European Commission

Period covered: 1 December - 20 March
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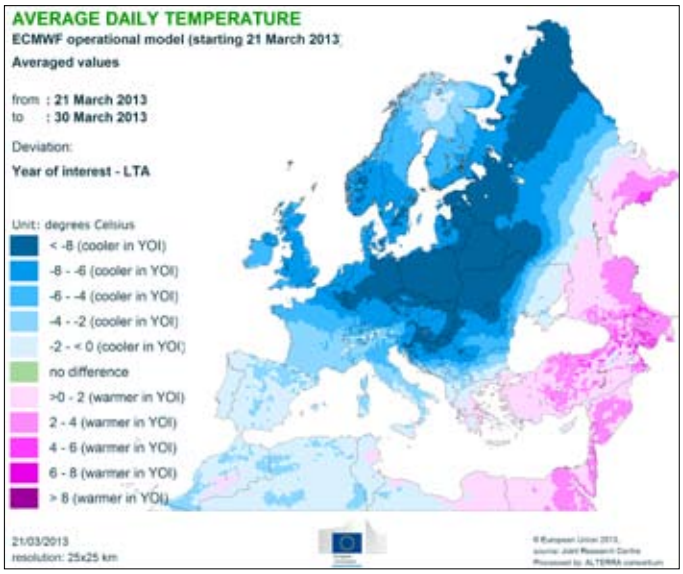
Crop Monitoring in Europe

MARS BULLETIN Vol.21 No. 3 (2013)

General promising start to the season but continued cold spells over Europe

Generally colder-than-seasonal conditions prevailed from January to February in Europe, except in Spain and in the Black Sea area. During this period there was plenty of rain over Europe, with the exception of Russia, Scandinavia and the Iberian Peninsula, where below average rainfall was recorded. Abundant precipitation (>300 mm) occurred in the western British Isles, western France and further along the north-western shore of the Iberian Peninsula, the western parts of the Apennine and Balkan Peninsulas, and in western Turkey. During March so far daily mean air temperatures were lower than the long-term average by 1-4°C in the majority of central and western Europe. Higher than usual temperatures were recorded over the Balkans and regions around the Black Sea.



The cold spell after 8 March caused a significant drop in air temperatures over the major part of central, western and northern Europe slowing down crop development. Above-average precipitation was recorded in the Mediterranean region, Balkan Peninsula and part of eastern Europe. Drier-than-usual weather conditions occurred in France, part of the Benelux countries, Denmark, northern Poland, the Baltic countries, southern Scandinavia and part of British Isles. Snow covered most of central, northern and eastern Europe. To date, no frost-kill damage has been simulated for EU-27 during the period of review, thanks to light frost events and sufficient snow cover. So far fair wintering conditions suggest good yield potentials but the impact of the continued cold spells in central Europe needs to be closely monitored.

Crop	Yield t/ha				
	2012	MARS 2013 forecasts	Avg 5yrs	%13/12	%13/5yrs
TOTAL CEREALS	4.76	**5.06**	5.03	+6.4	+0.7
Total Wheat	5.17	**5.40**	5.37	+4.4	+0.5
soft wheat	5.41	**5.65**	5.63	+4.5	+0.3
durum wheat	3.15	**3.19**	3.21	+1.5	-0.4
Total Barley	4.37	**4.46**	4.38	+2.3	+1.9
spring barley	3.86	**3.97**	3.82	+2.6	+3.9
winter barley	5.28	**5.24**	5.26	-0.8	-0.3
Grain maize	5.96	**6.96**	6.98	+16.7	-0.2
Rye	3.70	**3.52**	3.33	-4.9	+5.7
Triticale	4.12	**4.10**	4.06	-0.5	+1.1
Other cereals	2.16	**2.28**	2.77	+5.4	-17.9
Rape and turnip rape	3.10	**3.10**	3.04	-0.2	+1.7
Potato	29.70	**31.51**	30.72	+6.1	+2.6
Sugar beet	70.16	**71.17**	69.95	+1.4	+1.7
Sunflower	1.59	**1.80**	1.81	+13.4	-0.7

Joint Research Centre

1. Agro-meteorological overview

Winter 2012/2013 (December – February)

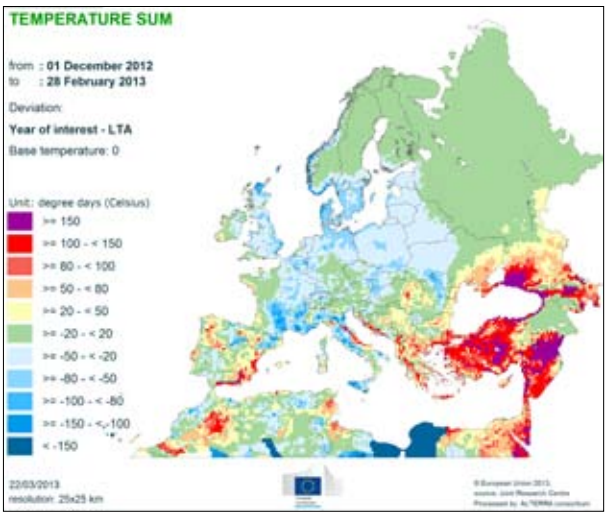
Generally colder-than-seasonal conditions prevailed from January to February in Europe, except in Spain and in the Black Sea area. At the end of February the cumulated active temperature was below the long-term average (<50 growing degree days - GDD) in Denmark, southern Sweden, western coast of the UK, northern Germany, Italy and southern France. On the contrary a positive anomaly, with cumulated active temperatures above average (>100 GGD) was recorded surrounding areas of Black Sea, mainly in Turkey. During this period there was plenty of rain over Europe, with the exception of Russia, Scandinavia and the Iberian Peninsula, where below average rainfall was recorded. Abundant precipitation (>300 mm) occurred in the western British Isles, western France and further along the north-western shore of the Iberian Peninsula, the western parts of the Apennine and Balkan Peninsulas, and in western Turkey. No frost-kill damage was recorded during the period of review, thanks to light frost events and sufficient snow cover.

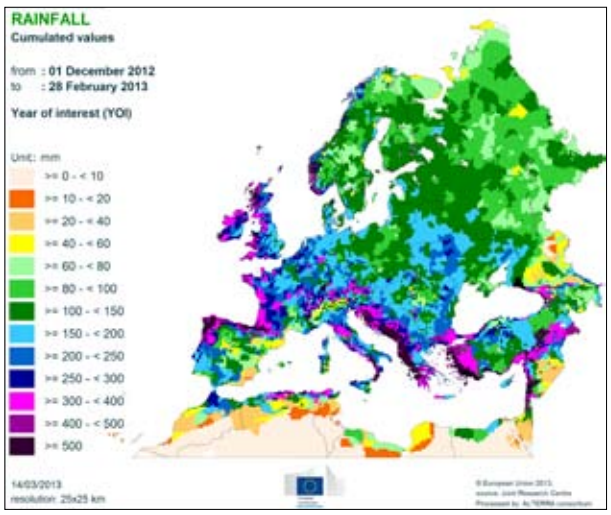
Observed temperatures

In **December**, weather conditions were colder than usual in eastern Europe. Minimum temperatures fell below -12°C between the Baltic and Adriatic Seas, and even below -20°C in the very eastern and northern areas of Europe (mainly in Russia, Ukraine, Belarus, Romania and Poland).

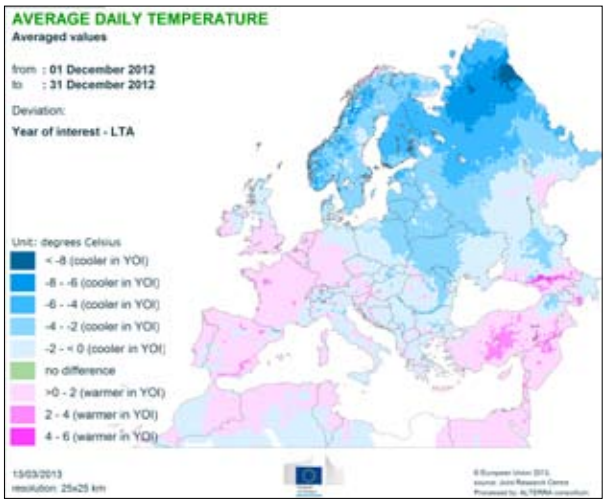
On the contrary, western Europe experienced higher temperatures than the long-term average, and the southern coastline of the Atlantic and the Mediterranean Sea remained frost free. The positive thermal anomaly was especially evident in France, Germany and the Benelux countries, diminishing the delay in crop development due to late sowing or unfavourable autumn weather conditions. The cumulated active temperatures indicated a surplus of +50 to +80 GDD in northern and central France, southern Germany and Turkey. The cumulated active temperatures indicated a surplus between 20 and 50 GDD in northern and western France, eastern Spain, and Turkey.

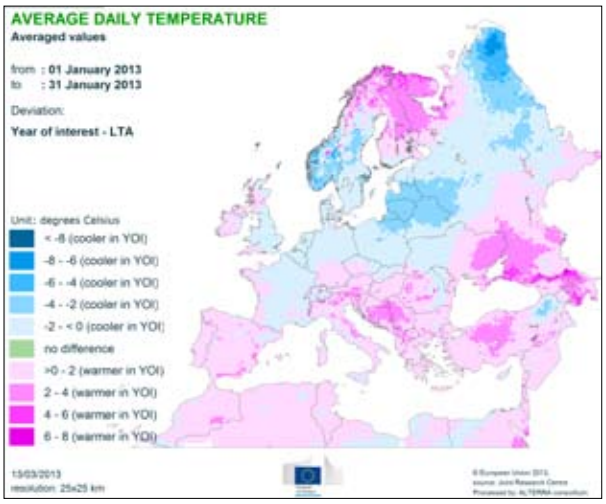
January started with anomalous high temperatures over Europe. During the first dekad the temperatures characteristically exceeded the long-term average by +2 to +8°C with the exception of the Iberian Peninsula, the Black Sea Region and the very eastern part of Russia. For 10 days starting in mid-January, below-average temperatures were recorded in a wide belt stretching from France and the British Isles to the Ural Mountains, interrupted by a pronounced warm spell. During this month near-normal thermal conditions were experienced in the basin of the Mediterranean Sea and in the areas around the Black Sea. In general, frost events remained moderate (<-10°C) in the lowlands of the UK, France, Germany and Greece, although minimum temperatures ranged between -10 and -20°C in the eastern countries of EU-27. In the last days of January and early **February**, unusually intense positive thermal anomalies were detected over the whole of Europe. On the warmest days, the daily maximum temperatures exceeded +10°C in France, Germany, the Benelux countries, and most of England and central Europe, and temperatures reached between +15 and +20°C in the Balkan Peninsula and in the Mediterranean Basin. From 5 to 16 February, cold air flooded the western half of Europe and caused considerable cooling, leading to air temperatures dropping below average again. During this period, daily temperatures remained 2-4°C below the long-term average in western Scandinavia, Germany, eastern France, the Alpine region, southern Italy and most of the Maghreb countries. In these regions minimum temperatures were 4-6˚C lower than long-term average. During the two last weeks of February, the mean daily temperature was 1-6˚C colder than the long-term average in Germany, France, northern Italy, the UK, Ireland, Spain,

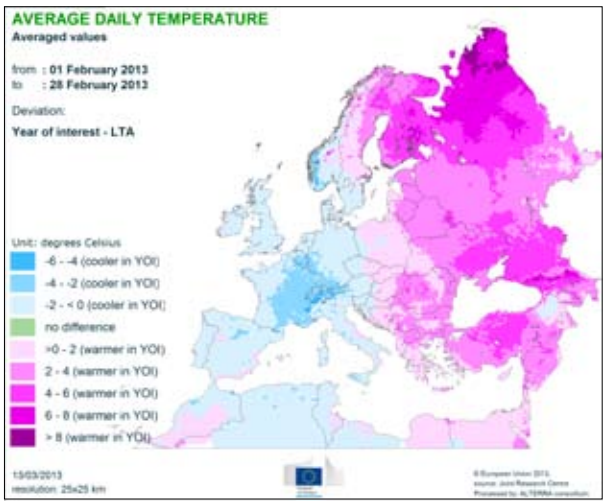


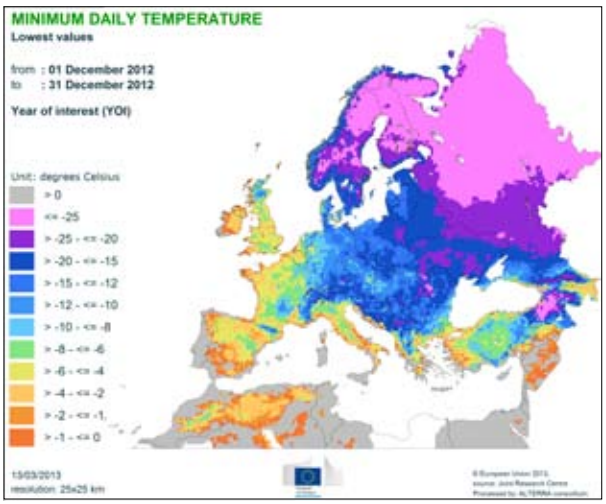


Portugal and the Maghreb countries. On the contrary, the eastern half of Europe and especially Scandinavia experienced a positive thermal anomaly (+4–6˚C). The number of cold days in February was 5 days greater than long-term average in Germany, France, northern Italy, the UK, Ireland, Denmark, southern Sweden and Castilla y León region (Spain). During this month in France the cumulated active temperature was well below the long-term average (-50 to -80 GDD), with a possible delay on the phenological development. By contrast, the temperature accumulation was above average in Turkey. Other regions of eastern Europe experienced seasonal temperatures and a normal temperature accumulation.



