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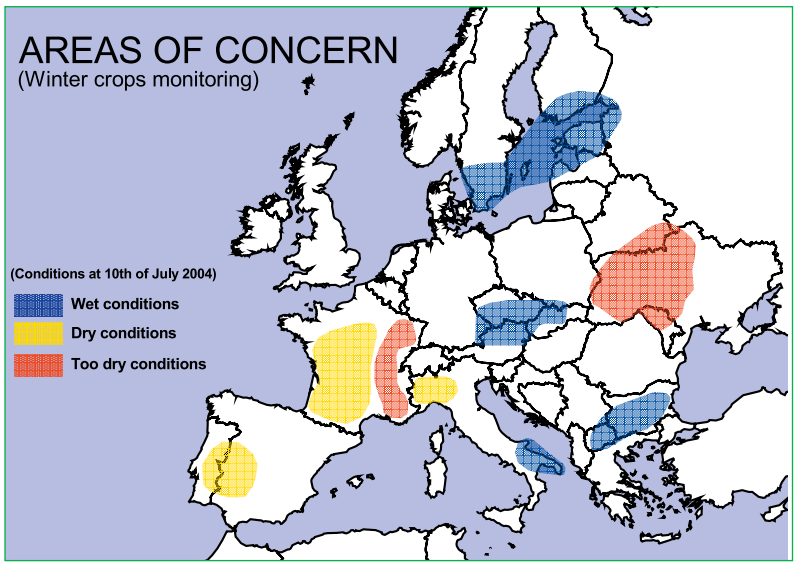
Monitoring Agriculture with Remote Sensing Bulletin

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

Situation 10th of July 2004 Vol. 12 No 4

General normal condition. Dry in France and over wet in Austria and Sweden



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	**6.3**	*22.9*	5.5	14.6			
Soft wheat	6.2	**7.5**	*20.8*	6.5	14.5	5.4	**6.3**	*16.0*
Durum wheat	2.3	**3.0**	*28.7*	2.4	23.9	2.3	**3.0**	*28.7*
Barley	4.4	**5.0**	*12.4*	4.6	9.1	4.1	**4.7**	*13.0*
Grain maize	7.6	**9.3**	*22.1*	8.8	5.6	7.1	**8.5**	*21.1*
Other cereals (1)	3.7	**4.3**	*17.5*	4.1	3.9			

(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

Temperature: generally normal thermal conditions. Only in the extreme western and eastern areas respectively were warmer and fresher than average unseasonable values recorded.

The accumulation of active temperatures for June 2004 was close to normal with the exception of a western area, which was about 10 % warmer than the long-term average, and some colder areas in the north-western part of Europe (– 10 %). The warmer than usual area included western Ireland, western England, south-western France

and the Iberian Peninsula (here, maximum temperatures above 40 °C occurred in the south-west of the peninsula in the last part of June). The colder than usual areas were located in the northern Scandinavian peninsula and around the Baltic Sea, parts of western Belarus, Ukraine and the European part of Russia.

Rainfall: Good water supplies in England and Ireland, still dry in France and Ukraine, too much water in Sweden and Finland

Beneficial rain was recorded for Ireland (in some places the rain was too intense), the northern part of England, most of continental Europe except the Iberian Peninsula, France, central Germany, Poland and Romania. Most of Turkey, significant areas of northern Italy, Ukraine (except the eastern part) and Russia received fewer precipitations than usual. The dry conditions in Portugal and southern Spain became very acute during the second half of June. A similar threat is visible for most areas of France, especially in the southern half of the country, but the rain forecast for the next few days may alleviate the situation especially in northern areas. Intense rain occurred in the Balkans, Austria, the Baltic area, northern Tunisia and eastern Ukraine.

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)
— Winter and spring crops, May 2004 (Vol.12, No3)

Contributions

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Editor: G. Genovese.
Analysis and reports from AGRIFISH Unit:
G. Genovese, C. Lazar, F. Micale, A. Royer, I. Savin.
Reporting support: C. Aspinall (JRC/IPSC/AGRIFISH).
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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.

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Next issue

Vol. 12, No 5 – 2004: July - August 2004 analysis.

Highlights by region of interest

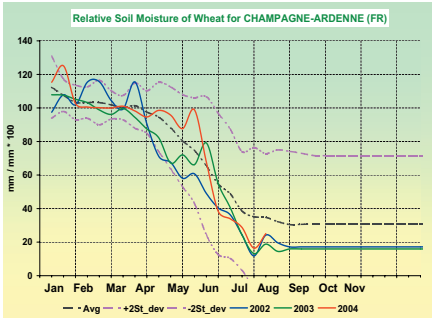
EU-25

France: persistent lower rainfall

The temperatures were higher than average at the beginning of June; then, from the north, they became lower than seasonal values at the end of June to the beginning of July. Several days with maximum temperatures over 30 °C (up to 36 °C) were recorded in the south-west and southern Rhone valley.

The level of rainfall remained much lower (<– 30 %) than seasonal values, with higher deficit in the south, around – 50 mm for the month of June. The situation improved in the north during the first dekad of July, which recorded higher precipitation than average. However, most of the country remained below the norm.

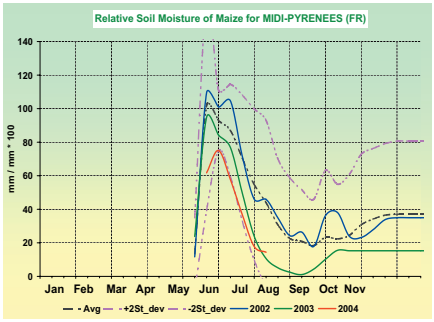
Boosted by the higher temperatures in June, winter wheat reached ripening maturity and the harvest could start in the southern part of the country at the beginning of July. Due to the lack of rainfall, the crops could only rely on the soil moisture that reached a lower level than average and than in previous years. The rainfall in July arrived too late to benefit the winter crops that were at the end of their cycle. The conditions of yield elaboration were sub-optimal.



From ripening at the beginning of June, rapeseed reached the maturity stage. The storage organ elaboration phase relied only on the soil water reservoir during the whole period. It should have a negative impact on the yield expectation.

As for the winter crops, spring cereals suffered from the lack of precipitation during the ripening phase. The soil moisture was drastically reduced and the yield elaboration conditions were not optimal. However, the rainfall of July should have benefited the plants that were not too advanced in the cycle.

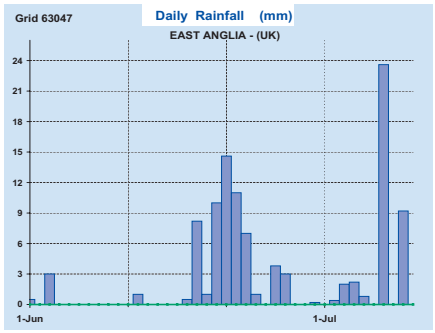
As sunflower and maize are irrigated they should not have suffered from the dry conditions but the water consumption should have been higher than usual. Slightly in advance, they could grow within optimal conditions, benefiting from higher radiation than average, particularly in the western half of the country. The drop in the temperature during the first dekad of July should have slowed down crop development. These crops still had a higher yield potential than average.



Compared with the last bad year, all the crops show better yield potential. The soft wheat yield forecast remained the same as before, with 7 t/ha (+ 9.3 % compared with last year). For durum wheat the forecast gives 4.3 t/ha, which is better than last year (+ 7.2 %). Barley is forecast at 6.3 t/ha (+ 11.4 %). Rapeseed should reach a yield of 3.3 t/ha (+ 1.5 %). For maize the yield is foreseen at 8.2t/ha (+ 14.2 %).

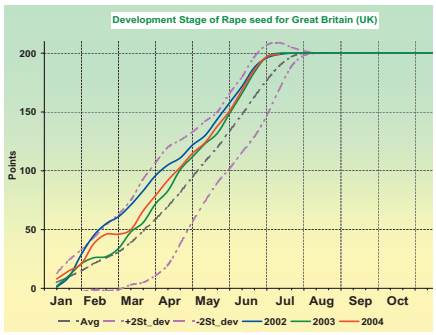
UK and Republic of Ireland: still mild with beneficial rains

The rains which fell in June and July meant that the forecasted yields were maintained, however, close to the average level. In the UK and Ireland, soft wheat yield is respectively foreseen at 8.0 t/ha (0.2 % compared with 2003) and 9.2 t/ha (+ 10.6 %). As regards barley, a slightly lower yield than 2003 is expected for the UK (5.7 t/ha; – 3.7 %) and an improvement is expected in Ireland (6.8 t/ha; +4.0 %). Rape seed yield is expected at 3.3 t/ha (+ 8.5 %) in the UK.

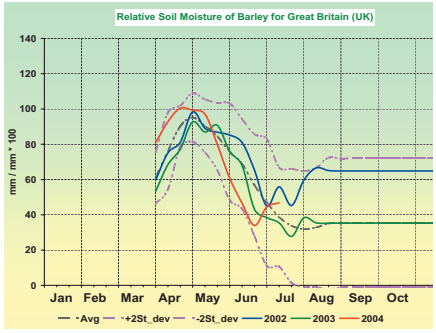


Again, during the first half of June, above average (around 6–8 °C) temperatures were recorded. In that period, the maximum values in some areas reached 30 °C (East Anglia, Lincolnshire, Leicestershire, etc.). In general, all the crops' development reacted positively to these thermal conditions and presented advanced stages, similar to the 2003 campaign.

