European Commission

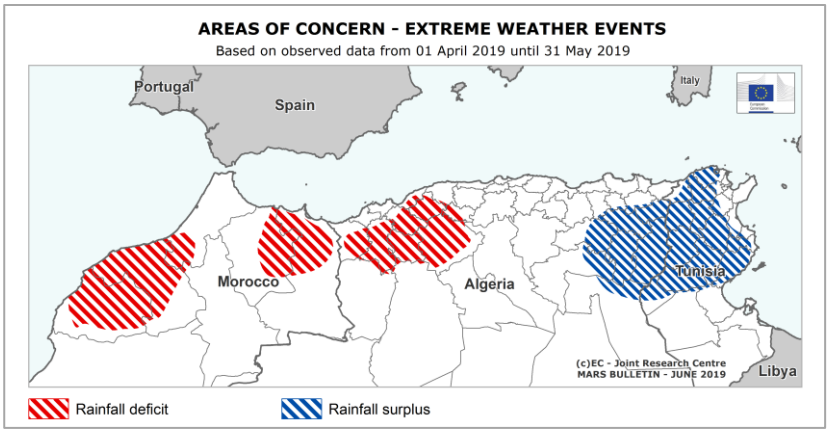
JRC MARS Bulletin global outlook 2019

Crop monitoring European neighbourhood

Morocco, Algeria, Tunisia, Libya and Egypt

June 2019

Drought in Morocco; good campaign in the rest of North Africa



The cereal campaign in North Africa was characterised by negative rainfall supply and distribution in the west, ranging to positive conditions in the east. Morocco was clearly impacted by drought conditions in the regions of Tensif, Centre and Oriental. Some regions in western Algeria were also impacted, but the unfavourable conditions were more than compensated by good conditions in eastern Algeria. Finally, crops in Tunisia, Libya and Egypt had a good to very good season.

Morocco (MA): *Negative outlook for cereal production.*
Barley and wheat performed badly in most of the main regions. Drought was most pronounced during flowering and grain-filling phenological stages. A lack of rainfall was also observed in May.

Algeria (DZ): *Positive outlook for cereal production.*
Good growing conditions in north-eastern regions are compensating for average-to-constraining crop conditions recorded in some drought-affected north-western regions.

Tunisia (TN): *Positive outlook*
Cereals benefited from frequent and abundant rainfall events during the season.

Libya (LY): *Positive to exceptionally positive outlook.*
Crop growth benefited from very positive rainfall events equally distributed during the season. Rainfall cumulates recorded the highest values since 1980 in *Cyrenaica.*

Egypt (EG): *Positive outlook.*
Seasonal agrometeorological conditions and the extended opportunity to grow cereals on irrigated systems are supporting above-average expectations for the country's wheat and barley production.

North-Africa yield forecast - June 2019 Bulletin

Country	Crop	Yield (t/ha)				
		Avg 5yrs	2018	MARS 2019 forecasts	%19/5yrs	%19/18
DZ	wheat	1.55	NA	**1.85**	+20	NA
	barley	1.25	NA	**1.41**	+13	NA
EG	wheat	6.57	6.30	**6.68**	+1.5	+6.0
	barley	2.92	NA	**3.32**	+14	NA
LY	wheat	0.78	NA	**0.84**	+6.5	NA
	barley	0.51	NA	**0.52**	+1.8	NA
MA	wheat	1.94	2.16	**1.50**	-23	-31
	barley	1.23	1.45	**0.88**	-28	-39
TN	wheat	1.75	1.75	**2.08**	+19	+19
	barley	0.80	0.60	**0.79**	-0.9	+32

Note: Yields are forecast for crops with more than 10000 ha/country

Sources: 2014-2018 data come from FAO, INRA Maroc, Ministère de l'Agriculture et de la Pêche Maritime Maroc, CNCT Tunisie, Ministère de l'agriculture des ressources hydrauliques et de la pêche Tunisie and DSASI-MADR Algeria. NA (no data)

