EUROPEAN COMMISSION
DIRECTORATE GENERAL JRC
JOINT RESEARCH CENTRE
Institute for the Protection and Security of the Citizen
AGRIFISH Unit

M A R S
BULLETIN

Vol 12 n. 6 – November 2004
e-mail release

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MARS Bulletin - Synthesis of the 2003/2004 campaign and analysis of the new 2004/2005 campaign.

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A. Synthesis of the 2003/2004 campaign[1]

A record year for cereal production

1. Highlights

Normal/mild conditions in winter with low frost impact and favourable to optimal maturity/pre-harvest and harvest weather conditions determined record values in cereals expectations:
The final expected yields for all the cereal crop classes are not only recovering the low performances reached in 2003 but contributing to determine the highest production result on the reference available years (1992-2003) at EU25 level. The total cereal production (excluding rice) is expected to reach more than 274 M tons (+16.1% compared to 2003 and +8.1% compared to average) where the contribution of the yield is 5.2 t/ha instead of 4.6 t/ha in 2003 (+13.7%) or 4.8 t/ha as average (+7.8%).

These figures, do not take into account possible farming/technological improvement in the new EU25 Member States (for instance an increase in the use of fertilizers) not covered by our simulation/measures which could further increase the result.

2. 2003/2004 campaign climatic overview

AUTUMN 2003 (October - December): a colder than average October was followed by a warmer period. Generally normal rainfall; relatively dry in Central EU Countries, UK, Ireland and Greece; more than average water supply in the Mediterranean, Balkans, Maghreb and Turkey.
Summer conditions continued until the end of October, when a cold front invaded the whole northern part of the continent and France, Germany, Northern Italy, Poland, Czech Republic, Slovakia, Austria, Hungary and Romania experienced a few days with temperatures below zero: in general the minimum temperatures reached -3°/-4°C, but locally (e.g.: in Germany and Poland) -7°/-8°C were also recorded. In November the air flux changed drastically and normal temperatures returned in the western EU countries ; warmer than average in the central and eastern EU countries and Russia, Ukraine and Candidate Countries. Similar, but closer to long term average thermal conditions were present in December.
Generally speaking, during the season the rainfall was distributed over the various countries at different times: In October the rainfall was more widespread and affected the whole continent, with the exception of England, Eire, and the extreme north of France, Denmark and Sweden. In November the rain fell mainly over the Balkans and Danubian countries, Turkey, northern Poland and Baltic. In December, good rain supply fell only on Maghreb, southern Italy and France, Turkey, Poland, Scandinavia and the Baltic area. In

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general, while low rain occurred in the Central part of EU, Central-North Italy and Greece (in particular in Northern France, Belgium, Southern England and Denmark) the Southern regions presented cumulated values above average (Central Spain, Southern Italy, Sicily, Balkans and southern Romania). Local intense showers were recorded in a few areas (Southern France and Southern Italy). The conditions were generally favourable for winter crops' sowings.

WINTER 2004 (January – March): Generally higher seasonal temperatures. Low risk of frost damage due to extended and sufficient snow cover. Relatively dry in Northern Spain and Portugal, Maghreb, North-West Italy; wet in Eastern and Central countries, Balkans and Southern Spain.

As a synthesis, the season was characterized by warmer than average conditions in the central and eastern European areas, general low risk of frost damage on winter cereals (except small scattered areas in the Czech Republic, Poland, Ukraine, Byelorussia, Russia and Turkey), while temperatures closer to average and relatively dry conditions were recorded in Maghreb, on the Iberian Peninsula and costal areas in France, Italy and Greece. Overall, the cumulated "active temperatures" (with base temperature = 0°C) were higher than average east of the line connecting Great Britain and Greece, whilst in the remaining areas the values were very close to the long term average. The active temperatures compared to the same period last year appeared cooler resulting in a more normal crop development rate.

During the season, the warmer conditions were interrupted by several cold waves: in January**,** during the first dekad, a cold wave crossed Greece, western Turkey, Hungary, southern Italy and France (in many areas in Germany, France, Central-Eastern countries the minimum temperatures reached -10/-15°C, combined with consistent snowfalls); in the last part of the month a second cold wave invested the continent from Denmark to Greece (with more severe minimum values and abundant snow). In some areas in western Czech Republic, western Poland, Ukraine, and parts of Byelorussia, Russia and Turkey where the snow cover was insufficient, there were low-to-moderate levels of frost risk. In the second dekad of February, a new very cold wave crossed Southern Italy, the Balkans, Turkey, and Greece, where exceptional negative peaks (8/10°C below the expected values and maximum daily values also below 0°C) were recorded.

The cumulated rains of the season and their comparison with the long term average show significant higher values over the Central and Eastern Countries, in Southern Spain, North-East Italy and Northern Germany. In general these rains were well distributed, except in the Central and Eastern Countries where several consecutive rainy days were recorded. On the contrary as a whole, Greece, North and Western Spain (Castilla y Leon, Aragon, Cataluña, Comunidad Valenciana), southern and north-west Italy (Sicily, Puglia, Sardinia, Piemonte) Maghreb and southern Russia received a reduced amount of rain and consequently experienced a reduction of soil moisture.

Persistent rains, although not very intense, caused possible local and temporary excessive moisture conditions in some areas of Netherlands, Eire, South-West England, Scotland, North-West Germany, France (except Southern part), North Poland, Byelorussia, Balkans Countries.

SPRING 2004 (April – June): general seasonal thermal condition, very scarce rain supply in France, Portugal and Eastern Countries. On the contrary, very abundant rain in the Mediterranean Basin (except southern Greece) and Balkans.

During the first part of the period, during April and even more in May, the delayed arrival of the Azoreans' anticyclone within the Mediterranean Basin caused unstable weather conditions in the Basin linked to rainy periods.

In the northern countries during the same period, the barometric configuration determined unseasonable milder temperatures (estimable around 1°C at daily level) that increased that accumulated high solar radiation and relative low cumulated rains from the previous months,
At the end of May' a thermal surplus was present in Scandinavia and Great Britain, on the contrary, a relative deficit was recorded in Byelorussia, Northern Ukraine, where the negative differences of the cumulated active temperature (base temperature 0°C) exceed 50-60°C. In these areas the thermal deficits which occurred in May almost cancelled the surpluses accumulated from the beginning of the year, slowing the development rate of crops.
The synoptic configuration described so far pushed the Atlantic rainy fronts towards the southern latitude of the European continent. The Mediterranean Countries and the Balkans received very large amounts of rainfall compared to the average (in many case s above 70%). On the contrary the more Atlantic-exposed areas (in particular: Portugal, Northern Spain, France, Benelux, Ireland, Denmark), as well as the Eastern Countries (namely: Ukraine) received lower than expected accumulated rainy values (estimable around 50%). In some areas (Southern Spain, North-West Italy, Southern Ukraine) localized extremely intense showers (more than 70 mm) were recorded
Finally, in June the Azoreans' anticyclone interested the western part of the continent, producing higher than average temperatures, especially in western Ireland, western England, south-western France and Iberian Peninsula (here maximum temperatures above 40°C occurred in the south-west of the peninsula in the last part of June).
As a whole compared to the extreme situation recorded the previous year in the same period the temperatures were positively cooler (but still slightly milder than normal) and wetter; favourable both for the Mediterranean Countries which received sufficient water supplies for the last part of the winters' crops, but also for the continental and northern areas which received more solar radiation and correct active temperatures.

SUMMER 2004 (July – September): Still seasonal thermal condition. Drier than expected in the Mediterranean Basin (especially in Northern and Central Italy, Czech Republic and north-west Hungary), In August excessive rains in Great Britain, Sweden, Netherlands and Romania, general normal water supplies in the other areas.
During this season the accumulations of active temperatures were within the normal ranges of variation. The only exceptions were eastern Belarus, northern Latvia, Sweden and Denmark where both August and September were slightly hotter than usual. Anyway, in August all the southern half of Europe experienced temperatures above 30°C. In some areas, namely southern Iberian Peninsula, south-western France (Armagnac), Greece, western Turkey, south-eastern Italy, southern Romania, northern Bulgaria, the temperatures even reached 36°C. In some cases, heat stress at maize flowering or during the ripening of winter crops were likely possible. Nevertheless, the hot peaks and high temperatures were within the norm for the summer season and the temperatures were cooler than the previous year, resulting in a more correct winter and spring cereal maturity.
Therefore, in this season the most relevant phenomenon was the abnormal rains distributions. In effect, July and even more August were in general particularly wet in the majority of the European territories; on the contrary, September brought little rain over the continent, except in the extreme northern areas (namely Sweden, Norway and Ireland). The cumulated precipitation for July-August exceeded the long term average (on average +30%) in UK, northern Portugal, most of France, northern Germany, Denmark , Scandinavian peninsula, northern Poland, central Belarus, Ukraine, Romania, Bulgaria, western Balkans and limited areas in central Turkey. Mediterranean areas (especially southern Spain) received less rain than normal (in many cases more than -30%) and a similar situa-

tion was noticed for the central part of Europe (eastern Czech republic, eastern Austria and western Hungary).
In August the abundant and persistent rains interested all the North Sea areas of EU determining short windows favourable for winter cereal harvesting and determining good water support for maize and sugar beets. As regards winter cereal, the most affected areas in terms of excessive rain at harvest appeared to be Northern England and Scotland for spring barley, and for the more late-harvested varieties of the same crop northern France, Benelux, Nordic countries, north-western Germany.
In September practically all over Europe (except Germany, Ireland, Romania, Bulgaria and northern Greece) the rains were significantly lower than expected. A few and localized extreme rainy events (above 100 mmd^{-1}) were recorded in Southern France, Central Italy.

