European Commission

Period covered: 1 December – 20 January
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Crop monitoring in Europe

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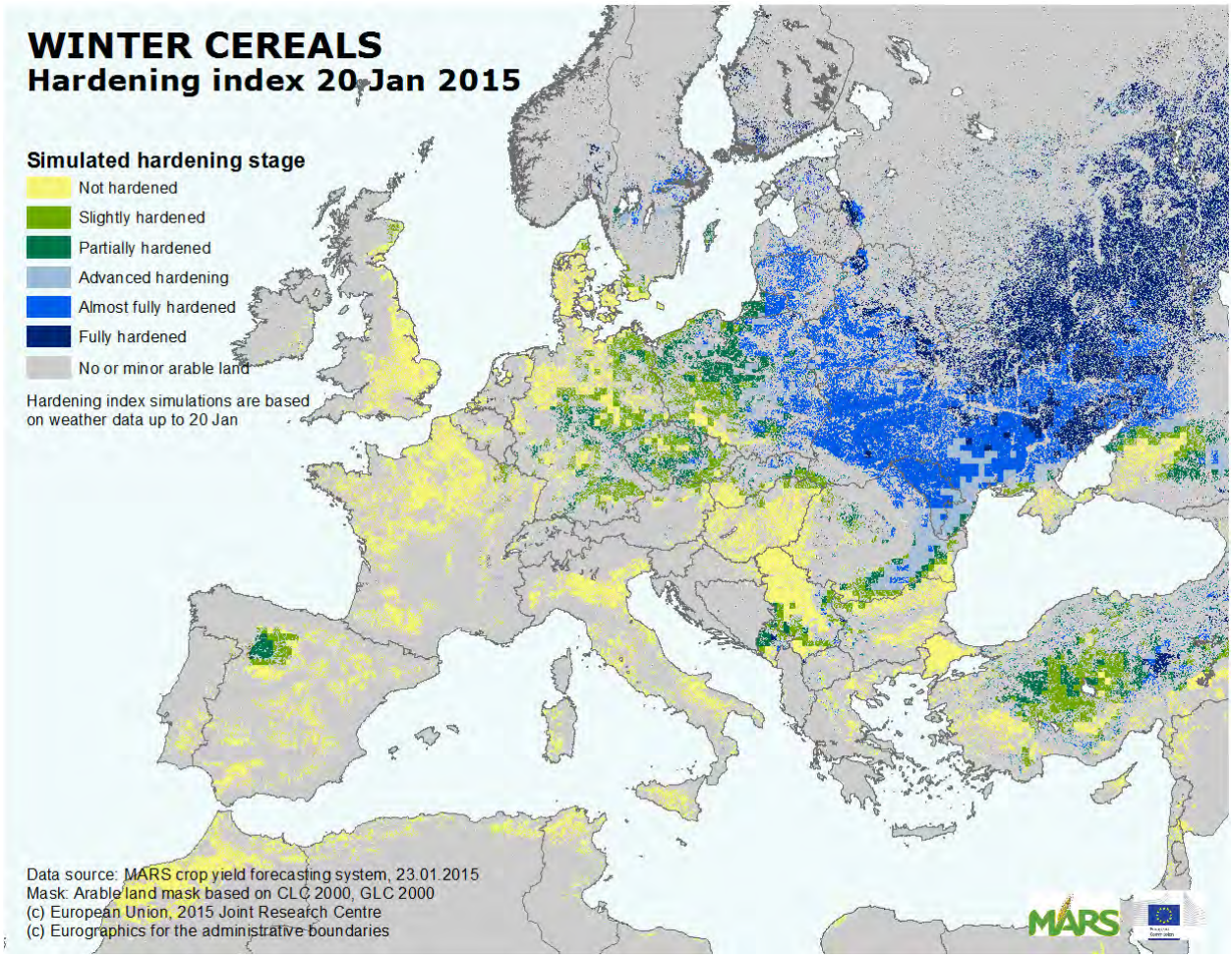
Weakly hardened winter cereals in Europe