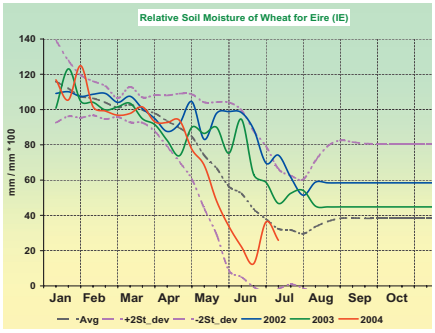
Following an unseasonably dry period in the first part of June, was still relatively dry, but fortunately, in the second part and first dekad of July, persistent and abundant rains finally recharged the soils' reservoirs. This rainfall was particularly beneficial both for winter cereal (still at the grain-filling or ripening stages) and for spring crops (in vegetative or early reproductive stages of development).



However, due to higher than normal temperatures and elevated solar radiation, the crops' water consumptions were also higher than average and in southern England the rainfall was not sufficient to compensate them.



In Ireland the favourable temperatures, the recovered soils' water content and the higher than average solar radiation foresees a positive impact on the grassland biomass.

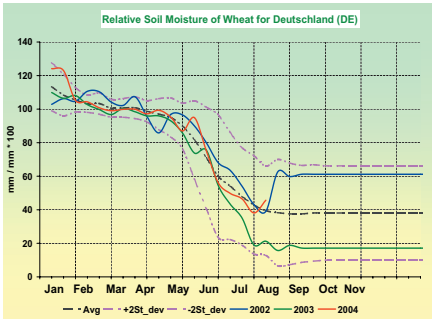


Germany: generally favourable conditions

In June the country experienced dry and wet periods scattered all over the territory. As a whole the south recorded a higher water deficit than the north. During the first dekad of July the precipitations were 30 % higher than average all over the territory.

The temperatures, which were higher than average, dropped and remained at lower levels than normal from the end of June.

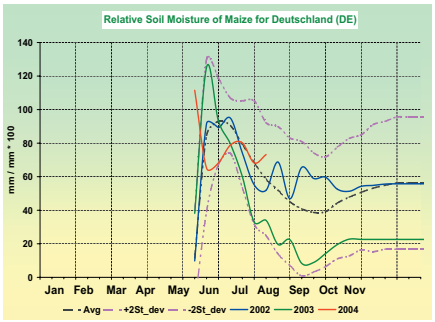
Winter wheat benefited from good rainfall that partially replenished the soil moisture. The crop did not suffer from water stress and the yield elaboration could continue under optimal conditions during the flowering/ripening phases.



From ripening to maturity, rape seed could end its development under optimal conditions.

Like wheat, barley could reach the flowering stage in July under good growth conditions.

Spring crops benefited also from the beneficial rainfall in July and could continue their development under good conditions.



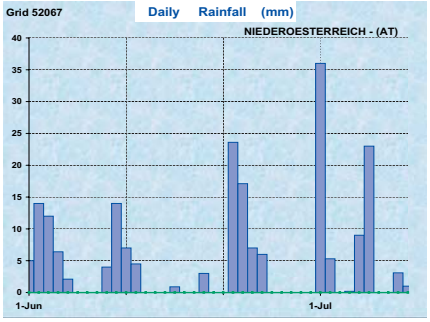
The crop potential remains high and the yield forecasts in July are better than those in May. Soft wheat in Germany is foreseen with a yield of 7.2 t/ha (+ 10.6 % compared with last year). For barley, the prevision is much better than last year, with 5.9 t/ha (+ 15.5 %). Production of rapeseed should also be good, with a yield forecast of 3.3 t/ha (+ 15.9 %). For maize the forecast gives a yield of 8.7 t/ha (+ 18.0 %).

Austria: persistent over-wet conditions

The average temperature was slightly lower than average except in July when the value started to be slightly higher than the seasonal level.

Austria again experienced higher precipitation than average (> 30 %), all over the country and during the whole period, except at the north-eastern border line.

Winter wheat reached the normal ripening stage in July. Due to the high precipitations, the soil moisture could be saturated and the crops could have suffered from excess of water.



Rapeseed was at the maturity stage and, like wheat, could have suffered from the over-wet conditions.

The spring crops were growing normally with a high soil water reserve assuring further development.

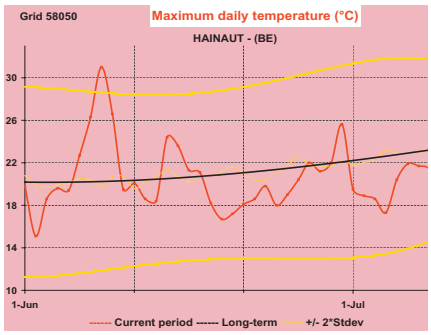
The crop forecasts in Austria remained at a good potential, with 5.0 t/ha (+ 12.5 %) for soft wheat, 4.5 t/ha (+ 8.3 %) for barley, 2.4 t/ha (+

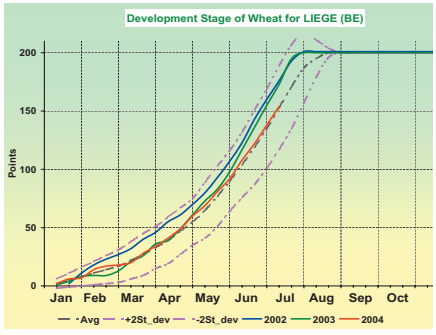
34.3 %) for rapeseed and 9.6 t/ha (14.6 %) for grain maize.

Belgium, the Netherlands and Luxembourg: normal conditions, very wet the last part of the considered period.

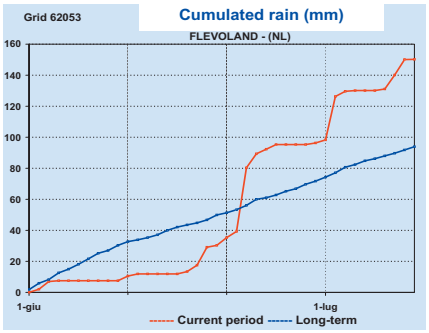
In Belgium, good conditions were also monitored in June and the soft wheat yield is expected at 8.5 t/ha (+ 0.4 % compared with 2003), barley at 7.2 t/ha (+ 8.1 %). In the Netherlands the recovered soil water content meant that the soft wheat yield could be maintained at 8.5 t/ha (– 7.6 % compared with 2003) and barley at 5.8 t/ha (– 11.7 %). The yields' estimation in Luxembourg is stable: soft wheat yield at 6.0 t/ha (– 1.7 %) and barley at 5.3 t/ha (– 0.5 %).

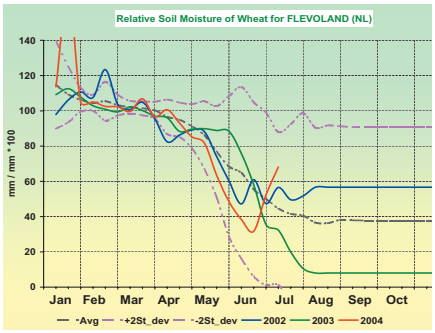
Temperatures close to the average for the period (in Belgium only, between 8 and 9 June, the maximum temperatures were above the norm and reached 31 °C) and sufficient rain supplies characterised the period. However, in southern Benelux and Luxembourg a light deficit was detected, estimated on average at around 20/30 mm (equivalent to – 15/– 20 %).





In the Netherlands the rainfall deficit that had already occurred in May continued in the first half of June, but was interrupted by several beneficial consecutive rainy days in the second half of the month and at the beginning of July. The agrometeorological conditions registered can be generally assessed as non-limiting for winter crops and, according to the active crops' development, it is possible to maintain the yield levels forecasted in the previous bulletin. However, the reduced soil water availability could have affected at different levels the most sensible spring crops (e.g. potato) cultivated on soils with limited water retention capacity.

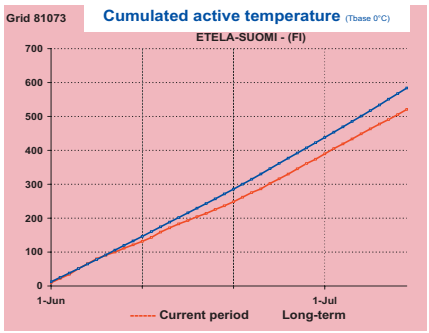




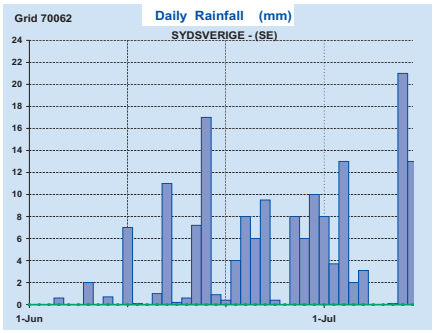
The meteorological evolution in June was also non-limiting for grassland in Belgium, but in the Netherlands it could have reduced the grass biomass production. However, in these areas the rainfall during the last part of the considered period can permit a more normal evolution in the next stage of development.