3. Crop yield forecasts at European level

MARS forecasts at E.U. 25 level
End of October 2004
Sources:
Areas: 2003 EUROSTAT CRONOS, 2004 EUROSTAT (CRONOS/Early Estimates)
Yield: 2003 EUROSTAT CRONOS, 2004 MARS CropYield Forecasting System.
Yield figures are rounded to 100 kg

	Area (x Mio ha)					Yield (t/ha)					Production (x Mio t)				
CROPS EU25	2003	2004	%04/03	Avg5y	%04/Avg	2003	2004	%04/03	Avg5y	%04/Avg	2003	2004	%04/03	Avg5y	%04/Avg
Cereals (total)	51.4	**52.5**	*2.1*	52.4	*0.3*	4.6	**5.2**	*13.7*	4.8	*7.8*	236.3	**274.4**	*16.1*	253.9	*8.1*
Soft wheat	18.3	**19.3**	*5.4*	19.0	*1.5*	5.4	**6.2**	*13.5*	5.7	*7.8*	99.2	**118.6**	*19.6*	108.4	*9.4*
Durum wheat	3.8	**4.0**	*3.1*	3.8	*4.0*	2.3	**2.7**	*15.0*	2.4	*10.9*	8.9	**10.5**	*18.6*	9.1	*15.3*
Barley	13.3	**13.0**	*-2.6*	13.5	*-3.8*	4.1	**4.5**	*9.8*	4.2	*7.5*	54.9	**58.7**	*6.9*	56.8	*3.4*
Grain maize	6.2	**6.5**	*4.1*	6.2	*4.4*	7.0	**8.2**	*16.4*	7.6	*8.1*	43.9	**53.2**	*21.2*	47.1	*13.0*
Other cereals (1)	9.7	**9.8**	*0.9*	9.8	*-0.1*	3.0	**3.4**	*12.2*	3.2	*6.2*	29.4	**33.3**	*13.2*	31.4	*6.1*

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

MARS forecasts at E.U. 15 level
End of October 2004
Sources:
Areas: 2003 EUROSTAT CRONOS, 2004 EUROSTAT (CRONOS/Early Estimates)
Yield: 2003 EUROSTAT CRONOS, 2004 MARS CropYield Forecasting System.
Yield figures are rounded to 100 kg

	Area (x Mio ha)					Yield (t/ha)					Production (x Mio t)				
CROPS EU15	2003	2004	%04/03	Avg5y	%04/Avg	2003	2004	%04/03	Avg5y	%04/Avg	2003	2004	%04/03	Avg5y	%04/Avg
Cereals (total)	36.4	**37.1**	*1.9*	36.8	*0.7*	5.1	**5.9**	*14.8*	5.5	*7.2*	187.0	**218.8**	*17.0*	202.6	*8.0*
Soft wheat	13.3	**13.9**	*4.6*	13.6	*2.3*	6.1	**7.2**	*16.8*	6.5	*10.0*	81.7	**99.9**	*22.2*	88.8	*12.5*
Durum wheat	3.8	**4.0**	*3.1*	3.8	*4.6*	2.3	**2.7**	*15.0*	2.4	*11.1*	8.9	**10.5**	*18.6*	9.1	*16.2*
Barley	10.5	**10.3**	*-1.8*	10.7	*-3.1*	4.4	**4.8**	*8.0*	4.6	*4.9*	46.5	**49.3**	*6.1*	48.5	*1.6*
Grain maize	4.4	**4.6**	*3.2*	4.3	*5.4*	7.6	**8.9**	*17.2*	8.8	*1.6*	33.7	**40.8**	*20.9*	38.1	*7.1*
Other cereals (1)	4.3	**4.3**	*0.6*	4.4	*-2.5*	3.8	**4.2**	*12.5*	4.1	*3.0*	16.1	**18.2**	*13.1*	18.2	*0.4*

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

4. Synthesis of the 2003/2004 campaign and agro-meteorological analysis on EU-25 area.

CEREALS

Favourable to optimal maturity/pre-harvest and harvest weather conditions determined record values in cereals expectations:
Total cereals production for EU25 (rice excluded) is now expected at 274.4 M tons (+38 M tons as compared to 2003; +16% higher than 2003 production and 8% higher than the possible average). While the area increase is expected to contribute to the record production by +2.1%, the yield is expected to give the main contribution with 5.2 t/ha (+13.7% as compared to 2003 and +7.8% as compared to the possible average).
These figures, which are based on simulation models and remote sensing observations, could represent an underestimation of the potential production which can be obtained in the light of possible farming/technological improvement in the new EU25 Member States (for instance an increase in the use of fertilizers) which cannot be covered by our simulation/measures and are modelled by the current trends.

- **Soft Wheat**

The yield is expected at 6.2 t/ha (+13.5% as compared to 2003 and +7.8% as compared to the average).
Compared to the previous campaign, the increase of soft wheat production at the level of EU25 is expected to be about 19.5% (for EU15 this increase is expected at 22.1%).

Very good yields are expected for Latvia (3.1 t/ha, 11.1%), Austria (5 t/ha, 12.5%), Italy (5.1 t/ha, 16.2%), Czech Republic (4.8 t/ha, 17.6 %), France (7.6 t/ha, 18.2%), Germany (7.8 t/ha, 19.2%), Hungary (4.5 t/ha, 21.8%), Slovenia (4.3 t/ha, 25.5 %) and Slovakia (4.5 t/ha, 48.6%).
The yields from Belgium (8.5 t/ha, 0.1%), England (7.8 t/ha, 1.8%) and Denmark (7.3 t/ha, 3%) are expected to be close to the level of the previous year. In spite of partially unfavourable weather conditions, increased yields were estimated for Greece (2.7 t/ha, 5.3%), Lithuania (3.8 t/ha, 5.9 %), Sweden (5.9 t/ha, 6.1%), Spain (3.3 t/ha, 6.5%), Poland (3.6 t/ha, 6.8%), Ireland (8.9t/ha, 7.3%) and Portugal (1.3 t/ha, 9.7%). For some countries like Estonia (2.0 t/ha, -9.2%), Netherlands (8.2 t/ha, -6.2%), and Finland (3.5 t/ha, -1.5%) the estimated yields for soft wheat are below the levels of the previous year, which were however above the average.

The weather conditions for sowing of winter crops last year were generally favourable especially in the northern part of EU. The most striking exceptions were Portugal, south-western France (Aquitaine) and the areas north-east of the Adriatic Sea where strong rains occurred (>=100 mm) during the main sowing period of winter wheat. Except south-western England and southern Poland the rains occurred after sowing and permitted a quick germination and a uniform emergence. In contrast with the previous year no major persistent frost problems were pointed out for winter 2003/2004 and basically no significant drought conditions occurred in summer (with the exception of limited areas in the Iberian Peninsula). A cool beginning of summer slowed the initial grain filling which together with a good water support determined optimal maturity. Rainy conditions at harvesting were limited to some areas in Benelux (especially the Netherlands), north-western Germany, Denmark and Austria.

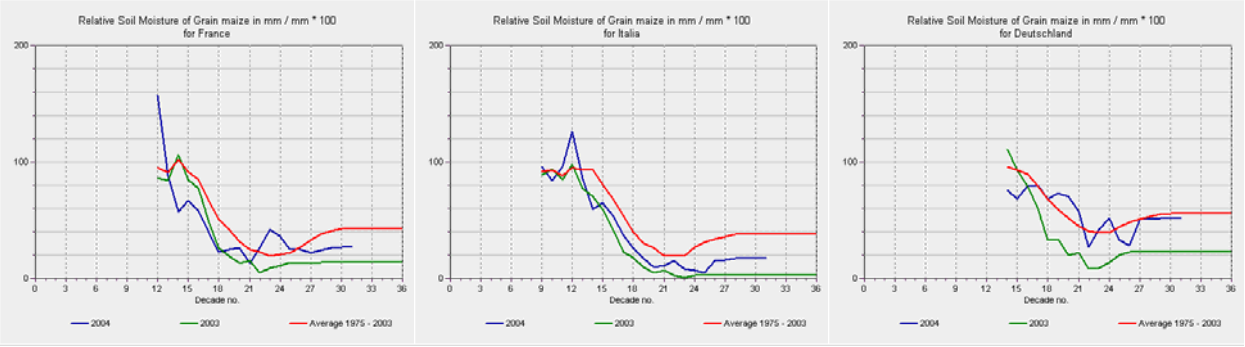
- **Barley**

The average barley yield is estimated for EU25 at 4.5 t/ha, an increase of 9.8% as compared to 2003 and 7.5% as compared to average. The level of yield may be considered stationary for Sweden (4.2 t/ha, - 0.2%), Denmark (5.4 t/ha, 1.0%), Finland (3.3 t/ha, 1.9%). Moderate increasing of barley yield (when expressed as percentages from the yield of previous year) are expected for Es-

tonia (2.0 t/ha, 5.9%), Italy (3.5 t/ha, 6.2%), Latvia (2.0 t/ha, 6.8%), Portugal (1.3 t/ha, 8.0%) and Hungary (3.6 t/ha, 9.4%). Larger increases are expected for Spain (3.1 t/ha, 10.1%), Belgium (7.4 t/ha, 11.5%), Austria (4.7 t/ha, 12.4%), Poland (3.2 t/ha, 13.4%), France (6.6 t/ha, 17.0%), Greece (2.2 t/ha, 17.2%), Slovenia (3.5 t/ha, 20.4%), Slovakia (3.6 t/ha, 20.4%), and Germany (6.4 t/ha, 24.7%). Lower yields are foreseen for UK (5.7 t/ha, -3.7%), the Netherlands (6.3 t/ha, -2.9%) and Lithuania (2.9 t/ha, -1.0%) due to a possible impact of overly wet conditions at harvest.

- **Grain Maize**

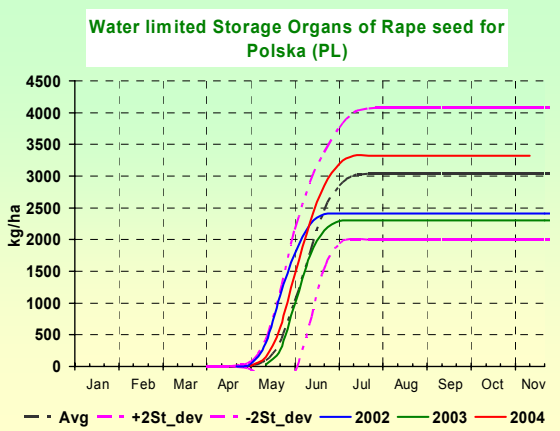
The final yield expectation at EU-25 level is 8.2 t/ha, this is an increase by 16.4% compared to 2003. The result is even better if related to EU-15, where the forecast of 8.9 t/ha correspond to an increase by 17.2% as compared to the previous campaign, when likely was recorded one of the worst vintage. In the current campaign the general weather conditions did not present particular limiting extreme phenomena: during the sowings the rainfalls were in general well distributed and excessive only in Germany and Central Italy; during the vegetative stages the active temperature were practically all over EU very close to the long term average values and the development was quite regular, the water supplies where irregular were always quantitatively adequate; during the flowering the rains were all over present but only in France and Benelux likely excessive, at the same time very limited was the heat stress risk because of the mediocre high temperatures recorded in that period (only a very few days and in limited areas the threshold of 35°C was passed); also during the maturity and harvest stages the rainfalls were appropriate and only in some areas likely slightly excessive (i.e: Slovenia, Alsace).
All of the countries present quite large positive differences of yield compared to the 2003 (except Greece, where the last year yield wasn't affected by the extreme reduction recorded in the others EU countries). In particular France +25.5% with a national average yield estimated at 8.9t/ha; Italy +12.9%, at 8.4t7ha (below average result); Germany +25.4%, at 9.3 t/ha and Spain +10.9%, at 10.1 t/ha.

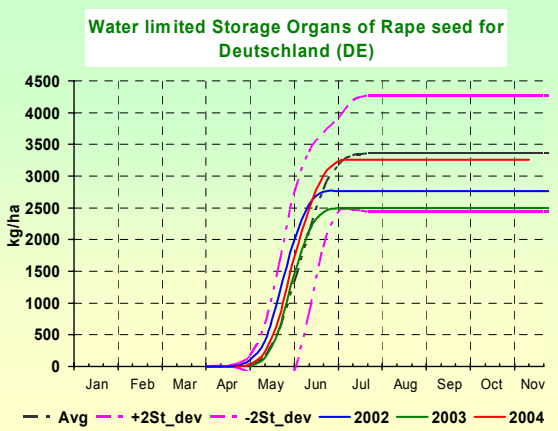


OIL SEEDS

- **Rape seed**

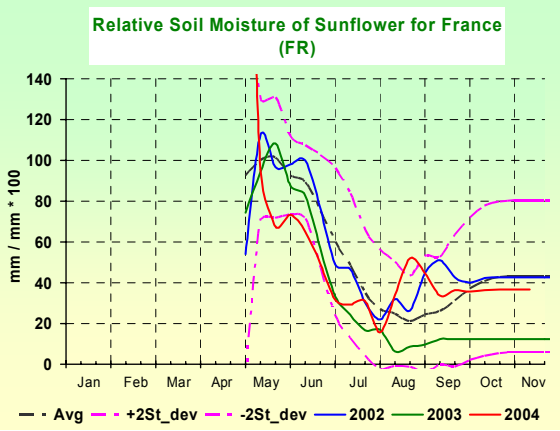
The rape seed yield at EU level is expected to be better than last year with 3 t/ha (+8.6% compared to 2003). Like the other winter crops the rape seed did not face extreme condition and experienced normal conditions of grain filling. Among the main producers and compared to last year Poland reached the highest increase with 36.6%(2.5t/ha) then Germany +15.8%(3.3t/ha), France +4.4%(3.3t/ha) and United Kingdom +1.1% (3.3t/ha).

