



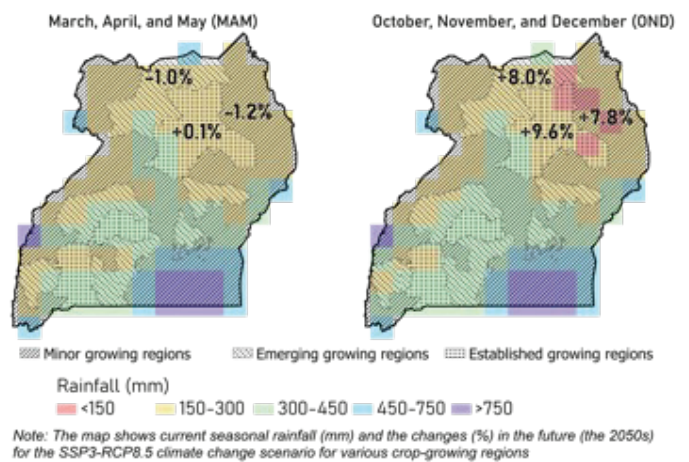
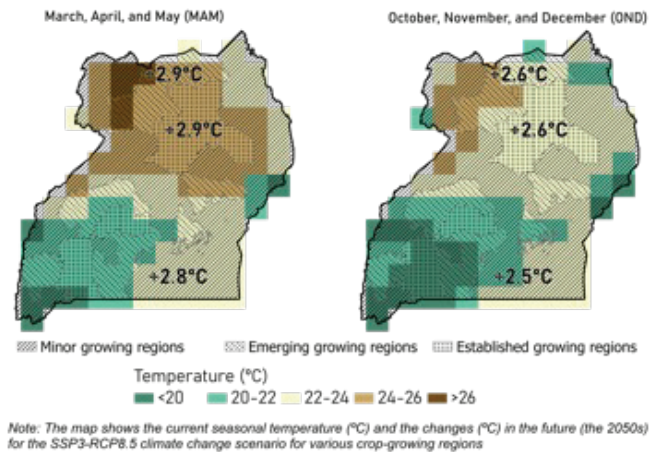
## Future climate under climate change

**Temperature:** In the 2050s in the major sunflower-growing districts is projected to increase from +2.8 to 3°C in the March, April, May season and + 2.2 to 2.7 °C in the October, November, December season.

**Rainfall:** In the 2050s on average, rainfall in sunflower-growing central districts in Uganda is projected to be almost unchanged in the March, April, May season and is expected to slightly increase in the October, November, December season.

The major growing districts in the Northern regions are projected to have a slight (~5-13%) reduction in rainfall in the March, April, May season and a slight (7-24%) increase in the October, November, December season.

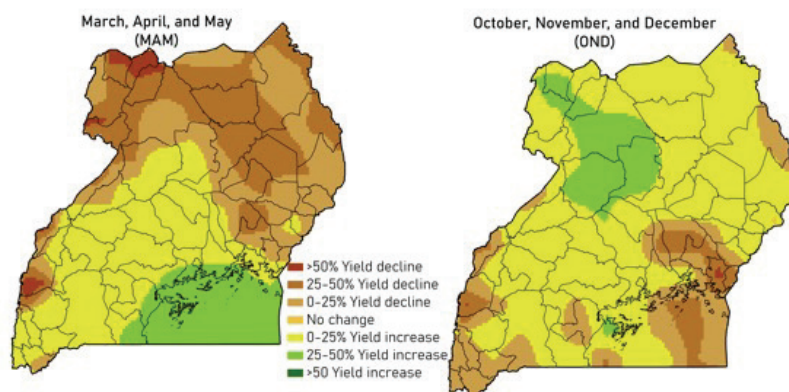
An early onset by about 2-5 days of rainfall is expected in the March April May season in the country's northern and central sunflower-growing areas. The length of the growing spell in the sunflower growing areas is projected to increase by about 4-8 days during the March, April, May season. Dry spells are expected to decline by 2-5 days.



## Sunflower crop productivity changes (%) in the future

Overall, sunflower yield in the country is projected to increase in the major growing districts up to 30% in both seasons, except for Lira and Kamuli.