Joint Research Centre

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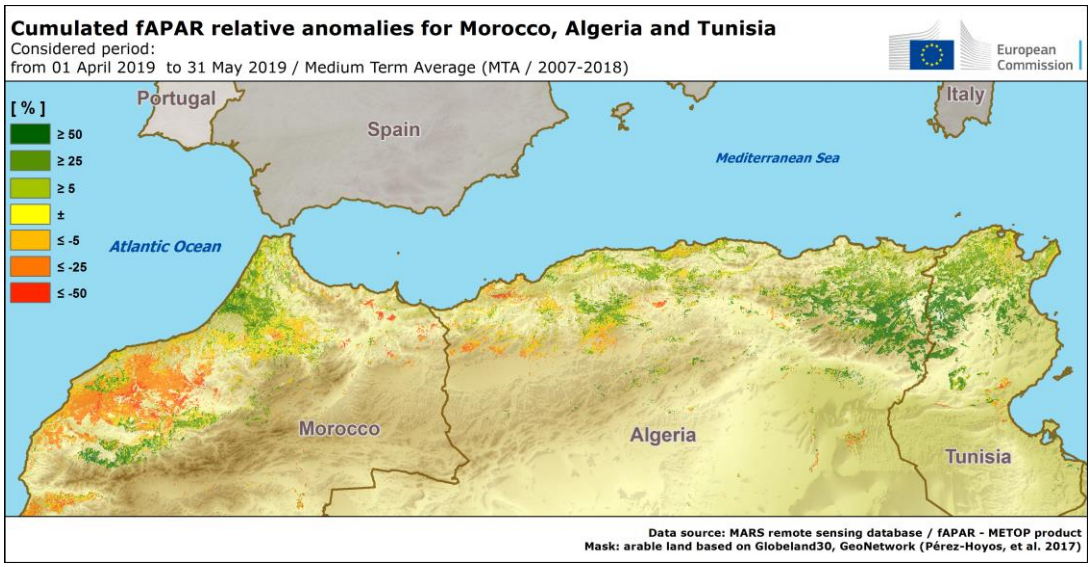
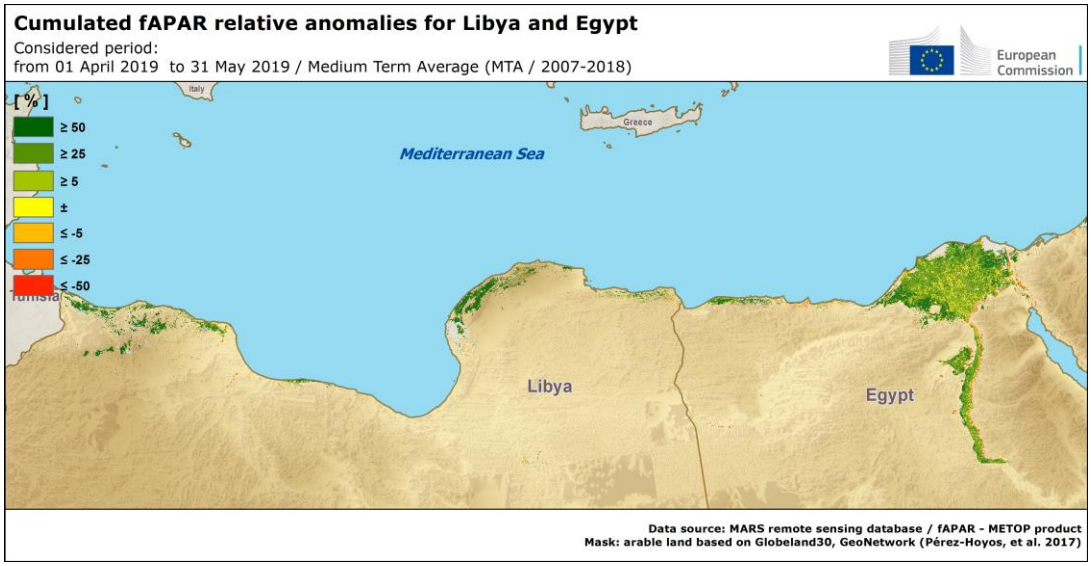
Country highlights

The 2018/19 season is characterised by a strong west-east gradient, from below-average biomass accumulation in Morocco to positive biomass accumulation in Libya and Egypt.