Denmark, Sweden and Finland: still relatively dry conditions in Denmark, slightly colder than average and quite wet in Finland and Sweden

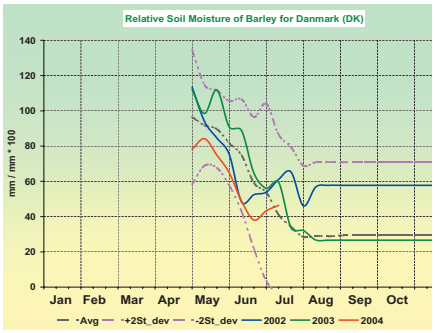
At the moment, in Denmark, no significant impacts are considered possible because of the lack of rain and the expected yields are: soft wheat 7.0 t/ha (– 1.6 % compared with 2003), barley 5.5 t/ha (+ 3.0 %) and rape seed 3.0 t/ha (– 8.5 %). In Sweden: soft wheat 5.6 t/ha (+ 1.2 % compared with 2003). In Finland the colder conditions revise downward the yield forecast for soft wheat at 3.4 t/ha (– 4.5 % compared with 2003).



Denmark experienced temperatures within the normal ranges of variability, and the accumulated values of active temperatures (Tbase = 0 °C) presented non-variation compared to the average. Consequently, the previous cumulated advance in crops' development was partially reduced. On the contrary, in Sweden and Finland, from the second dekad of June the temperatures (with more evidence for the maximum values) were constantly below the norm (on average around 5–6 °C) and the accumulated active temperatures presented an evident deficit.



The rainfall was mainly concentrated in the second half of the considered period and quantitatively distributed: in general, it was below the norm in Denmark and quite abundant and persistent in Sweden and Finland, which experienced, after 15 June, more than 20 consecutive rainy days. In Denmark the rainfall in June refilled the soil water reservoirs, returning the soil moisture to more normal values.



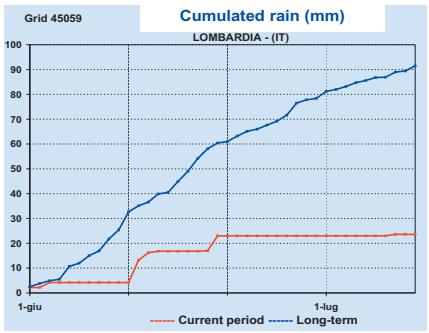
In Sweden and Finland, the solar radiation presented lower than average values, partic-

ularly in Sweden. This parameter could represent a limiting factor, reducing the energy available for biomass synthesis.

Italy: generally normal conditions, dry in northern areas, wetter in the south

Generally good results are foreseen: durum wheat is now expected at 2.7 t/ha (+ 22.7 %), soft wheat 4.8 t/ha (+ 9.5 %) and barley 3.5 t/ha (+ 7.5 %); grain maize is projected at about 9.2 t/ha (+ 22.7 %).

In June the country experienced quite normal thermal conditions but, similar to May, also two distinct weather courses regarding the rain distribution: quite drier than average in the central and northern areas; quite wetter in the south (except Sardinia, where no rainy days were recorded) and in Sicily. In particular, the Po Valley (especially in the western part: Piedmont and Lombardy), Tuscany and central areas received only a few millimetres of rain (on average less than 25/30 mm compared with 80/90 mm expected in this period); on the contrary, the southern areas (in particular, in Apulia) received 80/90 mm of rain during the first dekad of June, distributed over four to five rainy days with maximum intensity of 35/40 mm a day.

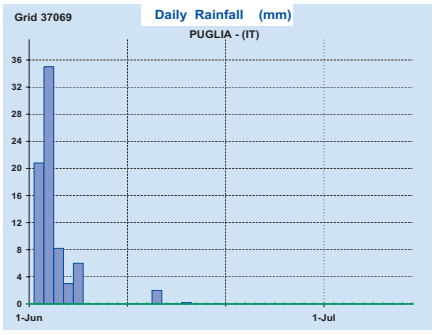


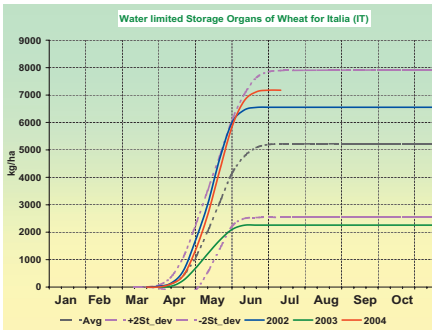
Also worth mentioning are the high peaks of temperatures recorded in southern areas in the last days of the first dekad of July, which in some locations surpassed 38/39 °C and occasionally even 41 °C (Apulia).

Winter crops and grassland

In general, the normal thermal conditions permitted a regular course of the last part of the crops' cycle and permitted maintaining the crops' water consumption within the normal values. In the Po Valley the reduced rains depressed the soils' reservoir with possible impacts on the last part of grain-filling. Also the grassland could have suffered from the limited water supply (better conditions in north-eastern areas).

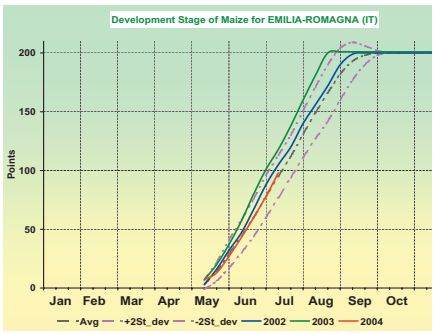
On the other hand, in southern areas the intense rains probably disturbed the field activities postponing the winter cereals' harvesting or causing local losses.





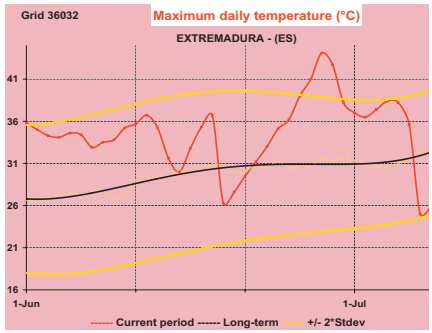
Spring–summer crops

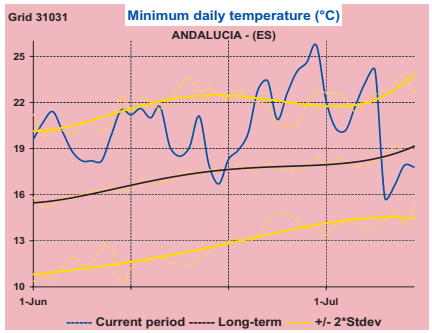
In general the weather conditions were quite favourable, except for the limited rains in the Po Valley which, following a relatively dry period previously, forced the farmers to further irrigate.



Spain and Portugal: generally dry, hot conditions in southern areas

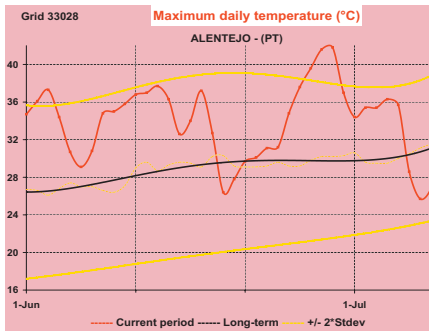
Despite a reduction compared with the previous forecasts, due to the dryness of the considered period, good levels of yields are maintained in Spain: soft wheat 3.3 t/ha (+ 6.5 %), durum wheat 2.3 t/ha (– 5.5 %) and barley 3.0 t/ha (+ 4.8 %). In Portugal, durum wheat is expected at 1.1 t/ha (+ 31.9 %) and soft wheat at 1.3 t/ha (+ 9.7 %).





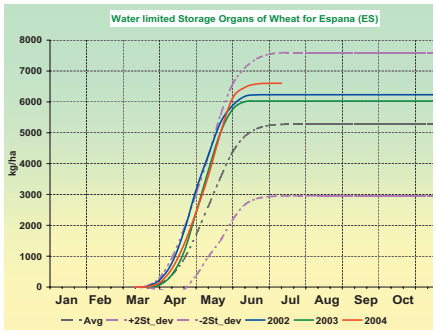
The agrometeorological conditions in June were characterised by temperatures 6–8 °C above the average for the whole period (they returned to closer to normal values only in the last few days of the first dekad of July). The temperatures in the last part of June largely passed the threshold of 40 °C and in Extremadura, Andalucia and Alentejo reached 42/44 °C. In the northern areas (Castilla y Leon, Aragon, northern Portugal) the temperatures were also above average but remained within the normal limits of variation: at the end of the period the cumulated active temperatures (Tbase = 0 °C) were 80–100° GDD above the expected values.

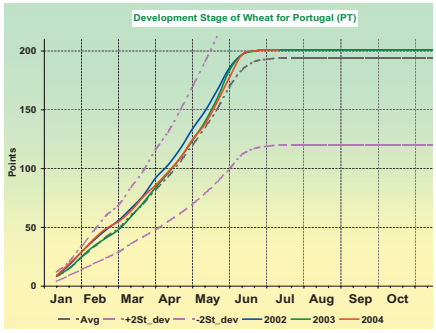
The rains were practically absent in Portugal and southern Spain, causing a rapid depletion of the soil water reservoirs. Only in the extreme northern part of the peninsula (Cantabria, Asturias, etc.), the accumulated values were close to the average but below the expected amount (– 20/– 25 %).

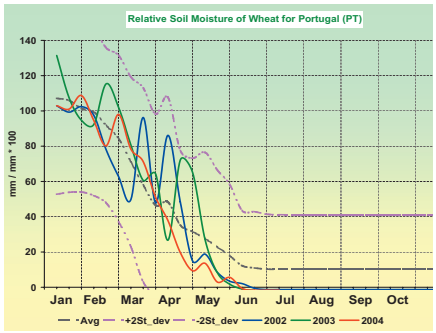


The thermal conditions reduced the period for ripening of winter cereals and boosted desiccation, but probably affected the crops still in vegetative or reproductive stages of development by heat of stress. The absence

of rain facilitated the cereal harvest, but increased the irrigation volumes for spring active crops (e.g. sunflower, maize, etc.).



