

# Crop Yield Forecast Estimates

August 2025

Partnership for Inclusive Agricultural Transformation in Africa (PIATA)

The Regional Food Balance Sheet



Gates Foundation



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## Overview

This report summarizes yield, acreage, and total production estimates for **maize and rice** across six focus countries. The data is updated monthly in the RFBS Dashboard via a standard data file. Our model reports on the main growing season for countries with available historical yield data for model training.

## Data Limitations and Model Caveats

The data used in this report has limitations due to gaps in historical records and variations in data collection methods:

- Historical data accuracy and consistency vary by country
- Our model reflects these data gaps, as it is trained on available information
- We view these limitations as opportunities to improve data sharing and scaling methods with our country partners

**Current Focus:** Data presented this month focuses on maize and rice systems in **Kenya and Uganda**, which are currently in season.

## Executive Summary

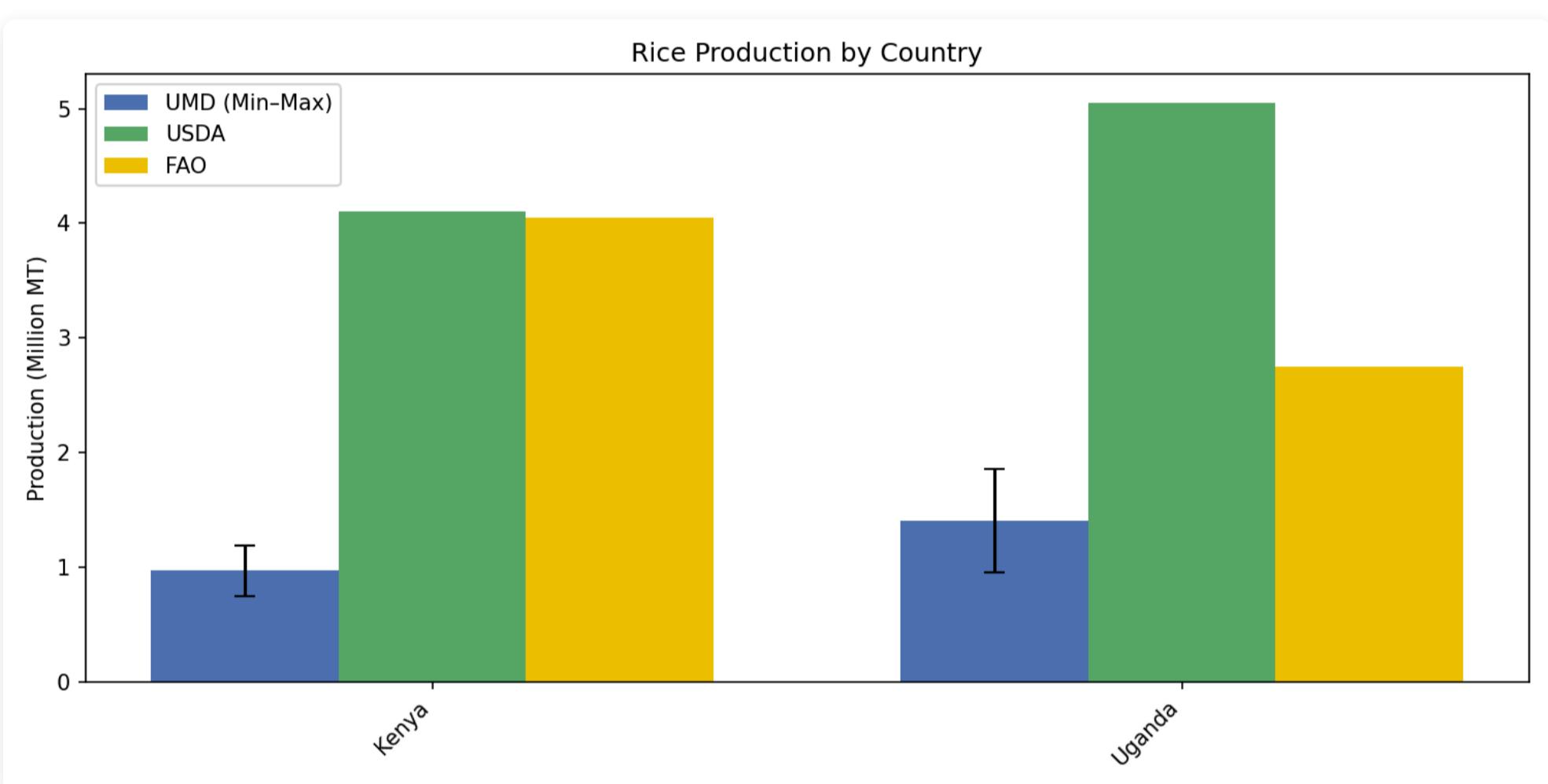
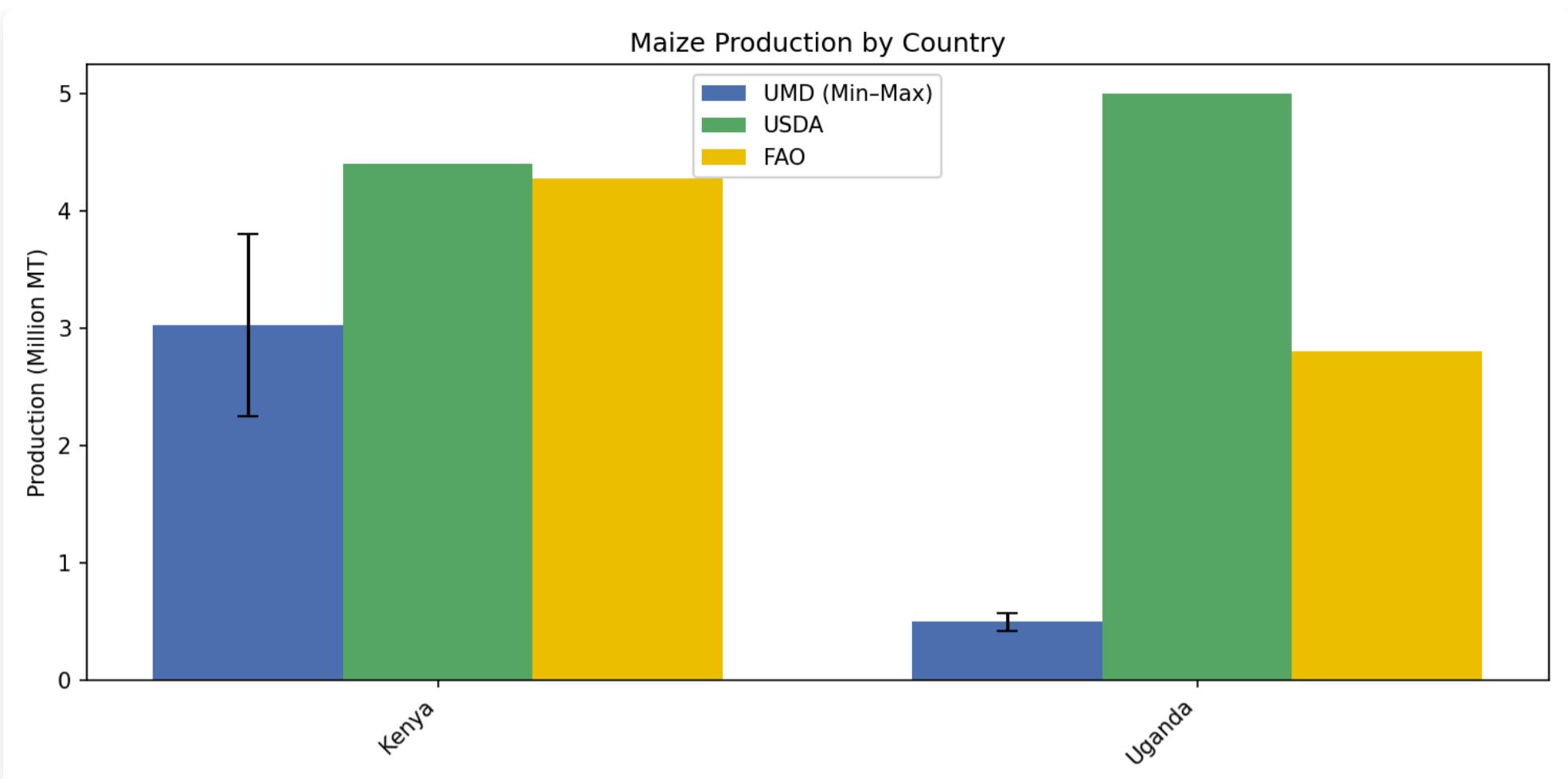
This report presents national forecasts for August 2025, focusing on maize, rice production in Uganda and Kenya. These two countries are currently in their respective crop production seasons, with production underway.

