

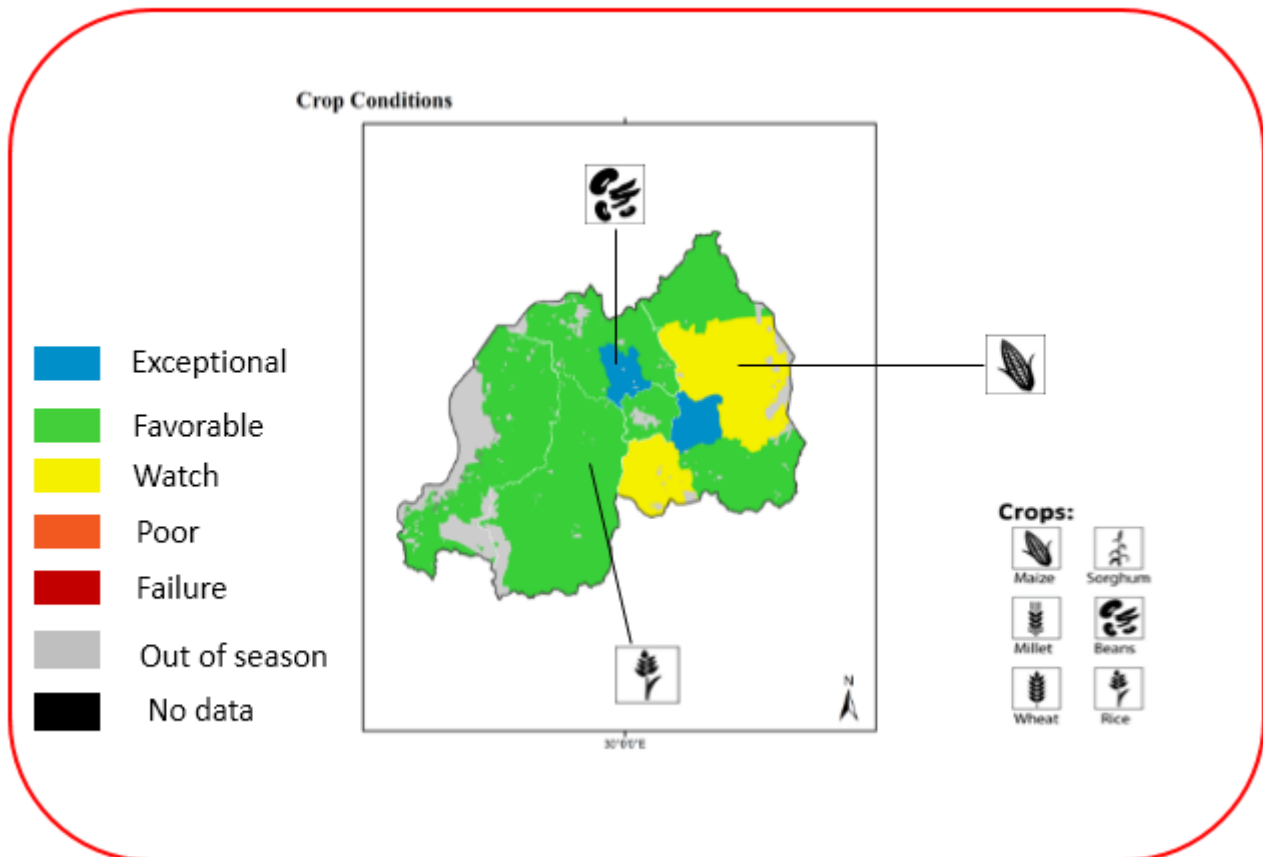


### Season A Overview:

Normal to above normal rainfall conditions were recorded December in Rwanda, this had different implications on the crops. The maize crop condition was favorable in the most parts of the country except in the Eastern Province and Kigali city where the crop conditions was under watch due to the below normal rainfall observed. During this period, non-invasion of FAW recorded. The bean crop doing well, except in the few parts of Southern and Eastern province, where the crop was affected by the below normal average rainfall and some pests. The harvesting period of rice is well going as most rice marshlands are under harvesting and maturity stage. Rice growers are harvesting and the same time preparing for the next season (2021B). Interventions are required to plan for postharvest process for all crops following the continuous above normal average rainfall that has forecasted.

Season A ongoing :.....	1
Crop Conditions Synthesis (Season A).....	2
Assessment by Region (Season A).....	3
Assessment by Crop (Season A): Maize.....	3
Assessment by Crop (Season A): Beans.....	5
Assessment by Crop (Season A): Rice.....	6
Markets and Production Trends.....	8
Satellite Assessment of Vegetation Conditions..	8
Current Weather Outlook.....	10
Terms and Definitions.....	12

## Crop Conditions Synthesis (Season A)



*Map showing regional performance for maize and beans on 5 December 2020, based on several variables including remotely sensed data, rainfall, ground observations and field reports. Districts with conditions that were other than favorable are labeled on the map with their driver.*

### Assessment by Region (Season A)

**Eastern Province:** Late rains and early cessation were observed in the Eastern Province. Some of the districts were under watch due to the water stress, which affected the maturity to harvesting and vegetative reproductive stages of maize.