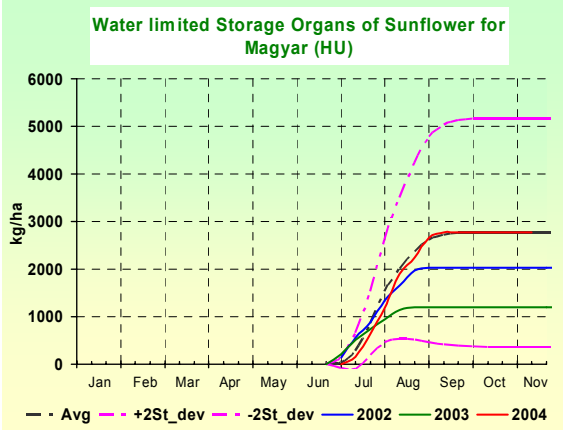




- **Sunflower**

After the bad 2003 campaign the production reached close to normal yield at EU25 level with an average of 1.8t/ha, better than 2003 by +11.3t/ha.
Among the three biggest producer Spain reached a yield of 1.1t/ha (+16.6%), Hungary 2t/ha (+12.5%) and France +2.3t/ha(+7.6%).

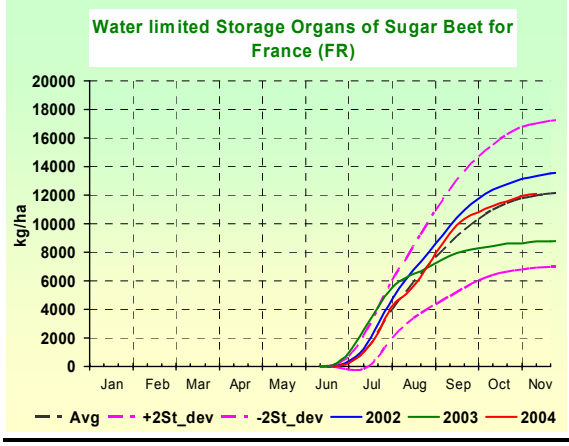


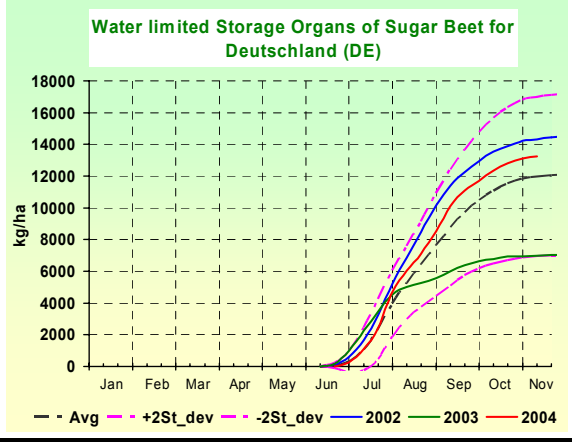


ROOT AND TUBER CROPS

- **Sugar beet**

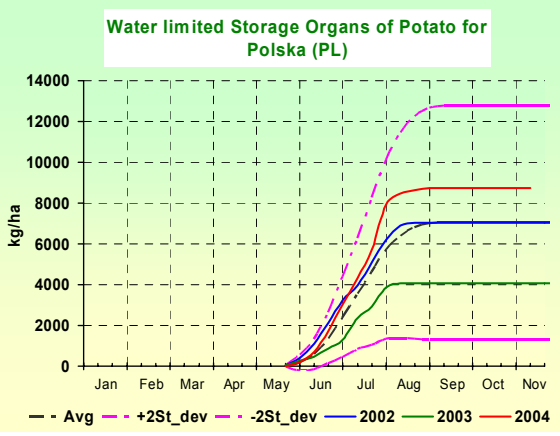
As well as the others crops experienced favourable conditions and, at EU-25 level, the yield is increased to 57.1 t/ha (+5.8% compared to 2003).
All the three biggest producers countries (Fr, DE, PL) present better yield forecasts than last year particularly for Deutschland with 60t/ha (+12.7% compared to 2003). France improved its yield level by +1.5 %(74.4t/ha). The forecast for Poland is better than 2003 with 41.8t/ha (+2%). Among the other main producers (UK, IT, BE, NL) only the Netherlands reached a lower forecast of -1.8% with 59.7t/ha. Italy, Spain, United Kingdom and Belgium increased their forecast respectively from +17.4 %(39.1t/ha), +11 %(71.8t/ha), +4.6 %(60t/ha) and +1.1 %(71.5t/ha).

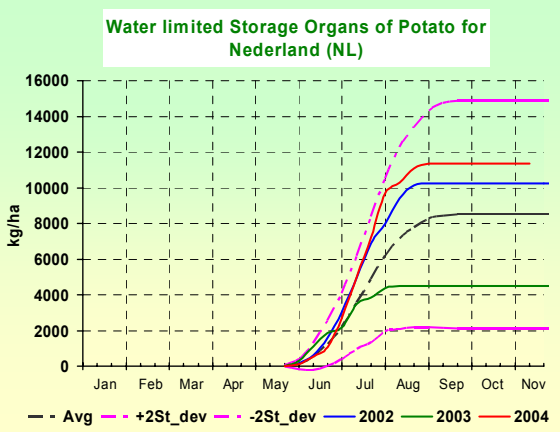




- **Potato**

The same positive considerations and estimations are valid for **Potato** yield which is expected at EU25 level at 29.4 t/ha (an increase of about 10.3%).
The most important producer Poland and Germany are forecasted to reach yields 19.5t/ha (+8.9%) and 41.6t/ha (20.6%). The other important producers present a better forecast than last year from +9.1 %(44.5t/ha) for The Netherlands, +1.7 %(41t/ha) for France and +4.9 %(42.8t/ha) for United Kingdom.





5. Synthesis of the 2003/2004 campaign and agro-meteorological analysis on Candidate Countries.

BULGARIA, ROMANIA AND TURKEY

Bulgaria benefited from relatively favourable weather conditions for almost all the main crops. For winter wheat and barley yield expectations are respectively 2.8 t/ha (+7.4%) and 3.0 t/ha (+18.2%). The summer crops, affected by droughty conditions in the previous year, are expected to provide this year higher yield: maize 3.7 t/ha (+41%) and sunflower 1.1t/ha (+31.4%). For potato, it estimated a yield of 15.9 t/ha.
In Romania, in contrast with the previous agricultural campaign which ended with very poor yields due to the extremely unfavourable conditions along the whole vegetation season, especially for winter crops, the situation this year is much better and higher than average: 2.9 t/ha (+99.9%) for winter wheat, 2.2 t/ha for barley (+35.6 %) and 1.2 t/ha for rape seed (+143.5%). The maize yield is also expected to be higher than the previous year (3.2 t/ha, +7.7%). Yields expected for sunflower and potato are expected at 1.2 t/ha and respectively 14.2 t/ha.
In Turkey, the weather conditions from this campaign, resulted in a yield level of winter crops similar with that from previous year: a yield of 2.0 t/ha (+0.4%) is expected for wheat crops, whilst for barley the simulations give 2.4 t/ha (+1.3%). The influence of dry and hotter conditions during summer is reflected in a lower expectation for maize yield (3.2 t/ha) as compared to the previous year.

6. Synthesis of the 2003/2004 campaign and agro-meteorological analysis on Eastern European Countries.

UKRAINE AND BELARUS

In autumn 2003 both countries benefited from good sowing conditions for winter crops (dryer before sowing and wetter after) and a milder winter. The spring of 2004 was drier for Ukraine meanwhile in Belarus the soil moisture remained at or above long term average. For large areas of these countries rains around the maturity of the winter crops were reported and it was supposed that the harvest conditions were difficult. The forecast wheat yield for Ukraine is 2.3 t/ha (+57%). In both countries the yields of summer crops are expected above average (for example an increase of +47% above long term level is expected for maize in Ukraine).

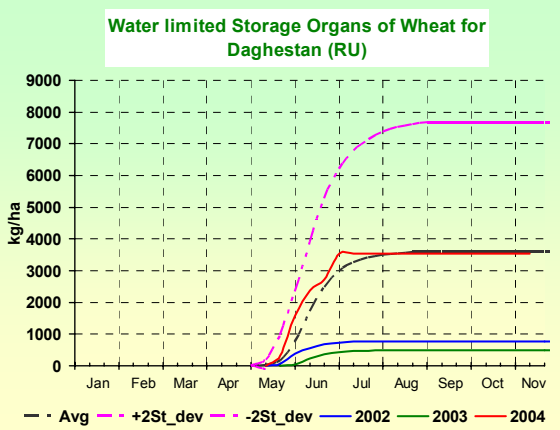
RUSSIA: good vegetative season

September-October 2004 is the time for summer crop harvesting and for winter crop sowing in all regions of European Russia.

The meteorological conditions were favourable for crop harvesting as well as for winter crop sowing practically everywhere. Soils contained optimal amounts of water in all main crop production regions of Russia. A number of rainy days in the Northern Caucasus and Central regions of Russia should lead to some delay in summer crop harvesting, but shouldn't affect crop yield. Winter crops were sown in favourable conditions practically in all regions too.

The 2004 vegetative season was in general favourable for crop production in Russia. The meteorological conditions were close to the optimum practically everywhere. Dry condi-

tions were observed only in May-June in the Urals' region, which should affect winter and spring crops in this region, and should reduce its yield. Amount of precipitation and its temporal distribution was close to optimal for other crops. As a result, yield of winter cereals on the European part of Russia is likely to be slightly lower than in good previous years. The yield of spring wheat and barley is likely to be higher compared with the previous year, but due to lower amounts of incoming radiation the quality of grain should be much lower. The yield of potatoes, maize, sunflower, and sugar beets is likely to be higher than in previous years practically in all regions of the European Russia. High amount of rain in the Central regions of Russia should lead to low sugar content in sugar beets, and should reduce the quality of potatoes.