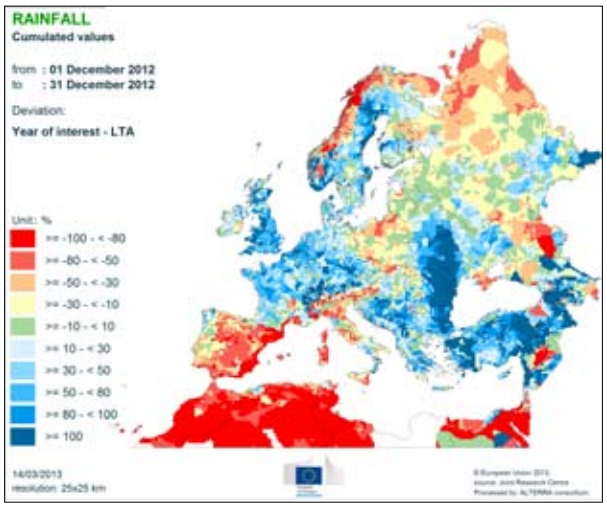


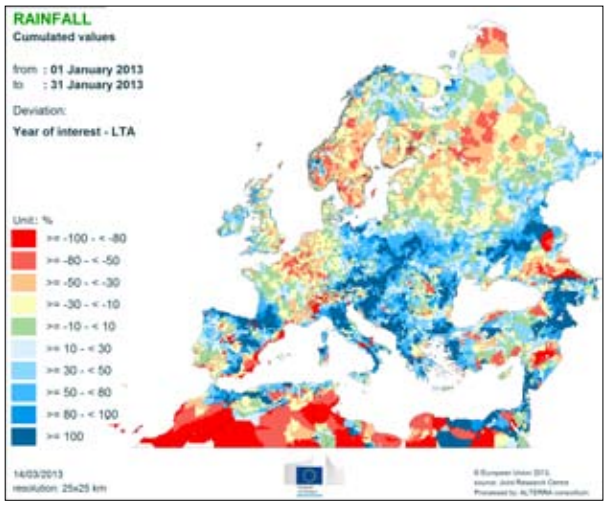


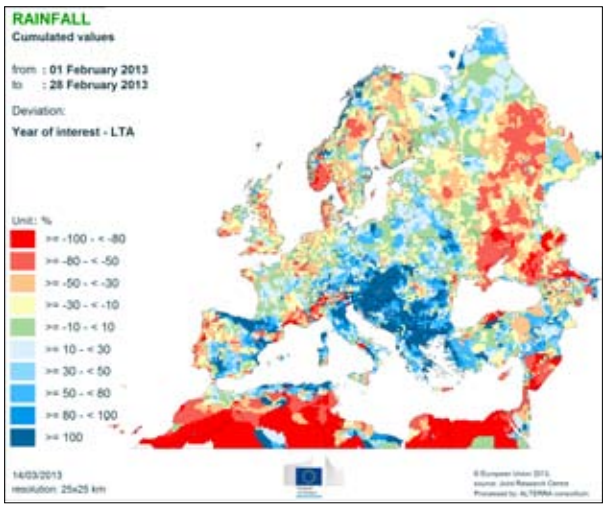


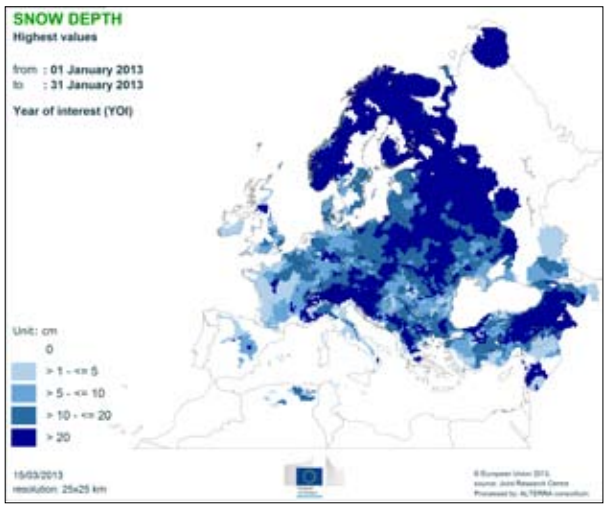
Observed rainfall and snow cover

In **December**, rainfall was plentiful and exceeded 100 mm in the Atlantic region including the British Isles, France, Germany, Denmark, southern Norway, the north western Iberian Peninsula and the Alpine regions. Precipitation was also above the long-term average in the eastern Adriatic and in the surrounding areas of the Aegean Sea, just as in Turkey, along the eastern coastline of the Mediterranean Sea and in the Caucasus. In some regions of Ukraine and Romania the precipitation amount was 100% above average On the contrary, precipitation was scarce in Spain, central Italy and Sicily, the western half of Romania as well as in the Maghreb countries and extended territories of Russia. During this month snow covered Scandinavia and an extended area between eastern France and the Ural Mountains, including most of the Balkan Peninsula and Turkey. In **January** frequent and abundant precipitation (>150 mm) occurred in the western British Isles, south-western France and further along the north-western shore of the Iberian Peninsula, the western parts of the Apennine and Balkan Peninsulas, and in western Turkey. Rainfall was also more than 50% above average in Poland, Hungary, Slovakia, western Ukraine, eastern Romania and some areas of the Balkan Peninsula. From mid-January, snow covered the majority of the continent with the exception of southern Europe. In late January, the snow cover started to melt and even disappeared in several areas. After a persistent dry period, the abundant rainfall experienced in the second dekad of January favourably increased the soil moisture content in Spain. Abundant precipitation (>60 mm) also cumulated in the Iberian Peninsula during **February**. During this month, significant precipitation also occurred in the western half of the Balkan Peninsula, Italy, Turkey and the Maghreb. Rainfall was more than 80% above the long-term average in the Balkan Peninsula, Bulgaria, Slovakia, southern and western Romania, Italy and northern Spain. On the contrary, below-average rainfall was recorded in large areas of eastern Ukraine and Russia, Sweden and southern Norway, Denmark and in the British Isles. Snow cover partially recovered by mid-February, with the snowfall that occurred during the renewed cold spell.









Agro-meteorological overview (21 February – 17 March)

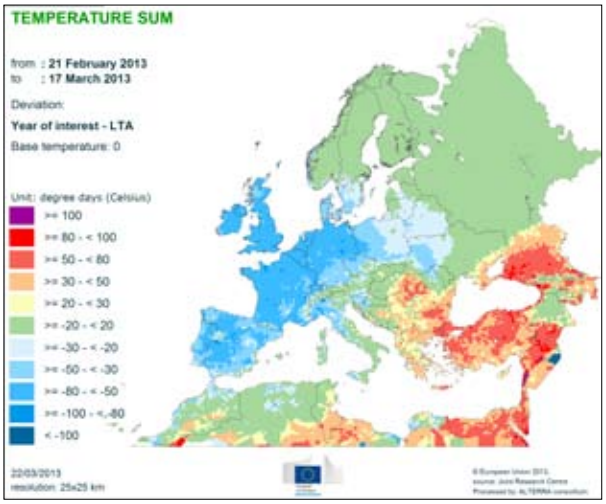
During the period from 21 February to 17 March 2013, daily mean air temperatures were lower than the long-term average by 1-4°C in the majority of central and western Europe. Higher than usual temperatures were recorded during the same period over the Balkans and regions around the Black Sea. The cold spell after 8 March caused a significant drop in air temperatures over the major part of central, western and northern Europe. Above-average precipitation was recorded in the Mediterranean region, Balkan Peninsula and part of eastern Europe. Drier-than-usual weather conditions occurred in France, part of the Benelux countries, Denmark, northern Poland, the Baltic countries, southern Scandinavia and part of British Isles. Snow covered most of central, northern and eastern Europe. To date, no frost-kill damage has been simulated for EU-27.

Observed temperatures

Considering the whole period from 21 February until 17 March, weather conditions were colder than usual in western, central and northeastern parts of Europe. Active temperature sums, up to 80 growing degree days lower-than-usual, were recorded over the major part of western Europe, Germany, Poland and northwestern part of Italy. On the contrary, higher-than-usual temperatures were recorded over the Balkan Peninsula and regions around the Black Sea. The strong positive thermal anomaly in these regions contributed to an increased temperature sum, which regionally exceeded the long-term average by more than 80 growing degree days. The development of winter crops is delayed due to the colder weather conditions in France, England, the Benelux countries, Germany, Poland, northern Europe, the western part of Ukraine and northern Romania. Advanced development stages have been achieved in regions around the Black Sea, especially in Russia and Turkey. The period between 21 February and the end of February was characterised by significantly colder weather conditions over France, England, the Benelux countries, Germany and part of Russia. Negative temperature anomalies of up to 6°C were recorded in Germany and of up to 8°C in the central part of France. Warmer-than-usual conditions were recorded in the northern Scandinavia and regions around the Black Sea. A period with milder conditions over major agricultural production areas followed in the first week of March. Colder-than-usual conditions were recorded in the northeastern part of the Europe, whereas other parts of Europe experienced slightly warmer-than-usual conditions. After 8 March, a high pressure system over northern Europe caused a flow of cold air from northeast Europe to the central and western parts of Europe. Consequently, this was the coldest period over a major part of Europe after 21 February. Average daily temperatures dropped below the long-term average by more than 12°C over parts of Poland and Germany. Minimum daily temperatures of less than -18°C occurred in parts of northern Poland, the Baltic countries and northern Europe. Minimum temperatures of between -10°C and -15°C were recorded in other parts of central Europe, the Benelux countries, northern France, Romania and the western Balkans. No frost-kill events were recorded according to our simulations. Winter crops in eastern Germany, the Czech Republic, Poland, and northern and eastern Europe were fully hardened during the cold spell. In addition, snow covered a major part of central, eastern and northern Europe as well as France and parts of England, protecting winter crops against frost impact.

Observed rainfall and snow cover

Above-average precipitation occurred in the Mediterranean region, the Balkan Peninsula and parts of eastern Europe. Precipitation exceeded the long-term average by more than 100 mm in the southern part of the Iberian Peninsula, northern Italy, the western Balkans and the Atlantic coast of Scandinavia. Lower-than-usual precipitation occurred in major parts of France, the Benelux countries, Denmark, northern Poland, the Baltic countries, southern Scandinavia and the northwestern part of the British Isles. The period between 21 February and the end of the February was characterised by mostly dry conditions over the northern part of Germany and Poland, France, the Benelux countries, the British Isles, and northern and eastern parts of the Europe. Wetter-than-normal conditions prevailed over the Iberian Peninsula, Italy, the Balkan Peninsula and southern parts of central Europe. In the following period at the beginning of the March, a major part of central Europe, eastern Europe and the Balkan Peninsula remained dry. Wet conditions continued over the western Mediterranean. Abundant precipitation over that area favourably increased the soil moisture content. After 8 March, northern Europe and parts of central Europe experienced mostly dry and normal precipitation conditions, respectively. Wet conditions continued over the western Mediterranean region. With the exception of southern Europe, the majority of the continent was covered by snow during the period of review.



2. Country analysis

2.1 European Union

France

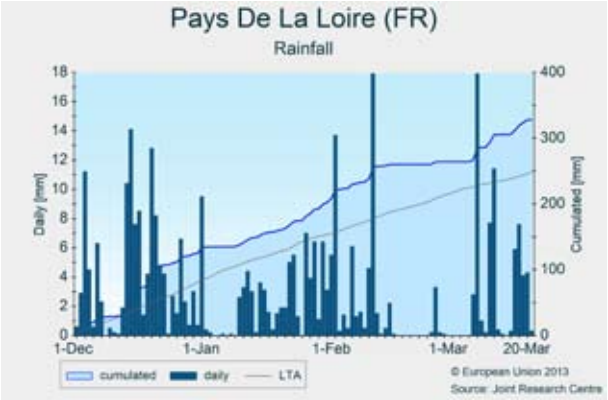
Crop development delays in the northern half

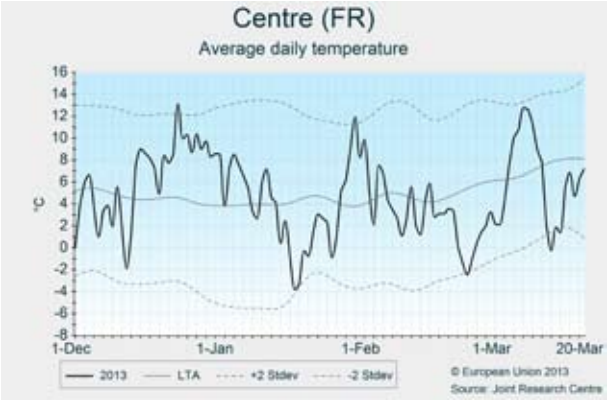
The substantial amount of rainfall and low temperatures that occurred during winter have delayed the development of winter cereals in the northern half of the country. Crop growth expectations are normal.

Weather conditions during winter were characterised by substantial precipitation and fluctuating temperatures. In most of the western region, cumulated rainfalls are roughly 100 mm above the long-term average, with the *Pays de la Loire*, *Basse Normandie* and *Bretagne* regions registering the highest values. Conversely, precipitation remains slightly lower than usual in the *Champagne-Ardenne*, *Bourgogne* and *Picardie* regions. Temperatures were lower than usual during the second half of January and February, with occasional snowfall in January and mid-March, which led to a delay in the development of winter cereals.

Currently winter cereals have reached the tillering stage in most regions. An analysis of satellite imagery indicates a delay in crop development of about two weeks in the northern half of the country, which is directly linked to late sowing due to the plentiful rain received during autumn. Contrarily, in the *Midi-Pyrenees* and *Aquitaine* regions, crop leaf area expansion is slightly above seasonal values, benefiting from the favourable weather conditions that occurred especially during January and February.

Overall expectations are for average yields for all winter crops, as no major meteorological constraints have been experienced during winter, and water availability in the soil is enough to guarantee adequate crop growth during the first half of the spring.



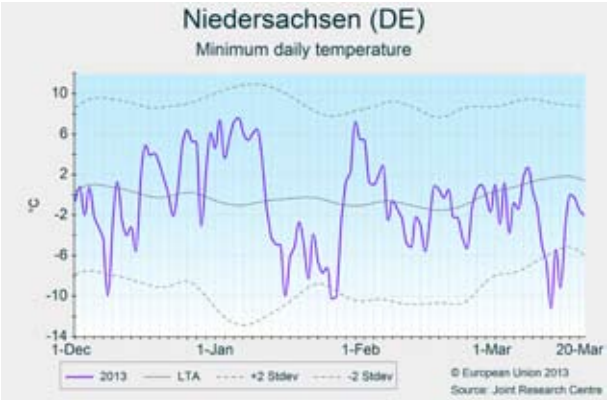


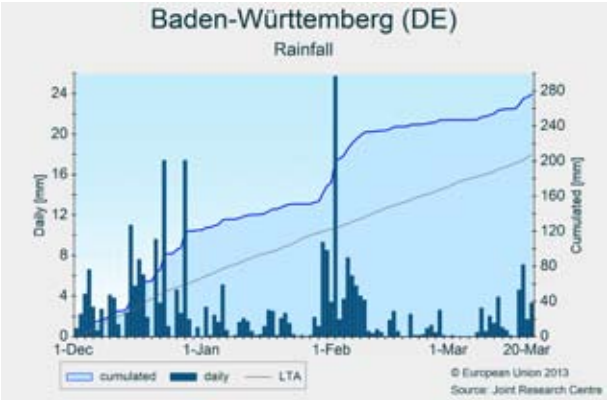
Germany

Winter with low radiation ends with a decisive cold spell

A slightly cooler than usual winter with well distributed precipitation should ensure a good start into the season. However, the harsh frosts that occurred during the latest cold snap in March give rise for concern.

A slightly cooler than usual winter led to almost normal temperature accumulation since December in southern Germany and a slight deficit of temperature cumulation in the north. In total, three cold spells were recorded, one at the





beginning of December, one towards the end of January and the latest in mid-March (still continuing) with unusually cold temperatures especially in the north. However, our winter-kill damage simulations do not indicate that any areas have been affected. In general, field activities have been interrupted or are delayed due to the harsh cold snap.

Precipitation was well distributed during winter and a surplus above the average was accumulated across Germany, with the exception of the *Niedersachsen* and *Schleswig-Holstein* regions where precipitation has been below average since the beginning of February. In the *Bayern* and *Baden-Wuerttemberg* regions the winter was very wet, but a drier period that began in mid-February that should allow accessing fields for spring crops sowing. The above-average rainfall should assure a good water supply for the re-growth of winter cereals.

