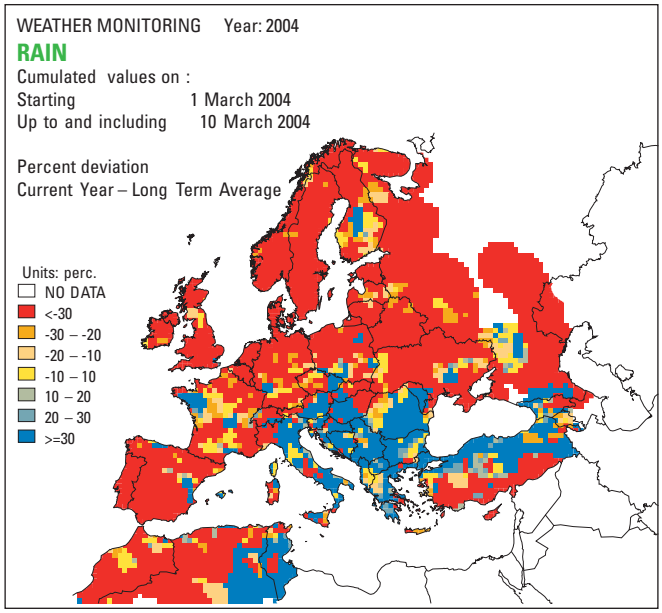


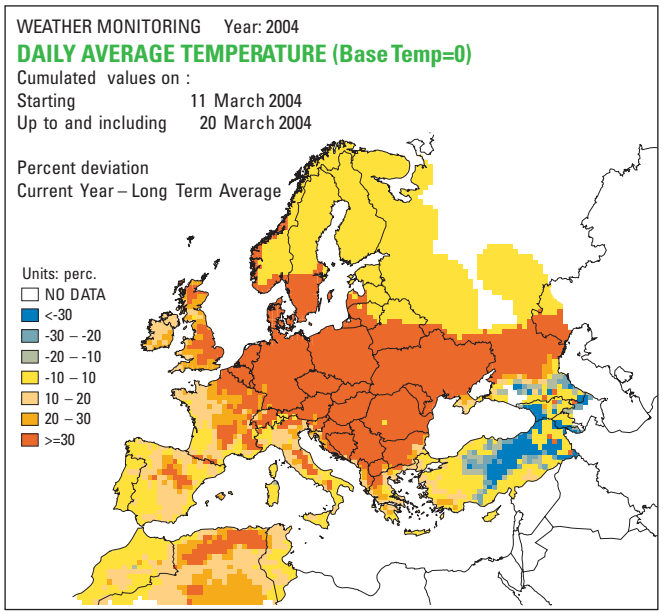
CROP MONITORING Year: 2004
BARLEY-COMPARISON OF DEVELOPMENT STAGE
Status on: 3rd dekad April 2004
Current Year – Long Term Average