Negative anomalies in photosynthetic activity are observed in north-eastern and central-Atlantic areas of **Morocco**. Biomass accumulation deficits have resulted from an adverse growing season, characterised by prolonged dry conditions (from mid-January onwards), after a promising start to the season (October-January). A positive anomaly can be demonstrated in north-western Morocco, where better distribution of seasonal rainfalls favoured biomass accumulation. In general, mixed conditions are observed in western **Algeria**. Here, negative anomalies are the result of advanced crop growth (e.g. *Ain Temouchent*), or sub-optimal biomass accumulation (e.g. *Mascara, Tlemcen, Sidi Bel Abbes*) due to rain deficit. There is favourable crop biomass accumulation in eastern Algeria and northern Tunisia, as a consequence of rainfall surplus recorded in the reference period**.** The positive biomass accumulation follows a north-south gradient, from littoral to inland-cultivated areas. Positive biomass accumulation levels prevailed throughout the agricultural districts of Libya (*Tripolitania* and *Cyrenaica*) and Egypt, in particular in the outer areas of the Nile Delta and along the western bank of the Nile.



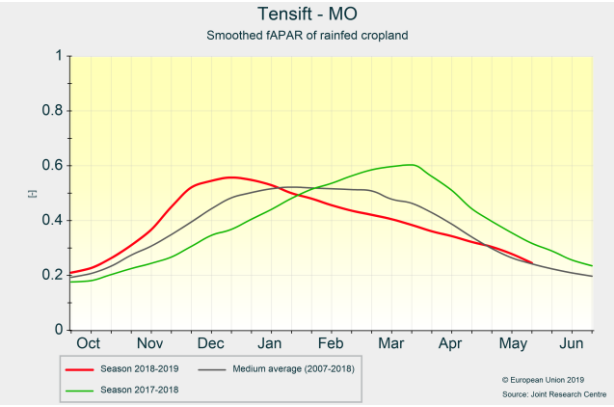


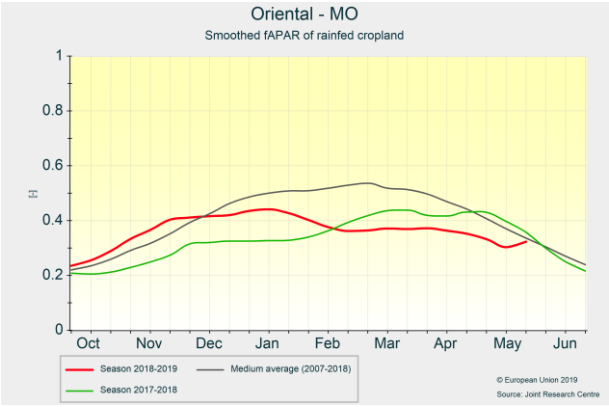
Morocco

Serious drought affecting crop growth

Scarce precipitation from December to March did not sufficiently sustain initially positive expectations. Yield forecasts are revised downwards with respect to the April outlook for both barley and wheat, resulting in forecasts 20-30% below the five-year average and 30-40% below the previous season.

An unbalanced distribution and shortfall of precipitation affected cereal cultivation in Morocco during the 2018-2019 campaign. Rain events were abundant in October and November, leading to advanced crop development and above-average biomass accumulation. However, precipitation did not sufficiently sustain crops during the period December to mid-March, exposing cereals to drought during flowering and grain-filling phenological stages. Rain events occurring in late March and at the beginning of April improved soil water balances too late and did not trigger any crop recovery. The agricultural areas of *Tensif, Centre* (western Morocco) and *Oriental* (north-eastern Morocco) were the most affected by drought. The agricultural districts of *Rabat* and *Tanger* (north-western Morocco – nearly 20% of national cereal production) received rainfall in February and performed well. Cereal crops are now at the end of the harvesting period.