Forecasts are based on historical trends or average values.

Poland

Average winter but cold snap beginning of March

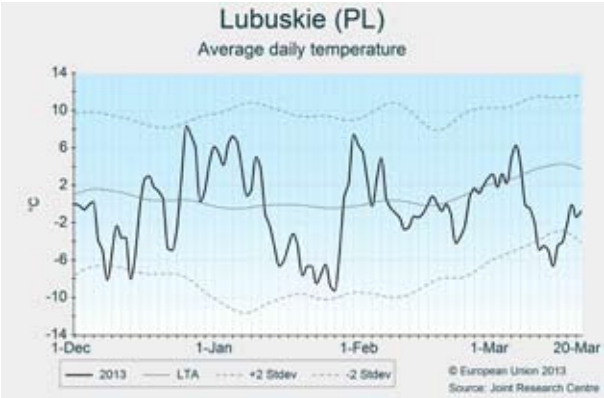
Winter temperatures that were close to average and the slightly increased rainfall amounts promise a good crop season. A colder than usual March could jeopardise the timely start of winter crops' re-growth.

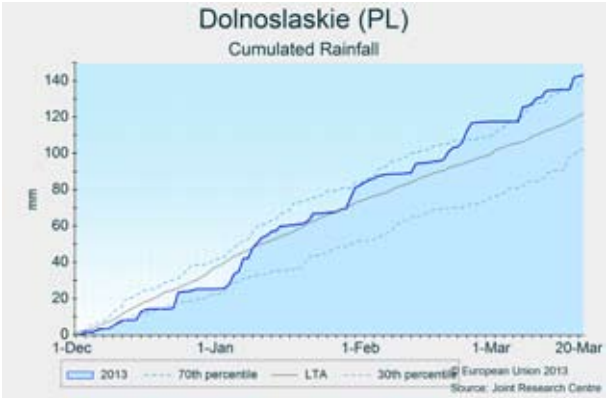
Average temperatures during December and January were slightly below average, especially in eastern Poland. February was milder than average. The cold spell during the first half of March was particularly evident in northern and western regions.

Cumulated precipitation since December was higher than usual by 20% all over the country with the exception of the *Warminsko-Mazurskie* and *Podlaskie* regions where rainfall was lower than the long-term average.

A colder-than-usual March and low minimum temperatures caused a certain delay in crop development, especially in central northern part of the country. According our winter kill simulations, low temperatures in March did not cause any crop damage.

As it is very early in the season, our forecast is based on trend values. The yield for most of the crops is set slightly above the 5-year average.





United Kingdom and Ireland

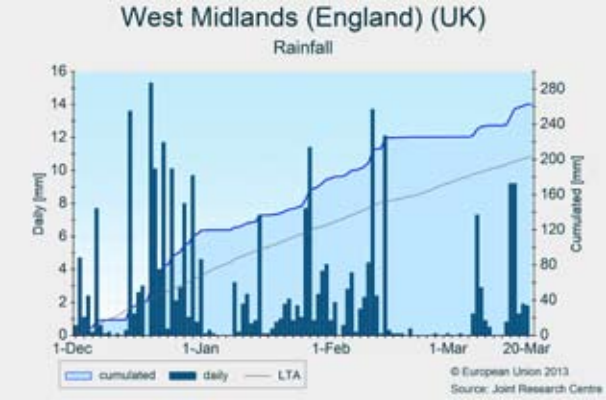
No major problem expected as crops escape winter damages

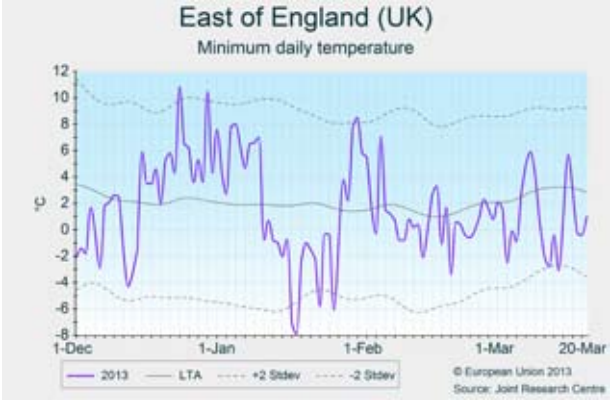
Overall wet winter in Great Britain. Closer-to-average conditions in Ireland. Crop yield forecasts based on trend.

The month of December was remarkably wet with respect to the long-term average for most of Great Britain. Overall, the cumulated precipitation over the winter period was considerably above average. The end of February and beginning of March were marked by a much drier period, which was favourable for carrying out operations such as the sowing of spring cereals or applying fertiliser or pesticides.

Temperatures have remained close to the average during the entire winter period aside from a colder spell that occurred during the second half of January and mid-March. In general, no frost damage is expected.

At this early stage, the crop yield forecasts are made based on extrapolating the temporal trend of official yield figures of previous years.





Spain and Portugal

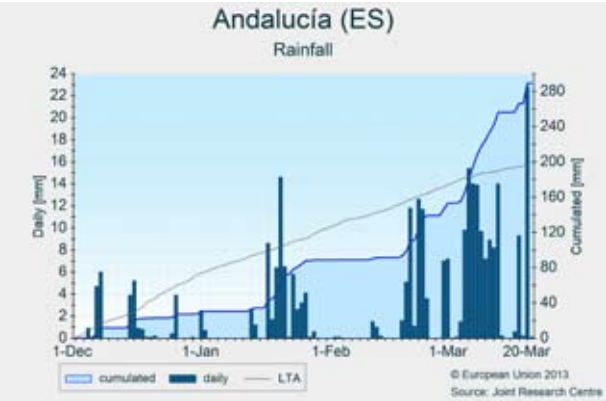
Positive expectations after a favourable start to the season

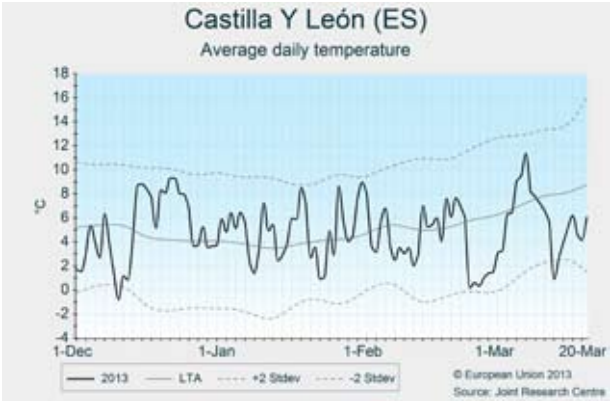
Humid conditions during winter in the whole of the Iberian Peninsula favoured the adequate development of winter cereals. Leaf development is above the seasonal values in all regions, giving rise to a positive scenario for the current season.

A particularly wet start to the season was experienced in most regions, with two main periods of significant rainfall at the end of October and in February-March. The cumulated precipitation indicates a surplus for 2013 over the long-term average, especially in the southern half of the Peninsula, with *Andalucia*, *Castilla La Mancha* and *Alentejo* registering about 150 mm more than average. The water stored in reservoirs has reached levels similar to those of last year, after quite a demanding summer in 2012.

Temperatures have been, in general, milder than usual during January and the first half of February. Temperatures dropped sharply for a few days at the end of February and the second week of March, especially in *Castilla y Leon* region but without any major effect on crop development.

Within this meteorological context, crop development in all regions is above the seasonal average. Remote sensing indicators reveal a higher-than-average development of leaf area, indicating that crops are growing under quite favourable conditions. Consequently, expectations for crop growth are positive at this stage of the season, but they will have to be confirmed during April, when meteorological conditions become crucial for determining yield potentials of winter cereals.





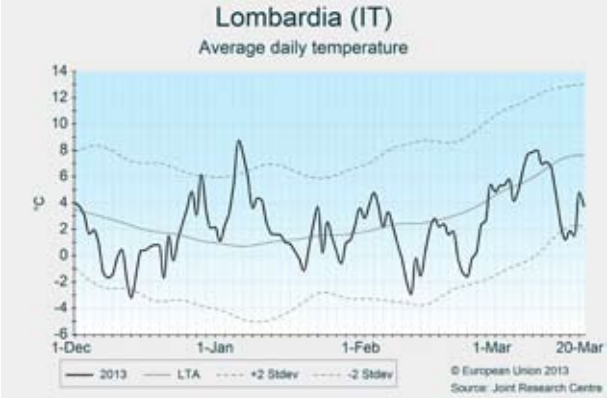
Italy and Slovenia

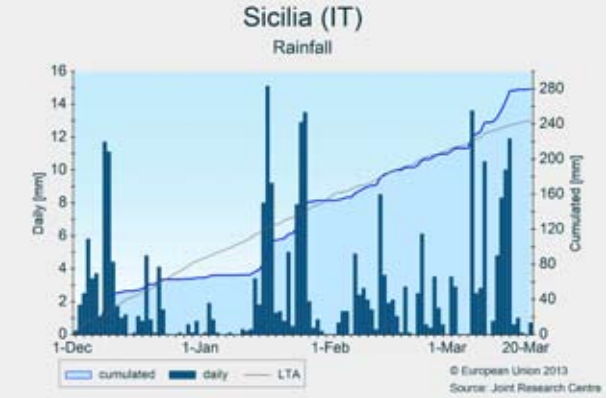
Favorable perspectives for winter crops

Winter has been characterised by temperatures below the long-term average and by a positive soil water balance. Crop yield forecasts are based on historical trends.

Winter temperatures were close to or below the average from December to mid-March. The cumulated active temperature was below average during the whole period in southern and central Italy. Positive thermal anomalies were detected from the last dekad of December and the first dekad of January over northern Italy and Slovenia, temporarily pushing the cumulated active temperatures above the average. Low levels of precipitation were recorded from December to January, mainly in southern Italy. From February onwards, cumulated

rainfall was above the long-term average over the whole of Italy and Slovenia, creating a positive soil water balance. Winter wheat and barley crops are at the tillering stage, and a slight phenological delay has been recorded in southern Italy.





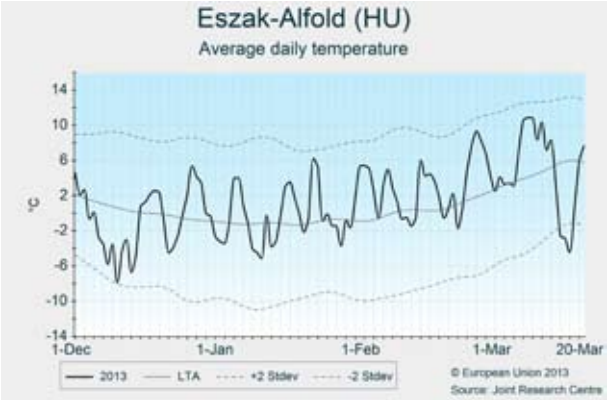
Hungary

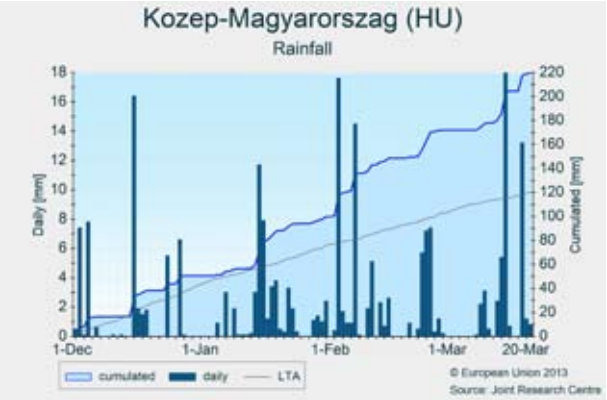
Plentiful precipitation and favourable thermal conditions

Temperatures mostly fluctuated above the average, but remained within normal ranges except for two cold snaps in mid-December and mid-March. This winter is among the five wettest in our 38 years of archive records for Hungary. The snow cover was deeper and more frequent than usual. Growth and development of the winter cereal and rape-seed crops are promising and conditions for re-growth are good.

The slightly wetter- and milder-than-usual weather allowed winter crops to strengthen before the dormant period. The first two dekads of December were 4-6°C colder than the average. From the last dekad of December until mid-March, the temperatures indicated a high variability. Regarding the review period, from a deficiency of -50 GDD to a surplus of +15 has been observed for the active temperature sum (Tbase=0°C) in a north-west to south-east direction. Snowy cold air intrusion from 14 March onwards resulted in a sharp drop to extremely low minimum temperatures. Precipitation was at normal levels or just slightly above until mid-January. The following period was wet, since the precipitation surplus reached +70 to +100 mm in the central, western and northern territories, but remained in the moderate range (+50 mm) in the *Dél-Alföld* region.

The abundant winter precipitation allowed for the replenishing of soil water reservoirs. No significant crop damage occurred during the wintering of the winter cereals and rape-seed.





Romania

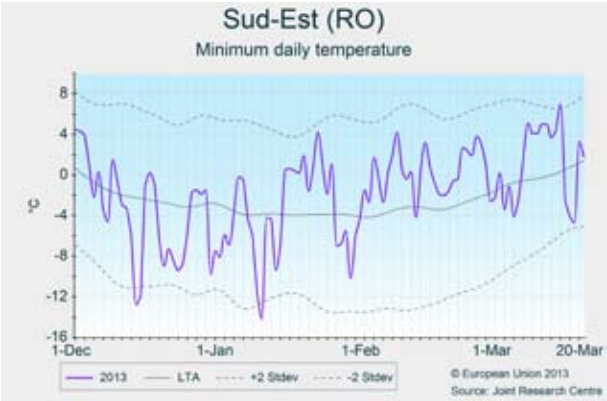
Good wintering conditions suggest high yield potential

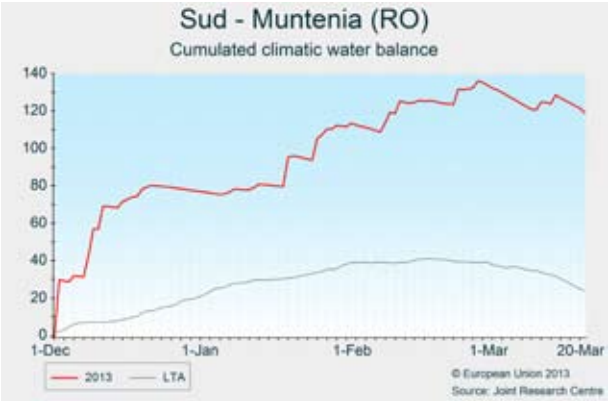
The warm and moist autumn led to favourable conditions for the successful germination, growth and strengthening of winter crop before winter. Freezing temperatures characterised the first half of winter, but after mid-January thermal conditions were significantly milder than average. The cumulated climatic water balance indicates that there is a notable excess of water over Romania.

After the first days of December, snowfall led to a thick snow

cover all over Romania from mid-December onwards. During this period the daily minimum temperatures fell below -14 and -18°C on the coldest days. This cold spell, with short (1-3 days) breaks, lasted until mid-January, but the snow cover protected the winter crops from the winter-kill damage effects of severe frosts.