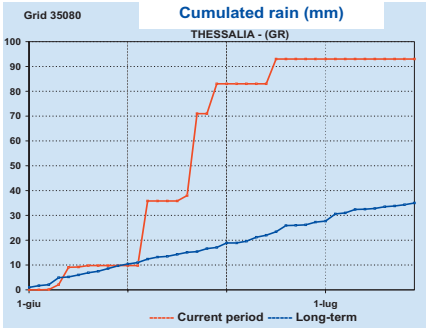




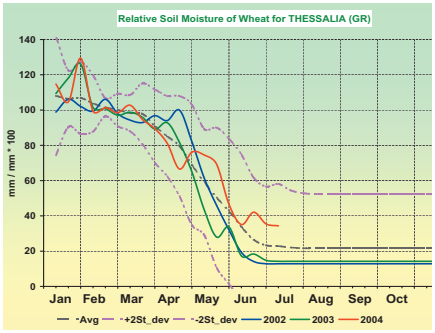
Greece: over-wet conditions

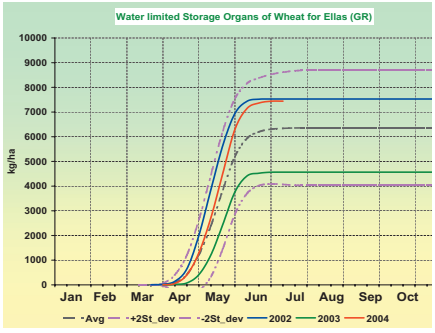
The good agrometeorological seasonal course permits estimating yield values above 2003: for soft wheat (2.7 t/ha, +5.3 %) and for durum wheat the national result would be around 2.3 t/ha (+ 25.0 % compared with the low performances of 2003).

Normal temperatures and quite abundant rainfalls characterised the month of June. The temperatures, both in the minimum and maximum values, were within the normal range of variation and globally close to the normal.



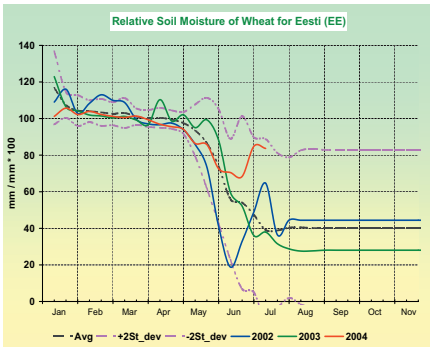
On the contrary, rainfall was present in all three dekads, even if with no uniform spatial distribution (i.e. Attiki and Peloponnesus received just a few millimetres of rain less than climatic cumulated values), assuming in many cases the characteristics of intense showers (more than 30–35 mm/day). In the main cereal districts, these intense rains could have caused both direct damages to the still active crops (e.g. lodging, fungal diseases, etc.) and interfered with the harvesting activities. Quantitatively, these local impacts are hard to estimate and the reported yield estimations cannot take into consideration the likely reductions due to these phenomena.





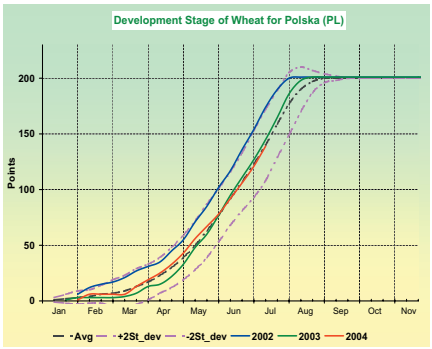
Estonia, Latvia and Lithuania: rains at wheat flowering, delay in a small development of barley crops and soil water high

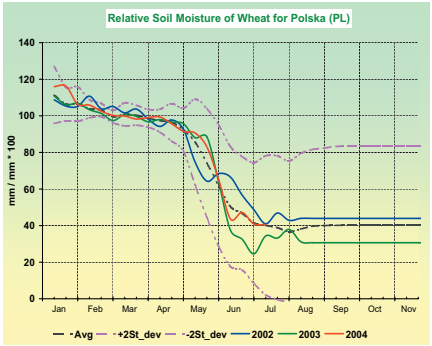
Some intense rains improved the soil moisture but they superimposed with wheat flowering (developmental delay for wheat crops is lower than 5 %) and this may reduce the number of grains per surface unit. Due to thermal conditions from this vegetation season, the development of barley crops is delayed in the Baltic area, with more than 10 %, and the weight of above ground biomass is also reduced. The forecasted wheat yields are 1.8 t/ha for Estonia, 3.9 t/ha for Lithuania and 3.2 t/ha for Latvia; for barley the figures are1.9 t/ha, 2.6 t/ha and 1.7 t/ha respectively. For oil seed rape, a small developmental delay was noticed and the expected yield level is 1.7 t/ha for the whole Baltic area.



Poland: good status of wheat crops

The active temperature accumulation was normal except in north-western Poland where it was colder than usual (– 6 %), the northern part of the country was wetter (+ 30 %) and the centre was drier than normal.



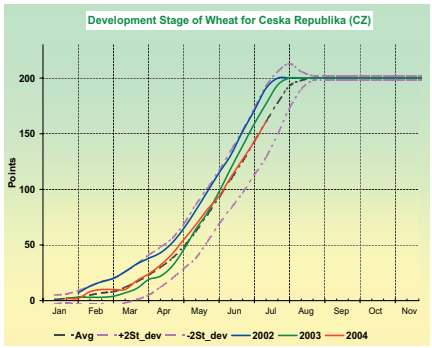


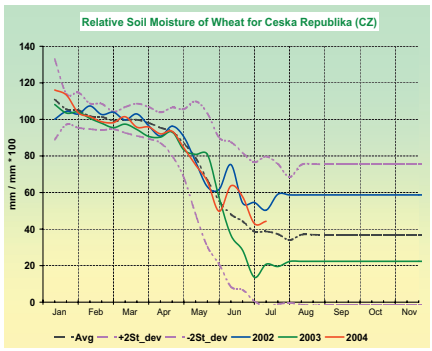
The biomass of water limited storage organs for wheat is above the long-term average, the development stage being close to normal. All the simulations for barley are close to normal. Meanwhile, the estimated water limited storage organs' weight for oil seed rape is above the long-term average. The

estimated yields for Poland are 3.6 t/ha for wheat, 3.1 t/ha for barley, 2.5 t/ha for oil seed rape and 18.8 t/ha for potato crops.

Czech Republic: good wheat yield expected

Development stages of the main crops are close to normal and the relative soil water content is decreasing but above the long-term average. The water limited biomass above ground wheat crops is, with 10 %, higher than expected, Meanwhile, the weight of storage organs from the crops grown under water limited conditions is, with 20 %, higher (expected yield: 4.4 t/ha). For barley the grain weight is slightly above the normal level but the accumulation process is not yet finished (expected yield: 3.8 t/ha). The simulated yield for rape seed is, with about 5 %, lower than the long-term average (2.4 t/ha).



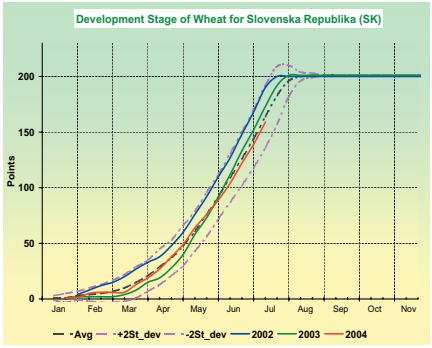


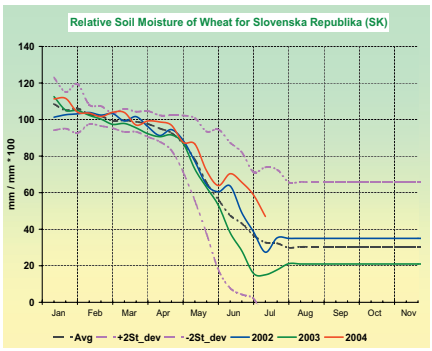
Slovakia: rain in wheat-flowering time but still a good outlook

The forecasted yields are: 3.1 t/ha for wheat, 2.7 t/ha for barley and about 5.2 t/ha for grain maize, oil seed rape, sugar beet, potato and sun flower.

The development of wheat was slightly below the long-term average. Rains from mid-June, heavier than usual, replenished the soil water content, but this must be regarded also as a risk-generating event due to their occurrence in the flowering period.

Water limited dry matter of storage organs for barley crops is +30 % above the long-term average and the development stage is close to normal. For oil seed rape crop, which is also close to normal development stage, the increase of grain weight is +17 %.

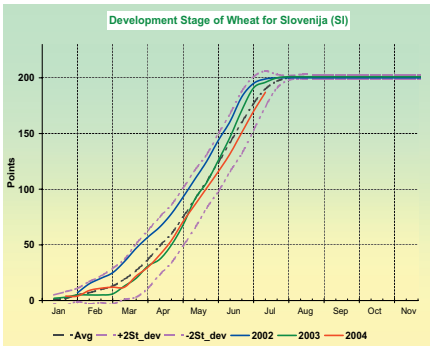


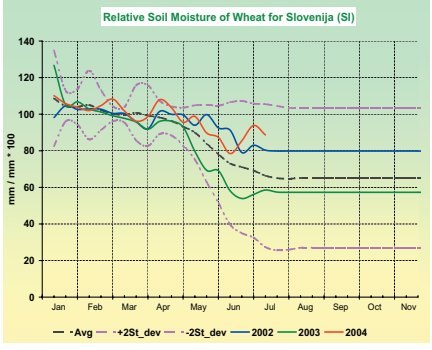


Slovenia: normal conditions

For wheat, the forecasted yield is 4.3 t/ha, for barley the yield estimation is 3.5 t/ha, and yields of 6.6 t/ha are expected for grain maize, sugar beet and potato.