**Key Results:** Crop conditions in August 2025 were generally stable but with marked regional disparities across , maize, and rice.

**Uganda:** Maize production is forecast between 0.42 – 0.57M MT, with generally stable to favorable outcomes in the Central and Western regions, while the Northern region remains under stress. Rice forecasts range between 0.95 – 1.87M MT, with favorable conditions in the Northern and Western regions, though Central and Eastern regions remain under a Watch status. **Kenya:** Maize production is projected at 2.26 – 3.80M MT, showing strong contrasts across counties. Rift Valley and western highland counties such as Narok and Uasin Gishu are performing well, while eastern and arid/semi-arid counties such as Garissa, Kitui, and Marsabit continue to face poor conditions. Rice production is forecast between 0.76 – 1.19M MT, with favorable outcomes in select counties such as Murang'a and Taita Taveta, but weaker results in coastal and arid regions including Garissa and Lamu. Maize continues to show the widest variability, ranging from significant deficits in arid/semi-arid areas to exceptional yields in high-potential counties. Rice conditions are mixed, with inland and highland production zones showing resilience, while coastal and eastern counties remain vulnerable to deficits.

## Production Forecast Summary

Current projections for August 2025 maize and rice production in East Africa show varying forecasts between USDA, FAO and UMD models.



**Figure X.1: Maize and Rice Production Estimates**

These figures show national-level production estimates for maize and rice across Uganda and Kenya, based on latest August 2025 data.