Until mid-March the active temperature sum exceeded the average by +20 to +50 GDD over most of Romania, with the exception of the northeast region, where winter cereals have started to de-harden. In the southern regions, winter crops started to grow earlier than usual after the winter dormancy, due to the high temperatures that occurred. Precipitation was plentiful in December and February, leading to a near optimal moisture content of soils for spring. All in all, the wintering of crops was favourable and the general winter crop conditions are fair.



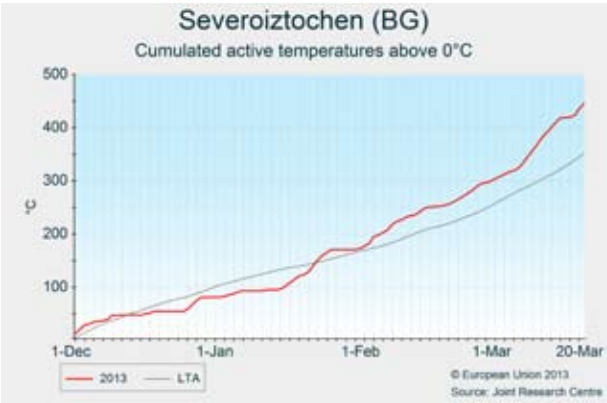


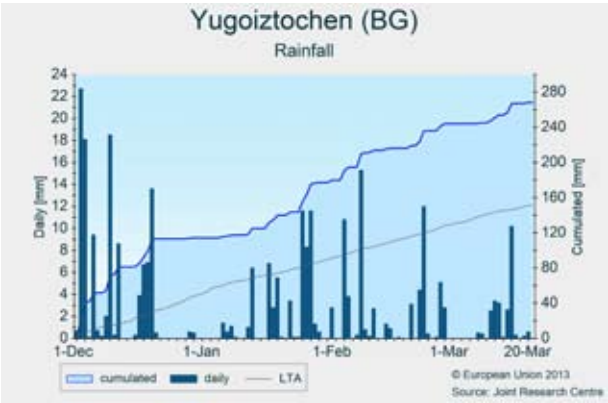
Bulgaria

Plentiful rain and snow replenished soil moisture content

Thermal conditions were favorable for the winter period and no damages are expected. Above-average precipitation ensured an adequate water supply for winter crops until end of April. Given that it is early in the crop season, trend values were used for to make yield forecasts.

The current campaign started under relatively good conditions, as above-average thermal conditions accelerated the crop growth in autumn, and rainfall fulfilled the moderate crop water demand. The winter period was characterised by significant temperature variability, since short warm and cold spells frequently alternated with each other. The first half of the winter period was slightly colder than usual. Especially in the second dekad of December and the first dekad of January, temperatures remained well below average and most severe frosts occurred at temperatures of -7°C to -12°C. During these periods crops were protected by snow cover. From mid-January onwards a noticeable warming was experienced. The daily mean temperatures mostly exceeded the climatological average until mid-March, when a very cold air intrusion occurred. The mean temperature decreased by more than 10°C for two days from 14 March, but this event is unlikely to have caused significant crop losses. The precipitation sum of this winter exceeded the climatologically expected values by +30 to +70 mm in the northern regions of Bulgaria, while the southern regions received +90 to +150 mm more than usual. The general crop conditions are above average.





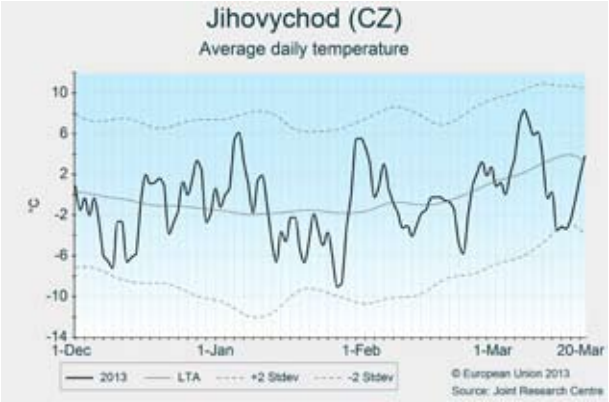
Austria, the Czech Republic and Slovakia

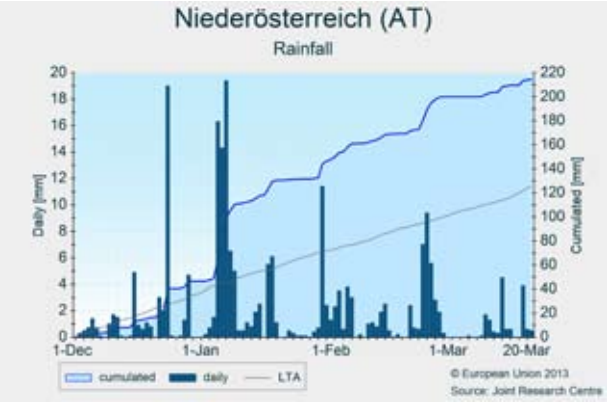
Abundant rainfall and average temperatures suggest a yield good potential

Favourable conditions in terms of water supply and thermal accumulation around the long-term average suggest a potentially good impact on winter crops. The low minimum temperatures registered in many areas in December and January should have been mitigated by a protective snow cover.

Average temperatures fluctuated around the long-term average during the whole winter season. As a consequence, the thermal accumulation has been average. Mild temperatures were registered during the first dekads of January and February, and the second dekad of March. These were offset by low minimum temperatures registered in many areas during the second dekad of December and during the last days of January. Due to a protective snow cover we do not expect any problems for crop growth, and the winter kill simulations do not show any affected areas. Generally, rainfall has been well above the long-term average in all three countries.

The general situation suggests an overall positive outcome for winter crops. The above-average rainfalls should assure a good water supply for the regrowth of winter cereals. Nevertheless, it is quite early to forecast an above-average outcome. This is the reason why trend values were used in this bulletin.

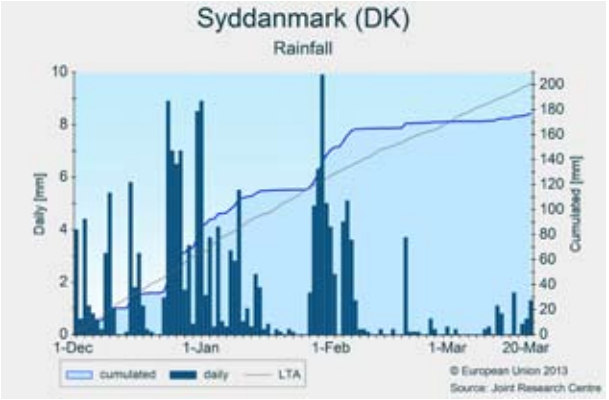


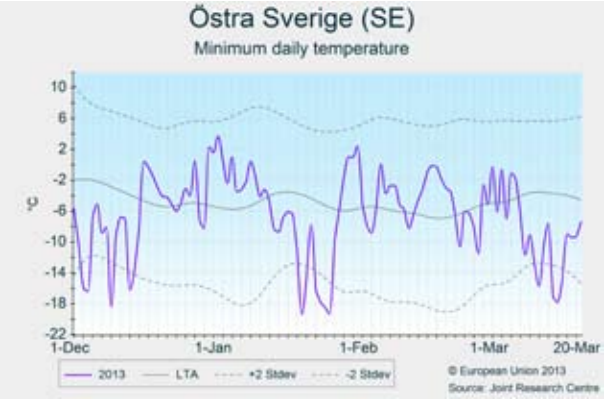


Denmark and Sweden

March colder and drier than usual

Winter temperatures were close to or below the average and a deficit in the water balance was recorded from mid-February. More rainfall is needed in the coming weeks to supply sufficient water to the soils. All forecasts made are based on historical trend values.





After a colder-than-average start to December, warmer-than-normal conditions (by about +4°C) were recorded from mid-December to mid-January. During the second half of January, average temperatures dropped far below the norm, with minimum temperatures below -15°C being recorded in *Ostra Sverige*. Temperatures then remained closer to the average until mid-March, when another cold spell hit the country. Due to the presence of snow, no winter-kill damage is expected according to our simulations. Cumulated rainfall remained close to the long-term average until the first dekad of February. From mid-February to mid-March a dry period was recorded, with cumulated rainfall 100% below average in Denmark and southern Sweden. This unusually low precipitation has led to

a large cumulative soil water-balance deficit. More rainfall is needed in the coming weeks to guarantee sufficient soil water supplies for good crop growth. At this early stage, the forecasts for all crops are made based on the trends of official yield figures of the previous years.

Finland and the Baltic countries

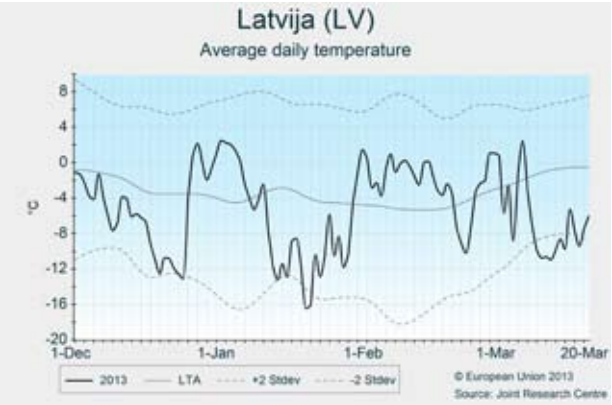
Winter close to average with slightly lower temperatures and rainfall

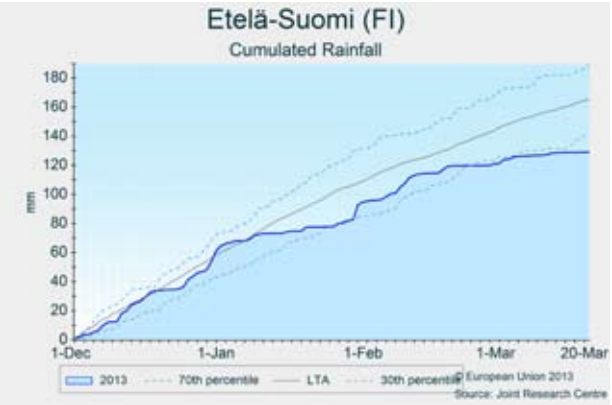
The winter was characterised by slightly below-average temperatures. Most areas experienced lower-than-average rainfall accumulation, especially southern Finland.

The average temperatures during the analysed period from 1 December to 10 March were about 1°C lower than the long-term average, particularly in the Baltic countries and southern Finland. December and January were colder than usual. The temperature in February was significantly higher than usual, mainly during the first two dekads.

The whole region experienced rainfall amounts below the long-term average. The biggest rainfall anomaly of about 20% below average was recorded in southern Finland, particularly in *Etelä* and *Itä*. Temperature accumulation is low and the development of winter crops has not yet started. It is still too early for the sowing of spring crops.

Forecasts are based on trend values. Crop yields are forecast to be slightly above the five-year average, but lower than last season, especially for crops that yielded historical records last year.





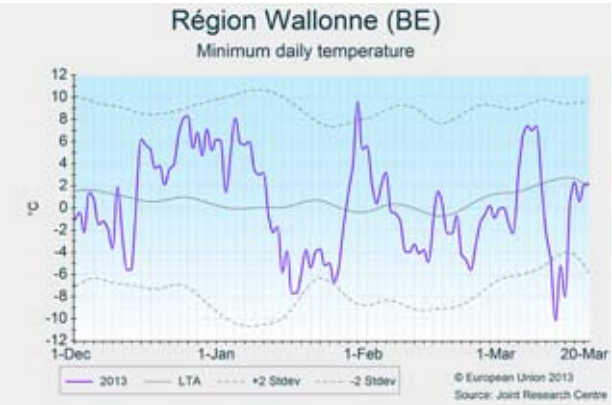
Belgium, the Netherlands and Luxembourg

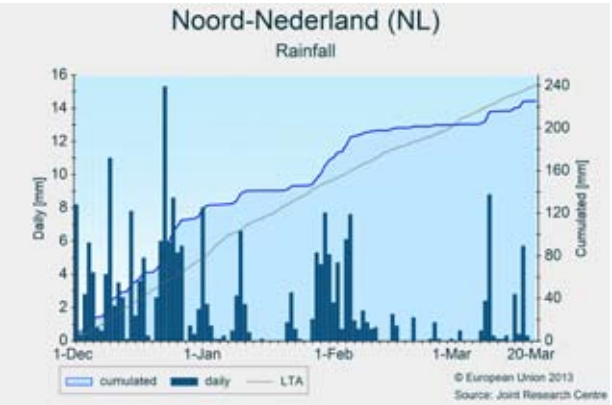
No problems foreseen for crops at the end of the winter

Indications are that winter conditions have not had negative impacts on winter crops.

The first period of winter, from mid-December to mid-January, was characterised by warmer-than-normal conditions (about +4°C). During the second half of January, average temperatures dropped far below average (about -5°C), with very low levels of precipitation. Snow cover was present in most parts which helped to protect crops, and no frost-kill damage has been detected by our simulations. In February, temperatures remained closer to the average. Overall cumulated precipitation remained close to the average, but it did rain much more than normal during December in the Netherlands.

At this early stage, the forecasts for all crops are made based on extrapolating the temporal trend of official yield figures of previous years.



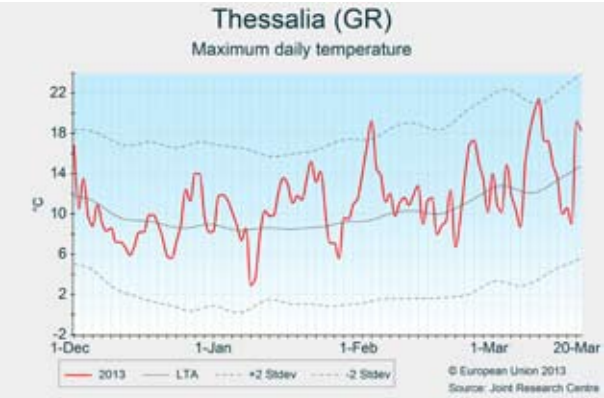


Greece and Cyprus

Mild winter and precipitation above the long-term average

Winter rainfalls resulted in a positive water balance as well as delayed fertilisation for winter crops. Continuing rainfalls until March may have resulted in delayed spring sowings.

Temperatures for Greece have been near or above the long-term average for almost the whole winter period. Little or no snow cover and no frost-kill damage were observed for the main agricultural lands. Abundant precipitation from December to late February ensured a positive water balance. However, due to the continuous precipitation, fertilisation of winter crops and the sowing of spring crops were delayed. Potato and rye crop yields are forecast to be above the five-year average, while durum wheat, soft wheat, winter barley and sunflower crops are forecast to be close to the five-year average. In Cyprus, the recorded temperatures were above the long-term average with the exception of a short cold snap in January. Precipitation was also above the long-term average and soil moisture levels are high, ensuring a good start into the growing period. Therefore, winter barley is forecast to be above, and durum wheat to be close to, the 5-year average.