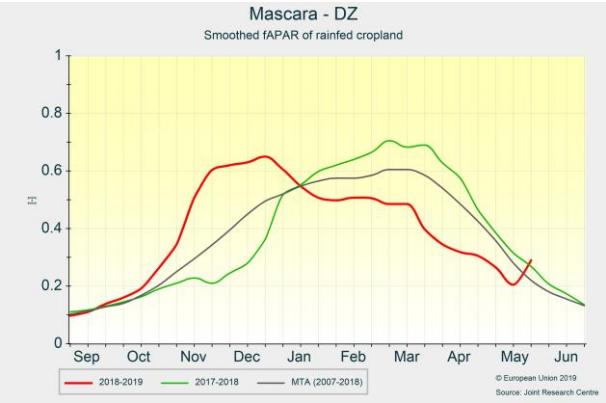


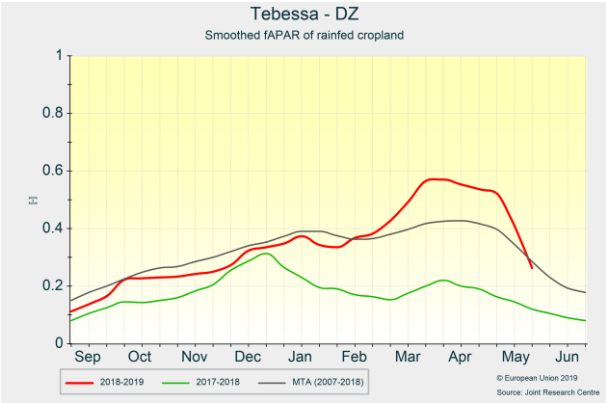
Algeria

More favourable to the east than the west

Good growing conditions in north-eastern regions are compensating for average-to-constraining crop conditions recorded in some north-western regions. Our yield forecast for the country is above the five-year average.

Weather conditions in Algeria were more favourable in north-eastern than in north-western agricultural regions. The western regions of *Mascara*, *Sidi Bel Abbes* and *Tlemcen* recorded below-average rainfall cumulates, with rains occurring mainly in April, and above-average daily temperatures, particularly high during the first and second dekads of May. By contrast, eastern regions (from *Setif* and *Batna* eastwards) recorded average to above-average precipitation volumes and mild temperature conditions throughout the revised period. Biomass accumulation in western Tunisia is below average as depicted by fAPAR profiles, whereas favourable biomass cumulates can be observed in all eastern agricultural regions. In particular, crops in the *Mascara* region suffered from drought conditions during flowering and grain filling. Below-average biomass conditions were also observed in *Tlemcen* and *Sidi Bel Abbes*, where crops moderately deteriorated during grain filling. Cereal growth in *Ain Témouchent* was advanced and in line with LTA records. Cereal production in Algeria is sparsely distributed among littoral and inland regions in the north; the positive seasonal response observed in eastern Algeria is expected to more than compensate for the negative response observed in some western agricultural regions.