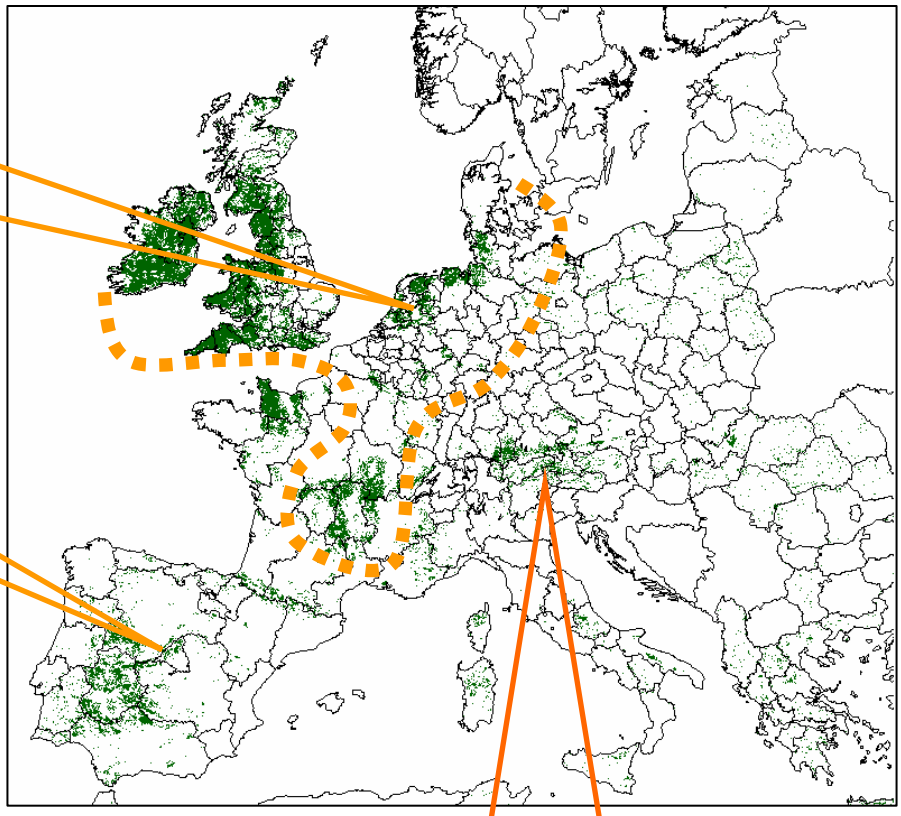


7. Remote sensing analysis on pasture.

The CORINE land cover database: Pastures are represented in dark green and include the following types.
*(*Natural grassland, Pastures, Moors and heathland)

ZONE 1
Spring: Normal to above average biomass production
Summer: Above average and increasing production of biomass to August

ZONE 2
Summer: Biomass production on average **Spring**: Normal above normal biomass production levels

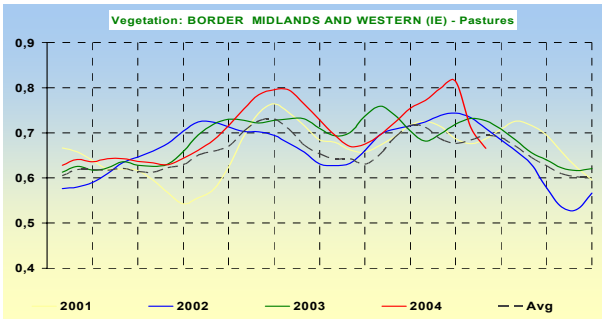


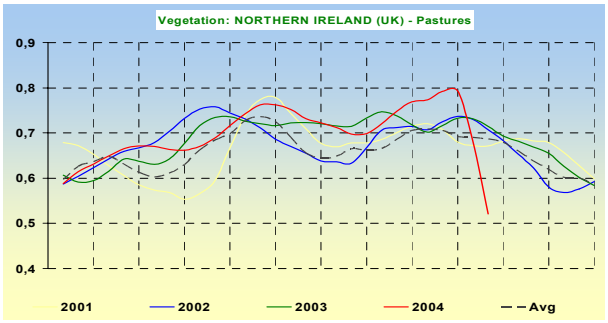
ZONE 3
Spring: Strong decrease of biomass production as compared to average
Summer: The production level recovered, stabilizing on normal levels

Profile highlights for the season 2003-2004: *The profiles of CNDVI, (COVERAGE Based - Normalised Difference Vegetation Index) are obtained by un-mixing the NDVI through the CORINE Land Cover database, exclusively on the type Pastures number: 2.3.1. The profiles show the vegetation cycle during the last four seasons including the on-going 2003-2004 season.*

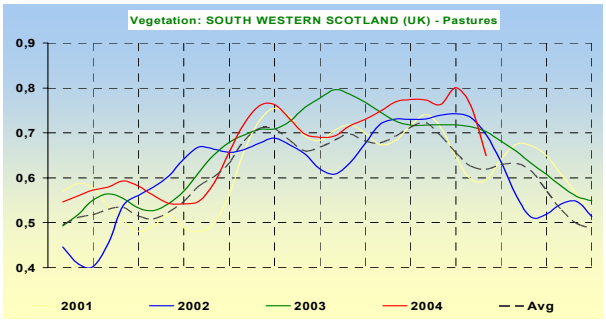
ZONE 1 - North Central Europe and the British Isles: Normal to above average biomass levels in spring and increasing production of biomass across to August

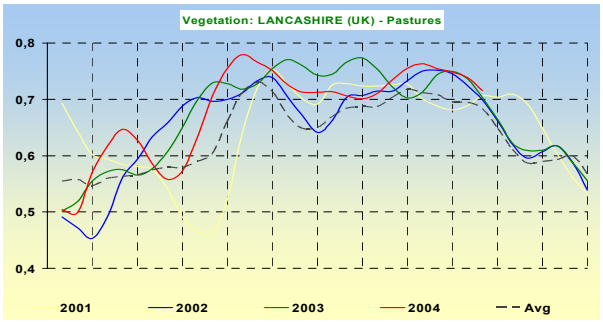
In the **Midlands, Western** (Ireland) **and Northern Ireland** (UK) all curves show ***above average biomass production especially during the period April to September***. A more normal situation can be observed in the remaining part of the season. At the onset of autumn (end of September), production experiences an absolute maximum followed however, by a sudden drop in the vegetation curve which can be explained by a persistent cloud cover during that period.



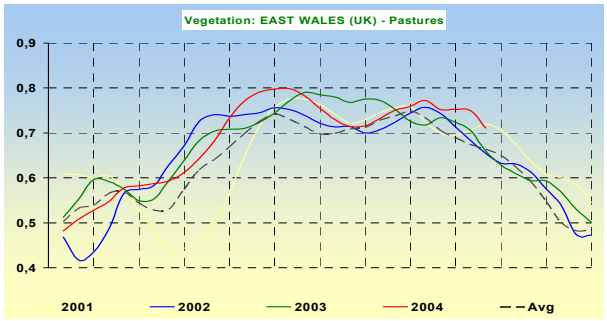


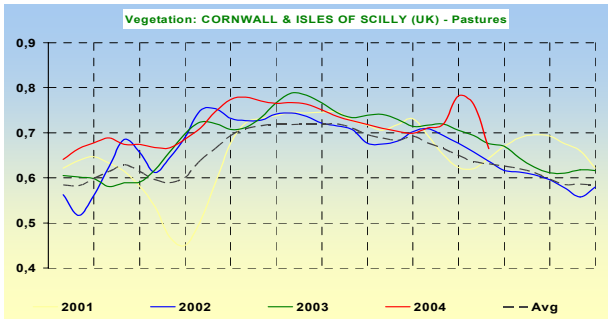
In **South Western Scotland and North Western England** (UK) the situation is comparable to that of Ireland with ***above average biomass production*** all through the season and a sudden drop at the onset of autumn.



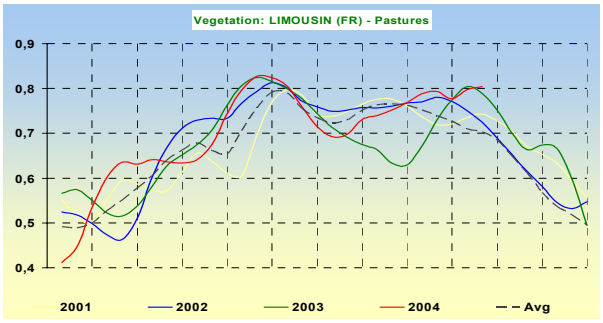


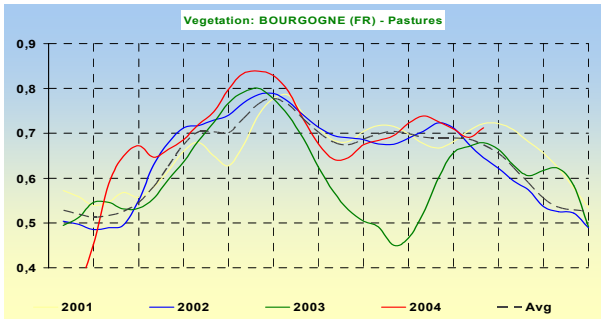
n **East Wales, Western England and Cornwall** (UK) the curves show above average biomass production across the season, topping at the end of summer and, though a sudden drop can be observed around mid September, ***the level of biomass production remains rather favourable***.



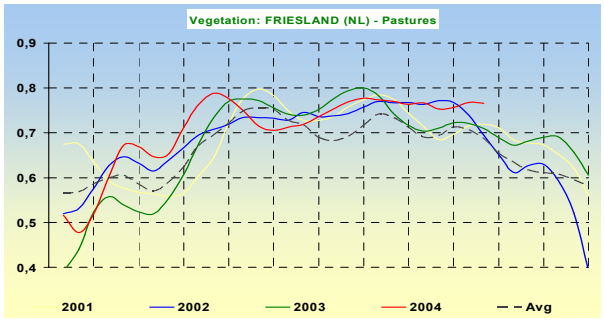


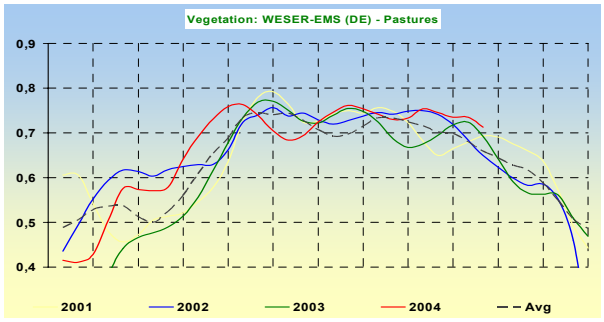
In **Central France** (**Auvergne, Limousin and Bourgogne**), the index followed a normal seasonal pattern, for the initial part of the campaign. As in the previous seasons, it experienced a marked decrease around mid June, with a recovery towards the end of summer. Here, as in other areas, a sudden and sensible drop in the level of production can be observed in late September





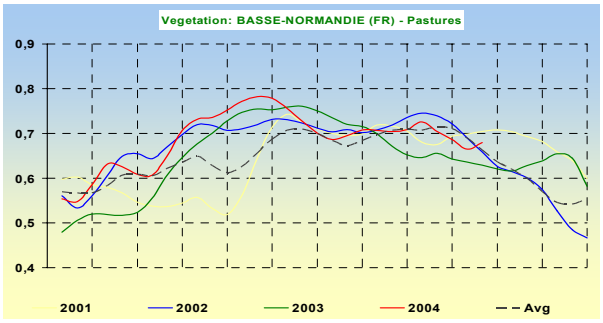
For **Friesland** (The Netherlands), and **North Western Germany** (Germany), the general trend shows ***above average levels of biomass production in summer.*** This continued throughout August and reached an absolute peak in September. A steep drop follows though biomass production seems to stabilise around average levels in autumn.