**0.42 – 0.57M MT**

UGANDA MAIZE

**2.26 – 3.80M MT**

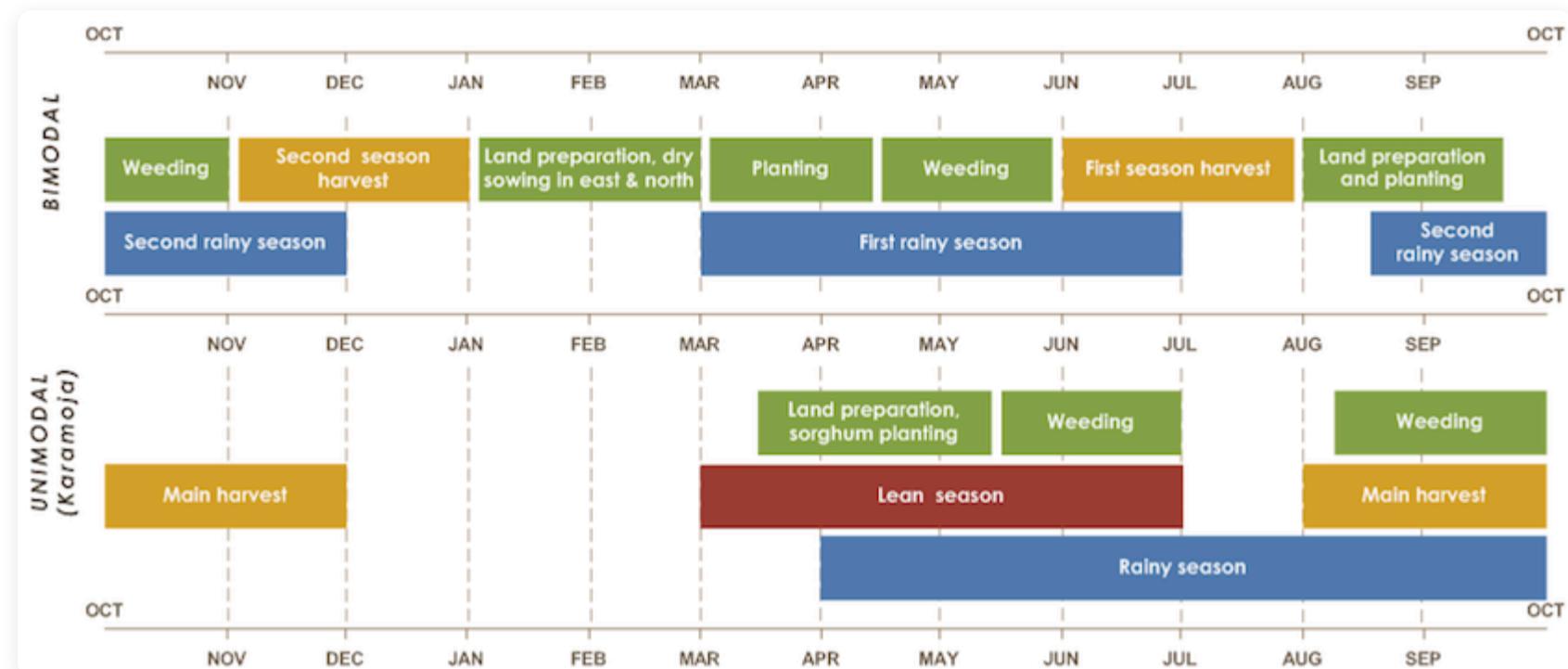
KENYA MAIZE

## Regional Overview/Conditions

### Eastern Africa

In August 2025, Kenya and Uganda were in their cool, dry season; Western and Rift Valley regions in Kenya approached the long-rains maize harvest, while Eastern and Northern Kenya entered the lean season, and Uganda progressed through its first-season harvest in bimodal areas with land preparation beginning for the second season.

In bimodal areas, Uganda has two rainy seasons: the first from March to August and the second from September to December. In the unimodal areas found above 3° North altitude, there is one rainy season from April to October.



**Figure 2.1: Uganda Agricultural Calendar**

Shows Uganda's agricultural calendar with bimodal and unimodal rainfall patterns and corresponding crop seasons.

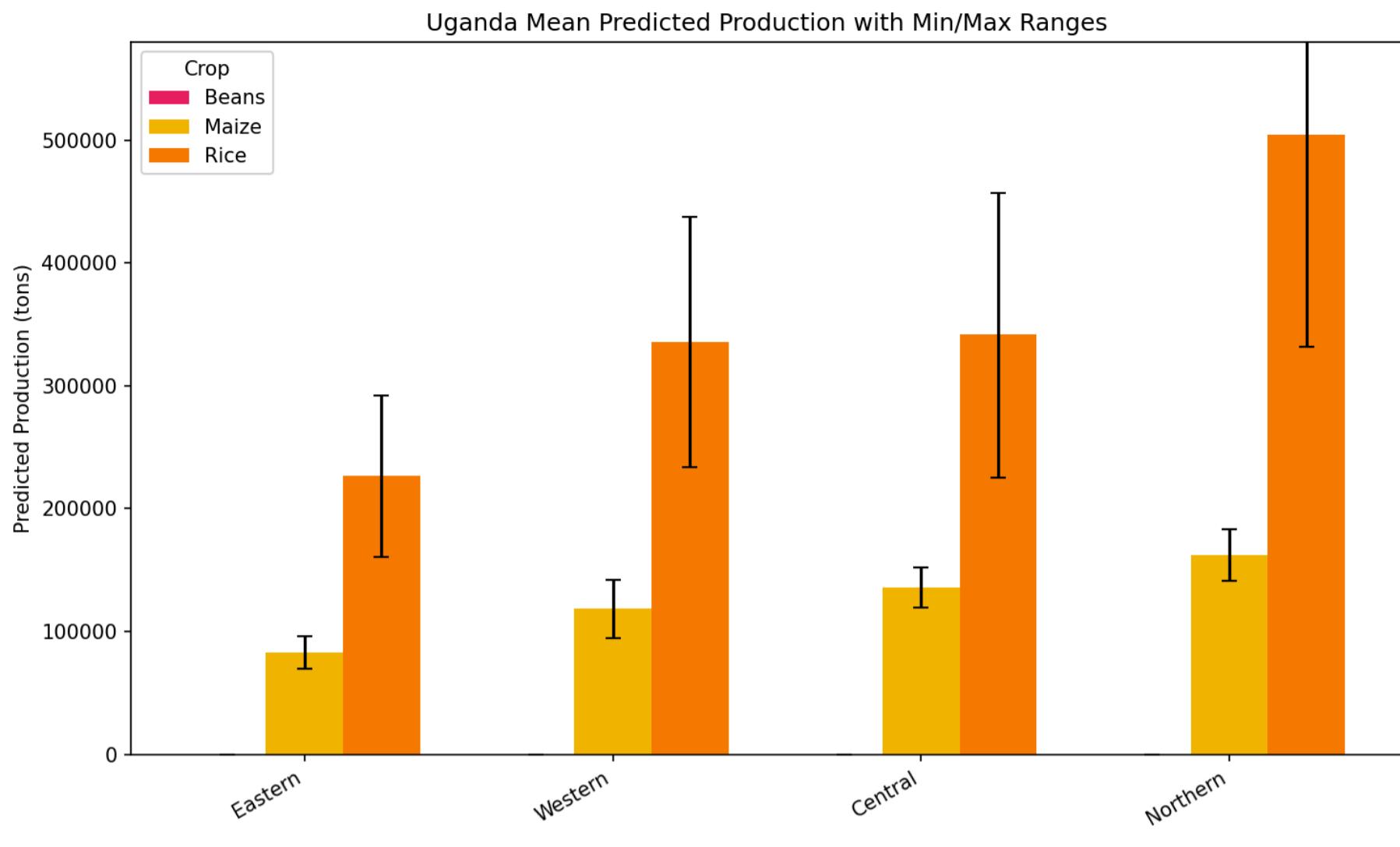
### Regional Crop Conditions Summary

Crop conditions in Uganda during August 2025 remained **stable** across all regions:

- **Maize conditions were stable** in Northern, Eastern, Western, and Central regions.
- **Rice conditions were stable** across Central, Eastern, Northern, and Western regions.