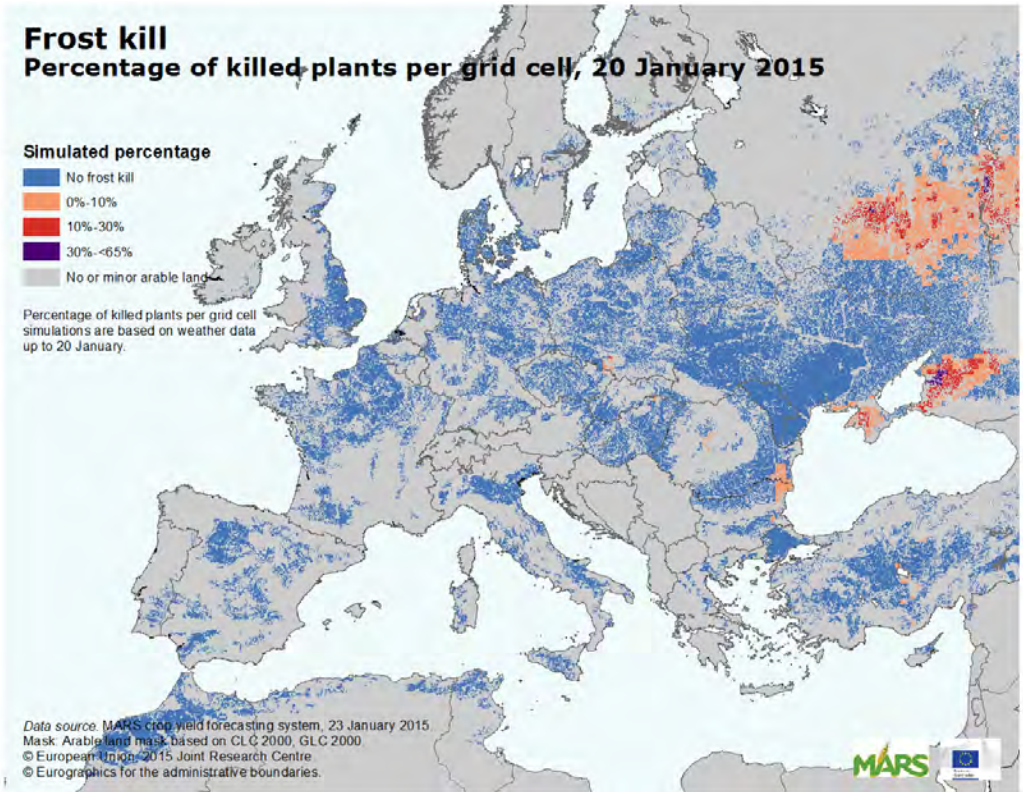
Our latest frost-kill model simulations show no or only a slight degree of hardening in the Mediterranean region and a wide area between Ireland and eastern Poland, due to the fact that this region experienced mostly warmer-than-usual daily temperatures since early December. Hardening is the biophysiological process of winter cereals which transforms cellular starch into glucose, thereby raising the freezing point of the cellular liquids and increasing the low-temperature tolerance of the plants.

Winter wheat only partially reached the hardening stage in some parts of Germany, the Czech Republic, Slovakia and the Balkan Peninsula. The weakly hardened crops run the risk of incurring frost-kill damage in the event of a sudden freezing air intrusion accompanied by shallow snow cover.

The progress of the hardening process is more advanced in northern and eastern Europe. Crops are typically in an advanced or almost hardened stage in Norway, Sweden, the Baltic countries, eastern Poland and Romania. Aside from the northern shore of the Black Sea and territories north of the Caucasus Mountains, most of Finland, Ukraine, Belarus and Russia was sufficiently cold to allow full or almost full hardening of winter crops.

Joint Research Centre

Due to the dry autumn, the establishment of winter wheat was less than optimal in the northern and north-eastern parts of Ukraine, as well as in the Central Federal District and northern half of the Southern Federal District of Russia. As a result, the emergence of winter wheat was problematic and the crop remained weaker and smaller than usual at the start of winter. Model calculations indicate the occurrence of crop damage in southern Russia and parts of Bulgaria, Romania and Poland. Considering the poor condition of winter wheat, it is probable that the north-eastern regions of Ukraine are also affected by frost kill, and that the actual damage is even more serious in Russia than the model results indicate. The shallow snow cover currently in Belarus, the western and central areas of Ukraine, and southern Russia, may lead to further frost-kill damages in the event of bitterly cold temperatures.



1. Agro-meteorological overview (1 December – 20 January)

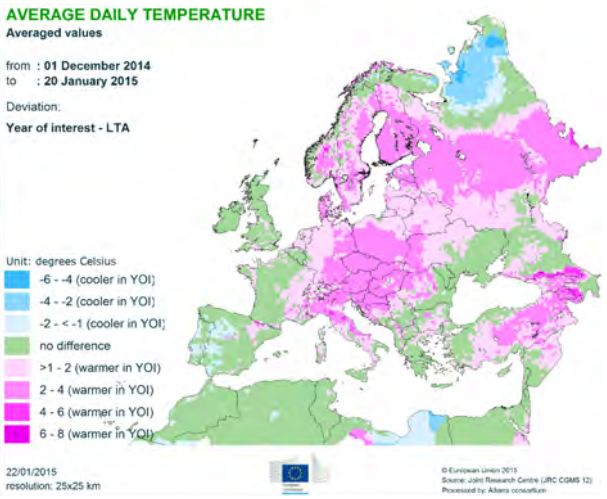
During the period of review, the weather conditions were warmer than usual in most parts of Europe. Drier-than-usual conditions prevailed in the Iberian Peninsula, western and southern France, and locally in Italy and Ukraine, while cumulated rainfall was close to or slightly above the average elsewhere in Europe.