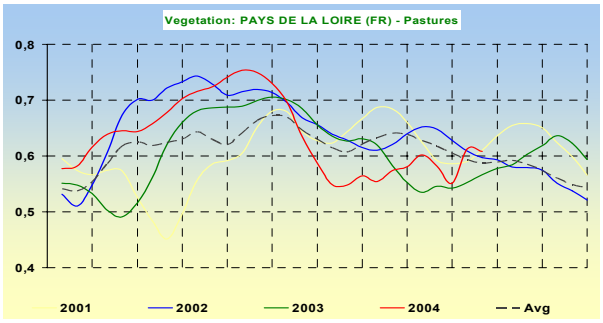




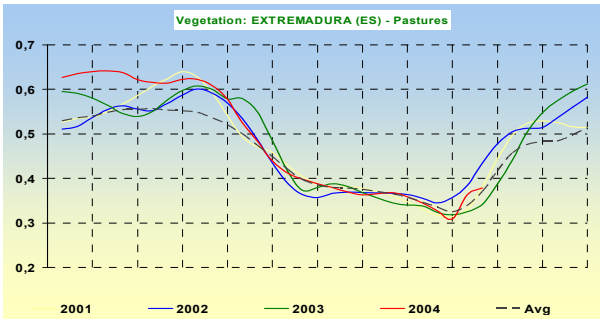
ZONE 2 – South Western Europe: Above average biomass levels in spring and normal to below average levels in summer and autumn

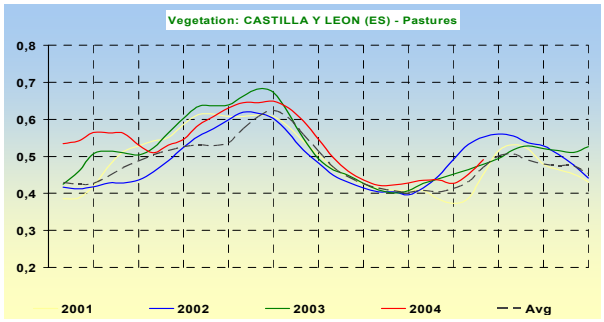
In **Basse Normandie** and **Pays de la Loire** (France) the vegetation curve for pastures remained above average levels from the beginning of the season. Some decrease in biomass production was experienced in mid summer, below the average level in the **Loire** though a recovery can be observed towards the onset of autumn. As elsewhere, the end of the season shows a marked reduction in the level of biomass production.





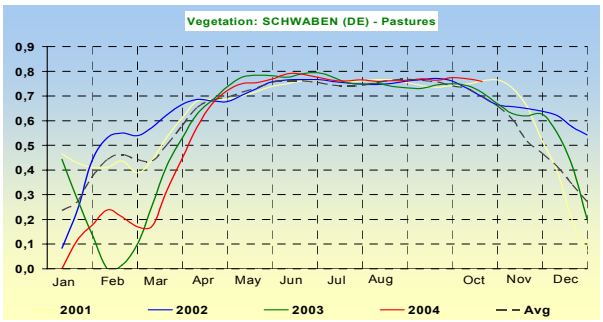
For **Extremadura and Castilla Y Leon** (Spain) the profile of the vegetation curve for pastures remained above average from the beginning of the season. Following the normal pattern, a decrease in biomass production was experienced in mid summer but, differently from the norm, at the beginning of autumn, instead of a recovery, the vegetation curve shows a decrease in biomass levels.

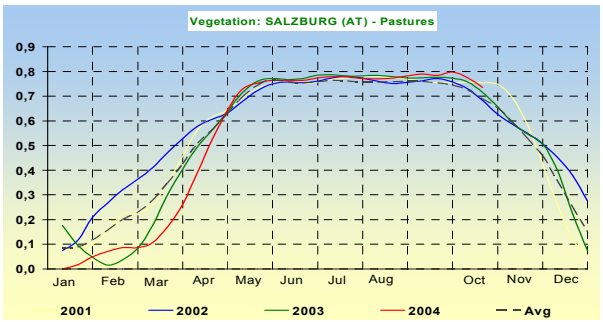




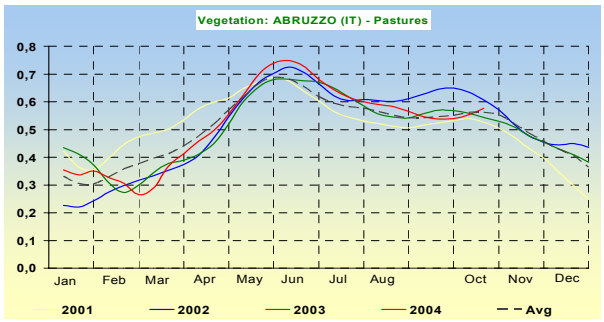
ZONE 3 – South Eastern Europe: Below average biomass levels at the beginning and recovery of normal levels during the rest of the season

For **Southern Germany and Austria**, winter and the beginning of the season was marked by a strong fall in the available biomass, as measured by the indicator. Following an established trend, however the curves recovered in spring and the season continued with stable average levels.





In **Central Italy** as in most central and eastern Mediterranean, the beginning of the season was marked by a fall in the available biomass, as measured by the indicator, below average levels. Following an established trend, however, the curves recovered in spring and the season continued of a stable average levels.



B. Analysis of the 2004/2005 campaign: Situation at the first dekad of November 2004

1. Agro-meteorological overview

TEMPERATURE: normal condition for EU25 area

The thermal conditions of this period were close to normal for most of the agricultural areas of EU25 excepting Finland, Baltic States, central and eastern Poland, eastern France as well large areas from Italy were it was warmer (+ 10%) than normal. Romania and Bulgaria were also in the limits of the normal temperatures. Large areas from Turkey were warmer than long term average. The eastern part of the continent was also warmer than usual (excepting southern Ukraine).
In the eastern and southern areas temperatures during October were above average by 15% (more than 55 ° days additionally cumulated in this month). In south-western Spain and Turkey, during September and first decade of October, maximum temperatures exceeded peaks of 35°C.
Minimum temperatures between -5 and 0°C were reported for all central and eastern Europe, Turkey, Germany, northern Italy, south western France, northern UK and central Spain.

RAIN: generally drier conditions but rainy spots present

At continental scale, this period may be considered rather drier but one may notice a lot of wetter than normal spots as in northern and western UK (October), eastern Ireland (all the period), northern Portugal (especially in the last decade of October), southern Scandinavian peninsula, western France Sardinia, central Italy, centre and western Romania, Slovenia, Croatia and Serbia. In some Balkan areas, likely sowing operations were shifted by about one week, but generally a beneficial effect is expected for winter crops germination. Due to unusually dry conditions, a negative impact on top soil moisture is expected for areas in southern Spain, where the soil preparation for winter crops started, and also, for the whole Turkey, where the winter crops were already sown in October.

2. Winter crop sowing overview

EU-25

Winter wheat: General good condition for early sowing (except western France, northern Portugal and Slovenia); relatively dry in central and eastern EU countries; wet in Portugal, and northern Spain
In the majority of EU, the early sowing benefited from optimal conditions: the scarce rainfalls in August and September facilitated the field preparation and the following wet conditions (particularly in October) and good thermal conditions accelerated the emergence of the plants that could reach an advanced stage before the colder November. Only in Western France, (Aquitaine, Poitou-Charentes, Pays de la Loire, Bretagne), Northern Portugal and Slovenia the rain (both in term of quantity and frequency) hindered the early sowing activities.

In Portugal and northern Spain as well as in Central Italy, Slovenia and south-west France (Midi-Pyrenees) the unfavourable weather conditions persisted also during the canonical sowing period. In those areas (except central Italy) much better conditions were present during the traditional delayed sowings period.

Ireland and Balkans Countries presented optimal weather conditions, only during the very early sowings (end of August) in the following months the persistent rains permitted only very short period available for effective sowings.

Benelux and north western Germany were affected by sub-optimal wet conditions during the normal period of sowing (respectively first half of October and second half of September). While the soil moisture decreased in Belgium just after the expected period of sowing allowing for an acceptable climatic window, in north-western Germany the wet conditions persisted, resulting in delays or missed sowings.

In all the others EU countries in general the weather conditions didn't represent obstacles for optimal field's preparation, sowing and emergence.

The durum wheat area in Southern Europe benefited also from the wet conditions of October that replenished the top soil moisture before sowings. Good precipitations were also recorded in Morocco that refilled the water reserve before the sowing of November. On the contrary, Tunisia experienced insufficient water supplies in October.

Winter barley: wet sowing in Europe; more favourable for early or delayed sowings.

The barley, matched optimal conditions only for early sowings and in particular in the Central and Eastern Countries with the exceptions of Slovenia, South-western France (Aquitaine, Midi-Pyrenees) and Portugal where the rainfalls were excessive.
In October the persistent and abundant rains didn't permit (especially in Western Germany, Slovenia, France, Belgium, Great Britain and Ireland) effective sowings during the most common period.
Vice versa, the late sowings period presented general favourable conditions, except in Ireland, Southern France (Rhone valley, Midi-Pyrenees) Northern Italy, Slovenia and Scotland.
The first decade of November was favourable both for the already sowed areas in the central and eastern EU countries (warmer than average temperatures and good water supplies), and also for the western EU Countries (drier than expected and normal temperatures) where sowing activities were still in progress.

Rape seed: dry early sowing, too wet in the eastern EU

The August sowings (especially in northern most areas) were made in sub-optimal wet conditions and in some cases had to be postponed to the beginning of September. During this month the sowings were made in almost optimal conditions. Late sowings likely found excessive top soils moisture, especially in central and eastern EU.

CANDIDATE COUNTRIES

Before and during the sowing of winter wheat some showers occurred in Romania, except in the southern areas where the weather was more favourable for this activity. In the decade after canonical sowing, the central areas of the country received some beneficial light rains (providing up to 30 mm). The sowing of winter barley in Romania was preceded by light rain in the central and southern areas. After this period, the weather became rainy for most of the country (excepting southern areas) but the sowing was still possible during some dry "windows".

During the sowing period of winter wheat most of Bulgaria received some light rains but it is expected that a negative influence was effective only in a limited area in the west. Rains after sowing are depicted only for southern Bulgaria. The sowing period for barley was generally dry.