In Kayonza, specifically in Ndego sector, dry conditions affected the planting time where farmers experienced a late planting. The FAW has controlled during different crop stages. In most parts of the province, the maize crop has reached the maturity stage; few sectors within the districts are still under reproductive stage.

**Outlook:** maximum production is expected if farmers made tremendous efforts in small-scale irrigation interventions.

**Advisory:** Quick interventions are needed to increase effective mobilization technics for small-scale irrigation system.

**Kigali:** In Kigali city, in agriculture zones of **Kicukiro**, **Nyarugenge** and **Gasabo** districts, the

conditions were under favorable for maize and beans due to the resume of rain after the early cessation observed in mid- December 2020. However, rice is under harvesting stage with quick land preparation for the 2020 B season.

**Outlook:** Maximum production of beans, maize and rice expected.

**Advisory:** Continuous monitoring of maize planation in the land consolidation sites. With the rice harvesting undergoing, there is a need of postharvest equipment to support farmers. There is also a need to include rice marshlands in the insurance scheme.

**Southern Province:** Conditions were favorable for maize in the most parts of the district of the province, despite an increase of rainfall in mid-season. In some districts including Gisagara, Kamonyi and Nyamagabe, there were an occurrence of Fall Armyworms but have quickly controlled following the pesticides distributed and applied in the consolidates sites. The normal

average rainfall was recorded for bean crop in the most parts of the province but few districts including Huye and Nyanza experienced a dry period in mid-December. The conditions are favorable for rice harvesting period, the rice cooperatives are well organized in this period.

**Outlook:** Maximum production is expected for maize, beans and rice but there is a risk of below normal bean production in some districts which experienced a dry period in mid- December.

**Advisory:** Pest management (FAW) and storage facilities, post-harvest facilities and reduced post-harvest losses activities for maize and rice.

**Western Province:** The above normal rainfall was experienced in the region resulting in favorable conditions for beans and maize production. Rice is under harvesting in two favorable districts (Nyamasheke and Rusizi). Fall armyworms (FAW) was observed in few districts, quickly controlled in partnership with partners involved in Agriculture.

**Outlook:** Maximum production of beans, maize and rice expected in the region.

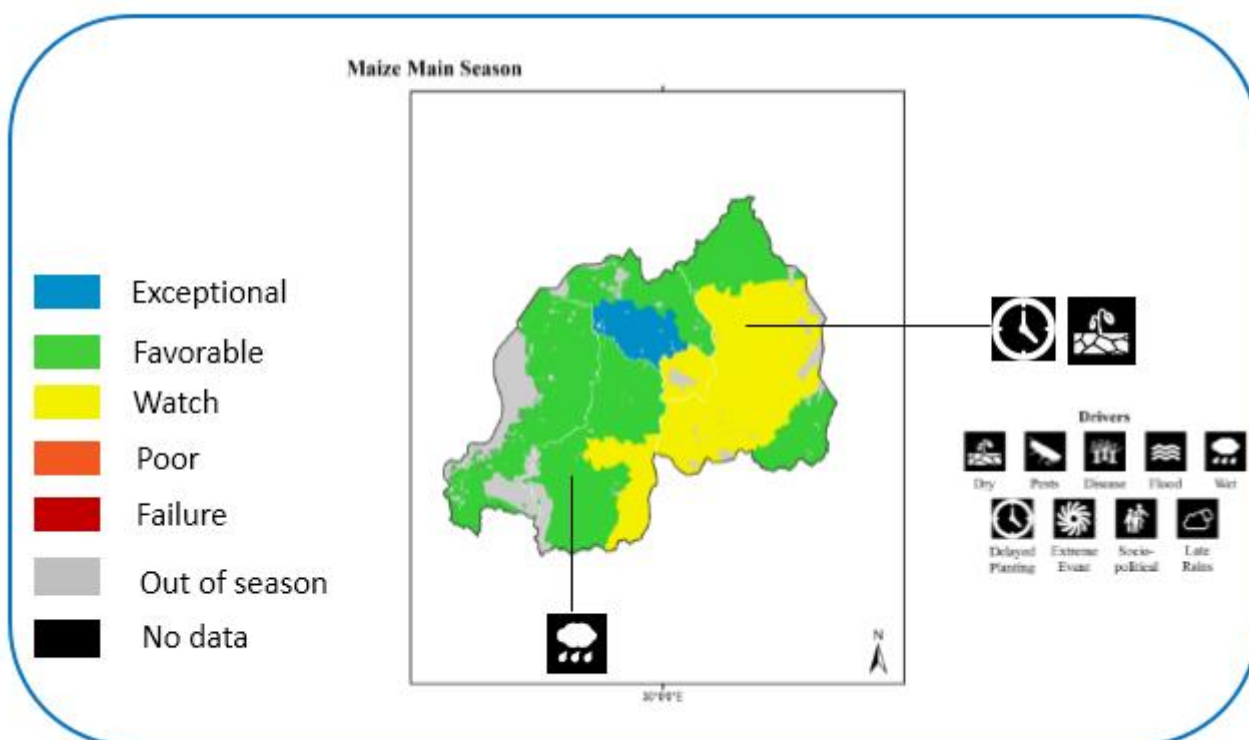
**Advisory:** Regular monitoring of land consolidates sites with handpicking, and pesticides application against FAW. Erosion control associated with drainage channels. Encourage farmers to plant agroforestry trees for the availability of stakes for climbing beans.

