**Crop monitoring European neighbourhood**

**Ukraine**

**September 2018**

Fair yield outlook despite challenging weather conditions

The yield forecasts for wheat, spring barley and sunflower are somewhat below the historical trend but, with the exception of spring barley, above the five-year average. The yield outlook is particularly positive for grain maize.

Weather conditions since the beginning of June have been full of contrasts. July was particularly rainy, with temperatures close to the long-term average (LTA), whereas August was warmer than usual and without any rainfall in southern and eastern Ukraine. The intense rainfall recorded in July had a negative impact on the winter crops harvest, lowering the quality of winter grains, but, on the other hand, those rains have been beneficial for the vegetative growth of summer crops, the season for which started at the end of a long dry period in April and May.

In southern and eastern oblasts, the dry conditions in August affected sunflower and soybean crops, particularly the late-sown stands. Sunflower yield is forecast at the level of the five-year average. The forecast for maize, largely grown in central Ukraine, is above the five-year average, above the historical trend and well above last year’s level.

The main concern is currently the dry topsoils in central, southern and eastern Ukraine, which hamper sowing and hinder the emergence of winter crops for the next growing season, in particular rapeseed, which is normally sown between mid-August and early September.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Avg 5yrs</th>
<th>2017</th>
<th>MARS 2018 forecasts</th>
<th>%18/5yrs</th>
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<td>sunflower</td>
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<td>2.14</td>
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</table>

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Covers the period from 1 June 2018 to 31 August 2018
1. Meteorological overview

Following an unusually dry and warm period in April and May, this summer has also been warmer than usual. July was characterised by abundant and intense rainfall, whereas August was very dry.

Following an exceptionally dry period from the beginning of April to the end of May, as covered in our June Bulletin, June continued to be drier than average in the south and east of the country; hardly any rainfall was observed in the oblasts of Zaporiz’ka, Donets’ka and part of Crimea. In contrast, the western oblasts received an average amount of rainfall. Temperatures during the first half of June fluctuated around the average, but the second half of June was warmer than usual throughout the country, except in the north-east.

In July, temperatures were closer to the seasonal average, and rainfall was close to or above average and unevenly distributed, as most of the rain came during thunderstorms.

The weather in August was exceptionally warm and dry. A heatwave occurred in mid-August; temperatures were not exceptionally high and reached 34°C in the north and 36°C in the oblasts surrounding the Black Sea and Sea of Azov. Another heatwave started during the last dekad of August and is still ongoing (according to the ECMWF forecast until 8-9 September). The southern, eastern and central oblasts (for example Poltavs’ka, Khersons’ka and Zaporiz’ka) received an insignificant amount of rainfall during this month (<2 mm), which makes August 2018 the driest in our records (since 1976). A few rainfall events were observed in the western half of the country, where cumulative rainfall in August was 30% of the long-term average in Kyyivs’ka, Vinnyts’ka and Chernihivs’ka oblasts and from 50% to 80% of the long-term average in westernmost oblasts. The rain deficit is still ongoing but will be interrupted, according to the ECMWF forecast, by intense rainfall in the southern and eastern oblasts at the end of the current heatwave (around 8-9 September).
2. Crop growth conditions

2.1 Winter and spring cereals

Winter crops benefited from relatively good conditions but the potential yield was affected by the warmer-than-average temperatures observed this spring and dry conditions in southern and eastern oblasts. The yields of soft wheat and barley are forecast slightly below the five-year average. Thunderstorms and intense rainfall in July, during the harvest period, decreased grain quality, particularly of soft wheat.

As mentioned in previous Bulletins, winter soft wheat benefited from favourable conditions in central Ukraine but was affected by the dry conditions in southern and eastern oblasts. The above-average temperatures observed since spring also had a slight impact on the yield formation. Spring barley was substantially affected by the long dry period observed in April and May when the rooting system was not completely developed.