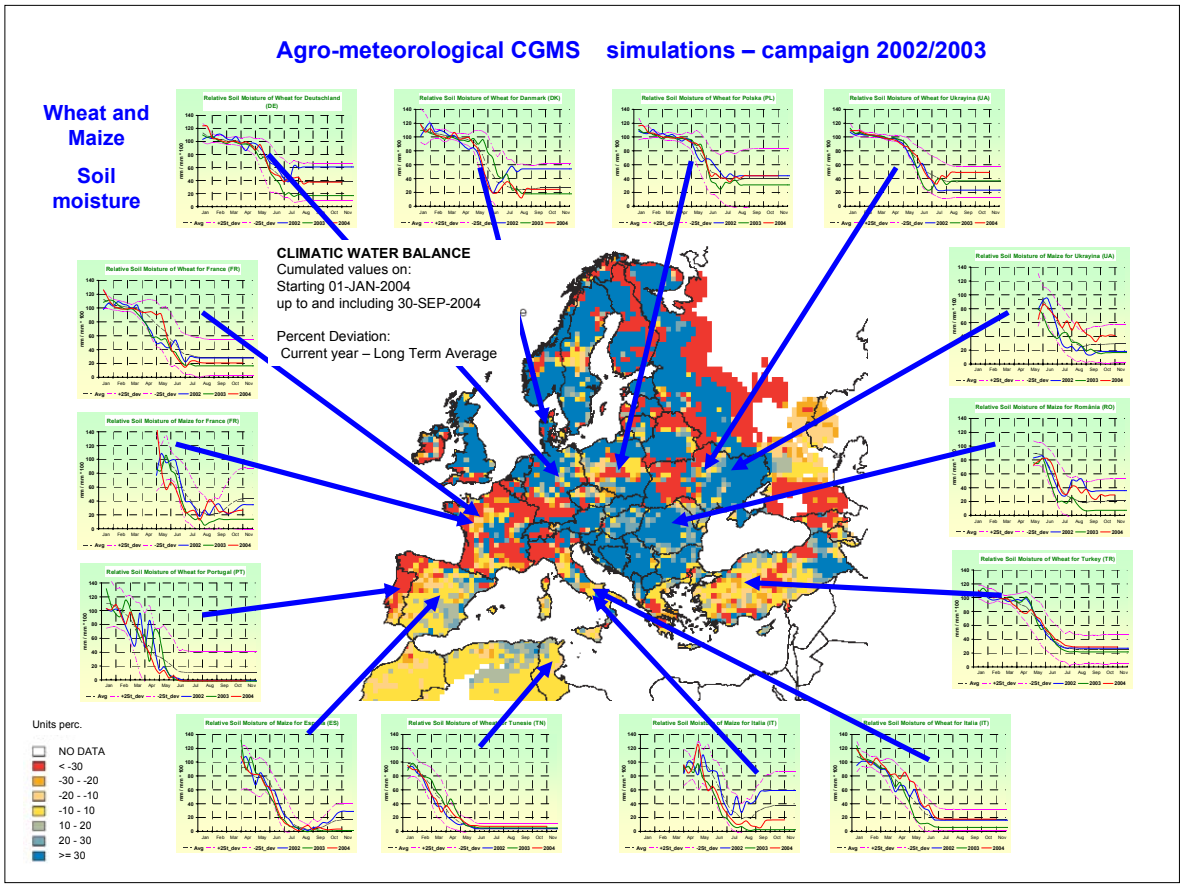
The sowing of winter crops in Turkey was performed under dry conditions.

EASTERN COUNTRIES

Light rains occurred before the sowing of winter crops in central and northern Ukraine and in the north of Belarus. The weather was generally favourable for barley (dry during the sowing and wetter during germination) so a good emergence of this crop may be expected. For winter wheat some

rains were reported in the northern Belarus and in some areas of southern Ukraine during the usual sowing period. Some regions from central Belarus and south-eastern Ukraine did not benefit from post sowing precipitation but the soil humidity may be considered as sufficient for a normal germination and emergence.

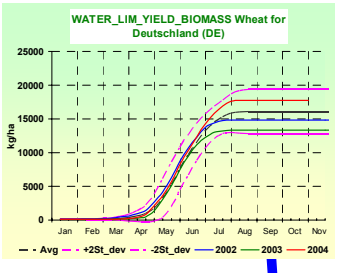
C. Maps for the 2003/2004 campaign

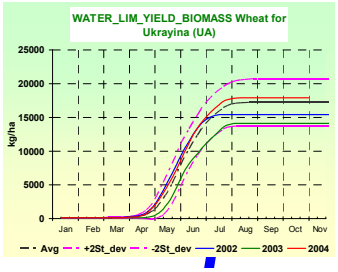


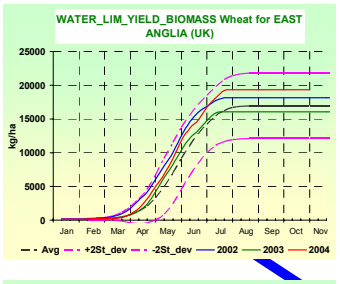
Agro-meteorological CGMS

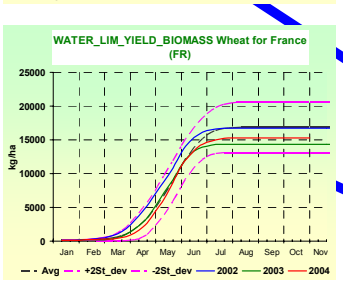
WHEAT

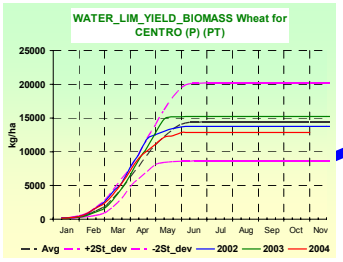
BIOMASS





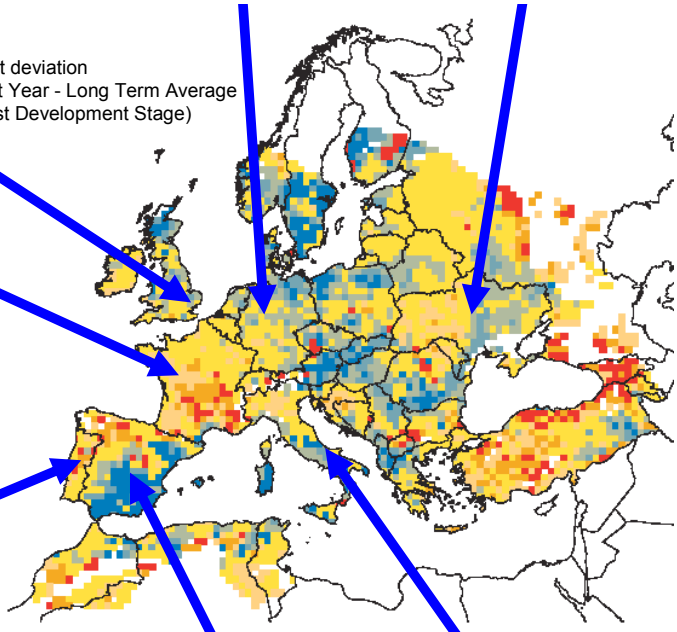






CROP MONITORING Current Year: 2004
WHEAT
ABOVE GROUND BIOMASS (Water limited production)
Status on: 3th decade - October - 2004

Percent deviation
Current Year - Long Term Average
(Closest Development Stage)



Units perc.

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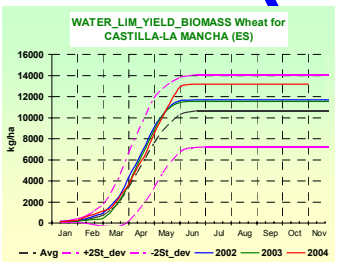
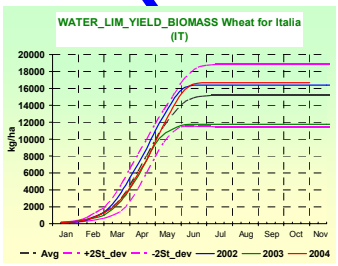
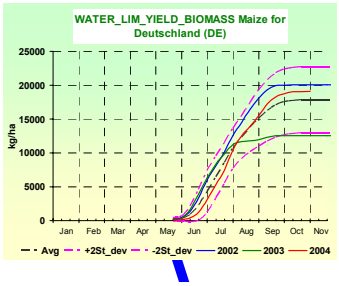
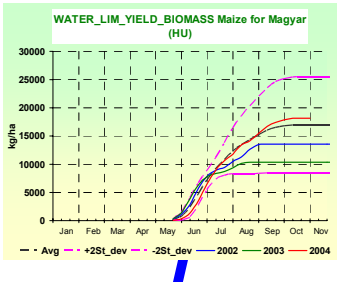




Simulation campaign 2003/2004



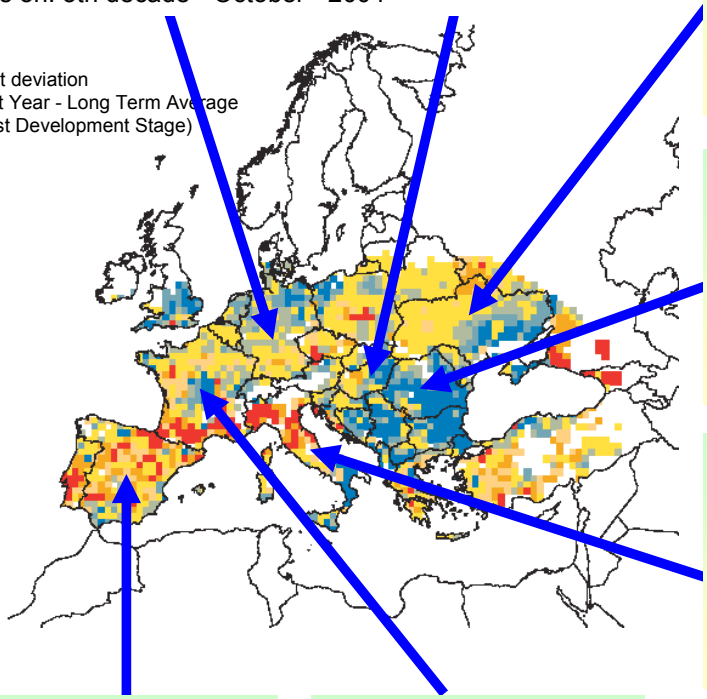


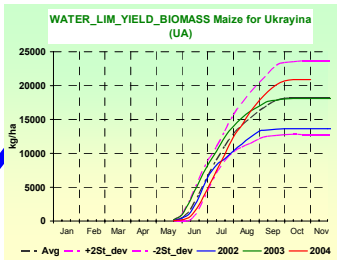
MAIZE

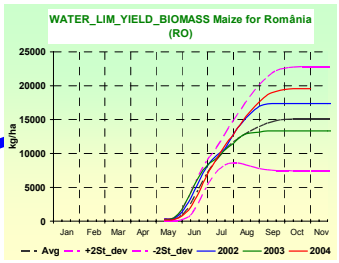
BIOMASS

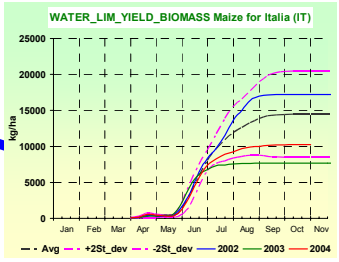
CROP MONITORING Current Year: 2004
MAIZE
ABOVE GROUND BIOMASS (Water limited production)
Status on: 3th decade - October - 2004

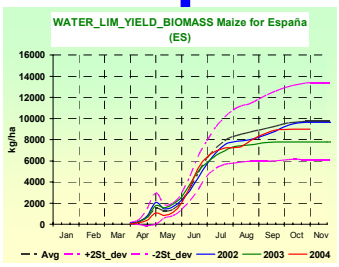
Percent deviation
Current Year - Long Term Average
(Closest Development Stage)