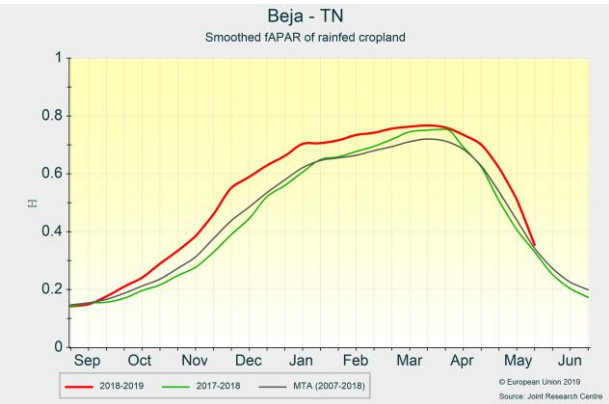


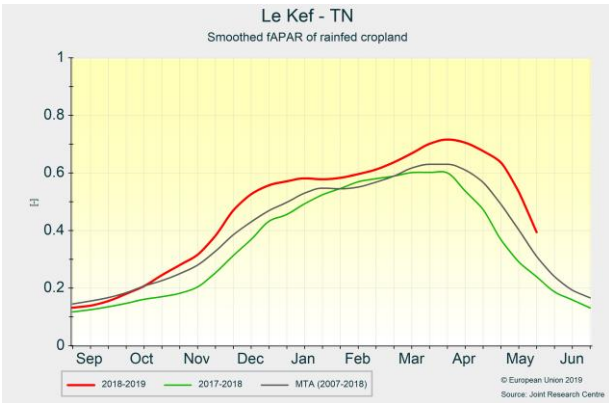
Tunisia

Positive outlook for cereal production

Favourable crop conditions for cereals in Tunisia. Wheat cultivation benefited from positive weather conditions during the season; barley recovered after uncertain conditions. Our forecasts are above the five-year average.

Growing regions in northern Tunisia experienced frequent and abundant rainfall events, with (on average) 3-8 days of significant rainfall (> 5 mm/day), leading to a rain surplus of 10-40 mm. Rain events were fairly evenly distributed in April and May, and in line with the trend observed for the current season. Cereals were well supported by water supply during final grain-filling and senescence stages. Temperatures were close to long-term average values up until 10 May but decreased to moderately below-average in the second and third dekads of May. Temperature sums (T_{base} = 0 °C) cumulated in the review period were close to the long-term average and cumulates of solar radiation were below-average (more in inland than in Mediterranean regions). Remote-sensing indicators clearly suggest above-average biomass accumulation levels in all the main agricultural districts of *Jendouba*, *Beja*, *Bizerte*, *Nabeul* (northern Tunisia) and *Le Kef*, *Siliana*, *Mahdia*, *Sidi Bouz* (central Tunisia). A biomass recovery is observed in the *Kairouan* region (which accounts for nearly 12% of the country's barley production).



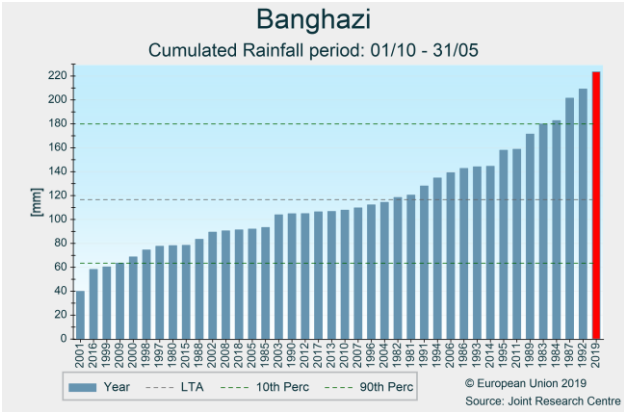


Libya

Positive outlook triggered by exceptional rainfall

Positive outlook for the cereal campaign, thanks to constant water supply during the season and constantly adequate temperatures. Our yield forecasts are set above the five-year average.

Rainfall cumulates in the main agricultural districts of West Libya (*Az Zavia, Al-Aziziyah, Tripoli, Misurata*) and East Libya (*Benghazi, Al Fatah*) moved gradually from above (long-term) average values to average values in the April-May period. In general, crop growth benefited from very positive rainfall events distributed equally throughout the season. In the period from 1 October 2018 to 31 May 2019, rainfall cumulates were close to record in *Tripolitania* (e.g. *Tripoli:* 232 mm; reference period: 1980-2019) and reached the highest values since 1980 in *Cyrenaica* (*Benghazi:* 223 mm; *Al Fatah:* 315 mm). Average daily temperature and cumulative active temperatures (T_{base} = 10°C) have been slightly above long-term references in the revised period and since the beginning of the cereal campaign. Interpretation of satellite-based biophysical indicators suggests above-average biomass accumulation values throughout the season in the agricultural areas of *Tripoli, Al Aziziyah* and *Misurata*, and exceptional positive biomass accumulation levels in the agricultural districts of *Benghazi* and *Al Fatah*.