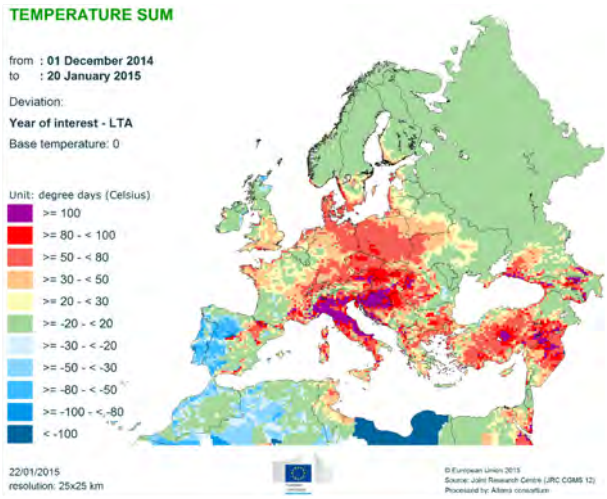
Observed temperatures

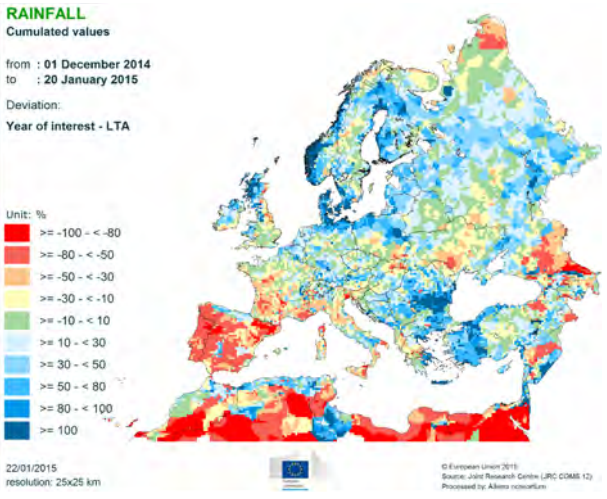
During the first half of December, positive average temperature anomalies in the range of + 2 to + 4 °C were observed in Italy, the Balkan Peninsula, Austria, southern Germany, the Czech Republic, Slovakia, Hungary, western Romania and western-central Russia. Mean daily temperatures in the range of 4 to 6 °C above average were recorded in the Scandinavian Peninsula and Turkey. By contrast, colder-than-usual weather conditions were observed in Ukraine and south-eastern Russia, with temperature anomalies of up to – 6 °C. The second half of December was characterised by warmer-than-usual thermal conditions in central and eastern Europe, with average temperatures up to 2 to 4 °C above average, while temperatures in the rest of Europe were close to the average. The most significant frost event occurred during the last days of the year in north-eastern Europe, with minimum temperatures as low as – 15 °C in Russia, Belarus, Ukraine, the Baltic countries, the Scandinavian Peninsula, eastern Poland and Romania. Other significant minimum temperatures were recorded on 1 and 8 January, when minimum daily temperatures were below the long-term average by more than 10 °C in eastern and northern Europe. By contrast, the first half of January was characterised by average daily temperatures that were above the long-term average in the main agricultural production areas of Europe, with the exception of the western part of Turkey where negative thermal anomalies were recorded. The very mild weather conditions observed throughout Europe during the entire period hampered the hardening of winter cereals mainly in western, central and southern Europe. The cumulated active temperatures (Tbase = 0 °C) during the period of analysis were around or above the average throughout Europe, with the exception of the western part of the Iberian Peninsula.