**Northern Province:** Conditions are favorable for maize and beans in most parts of Northern Province with an alternative of rain and sunlight period. The whole region is under vegetative, reproductive and maturity stages. However, the rice is under germination stage as the season 2021 B has started.

**Outlook:** Normal to above normal maize and bean production expected if rain distribution remains normal.

**Advisory:** Train famers on the effective postharvest technologies and ensure the control of FAW by using proper pesticide types.

## Assessment by Crop (Season A): Maize



**Map showing maize conditions information in Rwanda of 5 December 2020. The crop conditions map is based on a combination of several variables including remotely sensed data, ground observations, field reports, national, and regional experts. Crops with conditions that are other than favorable are labeled on the map with their driver.**

In **Eastern Province**, maize production is under watch due to the Fall Armyworm (FAW), late rains which resulted in mid- December 2020. Few sectors in the respective districts of the region have experienced a shortage of water. The conditions were improved after the resume of rains.

**Outlook:** Average production expected if the FAW is contained and small-scale irrigation enforced.

**Advisory:** There is a need to support farmers with irrigation facilities in the region with early rain cessation.

In **Kigali**, Gasabo, Nyarugenge and Kicukiro districts, conditions for Maize is under favorable conditions due to the resume of rains in mid-December 2020.

**Outlook:** Maximum production expected if there is a continuous alternation rain and sunlight period.

**Advisory:** Keep monitoring the maize plantation under land use consolidate sites.

**Northern Province:** Conditions were favorable and the crop is under vegetative and reproductive stage. Conditions were exceptional in Musanze, Gakenke and Rulindo Districts.

**Outlook:** Normal to above normal production expected if the exchange between rain and sun prevail.

**Advisory:** Farmers advised to continue the implementation of agriculture practices package, particularly keep monitoring their fields.

**Southern Province**, the crop conditions for maize are favorable except Gisagara district, which is under watch due to the occurrence of Fall Armyworms.

**Outlook:** Maximum production expected if rain distribution remain constant.

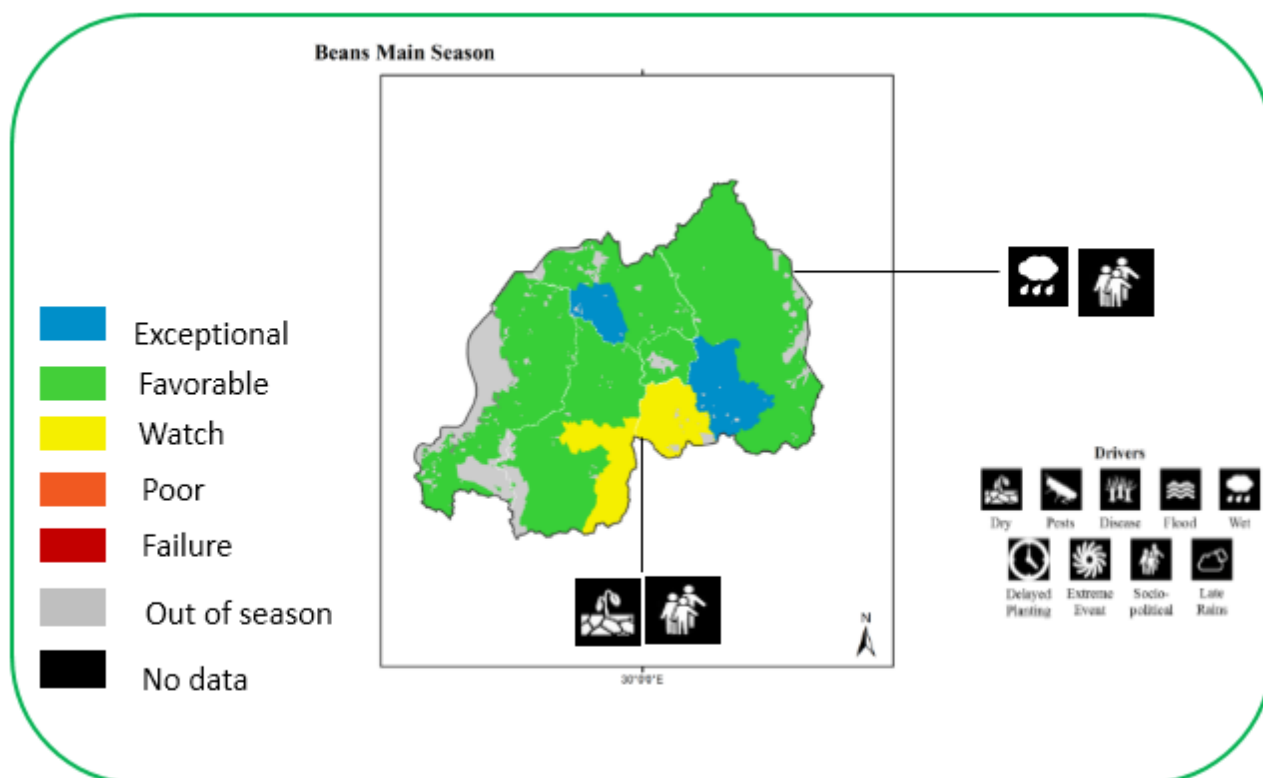
**Advisory:** Farmers advised to apply timely effective pesticides for FAW control and keep monitoring regularly their fields.