Croatia

Abundant rainfall during winter

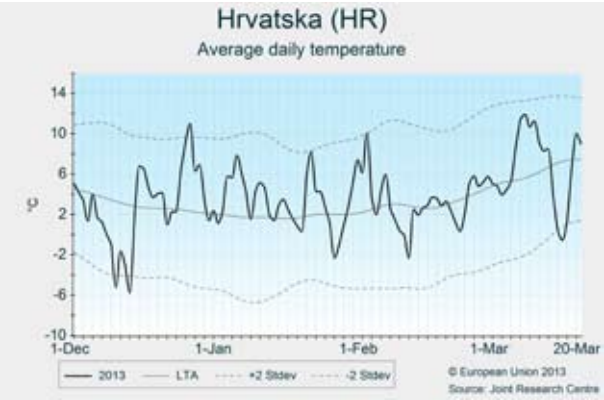
Abundant rainfall and temperatures that were slightly higher than usual during the winter months have led to a slight advance in the crop cycle for winter crops, particularly in eastern Slavonia.

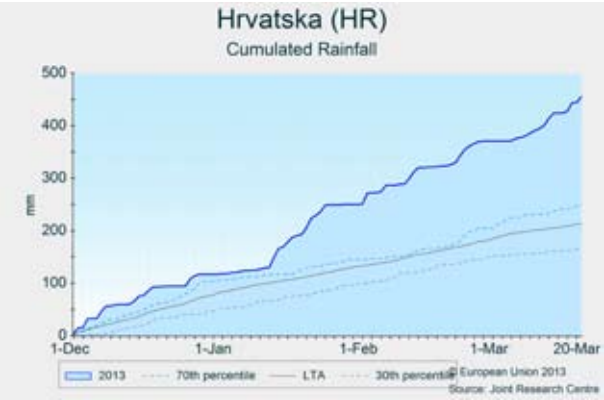
Croatia experienced a mild winter. Average temperatures during the winter months were slightly higher than usual, especially in the most important cereal-growing regions. During the analysed period, the average daily temperature in eastern *Slavonia* was higher than the long-term average by 1°C.

The accumulated precipitation since December has been twice the average and very close to the highest value in our historical series.

Mild temperatures and available water slightly advanced winter-crop development. If abundant rainfall continues, spring sowings could be delayed, particularly on soils with low permeability and poor drainage.

The yield forecast is based on the 5-year average.





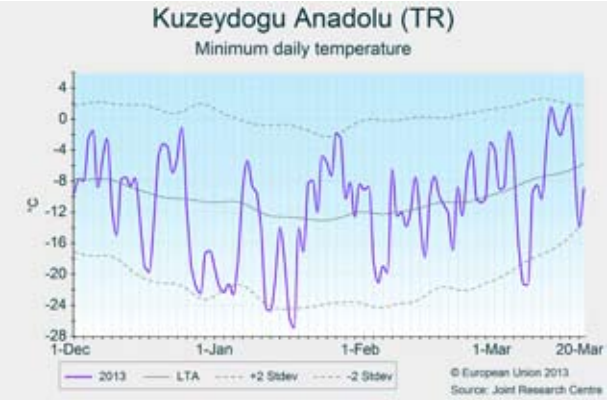
2.2 Black Sea Area

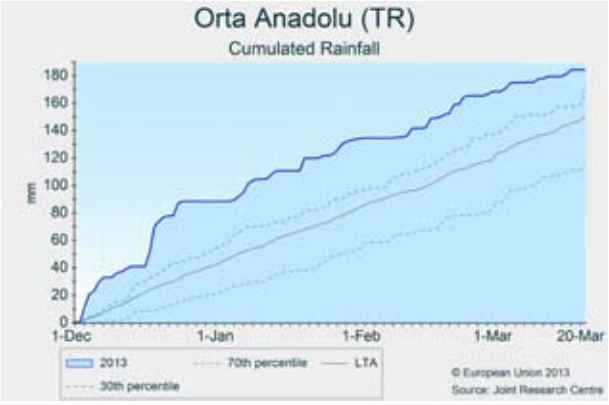
Turkey

Wet winter and no frost kill for whole country

Abundant rain in winter and temperatures above the long-term average create favourable conditions for both winter and spring crops.

The winter was mild for almost the whole country and temperatures were mainly above the long-term average. Exceptions were observed in some areas of the north east and south east of the country where temperatures dropped to unusually low levels, reaching almost -27°C on 17 January. However, due to the short duration of cold temperatures and the snow cover, no frost-kill damage has been simulated by our model. Precipitation was considerable and well distributed from December to February showing a clear surplus compared to the average. Nevertheless, in the area of *Dogu Karadeniz* the cumulated climatic water balance fell below average after the middle of January. Weather conditions to date have been favourable and should ensure good expectations for yields of winter crops and positive expectations for spring crops. Therefore, wheat and barley crop yields are forecast to be above the 5-year average.





Ukraine

Abundant rainfall and above-average temperatures suggest a good yield

Development conditions for winter crops before the winter dormancy period were near optimal. Well above seasonal temperatures and sufficient water supply were recorded for most of Ukraine with the exception of southeastern regions where the drought continued. Winter wheat and winter barley damages are expected primarily in the Krym and Khersons'ka regions, where the water shortage hampered germination and growth before the dormancy period. Winter precipitation was abundant especially in the western areas.

Ukraine experienced sufficient rains and significantly higher-than-normal temperatures during the past autumn.

December was colder than the long-term average by 1-3°C all over the country. The second half of December was unusually cold with daily minimum temperatures of between -15 and -21°C, except for a narrow coastal strip along the Black Sea. January saw mild days in the south and east of the country, although harsh frosts also occurred on some days. Since February, temperatures mostly exceeded the average. Considering the period from 1 January onwards, the active temperature sum indicates a positive anomaly of +50 to +130 GDD in southern Ukraine. Precipitation was particularly

abundant in December. Regarding the whole period from 1 December until now, precipitation exceeds the average and a surplus of around +100 mm has been recorded in the western half of Ukraine, setting new records in many districts. Concurrently, the eastern regions have experienced a more moderate (+20-50 mm) positive water income anomaly. The *Krym* region remained drier than usual, and further rainfall is needed to replenish the deeper soil layers. Our model simulations indicate no serious frost-kill damage, due to a sufficient hardening and protective snow cover. In general, the mild February and March conditions led to the early growth of winter cereals and allowed for the sowing of spring crops in the southern and southeastern regions.

2.3 European Russia and Belarus

European Russia

Satisfactory wintering

The major winter-wheat-producing areas of Russia experienced mostly above-average temperatures, although in smaller regions of the Southern District winter-kill damages decreased the area sown. The amount and distribution of precipitation was near normal with a moderate surplus in the southern part of the country.

The first dekad of December was exceptionally mild in the central and southern territories of Russia, where the thermal anomaly reached +2 to +8°C, while the northern districts remained cooler than usual. The temperatures started to fall sharply in the middle of the month, and freezing temperatures characterised the last dekad of December. Minimum temperatures reached -20°C and even -25°C in the *Chernozem Belt* and the northern part of the *Southern Federal* District. Unfortunately, very low temperatures were combined with a shallow snow cover primarily in *Volgogradskaya Oblast* and some smaller neighbouring regions. Frost-kill damages are likely in these areas, especially if the crops were underdeveloped due to the dry autumn conditions. January started with warmer weather conditions over European Russia, which persisted over southern Russia. February was decidedly mild, since the mean temperatures exceeded the long-term average by +3 to +6°C. In March, northern regions were once again hit by cold air masses, while temperatures were higher than usual in the southern regions. The temperature sum (Tbase=0°C) indicates an extremely mild winter, with a surplus of 80 to 250 GDD being recorded in the area between the Black and Caspian Seas. Precipitation over the entire period was near or slightly below normal in the northern areas, but marginally (10-50 mm) above average in the south, although there are considerable spatial differences. The general crop status in the main winter wheat producer districts like *Rostovskaya*, *Krasnodarskiy* and is forecast to be above average with good expectations.

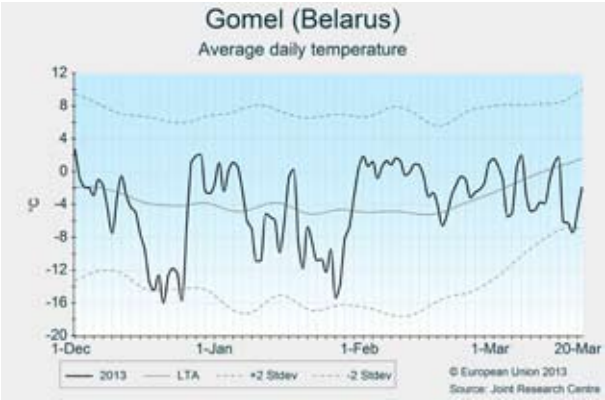
Belarus

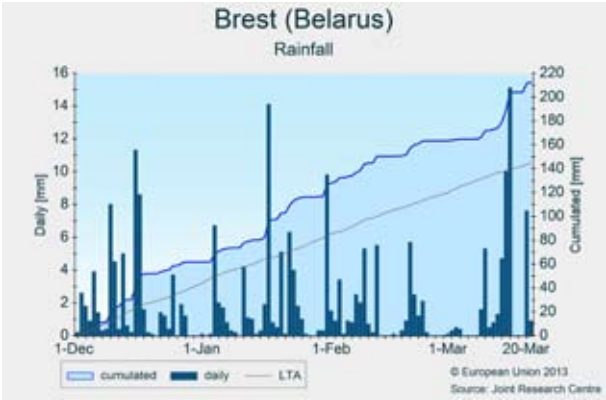
Warmer autumn followed by slightly colder winter with average precipitation

During last autumn, temperatures were mostly above average and the water supply of winter crops was adequate. Crops developed well and were hardened before winter dormancy. Near-average winter conditions without harmful events ensure a good start.

The thermal conditions of the period of review were close to the climatological norm, showing large temperature fluctuations. While the first days of December were mild, a progressive decrease in air temperature occurred during the first two dekads of the month. Between 20 and 25 December, the daily minimum temperatures remained below -15°C in most of the country, with minimum temperatures of -22°C being recorded in northern regions. Towards the end of December, temperatures suddenly increased to above average for 20

days. The significant cooling that then occurred in mid-January was replaced by milder weather from February until the first dekad of March. In the first half of December precipitation was plentiful, but later distribution and amounts were generally close to normal with slightly higher accumulations in the southern part of the country. Our model calculations confirm that no frost-kill damages are likely until mid-March in Belarus. Crop conditions are generally good.





2.4 Maghreb

Morocco, Algeria and Tunisia

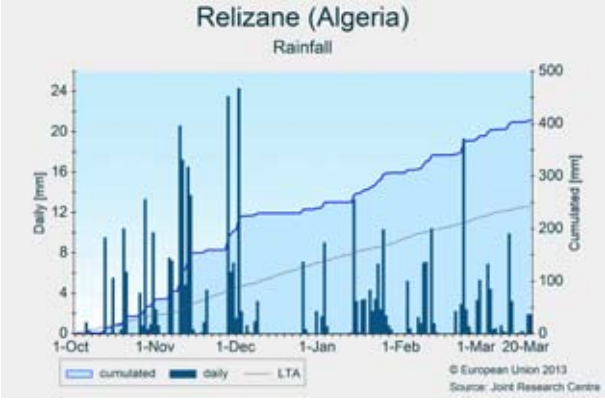
Favourable conditions, but some areas affected by drought

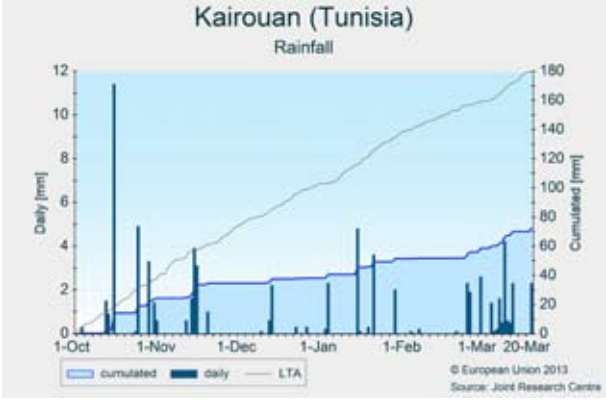
The yield forecast for wheat (soft and durum) is significantly higher than the five-year average for the three Maghreb countries (Morocco, Algeria and Tunisia) due to rather wet and mild winter conditions, which favoured a good start to vegetative growth and repletion of soil water capacity. Present barley forecasts are closer to average due to less favourable conditions in centre-south of Morocco and more severe drought conditions affecting all winter cereal areas in the centre-south of Tunisia as well as parts of east Algeria.

There has been abundant precipitation in the western half of the Maghreb (north Morocco, west Algeria) with historical records being set in *Gharb*, and oriental regions of Morocco, and in the *Relizane*, *Chlef*, and *Ain Defla* provinces of Algeria. All zones of east Algeria and north Tunisia - where most wheat is cultivated (*Jenduba*, *Bizerte*, *Beja*) - received above-average, and well-distributed rainfall, which has replenished the soil moisture. In association with mild winter temperature conditions, this is expected to lead to good tilling conditions and vegetative development of winter cereals (see NDVI profiles).

In contrast, severe drought has been affecting the centre south of Tunisia (*Kairouan*, *Sidi Bouzid*, *Kasserine*), and the *Oum El Bouaghi* and Tebessa provinces of Algeria. Warmer-than-average autumn temperatures and lower-than-average autumn and winter rainfall in these regions suggest the possibility of crop failure.

Below-average conditions are observed in some parts of centre-south Moroccan rainfed regions ("Bour") and the *Tensift* regions, although drought conditions could still be mitigated by flood irrigation.