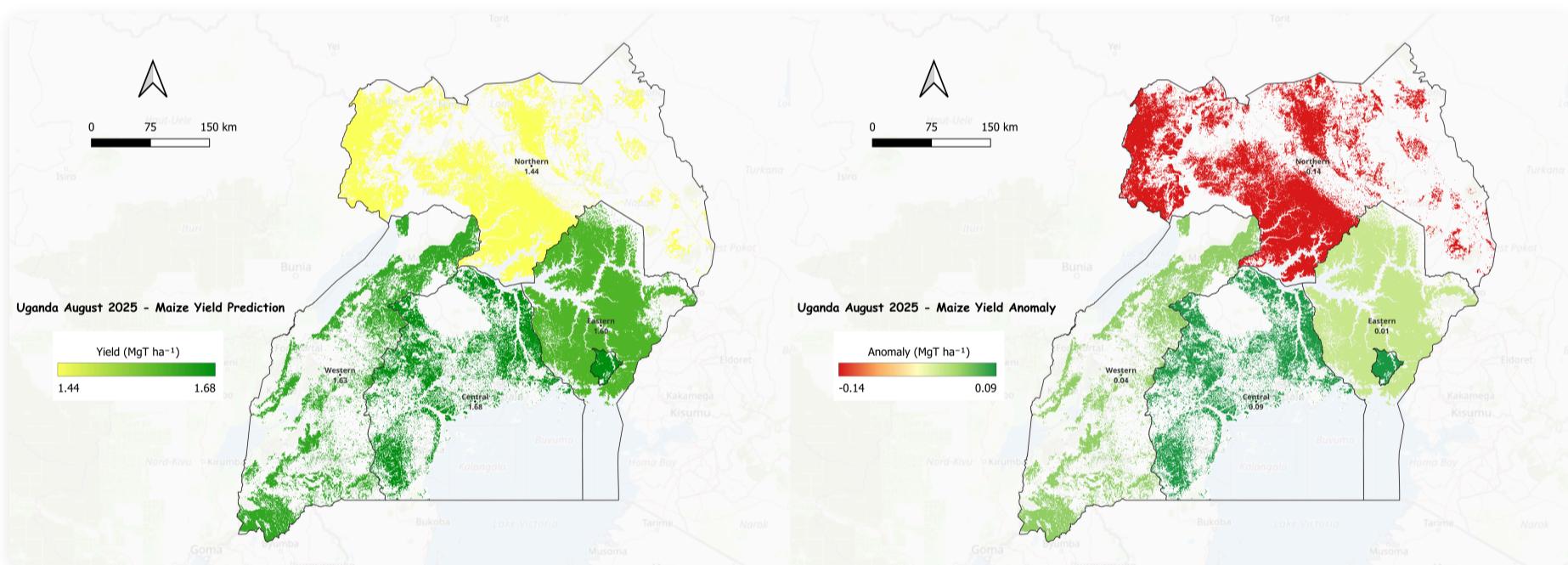
### Production Forecasts

Crop	Region	Predicted Yield (MgT/ha)	Production Range (tons)	Yield Anomaly	Conditions
Maize	Northern	1.44	141,100 - 183,384	-0.14	Poor
	Eastern	1.60	69,679 - 96,262	0.01	Favorable
	Western	1.63	94,556 - 142,195	0.04	Favorable
	Central	1.68	119,620 - 151,886	0.09	Favorable
Rice	Central	1.30	225,487 - 457,318	-0.06	Watch
	Eastern	1.34	160,599 - 292,078	-0.02	Watch
	Northern	1.38	331,787 - 679,045	0.02	Favorable
	Western	1.42	233,947 - 437,915	0.06	Favorable



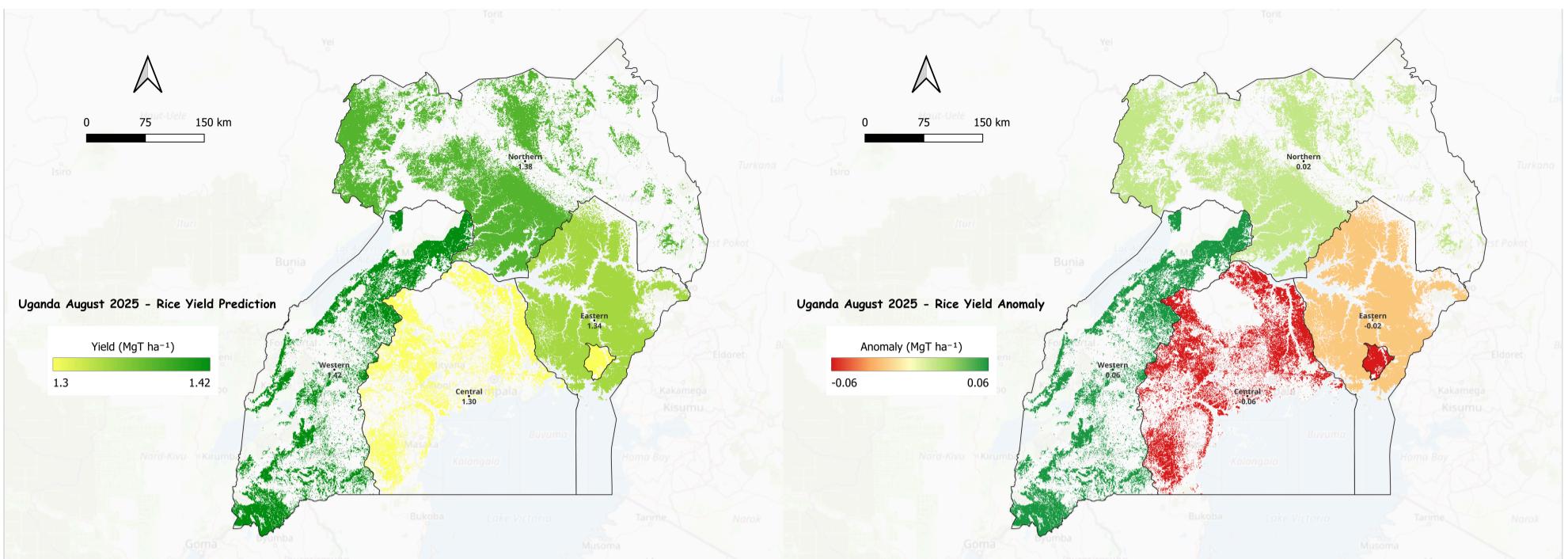
**Figure 2.3: Average Estimated Production with Min/Max Ranges in Uganda**

Bar chart showing mean predicted production for maize, , and rice across Uganda's four regions, with error bars indicating minimum and maximum estimated production ranges.



**Figure 2.4: Regional Maize Yield Forecasts**

End-of-season maize yield forecast map and yield anomaly projections for Uganda based on satellite data and machine learning analysis.