**Western Province:** Favorable conditions observed in the region due to the above normal rainfall recorded. Fall Armyworms also observed in some districts including Karongi, Rubavu, and Rutsiro.

**Outlook:** Maximum production expected if rain distribution remain constant across the region.

**Advisory:** Farmers advised to keep monitoring their fields with handpicking of FAW and pesticides application where necessary.

## Assessment by Crop (Season A): Beans



*Map showing beans crop conditions information in Rwanda of 5 December 2020. The crop conditions map is based on a combination of several variables including remotely sensed data, ground observations, field reports, national, and regional experts. Crops with conditions that are other than favorable are labeled on the map with their driver.*

**Eastern Province:** The crop is under maturity to harvesting stage in most parts of the region except Kirehe district which is under vegetative to reproductive stage.

**Outlook:** Normal production expected in most parts of the province. Slightly below normal production expected in Gatsibo district following the bean rotting due to the heavy rain.

**Advisory:** Coaching farmers to adopt good agriculture practices and effective postharvest activities.

In **Kigali** zone under agricultural activities, the beans are under maturity and harvesting stage. Conditions are favorable due to normal rainfall conditions across the region.

**Outlook:** Maximum production is expected.

**Advisory:** There is a need of continuing the agriculture practices with proper field monitoring that contribute to the effective harvesting and storing of the beans.

**Western Province:** In most parts of the Province, conditions are generally favorable for beans production under maturity to harvesting stage while Nyabihu is under vegetative to reproductive stage. Harvesting has started in some districts including Rusizi and Rubavu.

**Outlook:** more expectation of maximum production of bush than climbing beans.

**Advisory:** Farmers advised to plant agroforestry trees for availability of sufficient stakes for climbing beans.

**Southern Province:** Conditions were under watch in Gisagara and Huye districts due to the long dry period recorded for beans. The remaining districts, bean crop was in favorable conditions due to the normal to above average rainfall recorded.