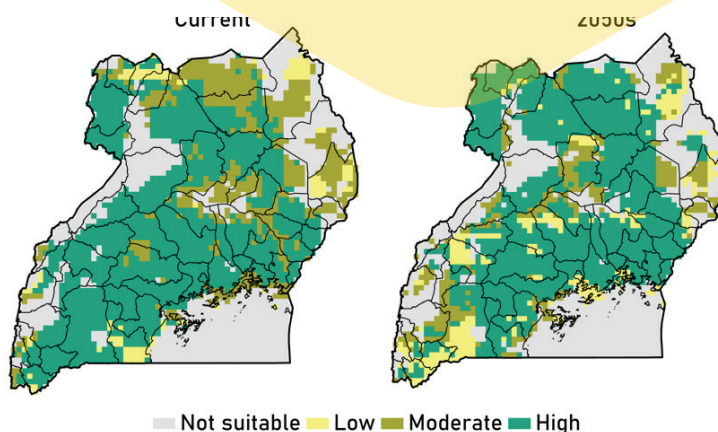
During the March April May season country's sunflower yield in Northern districts is projected to decrease but yield in Southern districts is expected to increase. Vice versa, in the October, November, December season country's sunflower yield in the Northern districts, is expected to increase, but the yield in parts southern districts such as the Southern part of Mbarara is likely to decrease. On the national scale, on average, both seasons are projected to have increased yield by about +3%.



## Sunflower crop-growth suitability

Overall, a large part of the sunflower-growing regions (43.8%) is expected to remain high suitable for sunflower production in the future.

In districts such as Bushenyi, Rakia and Kibale the suitability for sunflower will change from highly suitable to moderate or low suitable

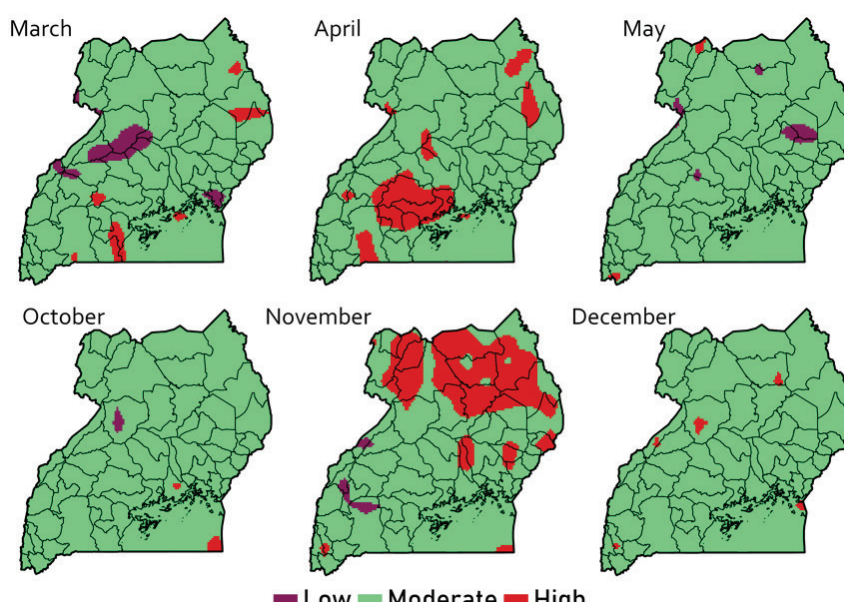


## The probability of drought risks

In March, the Eastern part of Mbarara and Western areas in Rakai are expected to face high drought risk.

In April, Mbarara, Mpigi, Masaka and few areas in Rakia districts will probably experience high risk of drought.

In November, the major sunflower-growing districts in the north are expected to face high drought risks



The probability of drought risks has been analyzed based on the Standardized Precipitation Index (SPI). The calculation of SPI is done based on the record of long-term precipitation for 45 years (2006-2050). To assess the risk, we calculated the occurrence of droughts over 45 years (2006-2050) for each month in rainy seasons (MAM and OND) and then calculated the probability by applying the following formula:

$$\text{Probability of drought risks} = \frac{\text{No. of droughts}}{\text{Total years (45)}} \times 100$$






Note: In drought analysis, more than 30% of drought occurrence are classified as high-risk region, 10 to 30% of occurrences are classified as Moderate risk, and less than 10% of occurrences has been classified as Lower Risk.



## Climate change adaptation strategies

Adaptation measures are listed based on the discussion with the CRAFT team from Uganda under the following objective, "To establish suitable adaptation strategies that will increase the adaptive capacity and resilience of the actors within the value chains." The listed adaptation measures mainly focus on the sunflower value chain in Uganda.

Sunflower is fairly tolerant to high temperature and fairly drought resistant.

<b>Technologies used in CSA value chains</b> 	Improved (early maturing, drought escaping) seed, products, devices, equipment, implements, tools, etc., used to grow and manage it, early warning systems
<b>Practices used in CSA value chains</b> 	Increasing access to improved seeds (OPVs and hybrids), increasing processing efficiency, lowering power usage, disseminating weather information, crop insurance and improving post-harvest handling (tarpaulins and moisture meters).
<b>IMPACTS</b>	
<b>Impacts in production</b> 	Higher yields, early maturing seeds
<b>Contribution to adaptation/resilience</b> 	Increased adaptive capacity and resilience
<b>Contribution to mitigation</b> 	Higher efficiency in land use, new storage facilities, provision of post-harvest handling equipment for reducing losses, and reduced post-harvest losses

## Acknowledgment

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