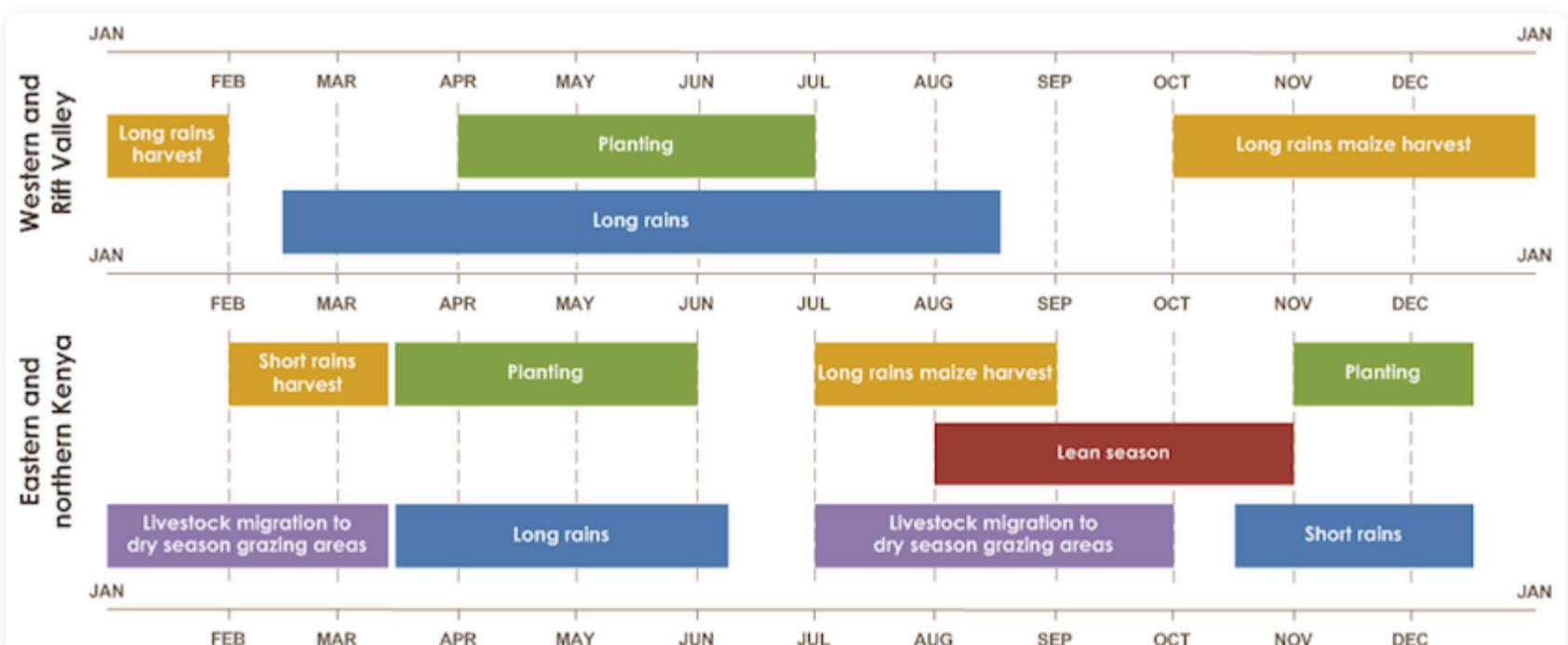


**Figure 2.6: Regional Rice Yield Forecasts**

*End-of-season rice yield forecast map and yield anomaly projections for Uganda based on satellite data and machine learning analysis.*

## Kenya

Kenya's agricultural patterns are characterized by distinct growing regions with different rainfall patterns: the Rift Valley and Western regions follow a unimodal pattern, while the Eastern and Northern regions exhibit a bimodal pattern.



**Figure 5.1: Kenya Agricultural Calendar**

*Kenya's agricultural calendar showing distinct regional patterns: the Rift Valley and Western regions follow a unimodal pattern with long rains, while Eastern and Northern regions exhibit a bimodal pattern with two seasons.*

### Current Crop Conditions

This month marks the **mid-season stage** in Kenya, with conditions diverging between maize and rice:

- **Maize conditions:** Out of 47 counties, **32 remain Stable** while **15 are showing Declining trends**. No counties reported Improving or Exceptional status this month, indicating localized stress especially in arid and semi-arid regions.
- **Rice conditions:** Across 26 rice-producing counties, **all remained Stable** with no Declining or Improving trends recorded.
- **Overall outlook:** While rice continues to perform steadily nationwide, maize production faces challenges in vulnerable counties, keeping overall conditions mixed.

### Top Producing Counties

Crop	County	Predicted Yield (MgT/ha)	Production Range (tons)	Yield Anomaly	Conditions
Maize	Turkana	1.53	332,996 - 479,020	-0.06	Watch
	Marsabit	0.73	151,234 - 333,170	-0.87	Poor
	Wajir	0.71	103,597 - 247,837	-0.89	Poor
	Tana River	1.01	123,118 - 225,247	-0.58	Poor
	Garissa	0.89	114,827 - 225,069	-0.71	Poor
	Narok	2.34	149,568 - 218,656	0.75	Favorable
	Samburu	1.58	107,623 - 182,976	-0.02	Watch
	Kajiado	1.16	77,477 - 145,220	-0.44	Poor
	Kitui	0.75	65,502 - 134,832	-0.85	Poor
	Isiolo	0.88	68,386 - 126,674	-0.72	Poor
Rice	Garissa	2.05	157,978 - 249,485	-0.16	Poor
	Tana River	2.16	143,433 - 224,583	-0.06	Watch
	Taita Taveta	2.33	68,305 - 108,390	0.12	Favorable
	Kilifi	2.06	44,706 - 70,322	-0.16	Poor
	Baringo	2.25	43,327 - 66,453	0.04	Favorable
	West Pokot	2.30	37,225 - 56,177	0.08	Favorable
	Kwale	2.11	29,024 - 48,502	-0.10	Poor
	Nakuru	2.16	27,794 - 44,117	-0.05	Watch
	Meru	2.37	29,460 - 44,090	0.15	Favorable
	Lamu	1.99	21,105 - 34,377	-0.22	Poor