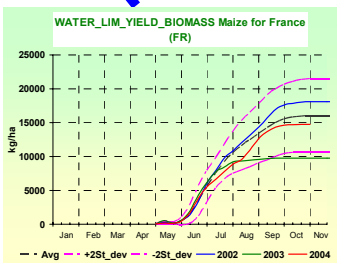












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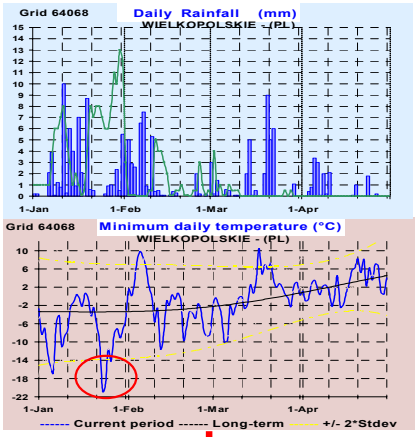
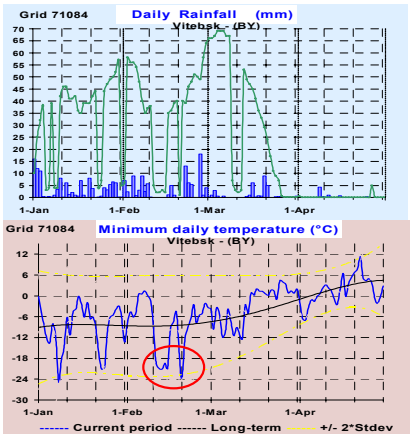
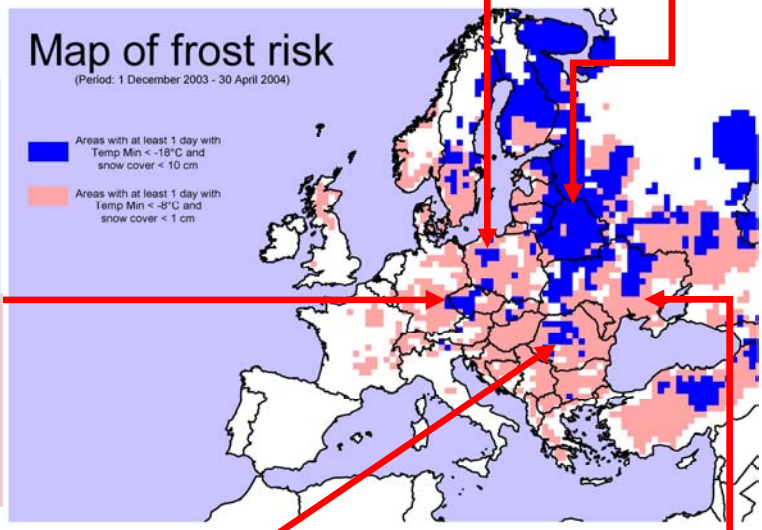
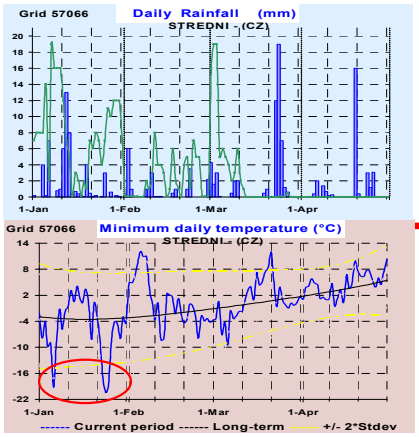
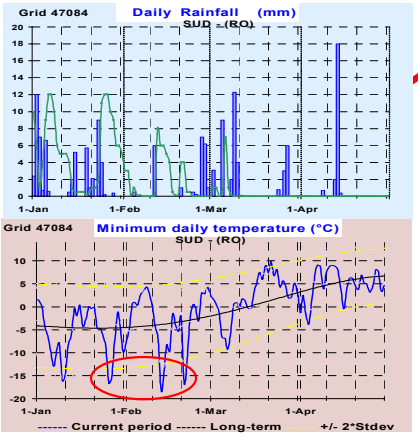
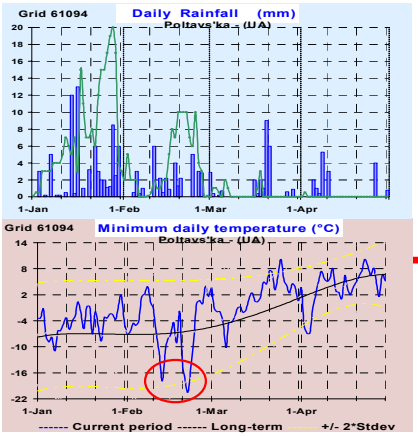

Grid 64068
Daily Rainfall (mm)
WIELKOPOLSKIE - (PL)
Grid 64068
Minimum daily temperature (°C)
WIELKOPOLSKIE - (PL)
Current period
Long-term
+/- 2*Stdev

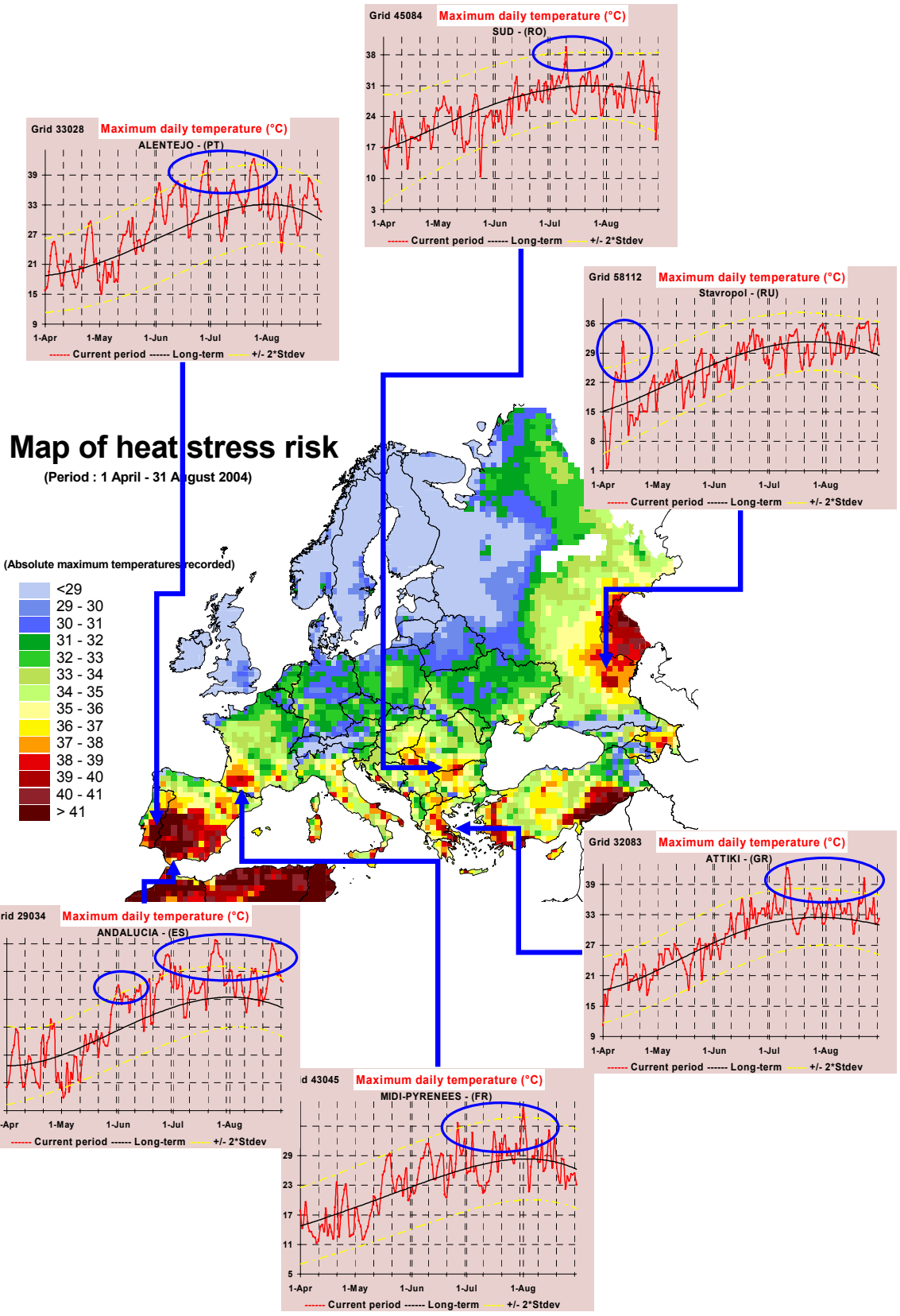

Grid 71084
Daily Rainfall (mm)
Vitebsk - (BY)
Grid 71084
Minimum daily temperature (°C)
Vitebsk - (BY)
Current period
Long-term
+/- 2*Stdev


Map of frost risk
(Period: 1 December 2003 - 30 April 2004)
Areas with at least 1 day with Temp Min < -18°C and snow cover < 10 cm
Areas with at least 1 day with Temp Min < -8°C and snow cover < 1 cm

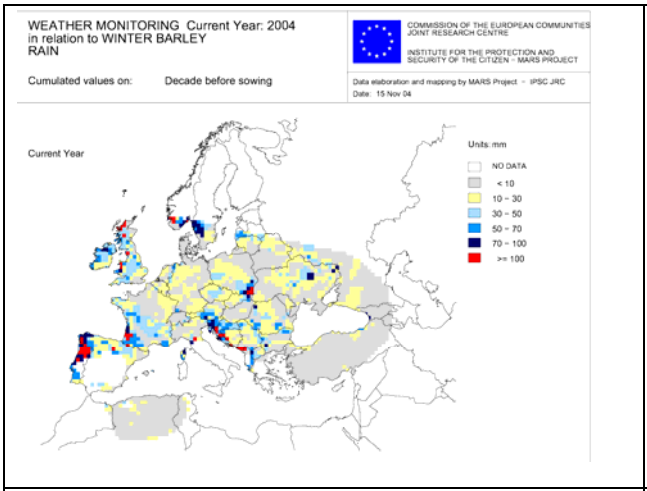

Grid 57066
Daily Rainfall (mm)
STREDNI - (CZ)
Grid 57066
Minimum daily temperature (°C)
STREDNI - (CZ)
Current period
Long-term
+/- 2*Stdev

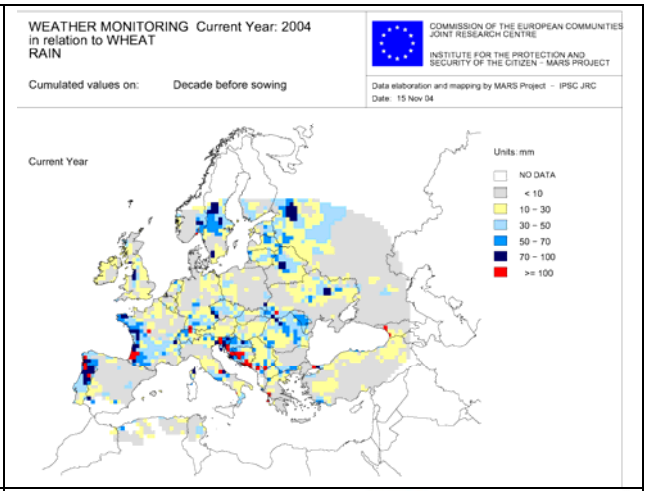

Grid 47084
Daily Rainfall (mm)
SUD - (RO)
Grid 47084
Minimum daily temperature (°C)
SUD - (RO)
Current period
Long-term
+/- 2*Stdev