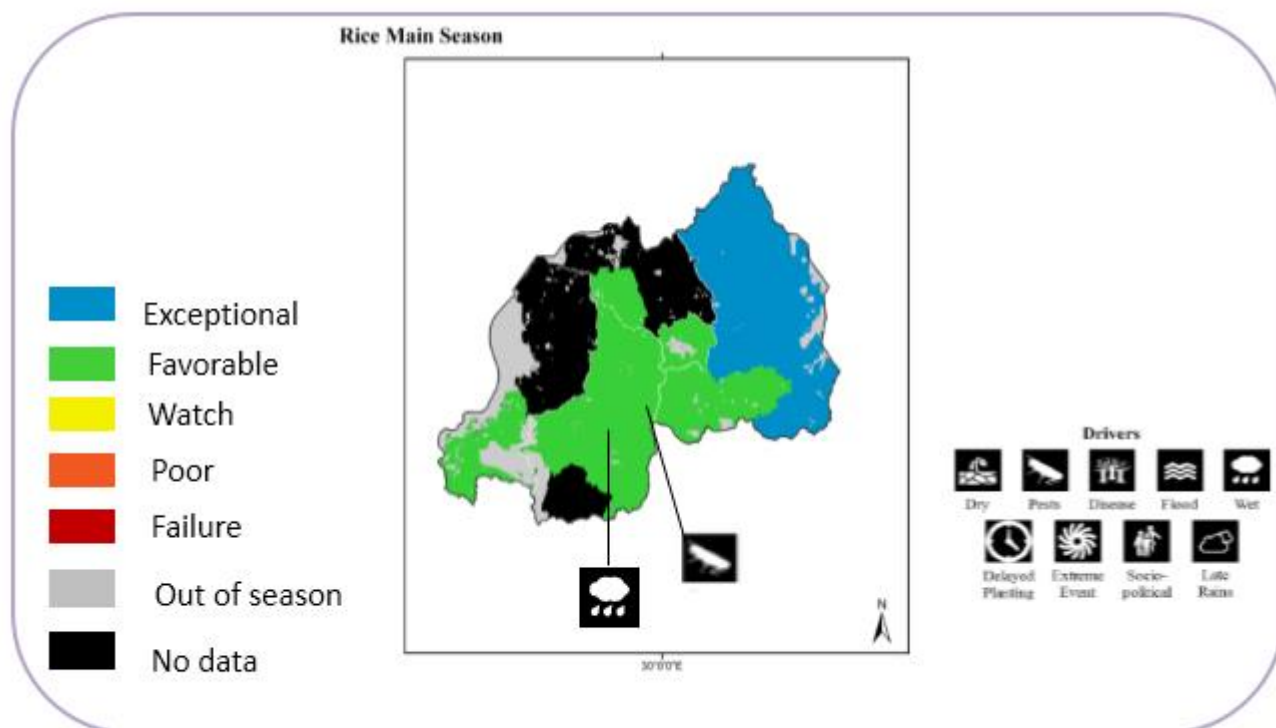
**Outlook:** Maximum production expected for most parts of the region with favorable conditions.

**Advisory:** Frequent monitoring, use of recommended agriculture practices and include the beans in the insurance scheme.

**Northern Province:** Rainfall was above normal favoring the main crops of the season. Generally, beans production is under favorable conditions and harvesting has started in Musanze district.

**Outlook:** Maximum production expected for bush beans. However, climbing beans would be affected due to the lack of strong and long stakes.

## Assessment by Crop (Season A): RICE



*Map showing rice crop conditions information in Rwanda of 5 December 2020. The crop conditions map is based on a combination of several variables including remotely sensed data, ground observations, field reports, national, and regional experts. Crops with conditions that are other than favorable are labeled on the map with their drive.*

**In Eastern Province,** the region experienced two stages including maturity and reproductive stages. Conditions are exceptional due to the good climatic conditions observed across the cropping season. Farmers have started harvesting while preparing the land for the next season.

**Outlook:** High production expected in the region with good climatic conditions (Kirehe and Nyagatare).

**Advisory:** Rehabilitation of irrigation infrastructures including Rurambi and Gashora.

Encourage farmers for effective postharvest activities.

In **Kigali, Gasabo, and Kicukiro** districts, conditions for rice are good due to favorable rainfall distributions across the region. Farmers have started the land preparation of the season 2020 B, while harvesting for the last season.

**Outlook:** Maximum production expected.

**Advisory:** There is a need to include rice marshlands in the insurance scheme and help

farmers to acquire effective postharvest infrastructures such as drying grounds.

**North Province:** Gakenke district is the only district under rice plantation for season 2020 B. The crop is under germination and early vegetative stage. The crop is growing well with no problem observed.

**Outlook:** Good production expected if conditions remain constant.

**Advisory:** The cooperatives in collaboration with RAB should look for new varieties to increase the productivity and the current rice varieties are under degeneration.

**Southern Province:** The harvesting – maturity stage of rice in all districts (except Nyaruguru and Nyamagabe) were under favorable conditions, which led the expected production.

**Outlook:** Maximum production expected if the region experienced a sunlight period enabling the

rice growers to conduct the postharvest handling activities.