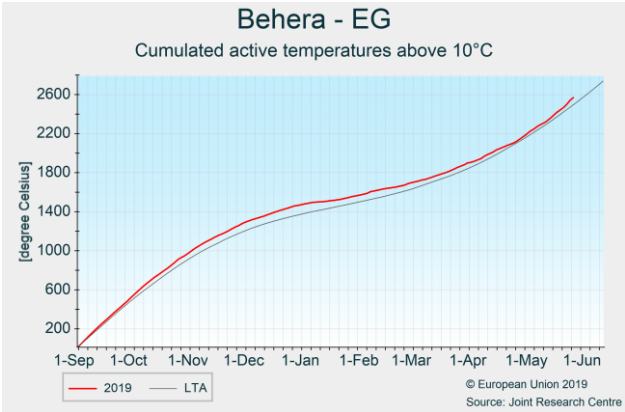


Egypt

Yield expectation above the five-year average

Cereals in Egypt benefited from balanced temperature conditions and the absence of heatwaves and biotic limitations.

The cereal campaign in Egypt has been assisted by beneficial temperature conditions. Cumulative active temperatures (T_{base} > 10°C) have been 2% to 7% above long-term records throughout the Nile Valley and Nile Delta areas, while maximum daily temperatures have been consistently in line with long-term records. No limitations in crop growth and biomass accumulation due to heatwaves or crop (biotic) stresses were observed in the revised period. Time series of crop photosynthetic activity indicator (fAPAR) – as indicated by satellite imagery – suggests above-medium-term average (2007-2018) biomass accumulation levels, in particular for the main agricultural areas of *Sharkia*, *Dakalia* and *Behera*. Wheat and barley are harvested or at the end of the harvesting phase. Positive seasonal agro-meteorological conditions and the extended opportunity to grow cereals in irrigated systems (higher average yields, lower inter-annual yield variability) support above-average expectations for the country's cereal production.



Crop yields forecast

North-Africa yield forecasts for wheat - June 2019 Bulletin

Country	Yield (t/ha)				
	Avg 5yrs	2018	MARS 2019 forecasts	%19/5yrs	%19/18
DZ	1.55	NA	**1.85**	+20	NA
EG	6.57	6.30	**6.68**	+1.5	+6.0
LY	0.78	NA	**0.84**	+6.5	NA
MA	1.94	2.16	**1.50**	-23	-31
TN	1.75	1.75	**2.08**	+19	+19

North-Africa yield forecasts for soft wheat - June 2019 Bulletin

Country	Yield (t/ha)				
	Avg 5yrs	2018	MARS 2019 forecasts	%19/5yrs	%19/18
DZ	1.29	NA	**1.59**	+24	NA
EG	-	-	**-**	-	-
LY	-	-	**-**	-	-
MA	1.97	2.13	**1.47**	-25	-31
TN	1.48	1.33	**1.95**	+32	+47

North-Africa yield forecasts for durum wheat - June 2019 Bulletin

Country	Yield (t/ha)				
	Avg 5yrs	2018	MARS 2019 forecasts	%19/5yrs	%19/18
DZ	1.64	NA	**1.94**	+18	NA
EG	-	-	**-**	-	-
LY	-	-	**-**	-	-
MA	1.85	2.21	**1.56**	-16	-29
TN	1.80	1.82	**2.10**	+16	+15

North-Africa yield forecasts for barley - June 2019 Bulletin

Country	Yield (t/ha)				
	Avg 5yrs	2018	MARS 2019 forecasts	%19/5yrs	%19/18
DZ	1.25	NA	**1.41**	+13	NA
EG	2.92	NA	**3.32**	+14	NA
LY	0.51	NA	**0.52**	+1.8	NA
MA	1.23	1.45	**0.88**	-28	-39
TN	0.80	0.60	**0.79**	-0.9	+32

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MARS stands for Monitoring Agricultural Resources

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