3. Crop yield forecasts

Country	TOTAL WHEAT (t/ha)					SOFT WHEAT (t/ha)					DURUM WHEAT (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU27	5.17	**5.4**	5.37	4.4	0.5	5.41	**5.65**	5.63	4.5	0.3	3.15	**3.19**	3.21	1.5	-0.4
AT	4.14	**5.26**	5.13	27.1	2.6	4.19	**5.3**	5.17	26.6	2.6	3.07	**4.35**	4.34	+42,0	0.3
BE	8.27	**8.79**	8.74	6.3	0.6	8.27	**8.79**	8.74	6.3	0.6	-	**-**	-	-	-
BG	3.92	**3.83**	3.74	-2.4	2.4	3.86	**3.81**	3.72	-1.4	2.4	5.85	**4.43**	4.49	-24.2	-1.2
CY	1.94	**1.95**	1.95	0.1	+0,0	-	**-**	-	-	-	1.94	**1.95**	1.95	0.1	+0,0
CZ	4.39	**5.27**	5.23	+20,0	0.7	4.39	**5.27**	5.23	+20,0	0.7	-	**-**	-	-	-
DE	7.33	**7.49**	7.49	2.2	+0,0	7.34	**7.5**	7.5	2.2	+0,0	4.92	**5.34**	5.35	8.7	+0,0
DK	7.46	**7.24**	7.29	-3,0	-0.7	7.46	**7.24**	7.29	-3,0	-0.7	-	**-**	-	-	-
EE	3.97	**3.44**	3.14	-13.4	9.3	3.97	**3.44**	3.14	-13.4	9.3	-	**-**	-	-	-
ES	2.37	**3.05**	2.94	28.9	3.8	2.66	**3.24**	3.19	21.5	1.4	1.09	**2.2**	2.08	102.1	5.8
FI	3.76	**3.86**	3.74	2.9	3.4	3.76	**3.86**	3.74	2.9	3.4	-	**-**	-	-	-
FR	7.2	**7.14**	7.03	-0.9	1.5	7.36	**7.31**	7.2	-0.7	1.5	5.45	**4.93**	5.06	-9.6	-2.6
GR	2.42	**2.74**	2.74	12.9	-0.3	2.83	**2.99**	2.99	5.8	+0,0	2.31	**2.66**	2.66	15.3	+0,0
HU	3.73	**4.1**	4.1	9.8	0.1	3.73	**4.1**	4.1	9.8	+0,0	3.7	**3.97**	3.8	7.1	4.4
IE	8.53	**9.09**	8.83	6.5	2.9	8.53	**9.09**	8.83	6.5	2.9	-	**-**	-	-	-
IT	4.07	**3.9**	3.82	-4.3	+2,0	5.85	**5.53**	5.38	-5.4	2.8	3.26	**3.14**	3.13	-3.8	0.2
LT	3.93	**4.12**	3.82	4.9	7.9	3.93	**4.12**	3.82	4.9	7.9	-	**-**	-	-	-
LU	5.82	**5.97**	6.11	2.6	-2.4	5.82	**5.97**	6.11	2.6	-2.4	-	**-**	-	-	-
LV	3.8	**3.81**	3.53	0.4	8.1	3.8	**3.81**	3.53	0.4	8.1	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	8.74	**8.71**	8.69	-0.2	0.3	8.74	**8.71**	8.69	-0.2	0.3	-	**-**	-	-	-
PL	4.12	**4.26**	4.18	3.4	+2,0	4.12	**4.26**	4.18	3.4	+2,0	-	**-**	-	-	-
PT	0.86	**1.47**	1.48	70.7	-0.9	0.86	**1.47**	1.48	70.7	-0.9	-	**-**	-	-	-
RO	2.55	**2.8**	2.95	+10,0	-4.8	2.55	**2.81**	2.95	+10,0	-4.8	2.49	**2.52**	2.55	1.1	-1.3
SE	6.27	**5.87**	5.85	-6.4	0.4	6.27	**5.87**	5.85	-6.4	0.4	-	**-**	-	-	-
SI	5.44	**4.84**	4.78	-11,0	1.2	5.44	**4.84**	4.78	-11,0	1.2	-	**-**	-	-	-
SK	3.38	**3.96**	4.05	+17,0	-2.4	3.38	**3.95**	4.05	16.7	-2.4	-	**-**	-	-	-
UK	6.68	**8.02**	7.66	20.1	4.7	6.68	**8.02**	7.66	20.1	4.7	-	**-**	-	-	-
HR	*5.34*	***4.86***	*4.86*	*-9.1*	*+0,0*	*5.34*	***4.86***	*4.86*	*-9.1*	*+0,0*	-	**-**	-	-	-

Country	TOTAL BARLEY (t/ha)					SPRING BARLEY (t/ha)					WINTER BARLEY (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU27	4.37	**4.46**	4.38	2.3	1.9	3.86	**3.97**	3.82	2.6	3.9	5.28	**5.24**	5.26	-0.8	-0.3
AT	4.28	**5.06**	4.83	18.3	4.7	3.19	**4.19**	4.08	31.3	2.7	5.29	**5.84**	5.61	10.2	4.1
BE	7.95	**8.6**	8.43	8.2	+2,0	-	**-**	-	-	-	7.95	**8.6**	8.43	8.2	+2,0
BG	3.65	**3.54**	3.66	-2.9	-3.3	3.83	**2.97**	2.97	-22.5	+0,0	3.64	**3.58**	3.69	-1.7	-3.1
CY	1.43	**1.66**	1.39	16.1	20.1	-	**-**	-	-	-	1.43	**1.66**	1.39	16.1	20.1
CZ	4.32	**4.26**	4.41	-1.3	-3.3	4.4	**4.19**	4.35	-4.7	-3.5	4.07	**4.43**	4.56	8.9	-2.7
DE	6.16	**6.17**	6.11	+0,0	+1,0	5.51	**5.06**	5.06	-8.1	+0,0	6.49	**6.48**	6.48	-0.2	+0,0
DK	5.5	**5.39**	5.3	-2.1	1.6	5.35	**5.24**	5.14	-2,0	+2,0	6.41	**5.89**	5.95	-8.1	-1,0
EE	2.38	**2.7**	2.5	13.4	+8,0	2.38	**2.7**	2.5	13.4	+8,0	-	**-**	-	-	-
ES	2.23	**2.81**	2.74	25.8	2.7	2.27	**2.87**	2.8	26.3	2.6	2,00	**2.45**	2.4	22.6	2.1
FI	3.48	**3.58**	3.41	2.9	5.2	3.48	**3.58**	3.41	2.9	5.2	-	**-**	-	-	-
FR	6.71	**6.41**	6.47	-4.4	-0.9	6.66	**6.15**	6.23	-7.6	-1.3	6.74	**6.56**	6.58	-2.6	-0.3
GR	-	**2.44**	2.44	-	+0,0	-	**-**	-	-	-	-	**2.44**	2.44	-	+0,0
HU	3.59	**3.75**	3.71	4.4	1.2	3.19	**3.38**	3.3	5.8	2.2	3.83	**3.96**	3.96	3.3	-0.1
IE	6.53	**7.12**	6.92	+9,0	2.9	6.11	**6.87**	6.62	12.4	3.7	8,00	**8.62**	8.52	7.7	1.1
IT	3.79	**3.63**	3.59	-4.2	1.1	-	**-**	-	-	-	3.79	**3.63**	3.59	-4.2	1.1
LT	3,00	**3.07**	2.9	2.3	5.8	3,00	**3.07**	2.9	2.3	5.8	-	**-**	-	-	-
LU	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
LV	2.5	**2.63**	2.49	5.1	5.5	2.5	**2.63**	2.49	5.1	5.5	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	6.7	**6.11**	6.22	-8.7	-1.7	6.7	**6.11**	6.22	-8.7	-1.7	-	**-**	-	-	-
PL	3.59	**3.42**	3.3	-4.6	3.8	3.55	**3.26**	3.15	-8.3	3.5	3.85	**4.08**	3.98	5.9	2.4
PT	1.26	**1.73**	1.63	37.3	6.4	-	**-**	-	-	-	1.26	**1.73**	1.63	37.3	6.4
RO	2.4	**2.64**	2.73	10.4	-3.2	1.94	**2.03**	2.03	4.6	-0.2	2.64	**2.87**	3.13	8.7	-8.2
SE	4.59	**4.38**	4.36	-4.7	0.5	4.54	**4.35**	4.31	-4.3	0.8	6.6	**5.27**	5.4	-20.2	-2.4
SI	4.72	**4.25**	4.21	-9.9	+1,0	-	**-**	-	-	-	4.72	**4.25**	4.21	-9.9	+1,0
SK	3.24	**3.46**	3.5	6.8	-1.2	3.25	**3.46**	3.49	6.3	-1,0	3.15	**3.48**	3.6	10.4	-3.3
UK	5.5	**5.56**	5.73	+1,0	-2.9	4.94	**5.25**	5.3	6.1	-1,0	6.38	**6.31**	6.4	-1,0	-1.4
HR	*4.14*	***3.96***	*3.96*	*-4.4*	*+0,0*	-	**-**	-	-	-	*4.14*	***3.96***	*3.96*	*-4.4*	*+0,0*

Country	GRAIN MAIZE (t/ha)					RYE (t/ha)					TRITICALE (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU27	5.96	**6.96**	6.98	16.7	-0.2	3.7	**3.52**	3.33	-4.9	5.7	4.12	**4.1**	4.06	-0.5	1.1
AT	9.72	**10.67**	10.48	9.8	1.8	3.9	**4.08**	3.96	4.5	+3,0	4.7	**5.09**	4.99	8.3	1.9
BE	12.02	**12.34**	11.99	2.6	2.9	-	**-**	-	-	-	-	**-**	-	-	-
BG	3.73	**4.99**	4.78	33.8	4.3	-	**-**	-	-	-	2.72	**3.34**	3.16	22.9	5.6
CY	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
CZ	7.15	**7.77**	7.69	8.7	1.1	4.79	**4.39**	4.5	-8.2	-2.3	4.46	**4.23**	4.29	-5.2	-1.4
DE	8.78	**9.6**	9.6	9.3	+0,0	5.48	**5.06**	4.99	-7.8	1.2	6.04	**5.81**	5.79	-3.8	0.4
DK*	5.62	**-**	5.22	-	-	6.2	**5.5**	5.35	-11.3	2.9	5.41	**5.21**	5.17	-3.6	0.8
EE	-	**-**	-	-	-	3.55	**2.98**	2.68	-16.2	11.1	-	**-**	-	-	-
ES	10.71	**10.44**	10.54	-2.5	-0.9	1.61	**1.82**	1.98	13.1	-8.2	1.68	**2.19**	2.24	30.3	-2.3
FI	-	**-**	-	-	-	2.91	**2.84**	2.71	-2.3	4.9	-	**-**	-	-	-
FR	9.18	**9.27**	9.24	0.9	0.3	5.05	**4.85**	4.92	-3.9	-1.4	5.58	**5.32**	5.41	-4.5	-1.5
GR	10.61	**10.79**	10.79	1.7	+0,0	2.11	**2.3**	2.08	9.1	10.6	-	**-**	-	-	-
HU	3.98	**6.4**	6.17	60.6	3.7	2.25	**2.32**	2.2	3.1	5.4	3.11	**3.43**	3.27	10.3	5.1
IE	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
IT	8.74	**9.21**	9.23	5.3	-0.2	-	**-**	-	-	-	-	**-**	-	-	-
LT	6.5	**7.24**	5.84	11.4	23.9	2.7	**2.49**	2.38	-7.9	4.5	3.39	**3,00**	2.92	-11.3	3.1
LU	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	3.1	**3.12**	2.97	0.6	+5,0	2.7	**2.61**	2.48	-3.2	5.4
MT	-	**-**	-	-	-	-	**-**	-	-	-	-	**-**	-	-	-
NL	11.3	**12.19**	11.92	7.9	2.2	-	**-**	-	-	-	-	**-**	-	-	-
PL	6.74	**6.51**	6.39	-3.4	+2,0	2.75	**2.53**	2.52	-8.1	0.2	3.36	**3.44**	3.41	2.5	+1,0
PT	7.39	**7.34**	7.13	-0.6	+3,0	0.9	**0.93**	0.92	3.6	1.3	0.87	**1.24**	1.32	42.8	-5.8
RO	1.96	**3.46**	3.49	76.5	-0.9	-	**-**	-	-	-	2.98	**3.14**	3.03	5.3	3.4
SE	-	**-**	-	-	-	6.07	**5.9**	5.76	-2.7	2.4	5.72	**4.94**	4.99	-13.6	-1,0
SI	7.64	**8,00**	8.01	4.8	+0,0	-	**-**	-	-	-	-	**-**	-	-	-
SK	5.64	**6.16**	6.72	9.2	-8.4	3.13	**2.82**	2.89	-9.9	-2.5	-	**-**	-	-	-
UK	-	**-**	-	-	-	-	**-**	-	-	-	3.57	**3.9**	4.03	9.2	-3.2
HR	*6.95*	***6.99***	*6.99*	*0.5*	*+0,0*										

Country	RAPE AND TURNIPRAPE (t/ha)					POTATO (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU27	3.1	**3.1**	3.04	-0.2	1.7	29.7	**31.51**	30.72	6.1	2.6
AT	2.67	**3.03**	3.06	13.5	-1.2	30.55	**32.43**	32.51	6.2	-0.2
BE	3.93	**4.17**	4.09	6.1	1.9	45.42	**46.26**	45.73	1.9	1.2
BG	1.99	**2.62**	2.32	31.8	12.8	11.16	**16.87**	15.3	51.2	10.3
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	2.81	**2.86**	2.91	1.9	-1.7	27.77	**27.2**	26.97	-2.1	0.9
DE	3.69	**3.78**	3.71	2.5	+2,0	44.76	**43.69**	43.69	-2.4	+0,0
DK	3.7	**3.61**	3.63	-2.5	-0.4	39,00	**39.85**	39.36	2.2	1.2
EE	2,00	**1.83**	1.61	-8.4	13.8	-	**-**	-	-	-
ES	1.8	**1.86**	1.81	3.3	2.9	29.35	**29.9**	29.56	1.9	1.2
FI	1.36	**1.26**	1.37	-7.5	-8.4	26.54	**27.41**	26.95	3.3	1.7
FR	3.41	**3.39**	3.45	-0.6	-1.6	-	**43.77**	44.07	-	-0.7
GR	-	**-**	-	-	-	-	**26.71**	25.64	-	4.2
HU	2.46	**2.53**	2.33	+3,0	8.9	23.13	**26.81**	25.46	15.9	5.3
IE	-	**-**	-	-	-	-	**-**	-	-	-
IT	2.58	**2.35**	2.33	-9,0	0.6	26.2	**24.69**	25.05	-5.8	-1.4
LT	2.39	**2.03**	2.04	-14.9	-0.2	18,00	**15.36**	15.12	-14.7	1.6
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	2.33	**2.38**	2.18	2.2	+9,0	18,00	**16.97**	17.3	-5.7	-1.9
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	-	**-**	-	-	-	44.55	**44.93**	45.3	0.8	-0.8
PL	2.61	**2.81**	2.6	7.6	+8,0	24.38	**22.63**	21.39	-7.2	5.8
PT	-	**-**	-	-	-	14.71	**15.95**	15.33	8.4	+4,0
RO	2.09	**1.79**	1.8	-14.3	-0.4	10.73	**14.36**	14.09	33.8	1.9
SE	2.57	**2.7**	2.73	5.1	-0.9	32.55	**31.78**	31.58	-2.4	0.6
SI	-	**-**	-	-	-	-	**-**	-	-	-
SK	1.99	**2.18**	2.24	9.8	-2.4	-	**-**	-	-	-
UK	3.4	**3.5**	3.47	3.1	0.9	35,00	**40.5**	41.45	15.7	-2.3
HR	*5.34*	***4.86***	*4.86*	*-9.1*	*+0,0*	*17.7*	***17.15***	*17.15*	*-3.1*	*+0,0*