**Advisory:** Avail post-harvest equipment with full package of extension services regarding postharvest process.

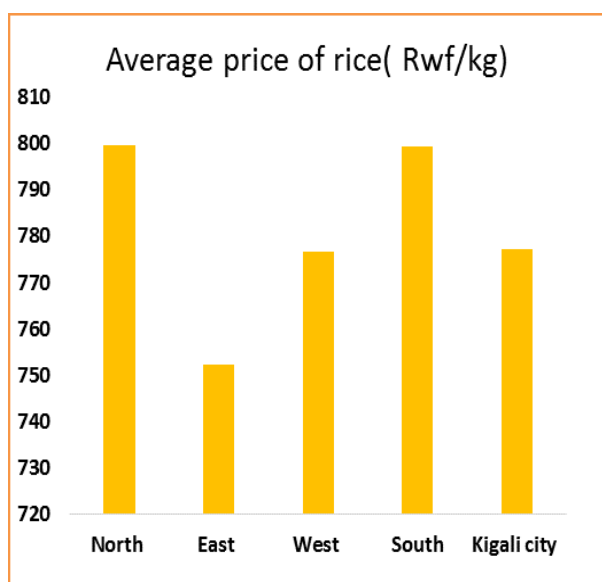
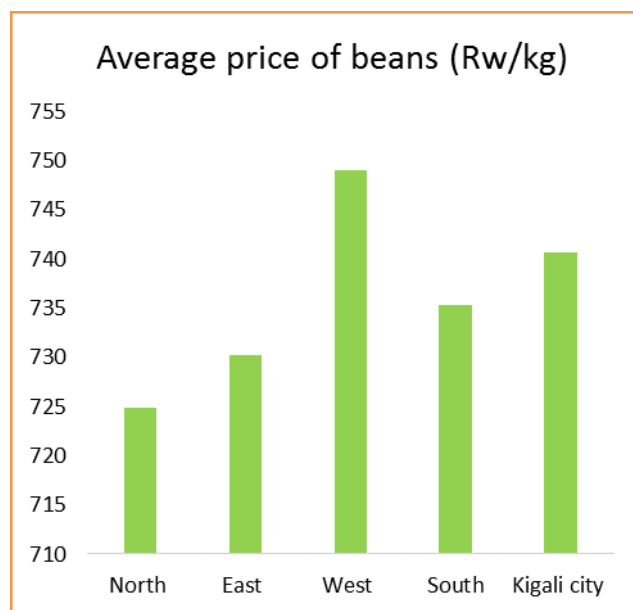
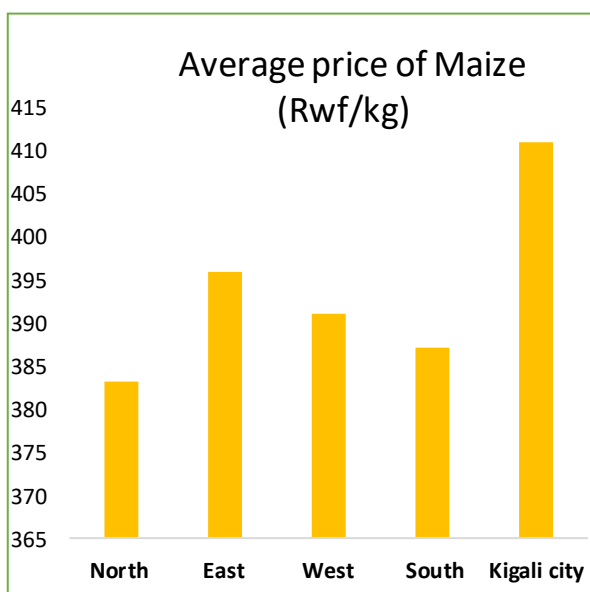
**Western province** Rice production in Nyamasheke and Rusizi was under favorable conditions across the entire cropping season. However, floods occurred in Bugarama and Buganza sectors but did not interfere the overall production in the region.

**Outlook:** High production expected in the region as the weather conditions continue to be favorable.

**Advisory:** Support farmers during post-harvest process. Avail post-harvest equipment where necessary. MINAGRI, Districts and other stakeholders can plan for repairing the canals in sustainable manner and include the potential marshlands in the insurance scheme.