Yield formation of the wheat crops was at a normal level in the eastern half of the country. Meanwhile, for the western part, the simulation shows a better picture but the crop presence is reduced in this mountain area. Simulated maize development was close to the long-term average.



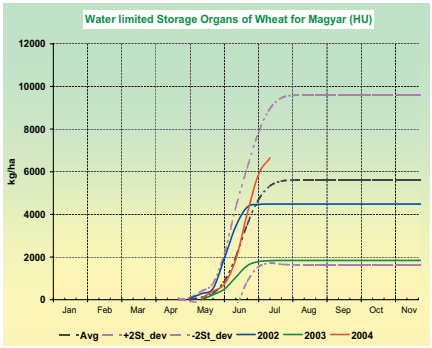


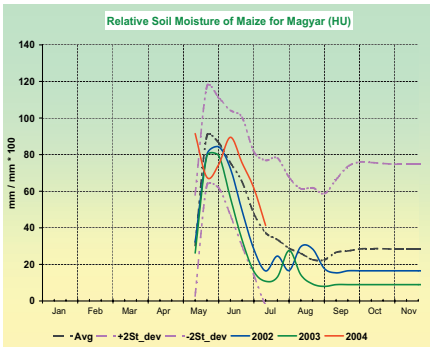
Hungary: good situation for winter crops

The expected yields are 3.7 t/ha for wheat, 3.2 t/ha for barley and 6.7 t/ha for maize.

The water limited storage organs of winter wheat are at a higher level (+ 30 %) than normal, except in the north-eastern part of the country which was close to normal. For the western half of the country the relative soil moisture is higher than normal; in the east this indicator is at the normal level.

Water limited above ground biomass of maize crops is close to the normal level. The water limited biomass of sunflower crops was close to normal except for the eastern part where it was about 15 % above long-term average.



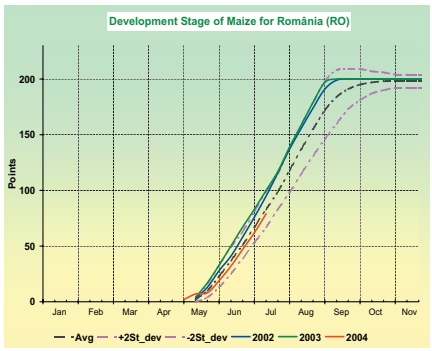


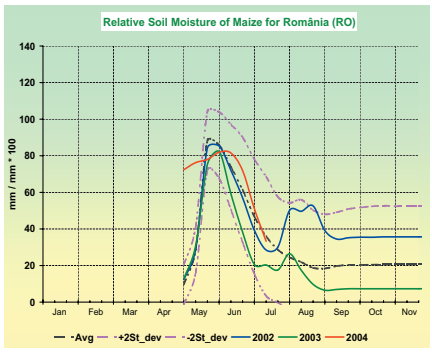
Central European countries

Romania: better conditions for wheat in the south of the country

Wheat development was close to normal and the above ground biomass of the storage organs was about 30 % higher than the long-term average in the southern half of Romania, with the same percentage lower in the north-eastern corner of the country and close to normal in the rest of the territory. Except in the south of the country, the relative soil moisture was below the long-term average. Although the daily temperatures remained at 35 °C (except for western Romania, where values above 37 °C were reported), the association with high air relative humidity reduced the transpira-

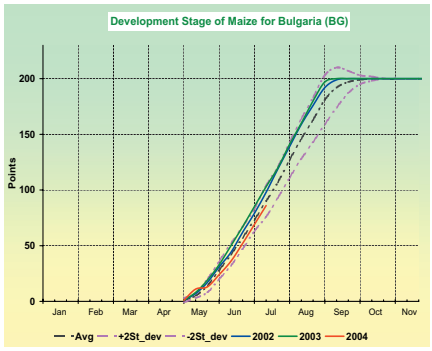
tion of the maize crops. Water limited above ground biomass of maize crops is close to the normal level.

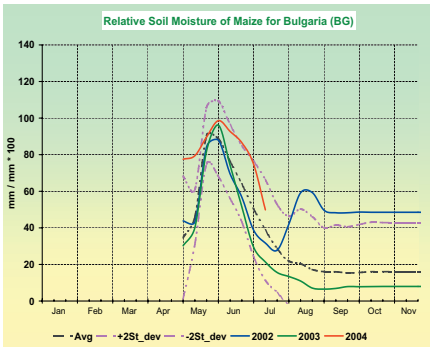




Bulgaria: good yield expectations for winter crops

The wheat crops attained full maturity at the end of June. The heavy rains and the winds may have induced some local lodging problems. The sunny days from the beginning of July were favourable for harvesting. Total above ground dry biomass was, with more than 5 %, higher than the long-term average, and the simulated winter wheat yield for water limited conditions is, with 11 %, higher than the long-term average. Barley phenology is at the expected stage, and the good level of soil water content from the last four dekads is reflected in a higher weight of storage organs. The development of sunflower is close to the normal situation, and maize crops have a small delay (– 5 %). For both of these summer crops, the relative soil water content is decreasing quickly but it is still far above the long-term level and the water limited above ground biomass is close to the normal level.





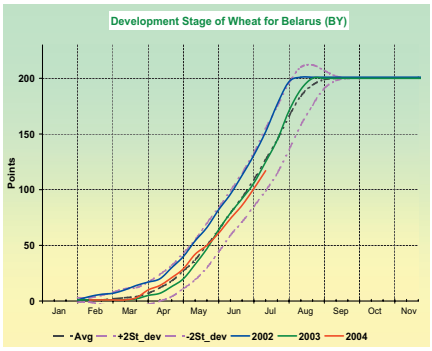
Turkey: drier weather in south but wheat yield is foreseen at normal level

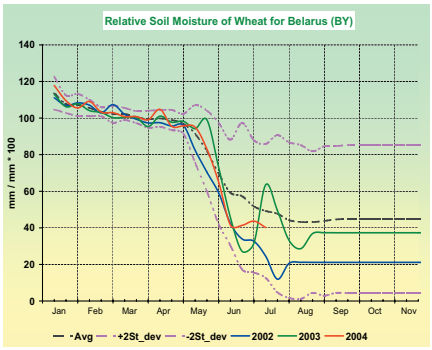
The southern part of the country was the subject of drought in the considered period. meanwhile, the relative soil moisture in northern Turkey presented a better situation. The weight of the storage organs of the winter wheat was at the level of the long-term average except in south-eastern Turkey where the conditions were more favourable.

Eastern countries

Belarus: colder weather delayed development but no other problems detected

Western Belarus received more rainfall than the rest of the country. The temperature was close to the long-term average, except in the east (Mogilev) which was colder. The simulation indicated the beginning of flowering of wheat crops for the end of June (– 7 % delay compared with the long-term average). For this crop, the relative soil moisture decreased to – 30 % from normal levels at the beginning of June, and started to recover slowly up to – 15 % at the end of June; the levels for this period are better than in the previous year. Although the total above biomass is slightly above the normal level, due mainly to the decrease of soil moisture, the dry weight of storage organs is below the normal value. The development of barley (beginning of flowering) is also delayed, grain weight is below the expected value, but soil water moisture is close to the normal level.

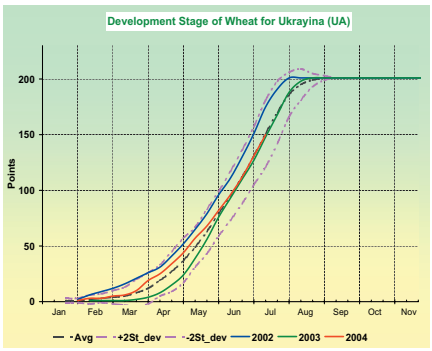


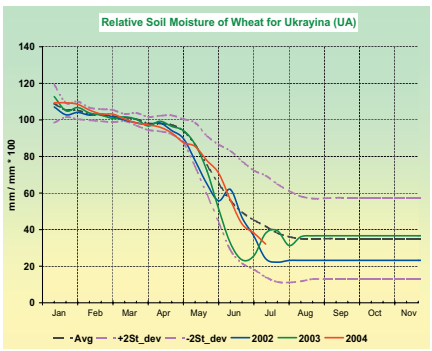


Ukraine: problems for winter wheat in south and south-east

The accumulation in the kernel of wheat crops from southern and south-eastern Ukraine was higher than usual (+ 25 %). Meanwhile, for the northern and the centre of the country, the situation was worse (– 30 %).

Aerial biomass of maize and sunflower crops from eastern Ukraine is lower than normal (– 30 %). Simulated maize development was close to the long-term average.