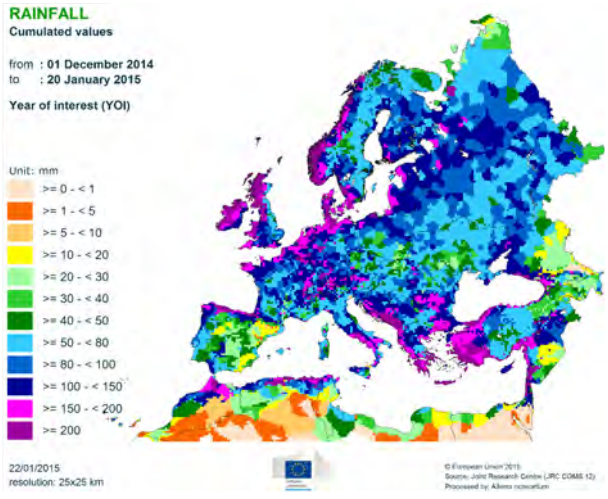
Observed rainfall

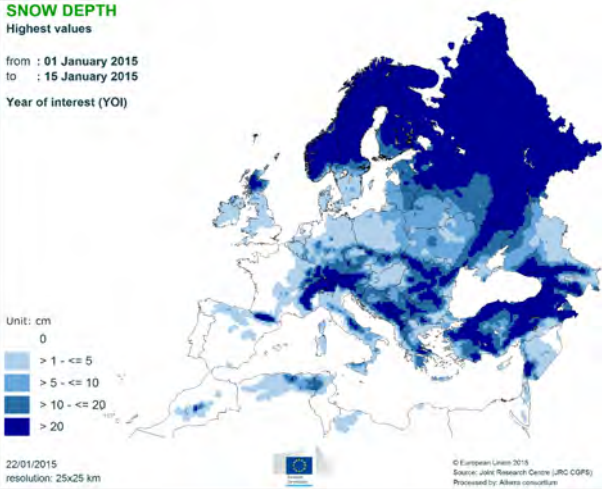
During December, drier-than-usual conditions were observed in the Iberian Peninsula, with cumulated rainfall more than 80 % below average in some areas. Cumulated rainfall was also 30 to 80 % below average in western and southern France, southern Poland and locally in Ukraine. By contrast, cumulated rainfall was slightly above average in northern Germany, southern Scandinavia, northern Poland, Romania, Bulgaria and western Turkey. From 1 to 20 January, wetter-than-usual conditions prevailed in central and northern Europe and western Turkey, with over 80 mm cumulated rainfall recorded in the western British Isles, southern Scandinavia, the Benelux countries and western Turkey. During this period, above-average rainfall also occurred in northern and eastern France and Russia. By contrast, drier-than-usual conditions prevailed in the Mediterranean regions and in the western regions of the Black Sea. During the first half of January, snow covered northern Europe and large parts of south-eastern Europe.

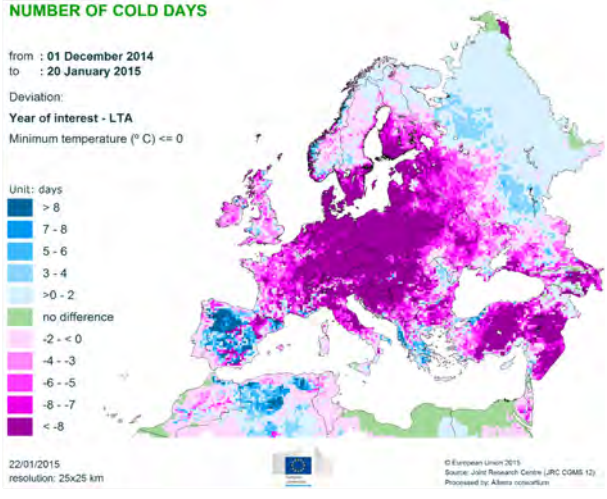












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MARS Bulletins 2015

Date	Publication	Reference
26 Jan	Agromet analysis	Vol. 23 No 1
23 Feb	Agromet analysis	Vol. 23 No 2
23 Mar	Agromet analysis and yield forecast	Vol. 23 No 3
27 Apr	Agromet analysis, remote sensing and yield forecast	Vol. 23 No 4
26 May	Agromet analysis, remote sensing, yield forecast and pasture analysis	Vol. 23 No 5
22 Jun	Agromet analysis, remote sensing, yield forecast, pasture update and rice analysis	Vol. 23 No 6
27 Jul	Agromet analysis, remote sensing and yield forecast,	Vol. 23 No 7
24 Aug	Agromet analysis, remote sensing and yield forecast	Vol. 23 No 8
21 Sep	Agromet analysis, remote sensing, yield forecast and pasture update	Vol. 23 No 9
26 Oct	Agromet analysis, remote sensing, yield forecast and rice analysis	Vol. 23 No 10
23 Nov	Agromet analysis, yield forecast and sowing conditions	Vol. 23 No 11
14 Dec	Agromet analysis	Vol. 23 No 12

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*MARS stands for Monitoring Agricultural Resources

Technical note:
The long-term average (LTA) used within this bulletin as a reference is based on an archive of data covering 1975–2013.

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