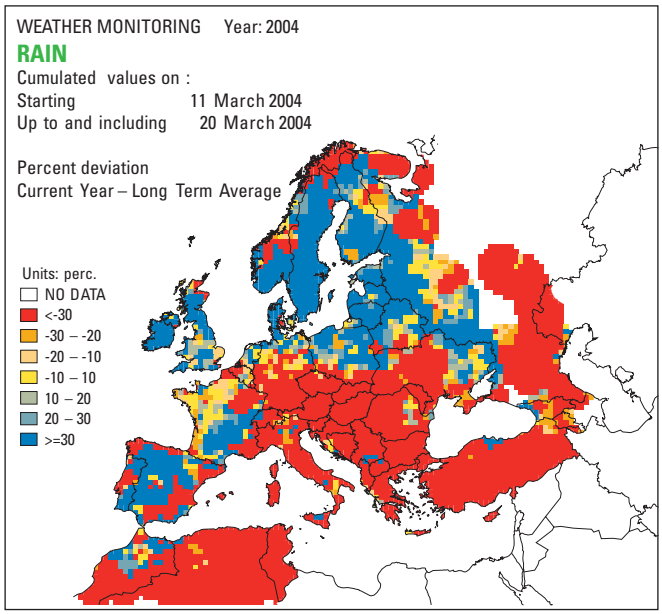


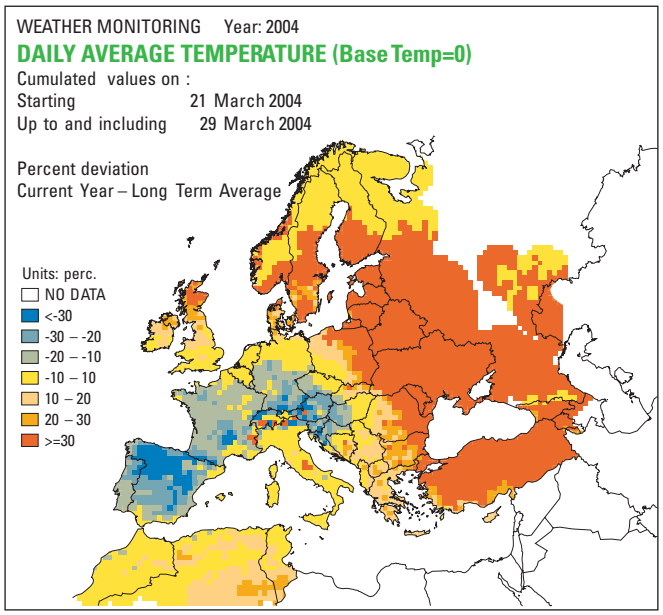
Ten-day rain and temperature maps — March 2004