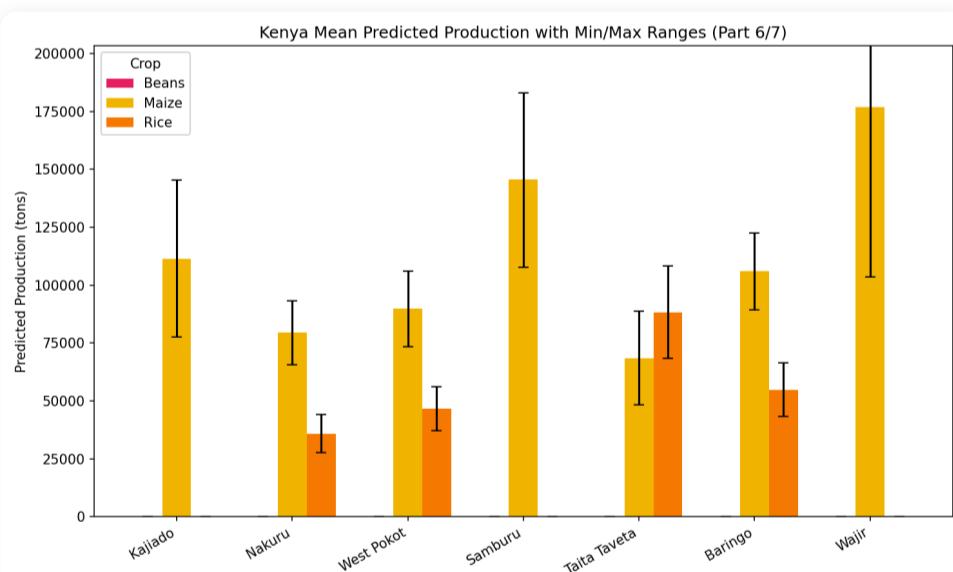
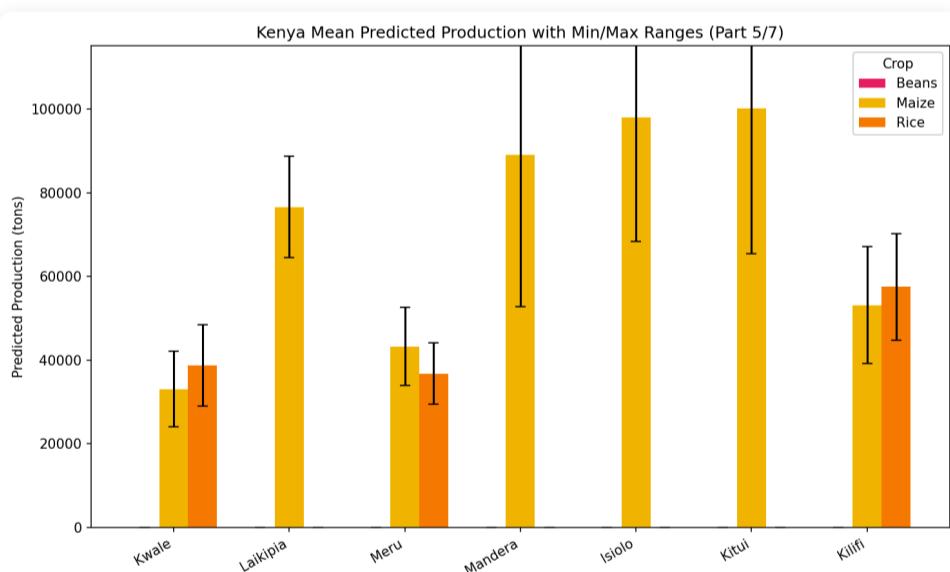
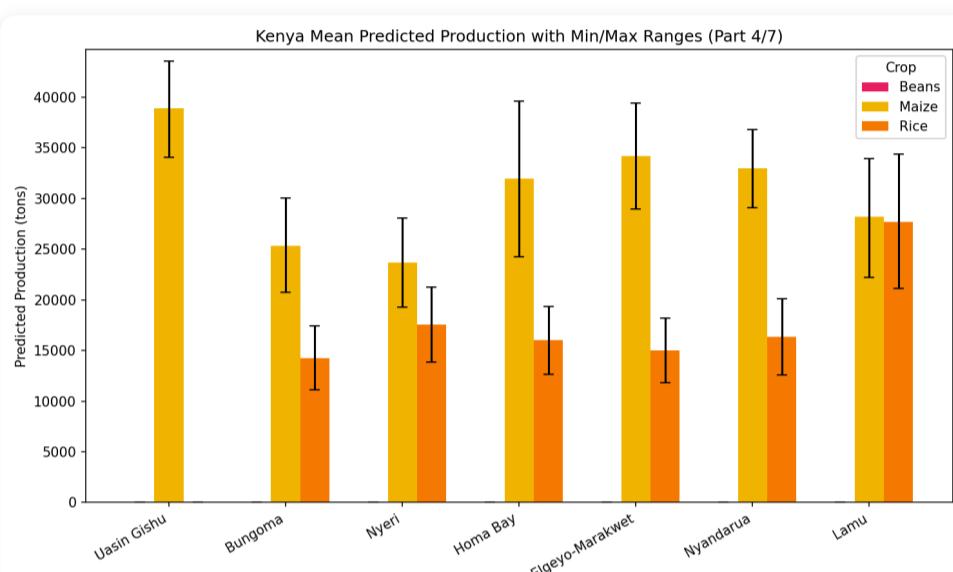
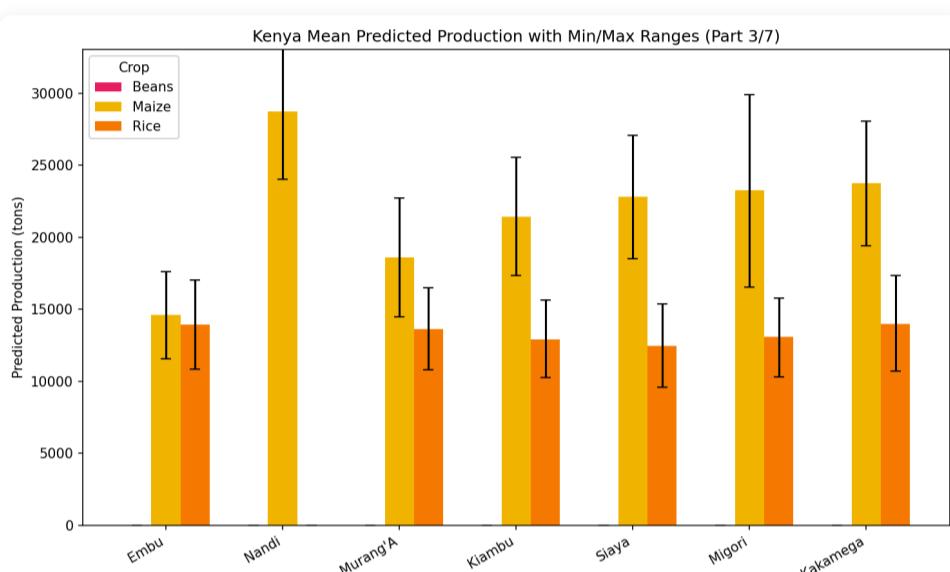
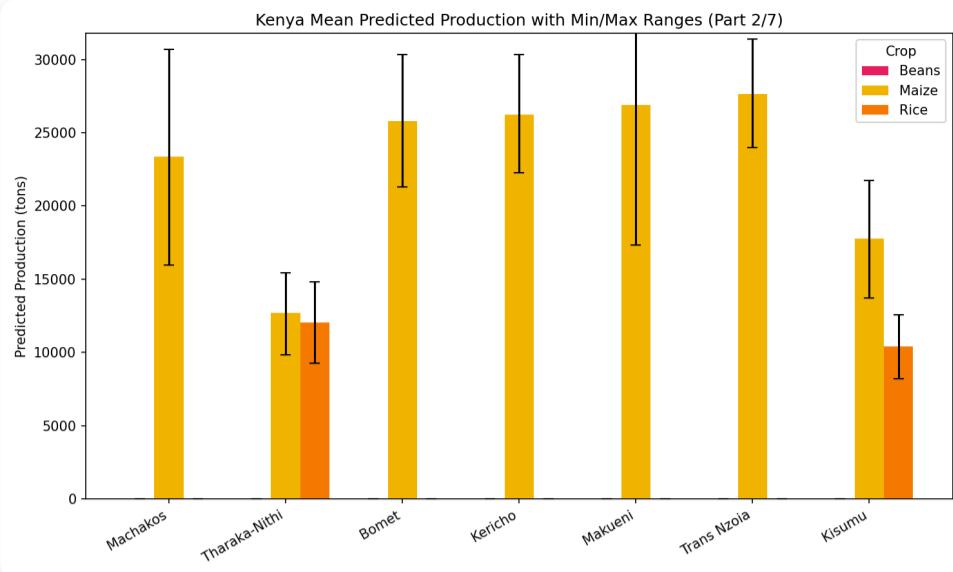
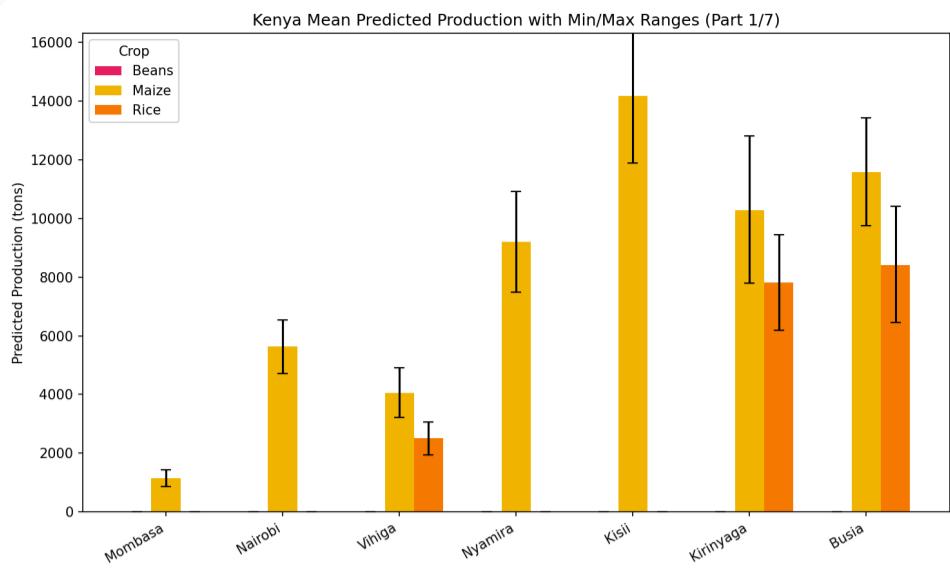
### Yield Performance by Condition