The harvest of winter soft wheat, winter barley and spring barley was hindered by substantial and intense rainfall observed in July, which lowered grain quality owing to the prolonged exposure of the mature crops to high air humidity. The impact on quality is difficult to assess, as it depends on the actual harvest dates and most of the rain came during unevenly distributed thunderstorms. The quality of soft wheat and spring barley is expected to be affected the most, as humidity stayed at a high level during the second half of July, when 80% of spring barley and 50% of winter soft wheat had not yet been harvested, whereas 90% of winter barley was already harvested (according to data from the Ministry of Agrarian Policy).

Winter crop sowing for the next campaign started on very dry soils owing to the rain deficit observed in August. Emergence and early growth currently depends on the upcoming rain, which is a real concern for rapeseed, the earliest crop to be sown, and, depending on the weather in the coming weeks, could be for wheat. The rain forecast for 8-9 September is crucial for a favourable start to the next season, and more rain will be needed this autumn.

Our yield forecast for soft wheat is 3.9 t/ha from July. The preliminary statistics of the Ministry of Agrarian Policy give an estimate of 3.8 t/ha. The forecast for total barley yield remains unchanged at 2.9 t/ha, with very good yield for winter barley, above last year, whereas spring barley yield is well below last year’s level and the five-year average.
2.2 Summer crops

Weather conditions have generally been favourable for summer crops and yields are forecast above the five-year average. Negative impacts of the heatwave observed in August are expected to be limited to late-sown summer crops in the southern oblasts. Particularly dry conditions in Zaporiz’ka are expected to have had an impact on sunflower yield at national scale.

The summer crop season started with dry upper soil layers at the end of a long period with little significant rainfall in April and May. The dry upper soil layer during sowing delayed the emergence of summer crops already sown where soils were the driest. The little rain in June finally allowed crops to emerge or resume their growth in good conditions. Substantial rain in July was beneficial to summer crops, which finally benefited from enough water during most of the vegetative growth period.

Grain maize benefited from good conditions in the main producing regions, with sufficient soil moisture during the whole period of vegetative growth except at the start of the season, as mentioned above. A long period without any rainfall, still ongoing, started in August towards the flowering period. The dry conditions are not expected to result in any significant impact of water stress on yield, particularly considering that maize is mainly grown on chernozem soils. Some negative effects of dry conditions are expected on only the late-sown grain maize and soils with the lowest water-holding capacity. Biomass simulations in the main producing regions are close to the long-term average (as in, for example, Kyyiv’s’ka and Poltav’s’ka).

Sunflower, which is mostly grown in southern and eastern Ukraine, has been exposed to water stress in Zaporiz’ka, one of the main producing regions, where the weather was particularly dry and hot. However, conditions in other regions were relatively good, as in Kirovohrad’s’ka which, at national level, will partly compensate for the poor conditions observed in Zaporiz’ka. The heatwave observed during August is also expected to have an impact on sunflower yield, particularly on the late-sown sunflower, which was more exposed to hot temperatures during flowering.

Soybean generally benefited from favourable conditions, but, similarly to sunflower, the late-sown soybean is expected to have been affected by the heatwave observed in August.

The harvest of the most advanced summer crops has just started; soybean, grain maize and sunflower are slightly advanced compared with an average year.
3. Remote sensing maps

![Map of fAPAR anomalies in Ukraine](image)

**fAPAR anomalies - Ukraine**
Current year - Medium Term Average (MTA / 1999-2014)
Cumulative period: 01 June 2018 - 31 August 2018

**Difference [%]**
- ≥ 50
- ≥ 25
- ≥ 5
- ≥ 1
- ≥ -5
- ≥ -15
- ≥ -50

Data source: MARS remote sensing database / fAPAR smoothed - Copernicus
Mask: arable land based on Glob Cover 2009
4. Crop yield forecasts

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Note: Yields are forecast for crops with more than 10000 ha per country; figures are rounded to 10 kg.
2018 yields come from the MARS Crop Yield Forecasting System (CGMS output up to 31/08/2018).
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MARS Bulletins are available under: https://ec.europa.eu/jrc/en/mars/bulletins

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MARS stands for Monitoring Agricultural Resources

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Technical note:
The long-term average (LTA) used within this Bulletin as reference is based on an archive of data covering 1975-2017

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