Country	SUGAR BEETS (t/ha)					SUNFLOWER (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU27	70.16	**71.17**	69.95	1.4	1.7	1.59	**1.8**	1.81	13.4	-0.7
AT	63.46	**70.21**	69.92	10.6	0.4	2.27	**2.58**	2.69	13.5	-4.1
BE	73.68	**77.23**	78.39	4.8	-1.5	-	**-**	-	-	-
BG	-	**-**	-	-	-	1.8	**1.92**	1.91	6.7	0.5
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	59.73	**61.35**	59.21	2.7	3.6	2.22	**2.32**	2.34	4.5	-0.8
DE	69.36	**67.57**	67.57	-2.6	+0,0	2.33	**2.12**	2.12	-9.3	+0,0
DK	67.61	**62.57**	61.05	-7.5	2.5	-	**-**	-	-	-
EE	-	**-**	-	-	-	-	**-**	-	-	-
ES	88.99	**93.46**	85.66	+5,0	9.1	0.89	**1.06**	1.12	19.8	-5,0
FI	34.79	**40.53**	38.4	16.5	5.5	-	**-**	-	-	-
FR	87.52	**92.32**	89.16	5.5	3.5	2.32	**2.39**	2.42	3.3	-1.3
GR	-	**-**	66.16	-	-	1.28	**1.46**	1.46	14.2	+0,0
HU	44.49	**56.34**	54.64	26.6	3.1	2.05	**2.41**	2.27	17.5	5.9
IE	-	**-**	-	-	-	-	**-**	-	-	-
IT	76.16	**57.07**	60.39	-25.1	-5.5	1.71	**2.22**	2.14	30.1	3.9
LT	51,00	**51.46**	46.24	0.9	11.3	-	**-**	-	-	-
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	37.31	**-**	12.44	-	-	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	79.56	**79.24**	77.09	-0.4	2.8	-	**-**	-	-	-
PL	53.56	**55.03**	52,00	2.7	5.8	-	**-**	-	-	-
PT	-	**-**	-	-	-	0.56	**0.58**	0.57	2.9	0.5
RO	26.21	**35.29**	34.62	34.7	+2,0	1.12	**1.43**	1.48	27.2	-3.5
SE	55.78	**56.63**	56.99	1.5	-0.6	-	**-**	-	-	-
SI	-	**-**	-	-	-	-	**-**	-	-	-
SK	45.56	**56.24**	56.38	23.4	-0.3	2.2	**2.04**	2.22	-7.1	-7.8
UK	70,00	**67.46**	67.72	-3.6	-0.4	-	**-**	-	-	-
HR	*40,00*	***51.32***	*51.32*	*28.3*	*+0,0*	*2.41*	***2.65***	*2.65*	*+10,0*	*+0,0*

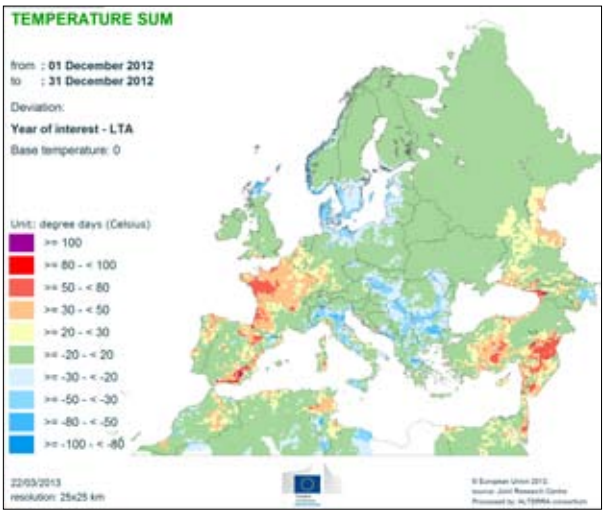
Notes: Yields are forecast for target crops with more than 10000 ha per country; figures are rounded to 100 kg
Sources: 2008-2013 data come from DG AGRICULTURE short term Outlook data (dated February 2013, received on 04/03/2013), EUROSTAT Eurobase (last update: 04/03/2013) and EES (last update: 22/02/2013)
2013 yields come from MARS CROP YIELD FORECASTING SYSTEM (CGMS output up to 10/03/2013)

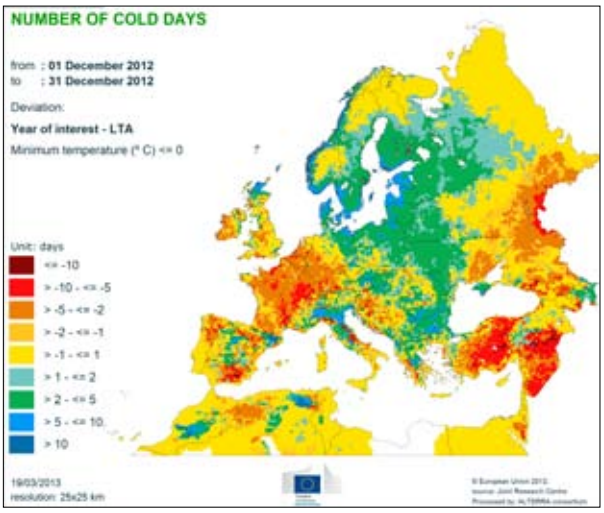
Country	WHEAT (t/ha)					BARLEY(t/ha)					GRAIN MAIZE (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
BY	3.5	**3.67**	3.44	4.7	6.6	3.23	**3.39**	3.24	5.1	4.8	5.26	5.95	**5.17**	13,00	+15,0
DZ	1.4	**1.59**	1.47	13.3	8.1	1.35	**1.53**	1.39	13.2	10.1	-	-	**-**	-	-
MA	1.91	**1.88**	1.71	-1.7	9.6	1.16	**1.14**	1.24	-2.2	-8.3	-	-	-	-	-
TN	1.68	**2.17**	1.81	28.9	19.9	0.88	**1.33**	1.2	51.1	10.6	-	-	**-**	-	-
TR	-	**2.58**	2.48	-	+4,0	2.58	**2.53**	2.42	-1.8	4.9	7.38	7.08	**7.23**	-4,00	-2,0
UA	2.8	**3.12**	3.12	11.4	+0,0	2.11	**2.34**	2.39	10.7	-2.2	4.79	5.3	**5.09**	10.7	4.1

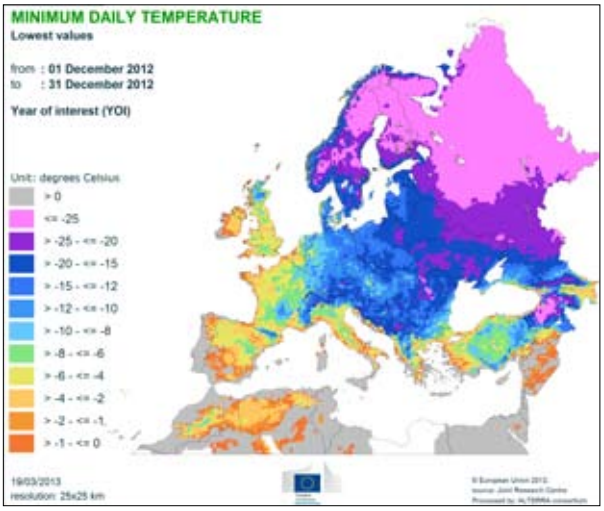
Notes: Yields are forecast for target crops with more than 10000 ha per country; figures are rounded to 100 kg
Sources: 2008-2013 data come from FAO, PSD online, INRA Maroc, CNCT Tunisia and DSASIA Algeria
2013 yields come from MARS CROP YELD FORECASTING SYSTEM (CGMS output up to 10/03/2013)