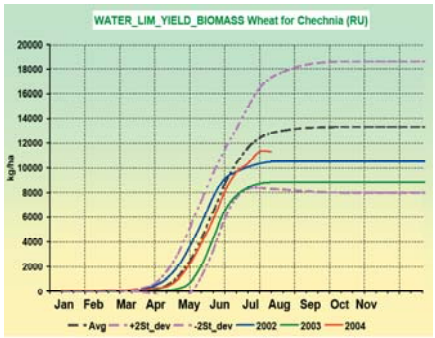


Russia: favourable conditions for winter crops and high yield expectations

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

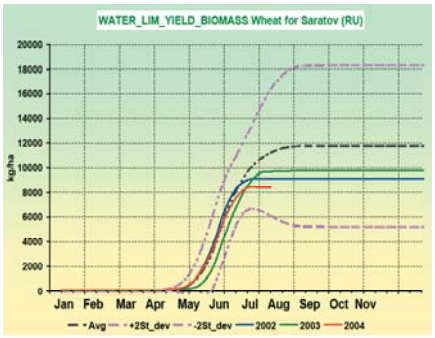
The air temperatures during June were lower by 2–3 degrees than normal, especially in central and western regions, but it was not extreme for crop development.

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



Relatively low air temperatures and a high amount of precipitation lead to a good accumulation of water in the soil in the main areas with winter crops. As a result, soil moisture content at the end of June was higher compared with the previous year in the central Chernozemic region, and in the western part of the northern Caucasus.

As a result, the meteorological conditions were optimal for winter crops' development practically in all main winter crop sowing regions of Russia, excluding the Urals region, and part of the Volga region. The yield of winter crops seems to be higher than normal, and higher than in the previous year. Due, simultaneously, to high amounts of precipitation and relatively low amounts of incoming radiation, the quality of the grain will be not very high.



The meteorological conditions for summer crops were good practically in all regions, except the Urals region, where low amounts of precipitation should delay the crop development, which should lead to a decrease of summer crop yield in this region.

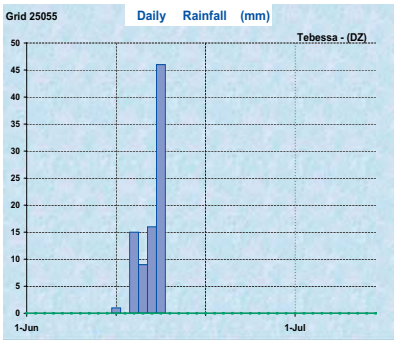
Magrheb

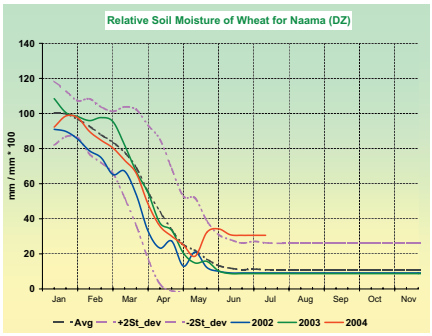
Algeria: normal end of crop cycle

The temperature were higher than the seasonal values except during the 2nd dekad of June. They contributed to accelerate the final maturity stage.

The country experienced some rainfalls during the 1st dekad of June in the western and during the 2nd dekad in the eastern.

Due to the good soil moisture level the crop could complete the cycle in optimum conditions. However some extrem precipitations (up to 50mm) were recorded in the western and could have damaged some crops or postponed the harvest.

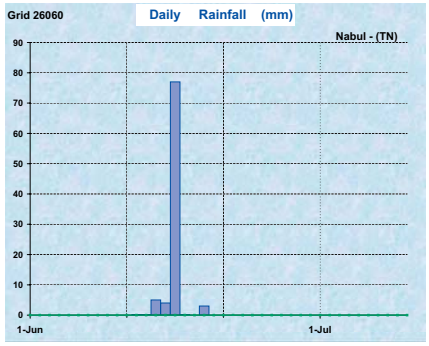


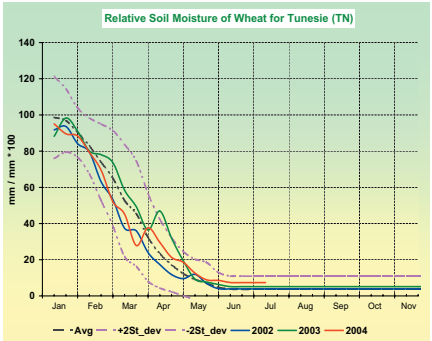


Tunisia: extreme precipitations in June

A part from the 2nd dekad of June the temperatures were higher than the normal and contributed to boost the end of the crop cycle.

Tunisia recorded lower rainfalls than average except during the 2nd dekad of June. The crop during the final maturity stage could benefit from the good soil moisture and completed its cycle under optimal conditions. However some extreme daily precipitations (up to 80mm) were recording during the 2nd dekad of June and could have damaged the crops or postponed the harvest.





Morocco: Dry end of season

The country recorded normal to higher temperature than the seasonnal value boosting the late crop.

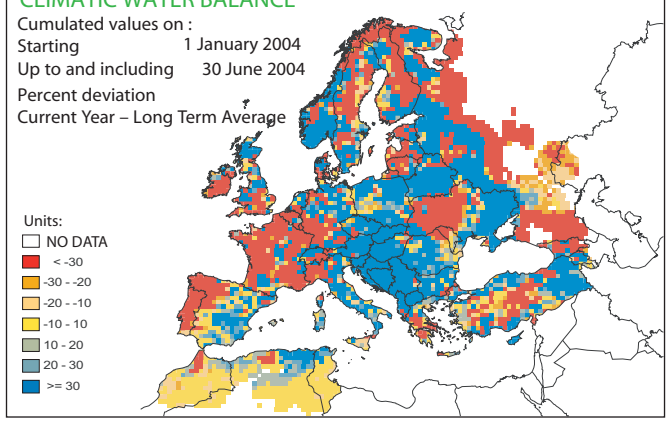
The precipitations were lower than normal except in Tensift. This last

Crop maps — 10th July 2004

WEATHER MONITORING Year: 2004

CLIMATIC WATER BALANCE

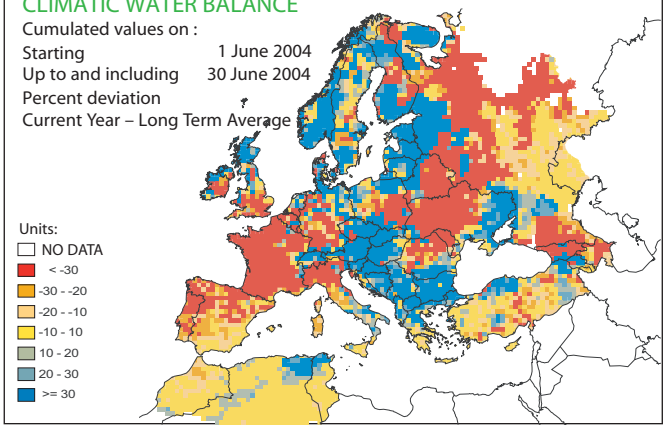
Cumulated values on :
Starting 1 January 2004
Up to and including 30 June 2004
Percent deviation
Current Year – Long Term Average



WEATHER MONITORING Year: 2004

CLIMATIC WATER BALANCE

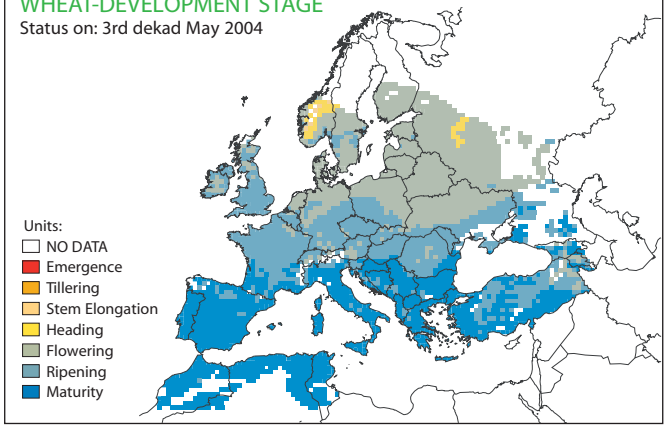
Cumulated values on :
Starting 1 June 2004
Up to and including 30 June 2004
Percent deviation
Current Year – Long Term Average