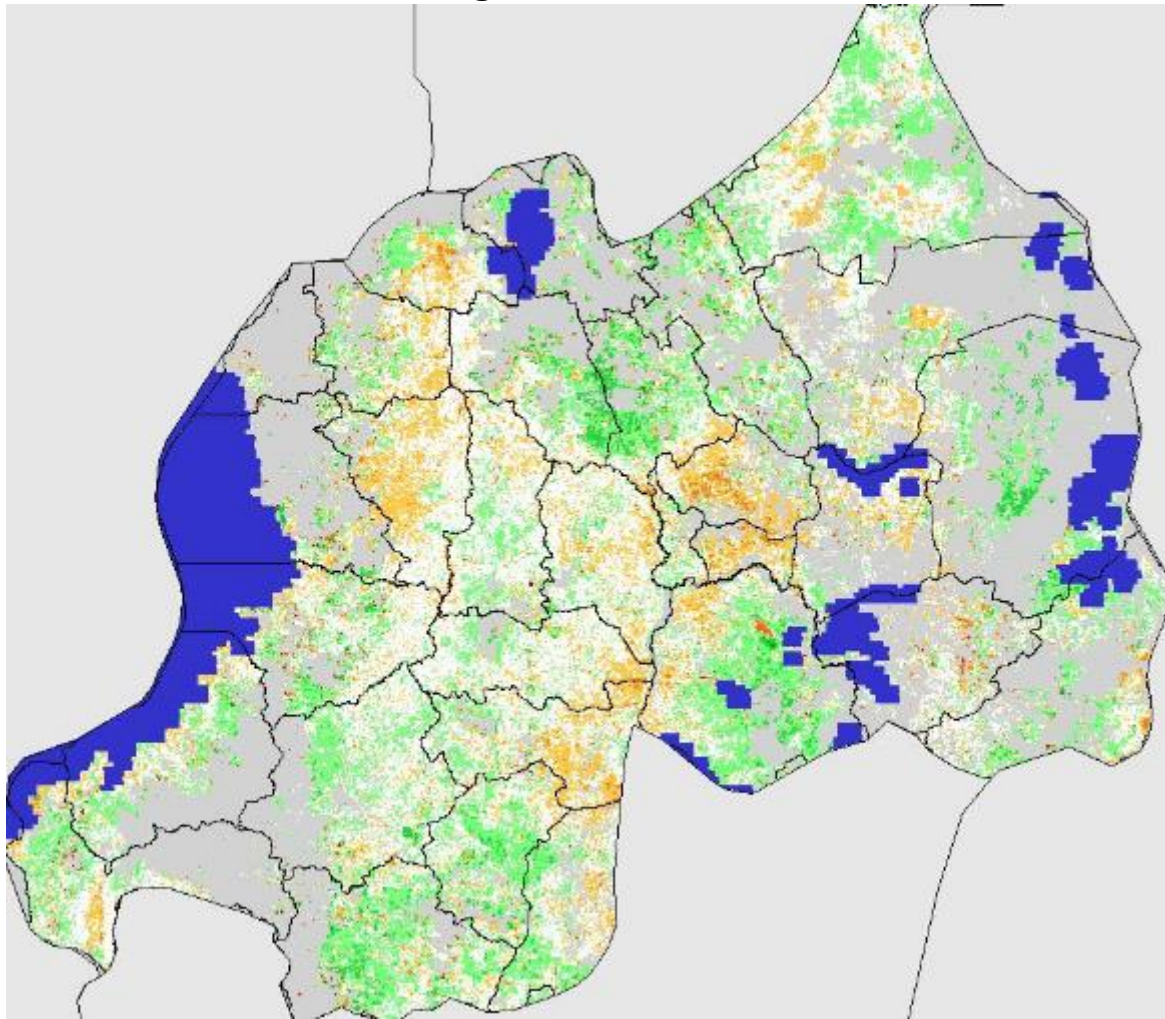
## Markets and Production Trends

The tables below are showing the variations of maize, bean and rice price in December 2020 in focusing on major markets of the country. Generally, Kigali city dominated the other provincial markets for maize. However, the higher price for beans occurred in the Western province and the high rate of rice price is the Northern Province. The country is experiencing high prices for identified communities due to their availability, as the 2021A season is still ongoing on. In addition, the coronavirus (COVID-19) pandemic restriction measures (lockdown period) are negatively affecting the market trans-movement of people and goods.