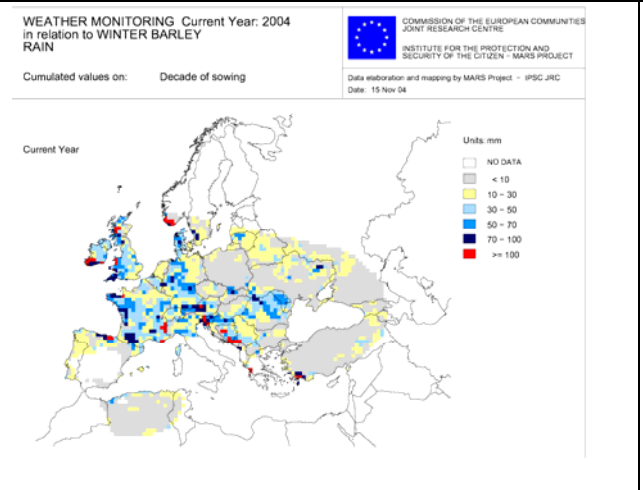

Grid 61094
Daily Rainfall (mm)
Poltavs'ka - (UA)
Grid 61094
Minimum daily temperature (°C)
Poltavs'ka - (UA)
Current period
Long-term
+/- 2*Stdev

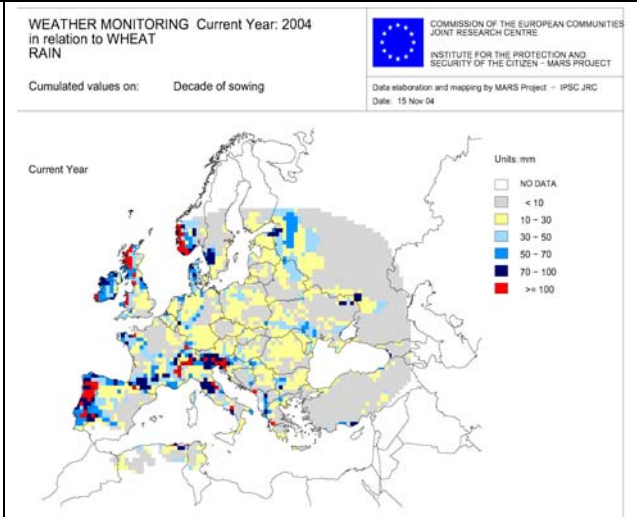

Grid 45084 Maximum daily temperature (°C)
SUD - (RO)
Grid 33028 Maximum daily temperature (°C)
ALENTEJO - (PT)
Grid 58112 Maximum daily temperature (°C)
Stavropol - (RU)
Map of heat stress risk
(Period : 1 April - 31 August 2004)
(Absolute maximum temperatures recorded)
<29
29 - 30
30 - 31
31 - 32
32 - 33
33 - 34
34 - 35
35 - 36
36 - 37
37 - 38
38 - 39
39 - 40
40 - 41
> 41
Grid 32083 Maximum daily temperature (°C)
ATTIKI - (GR)
Grid 29034 Maximum daily temperature (°C)
ANDALUCIA - (ES)
d 43045 Maximum daily temperature (°C)
MIDI-PYRENEES - (FR)
1-Apr 1-May 1-Jun 1-Jul 1-Aug
Current period Long-term +/- 2*Stdev

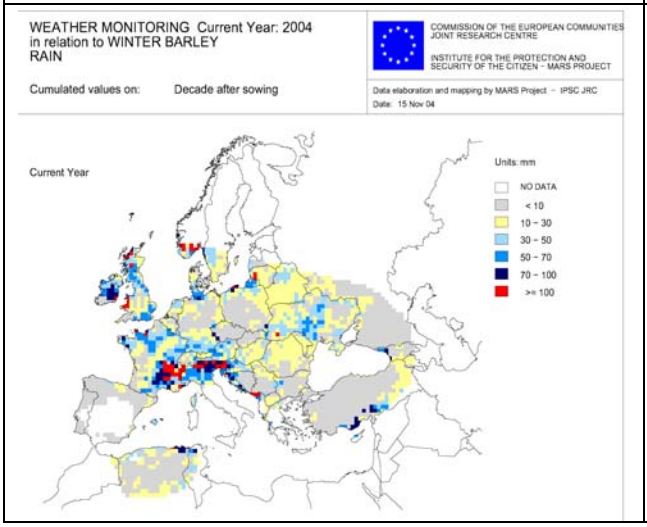
D. Maps for the new sowing campaign 2004/2005

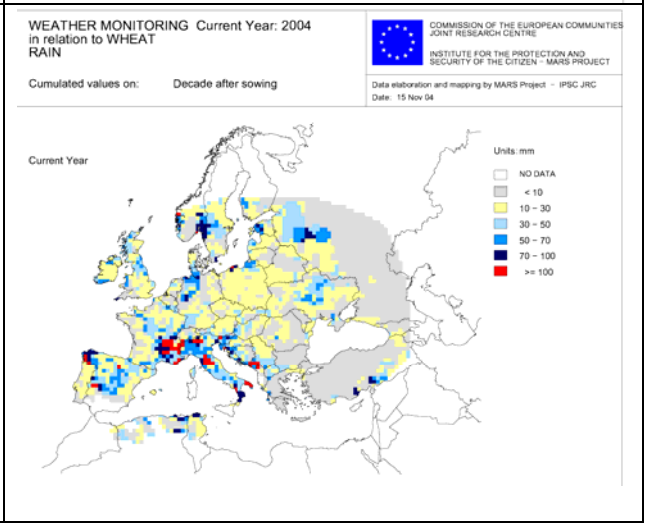








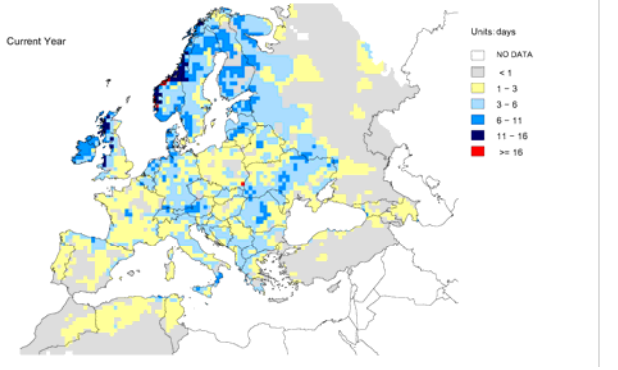




WEATHER MONITORING Current Year: 2004
NUMBER OF DAYS WITH RAIN > 5MM

Cumulated values on:
Starting 01 - September - 2004
Up to and including 30 - September - 2004

COMMISSION OF THE EUROPEAN COMMUNITIES
JOINT RESEARCH CENTRE
INSTITUTE FOR THE PROTECTION AND SECURITY OF THE CITIZEN - MARS PROJECT
Data elaboration and mapping by MARS Project - IPSC JRC
Date: 02 Oct 04



WEATHER MONITORING Current Year: 2004
MAXIMUM DAILY RAINFALL

Highest value in:
Starting 01 - September - 2004
Up to and including 30 - September - 2004

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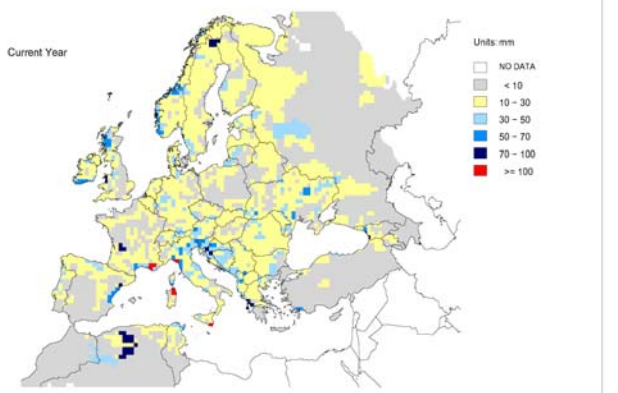

WEATHER MONITORING Current Year: 2004
NUMBER OF DAYS WITH RAIN > 5MM

Cumulated values on:
Starting 01 - October - 2004
Up to and including 31 - October - 2004

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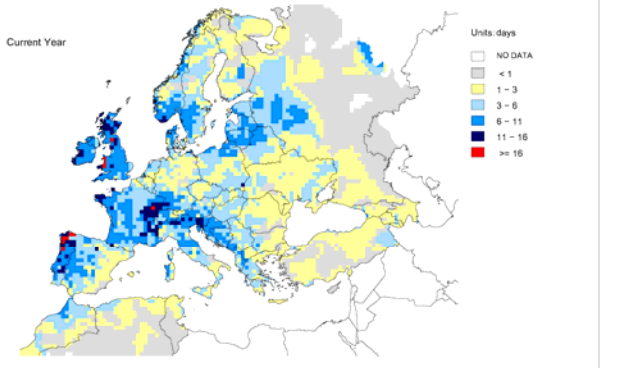

WEATHER MONITORING Current Year: 2004
MAXIMUM DAILY RAINFALL

Highest value in:
Starting 01 - October - 2004
Up to and including 31 - October - 2004

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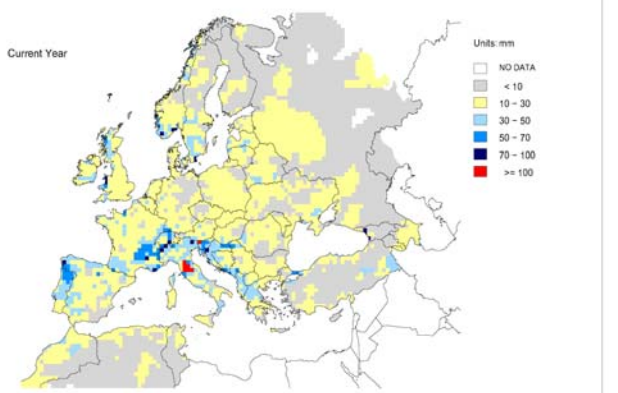
Date: 02 Nov 04



WEATHER MONITORING Current Year: 2004
NUMBER OF DAYS WITH RAIN > 5MM

Cumulated values on:
Starting 01 - November - 2004
Up to and including 10 - November - 2004

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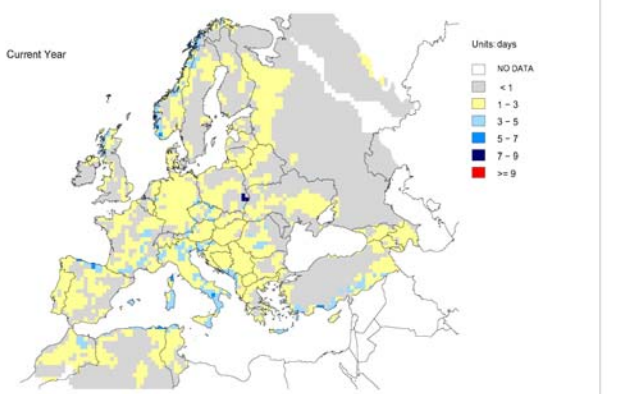
Date: 14 Nov 04



WEATHER MONITORING Current Year: 2004
MAXIMUM DAILY RAINFALL

Highest value in:
Starting 01 - November - 2004
Up to and including 10 - November - 2004

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