CROP MONITORING Year: 2004

WHEAT-DEVELOPMENT STAGE

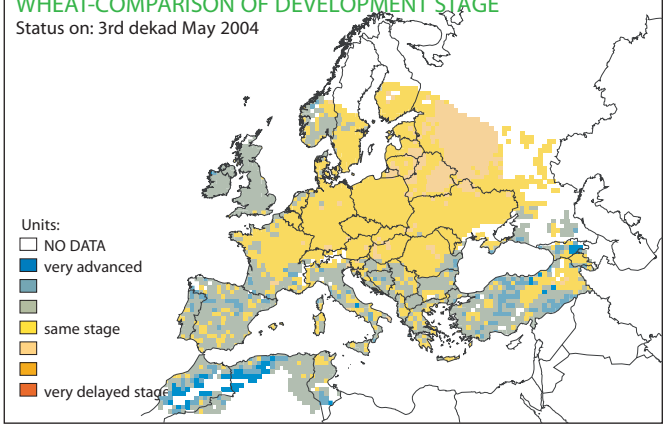
Status on: 3rd dekad May 2004



CROP MONITORING Year: 2004

WHEAT-COMPARISON OF DEVELOPMENT STAGE

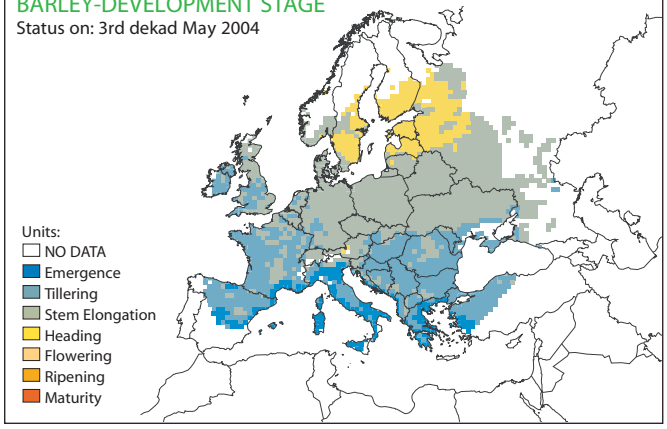
Status on: 3rd dekad May 2004



CROP MONITORING Year: 2004

BARLEY-DEVELOPMENT STAGE

Status on: 3rd dekad May 2004

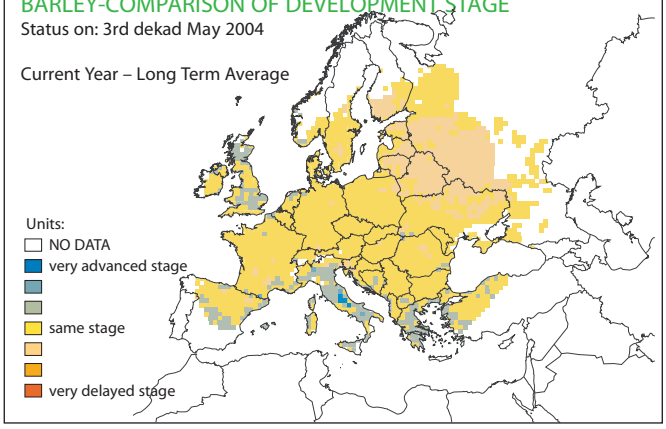


CROP MONITORING Year: 2004

BARLEY-COMPARISON OF DEVELOPMENT STAGE

Status on: 3rd dekad May 2004

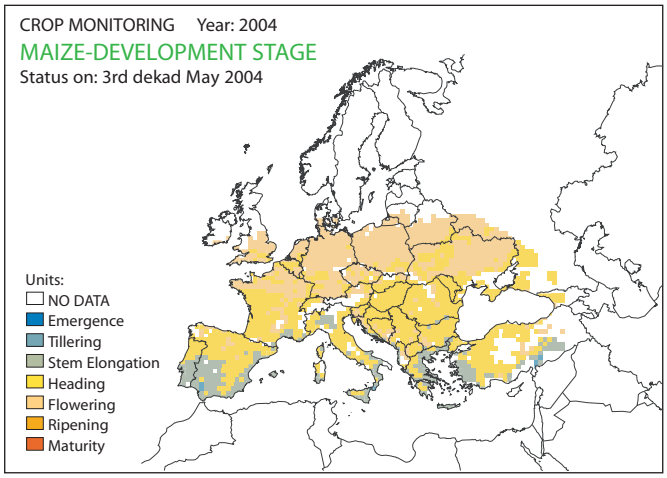
Current Year – Long Term Average



CROP MONITORING Year: 2004

MAIZE-DEVELOPMENT STAGE

Status on: 3rd dekad May 2004

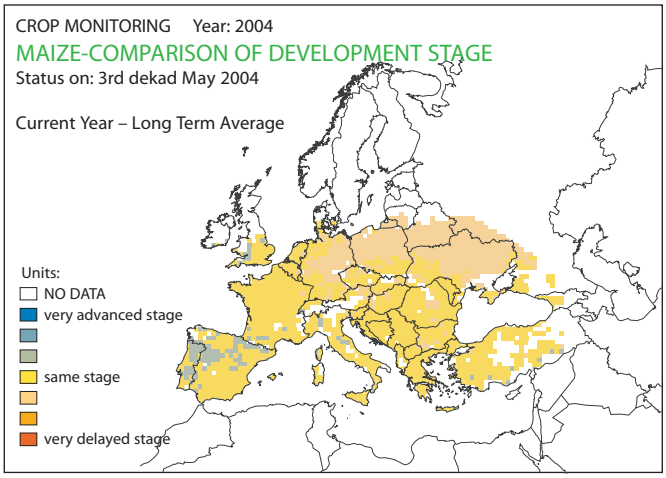


CROP MONITORING Year: 2004

MAIZE-COMPARISON OF DEVELOPMENT STAGE

Status on: 3rd dekad May 2004

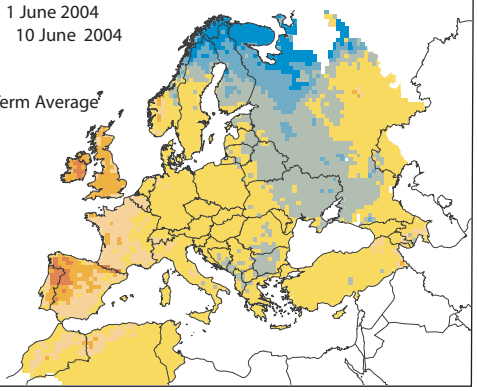
Current Year – Long Term Average



Ten-day rain and temperature maps — 1st June - 10th July 2004

WEATHER MONITORING Year: 2004
DAILY AVERAGE TEMPERATURE (Base Temp. = 0)
Cumulated values on :
Starting 1 June 2004
Up to and including 10 June 2004

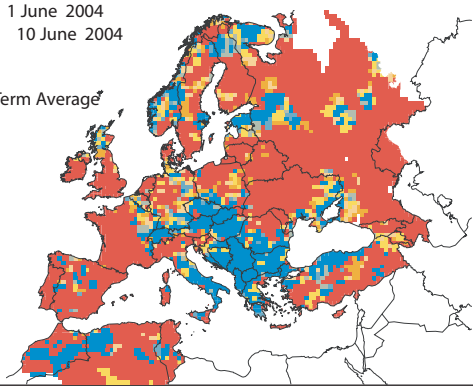
Percent deviation
Current Year – Long Term Average



Units: %
NO DATA
<-30
-30 – -20
-20 – -10
-10 – 10
10 – 20
20 – 30
>=30

WEATHER MONITORING Year: 2004
RAIN
Cumulated values on :
Starting 1 June 2004
Up to and including 10 June 2004

Percent deviation
Current Year – Long Term Average



Units: %
NO DATA
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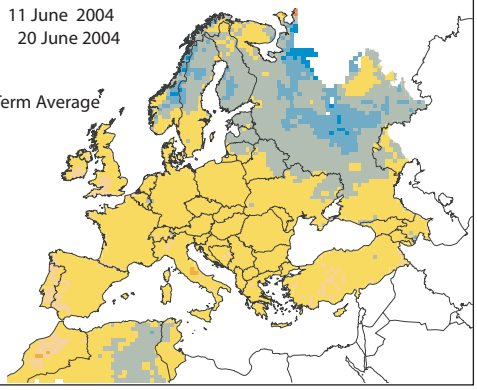
-20 – -10
-10 – 10
10 – 20
20 – 30
>=30

WEATHER MONITORING Year: 2004
DAILY AVERAGE TEMPERATURE (Base Temp. = 0)
Cumulated values on :
Starting 11 June 2004
Up to and including 20 June 2004

Percent deviation
Current Year – Long Term Average



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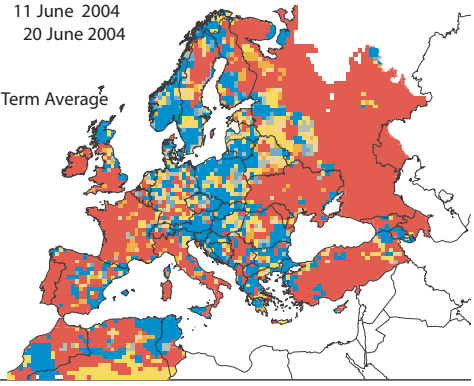
>=30

WEATHER MONITORING Year: 2004
RAIN
Cumulated values on :
Starting 11 June 2004
Up to and including 20 June 2004

Percent deviation
Current Year – Long Term Average



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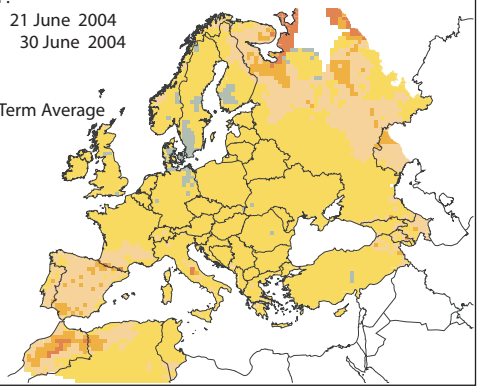
WEATHER MONITORING Year: 2004
DAILY AVERAGE TEMPERATURE (Base Temp. = 0)
Cumulated values on :
Starting 21 June 2004
Up to and including 30 June 2004

Percent deviation
Current Year – Long Term Average



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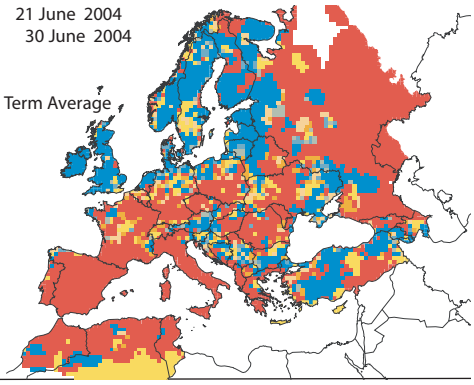
WEATHER MONITORING Year: 2004
RAIN
Cumulated values on :
Starting 21 June 2004
Up to and including 30 June 2004