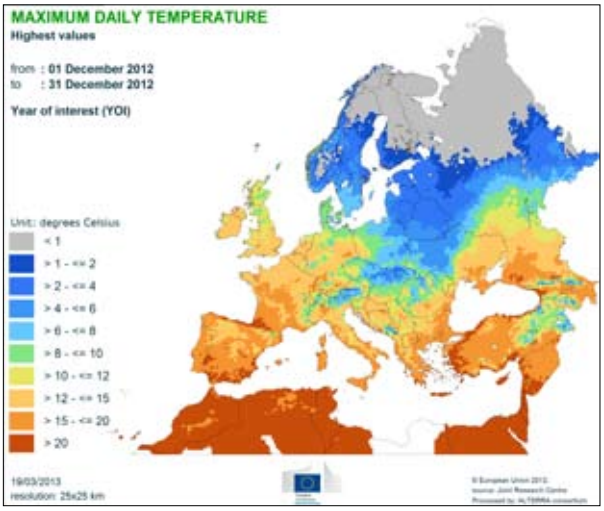
4. Atlas maps

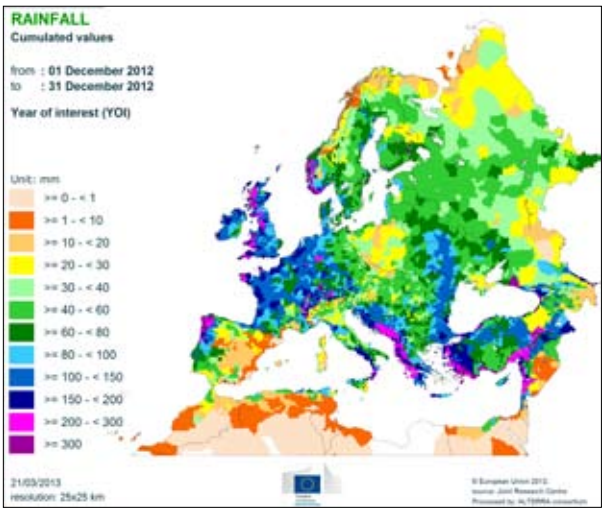
Meteorological conditions - December

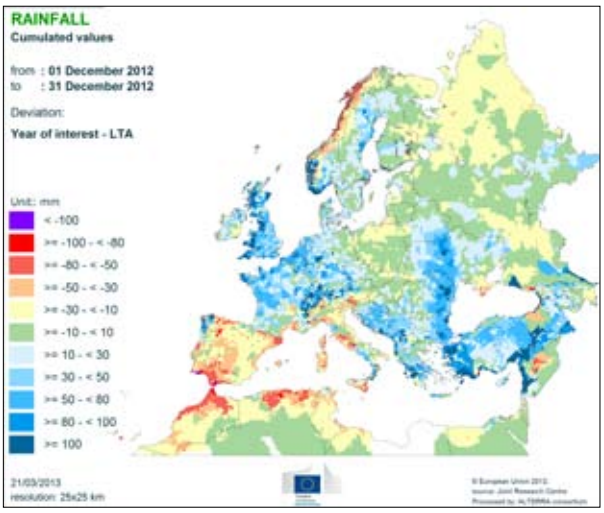




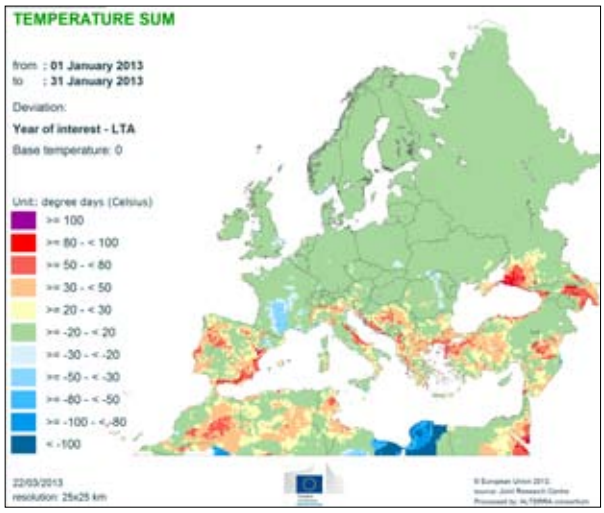


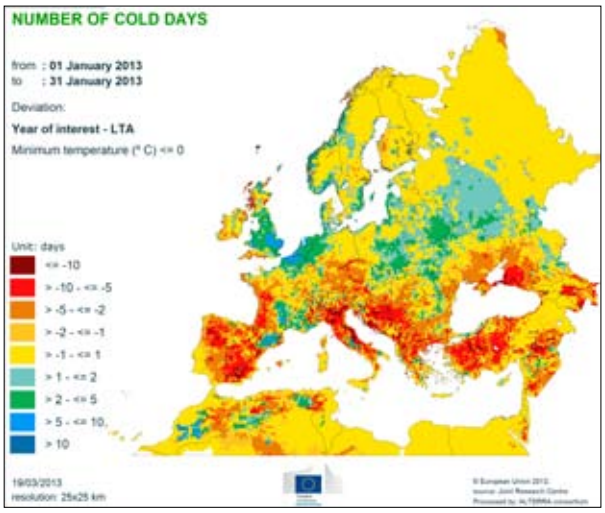


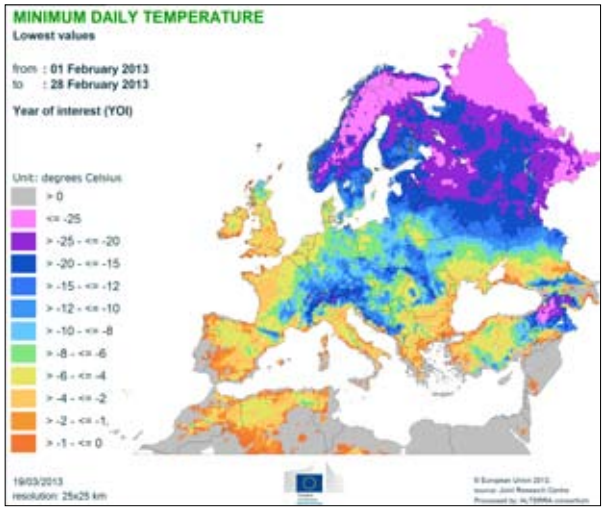


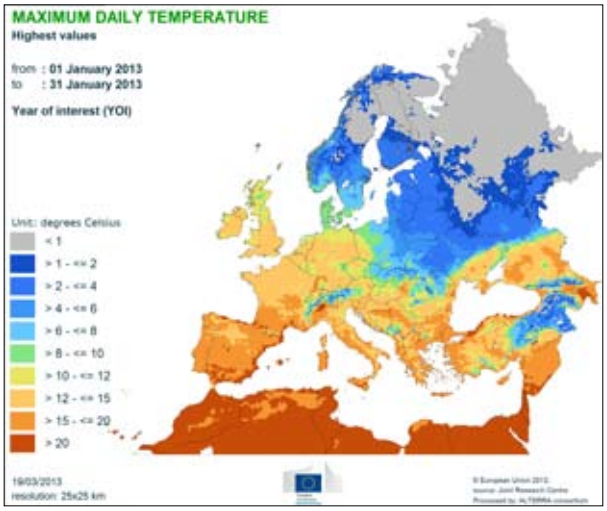


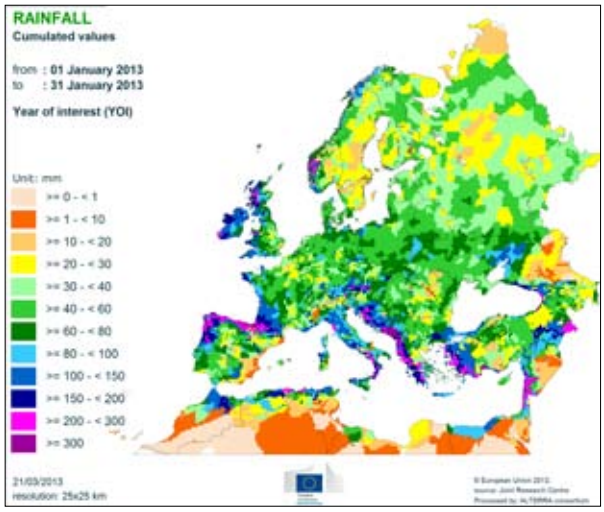
Meterological conditions - January

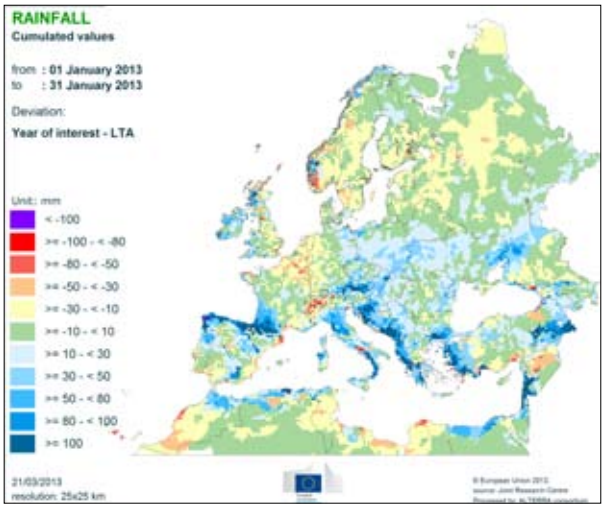




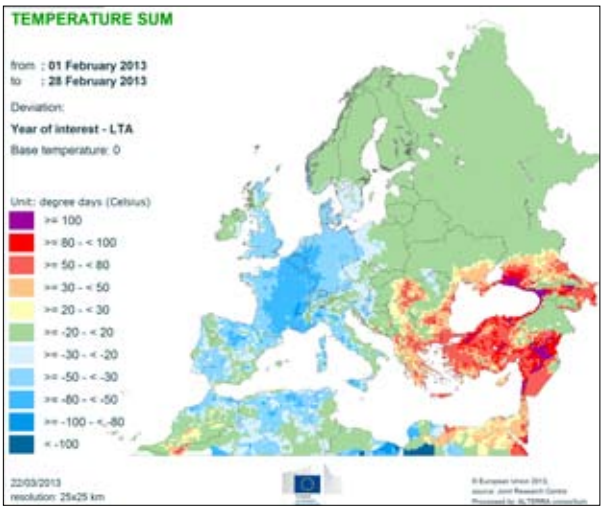


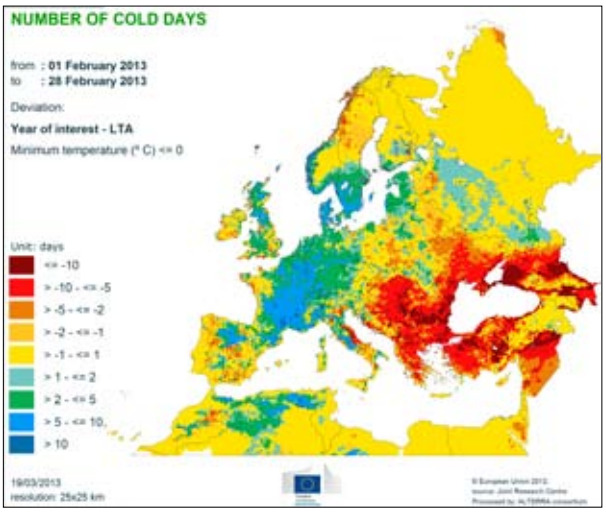


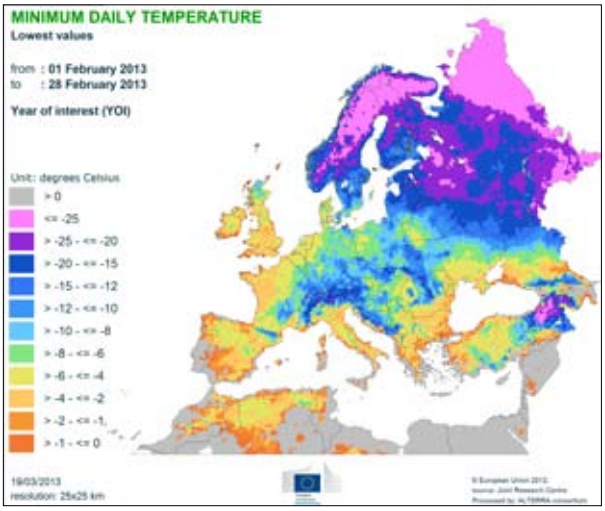


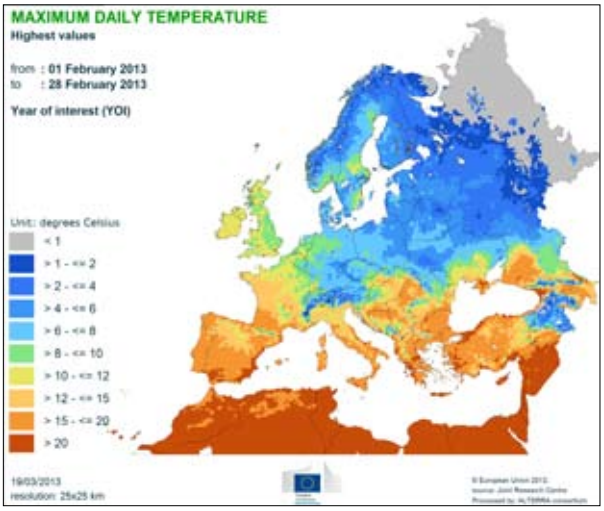


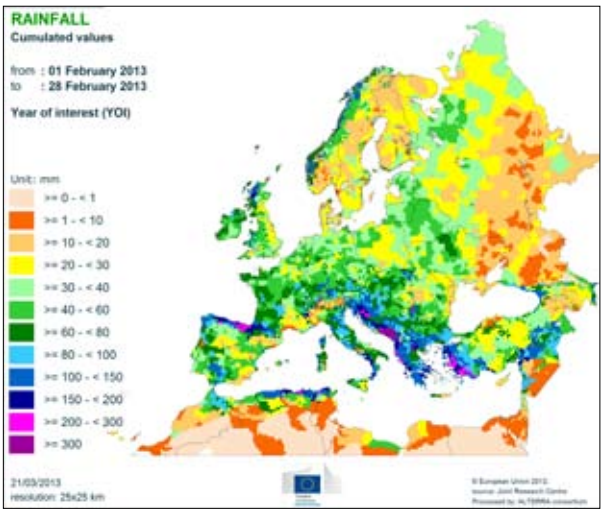
Meteorological conditions – February

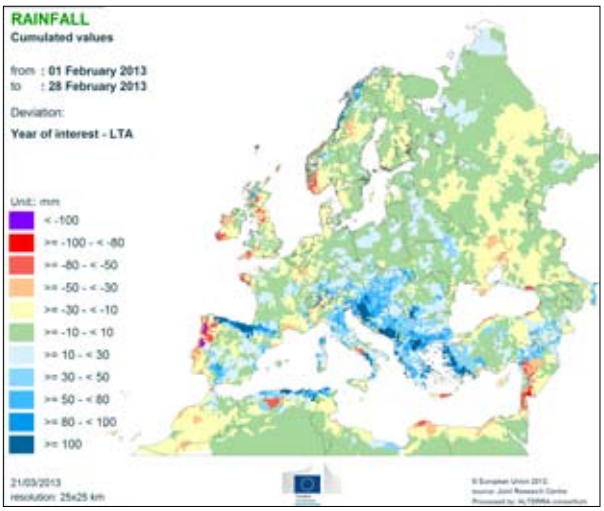




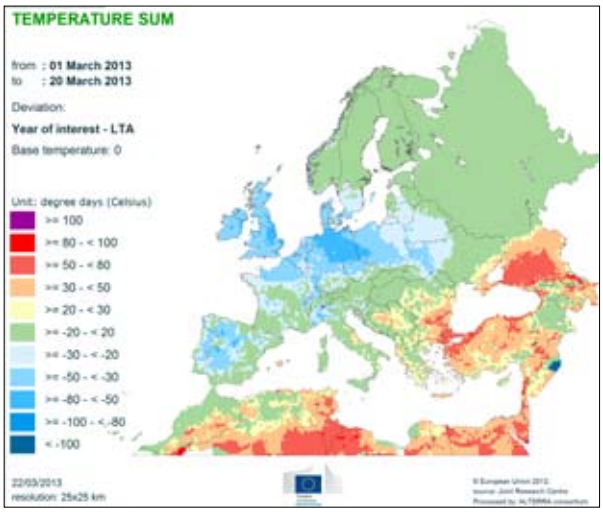


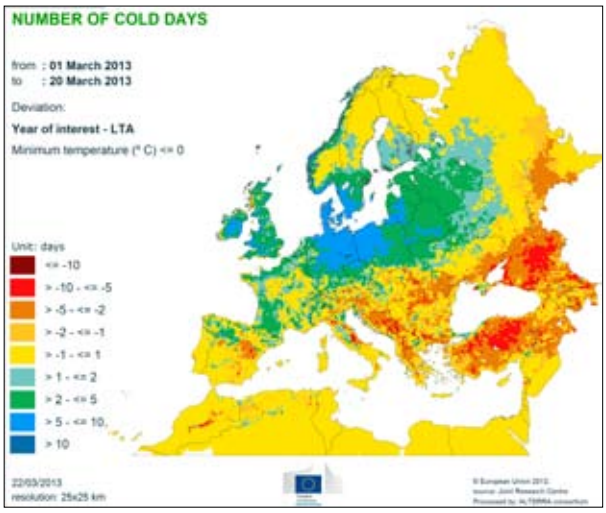


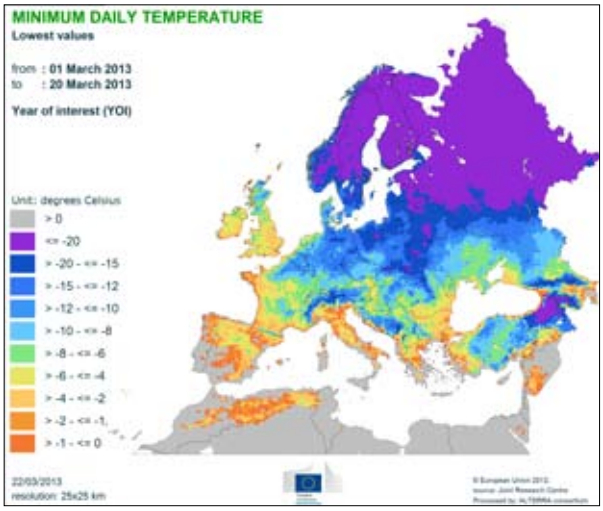


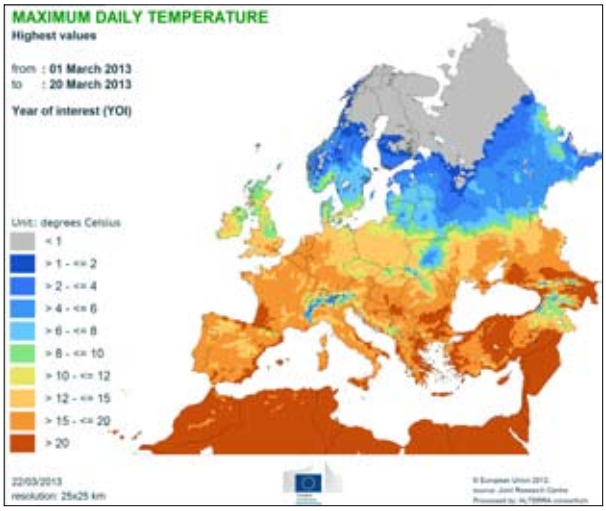


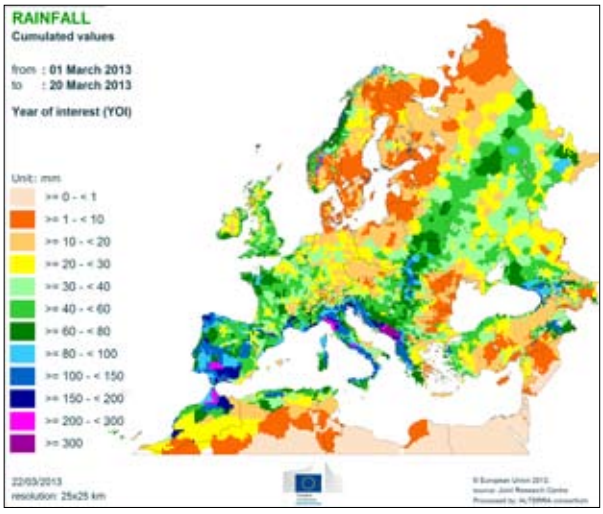
Meteorological conditions – up to 20 March

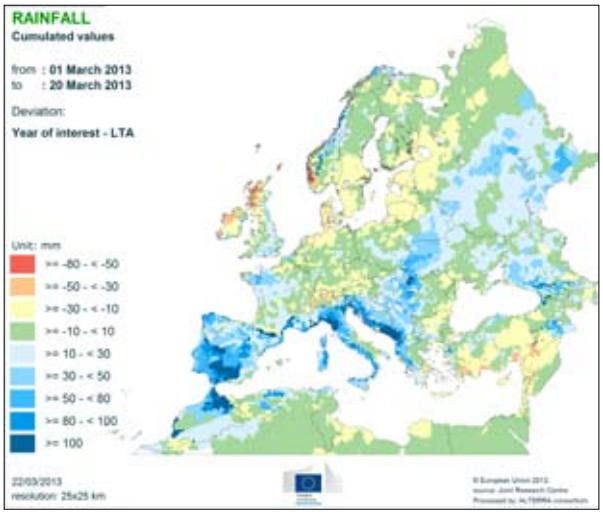












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Date	Publication	Reference
21 Jan	Agromet. analysis	Vol. 21 No. 1
25 Feb	Agromet. analysis	Vol. 21 No. 2
25 Mar	Agromet. analysis and yield forecast	Vol. 21 No. 3
22 Apr	Agromet. analysis, remote sensing analysis, and yield forecast	Vol. 21 No.4
21 May	Agromet. analysis, remote sensing analysis, and yield forecast, pasture analysis	Vol. 21 No. 5
17 Jun	Agromet. analysis, remote sensing analysis, and yield forecast, pasture update	Vol. 21 No. 6
22 Jul	Agromet. analysis, remote sensing analysis, and yield forecast, pasture update, rice analysis	Vol. 21 No. 7
26 Aug	Agromet. analysis and yield forecast, pasture update	Vol. 21 No. 8
16 Sep	Agromet. analysis, remote sensing analysis and yield forecast, pasture update	Vol. 21 No. 9
21 Oct	Agromet. analysis, remote sensing analysis and yield forecast, pasture analysis, rice analysis	Vol. 21 No. 10
25 Nov	Agromet. analysis, campaign review and yield forecast	Vol. 21 No. 11
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Contact
JRC–IES-MARS / AGRI4CAST Action
info-agri4cast@jrc.ec.europa.eu

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