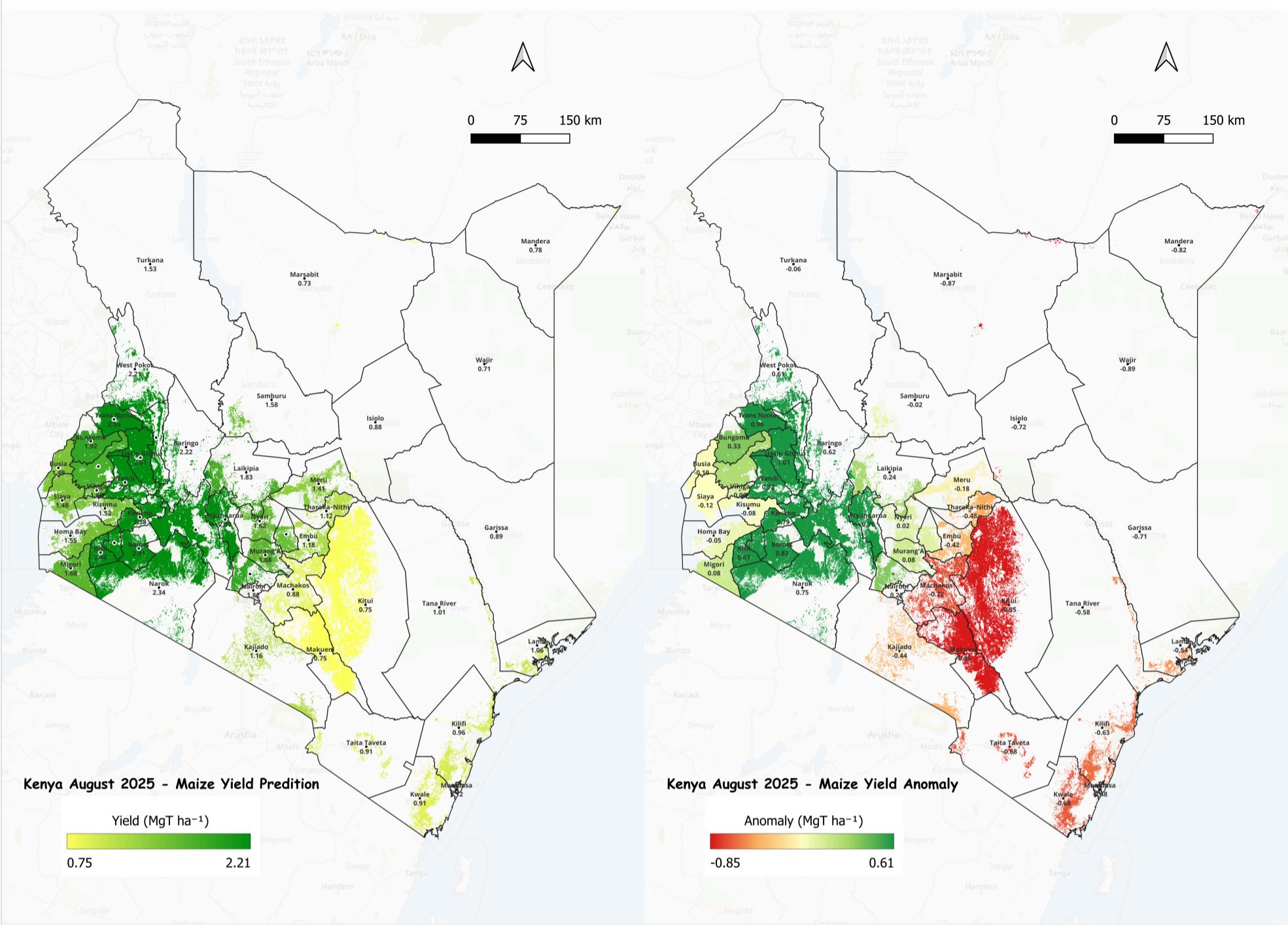
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HIGHEST MAIZE YIELD (UASIN GISHU) MGT/HA