Percent deviation
Current Year – Long Term Average



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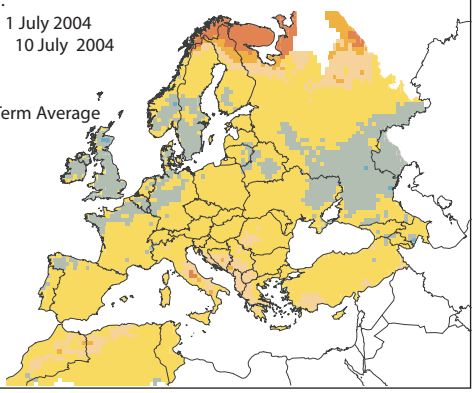
WEATHER MONITORING Year: 2004
DAILY AVERAGE TEMPERATURE (Base Temp. = 0)
Cumulated values on :
Starting 1 July 2004
Up to and including 10 July 2004

Percent deviation
Current Year – Long Term Average



Units: %
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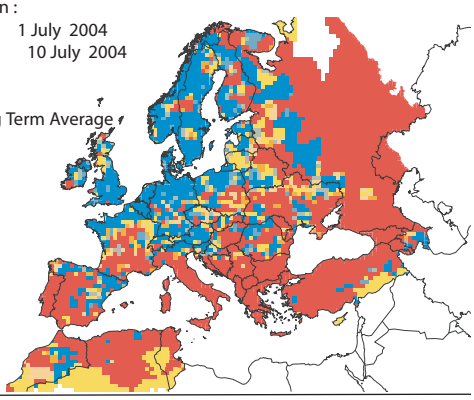
>=30

WEATHER MONITORING Year: 2004
RAIN
Cumulated values on :
Starting 1 July 2004
Up to and including 10 July 2004

Percent deviation
Current Year – Long Term Average



Units: %
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10 – 20
20 – 30
>=30

Spot-vegetation satellite analysis on pasture

Map highlights

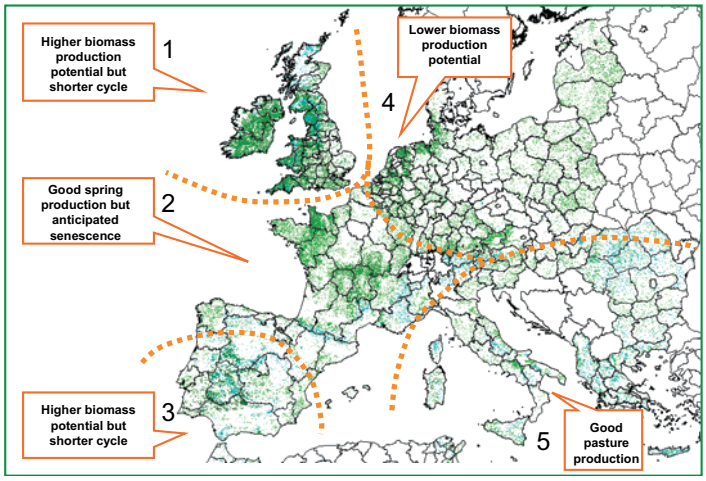
The Corine land cover map shows the main area of grassland (in green). The analysis of the CNDVI (CORINE Normalised Difference Vegetation Index) evolution up to the 10th of July identified five main areas:

- biomass production higher than average(5);

- higher potential but shorter cycle(1 and 2);

- good spring biomass production but early senescence due to dry conditions(2)

- slighltly lower bionass potential(4)



CNDVI profile highlights:

The CNDVI profiles are obtained by unmixing the NDVI through the CORINE Land Cover database, class Pastures number: 2.3.1.

In **France** the main phase of **biomass production in spring should have been better** than the previous year and than the average of the last five seasons. After a slight delay in the vegetation development the pasture reached a maximum of biomass at the end of May beginning of June except in Basse Normandie where the peak of vegetation was earlier.

On contrary the **summer production should be lower** than the seasonal level. The different curves show an abrupt decrease indicating an anticipated vegetation senescence due to the dry conditions. This phase is even earlier than last dry year for Basse Normandie and Limousin.

In **Italy** the pasture production was **better than the last five years** and was exceptional for Sardinia. From mid June the vegetation has started its normal senescence phase.

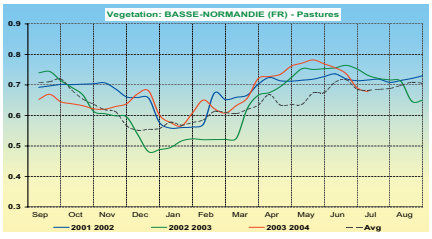
In **east Wales (UK)** and in the **southern and eastern Ireland** the vegetation index show a **better biomass potential during a short period** in May and June. The vegetation growth was delayed but reached a higher potential than the previous year. From the 2nd dekad of June the curve shows a reduction of the biomass production.

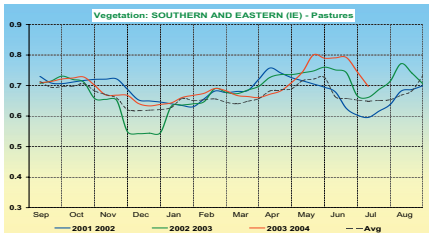
In **Netherland and Germany** the curves show an early vegetation growth with a **lower potential** than the previous years.

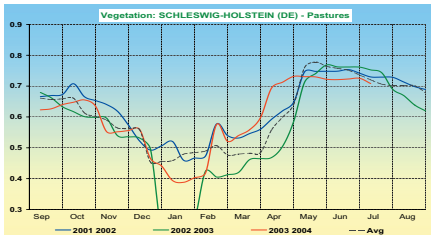
In **Poland** the vegetation growth started in delay and reached the same maximum level as 2002. The vegetation has not yet started its senescence phase.

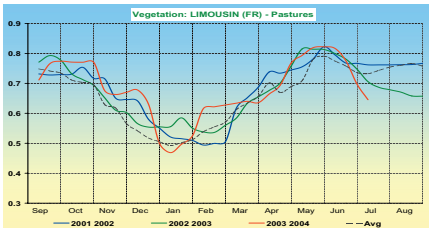
In **Romania** the pasture production should have been better than the previous years despite a delay in the cycle. The vegetation index decreased due to the normal senescence and the first cut. Further climatic conditions will be determinant for the regrowth.

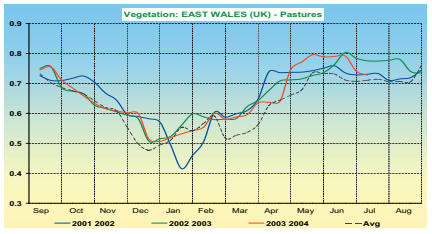
In **Extremadura (Spain)**, the pasture production reached a higher potential than the previous years. However the growth cycle started in delay and was shorten in May due to early dry conditions.

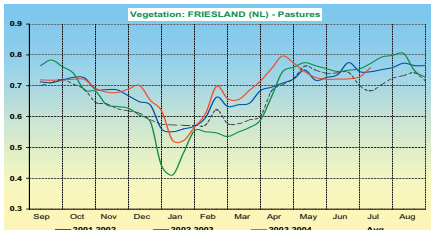


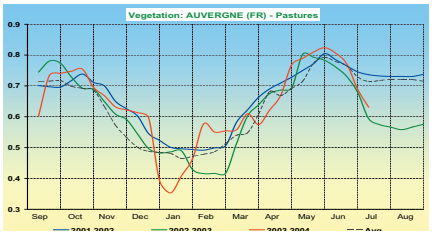


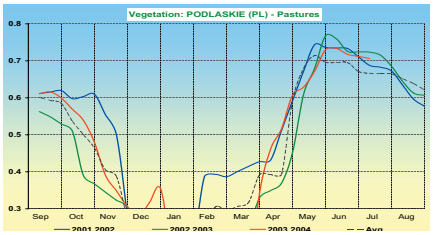


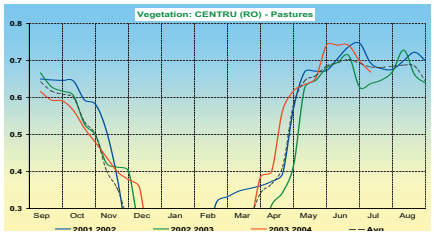


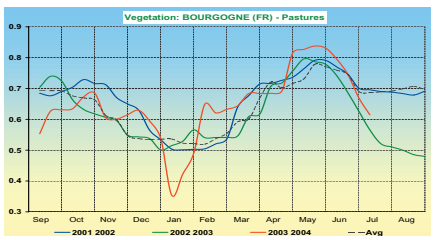


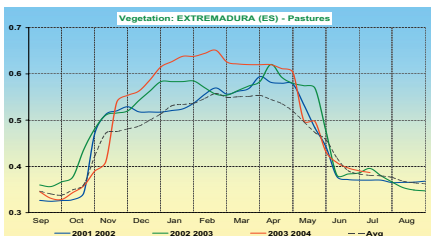


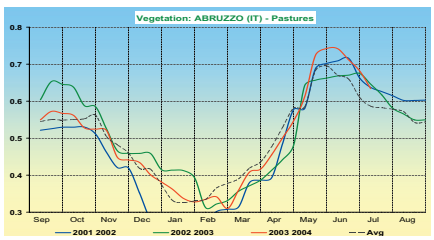












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