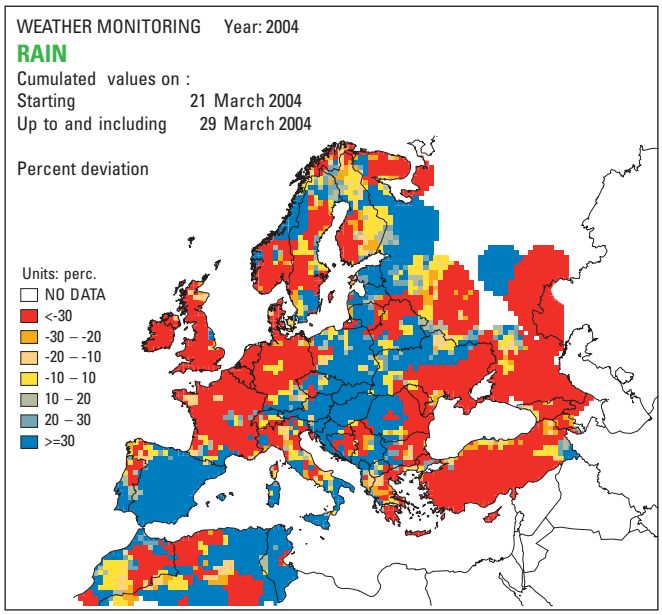




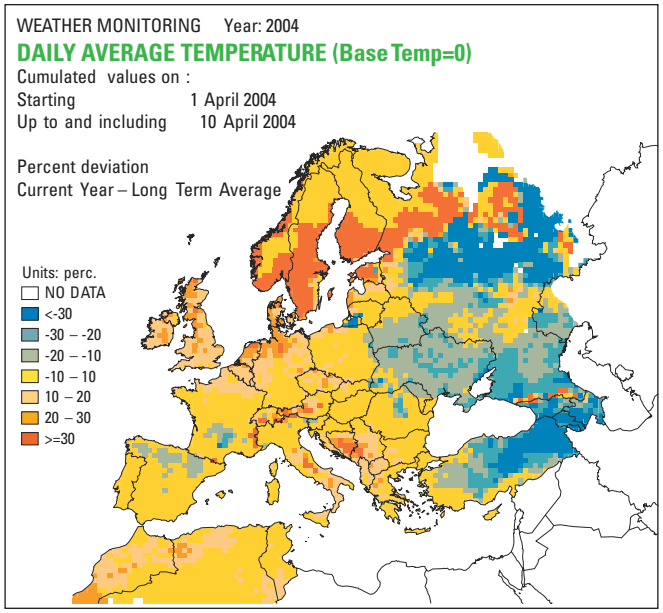


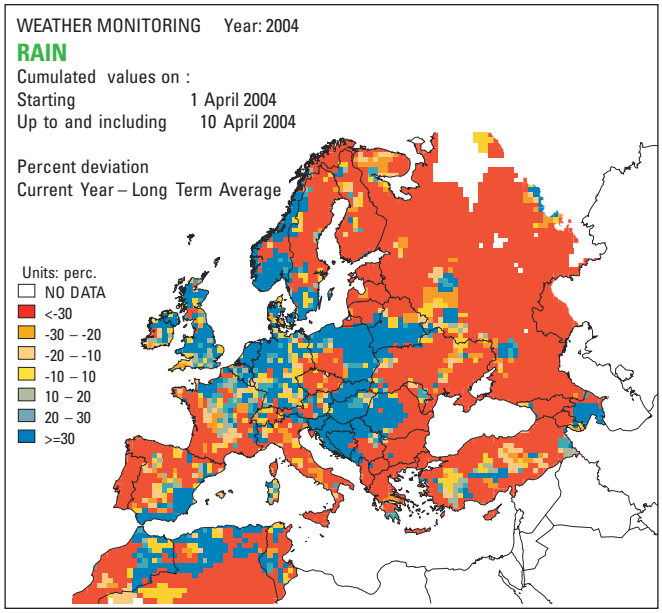


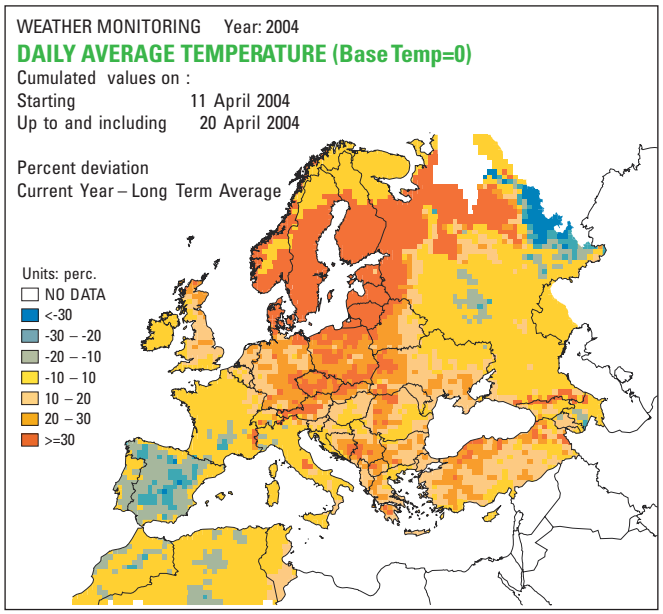


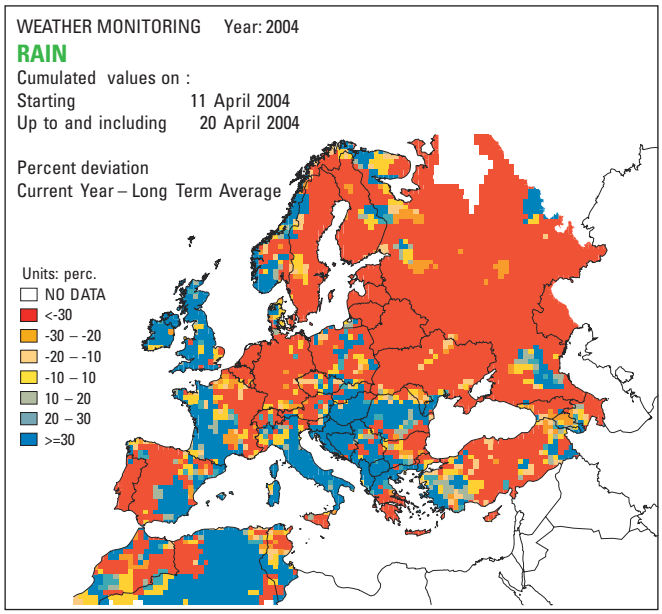


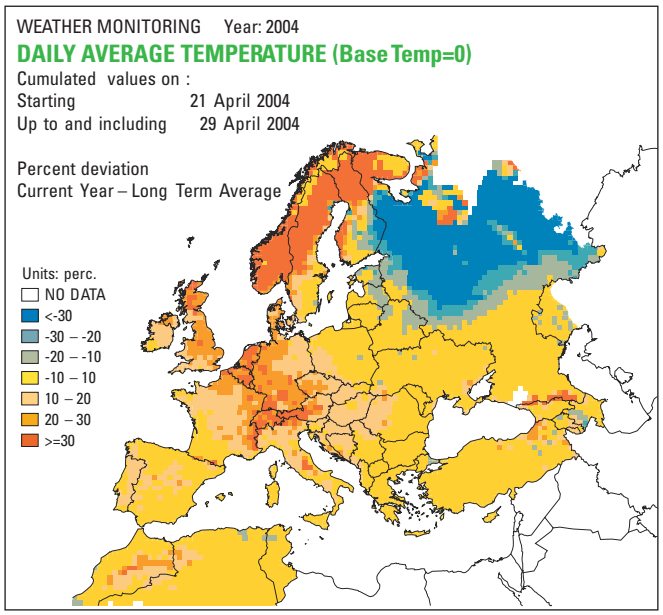
Ten-day rain and temperature maps — April 2004

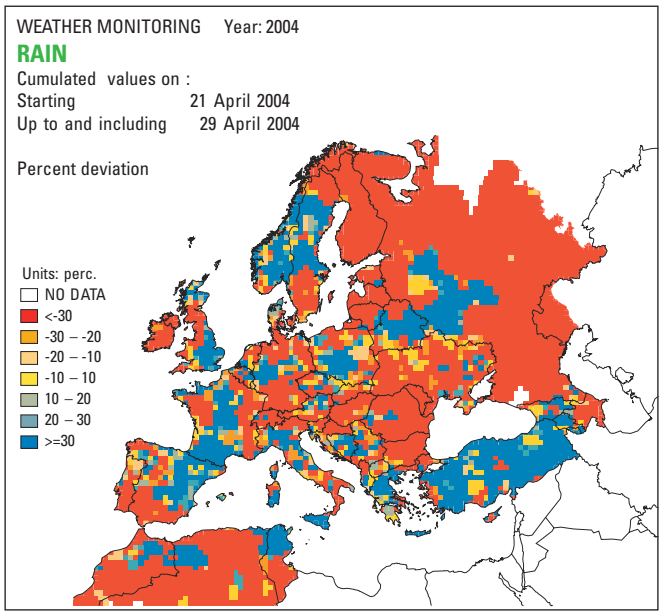








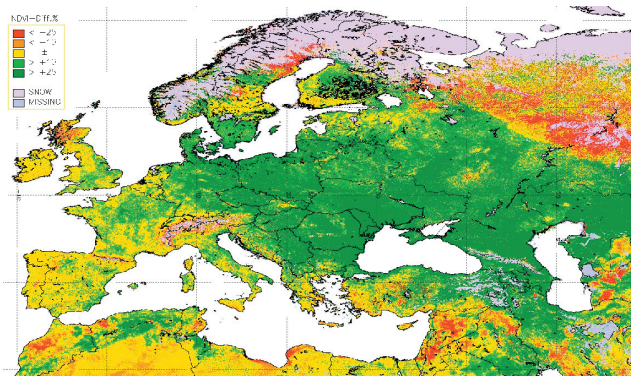




Spot/vegetation satellite analysis

Maps' highlights: Vegetation development lower than last year in the western Morocco.

The NDVI image of March and April 2004 shown the area where the senescence phase started particurlarly in the Mediterranean Basin, where the situation in the western Morocco is below the last year vegetation development. In Portugal the effect of the dry spell was not yet visible on the satellite image.



Vegetation index, absolute difference April 2004 - 2003

CNDVI profiles' highlights.

In **Sicily (Italy)** up to the end of March the CNDVI curve shown a higher biomass development than the last years; from April the profile started to decline quickly indicating a faster senescence phase than usual due to dry conditions not favorable for an optimum maturation and yield elaboration.

The situation is in **Puglia (Italy)** is within the average and the crop was still in its vegetative growth close to the maximum aerial biomass development.

In **Castilla y Leon (Spain)** the vegetation development that was higher than average caught up the 2001-2002 profil. The crop potential is still high and has not yet reached its maximum biomass development.

For **Kentriki Makedonia (Greece)** the profile started to show a lower increase than the previous year auguring from a lower potential due to dry conditions.

The crop cycle in **Tensift (Morocco)** was almost ended and started its senescence earlier than last year due to the dry condition. The crop yield should be less than expected: lower than last year but still at a good level.

In Tunisia the last rains extended the vegetation phase that reach a higher production level than the previous year. The senescence phase started in April. The yield potential should be within the normal value.