**2.40**

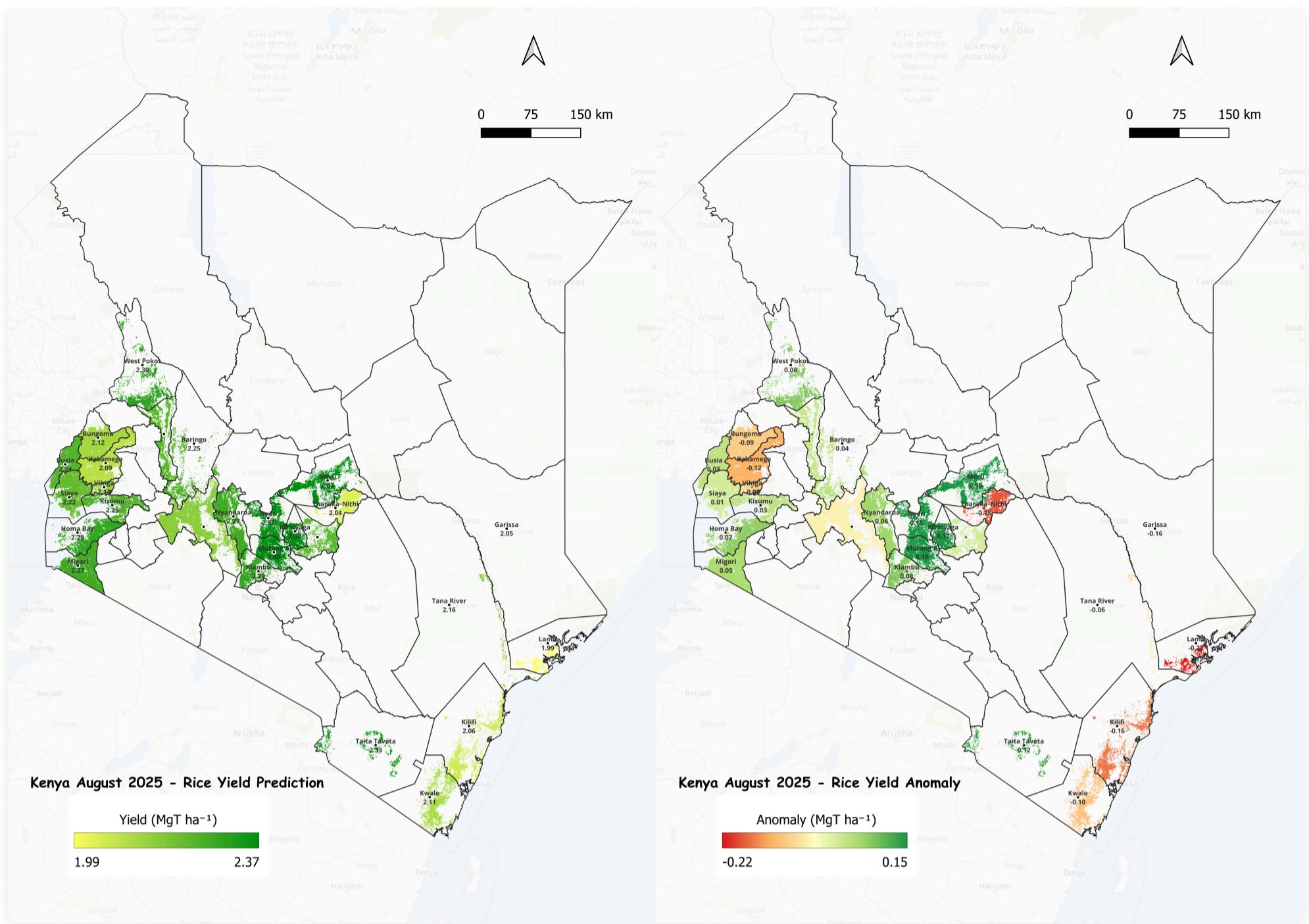
HIGHEST RICE YIELD (MURANG'A) MGT/HA





**Figure 5.6: Maize Yield Forecasts**

*End-of-season maize yield forecast and yield anomaly projections for Kenya based on satellite data and machine learning analysis.*



**Figure 5.8: Rice Yield Forecasts**

*End-of-season rice yield forecast and yield anomaly projections for Kenya based on satellite data and machine learning analysis.*

## Appendix A: Model Description and Parameters

### Crop Conditions Classes

Crop conditions classes are based on a combination of inputs, including earth observations, ground observations, reported impacts, and meteorological data, following the Crop Monitor for Early Warning Classification system.

Class	Definition
<b>Exceptional</b>	Conditions are much better than average at the time of reporting. This label is used only during the grain-filling through harvest stages.
<b>Favorable</b>	Conditions range from slightly below to slightly above-average at reporting time.
<b>Watch</b>	Conditions are not far from average but there is a potential risk to final yields. There is still time and possibility for the crop to recover to average conditions if the ground situation improves.
<b>Poor</b>	Crop conditions are well below average. Crop yields are likely to be 10-25% below-average. This is used when crops are not likely to recover, and impact on yields is likely.

### Data Sources

Data Type	Source
NDVI	UMD GLAM system
ESI	NASA SERVIR Global
Precipitation	CHIRPS (historical), NOAA CPC
Precipitation Forecast	CHIRPS-GEFS
Soil Moisture	NASA-USDA Global soil moisture, utilizing SMOS data
Temperature	NOAA CPC

#### Disclaimer

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**Team:** Xylem Lab/NASA Harvest-Africa Team

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