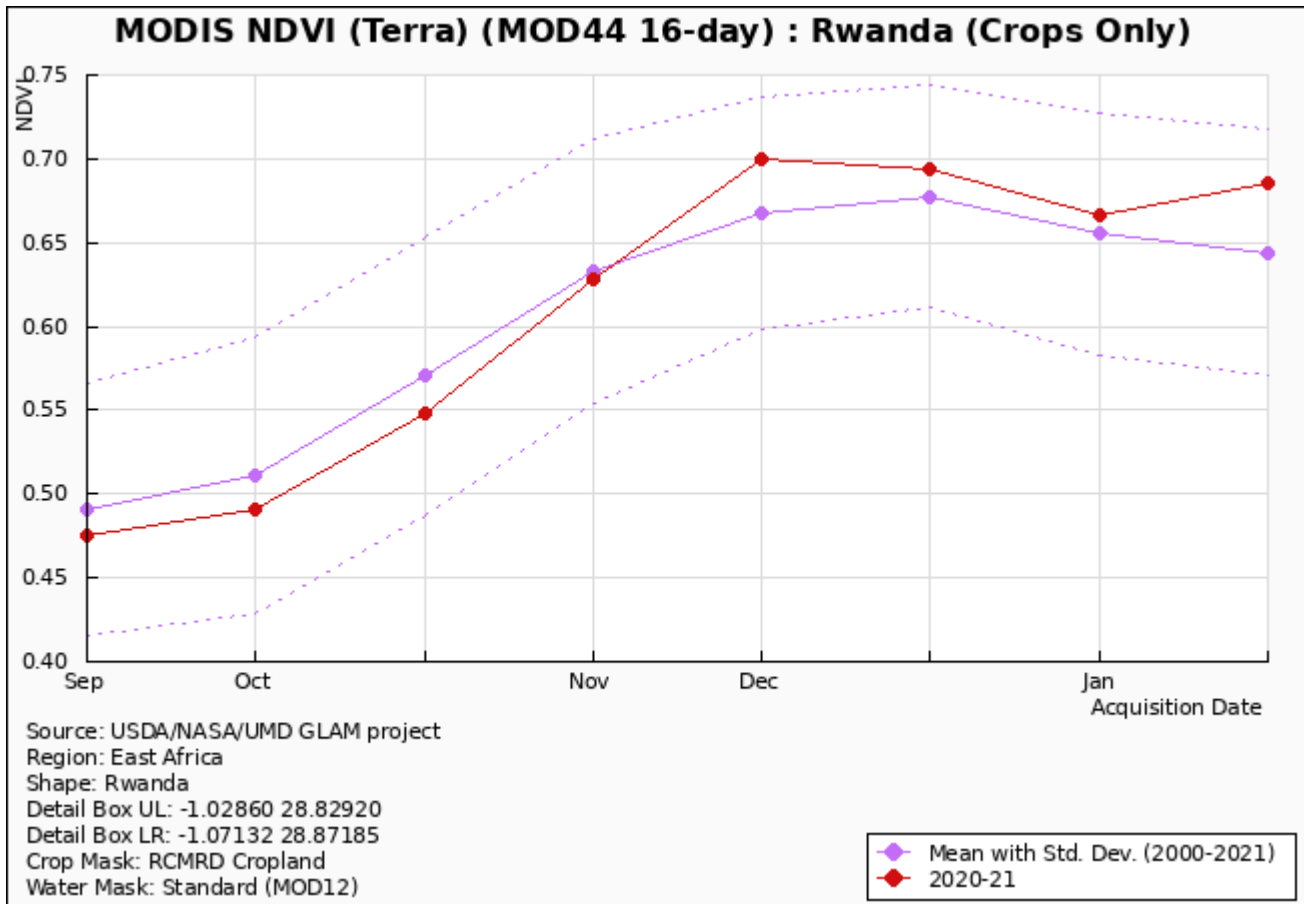




## Satellite Assessment of Vegetation Conditions



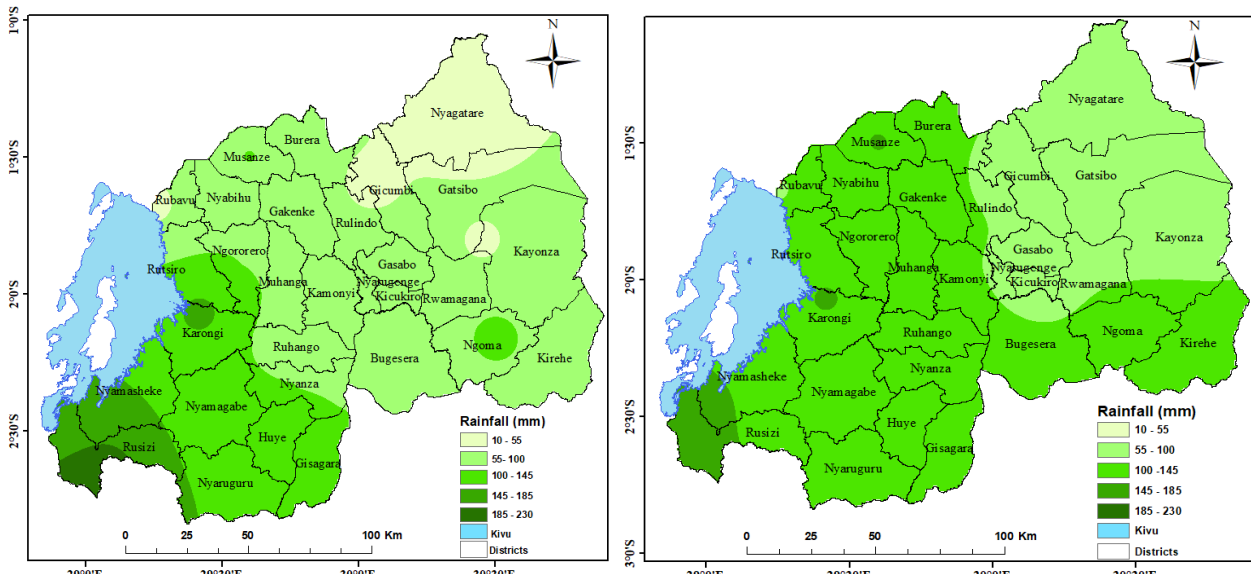
*Normalized Difference Vegetation Index (NDVI) anomaly image for Rwanda for 18<sup>th</sup> December 2020 to 2<sup>nd</sup> January 2021 showing the variation from normal to above normal. The country is experiencing a rainy period.*



**Normalized Difference Vegetation Index (NDVI) time-series data for Rwanda (Shape). Current conditions indicate slight above average conditions for most of the country.**

The Normalized difference vegetation index (NDVI) from mid-November to 1<sup>st</sup> December 2020 shows a slight above the normal conditions across the country as a result of wet weather conditions experienced in November 2020 and led to good performance of crops.

**Current Weather Outlook**

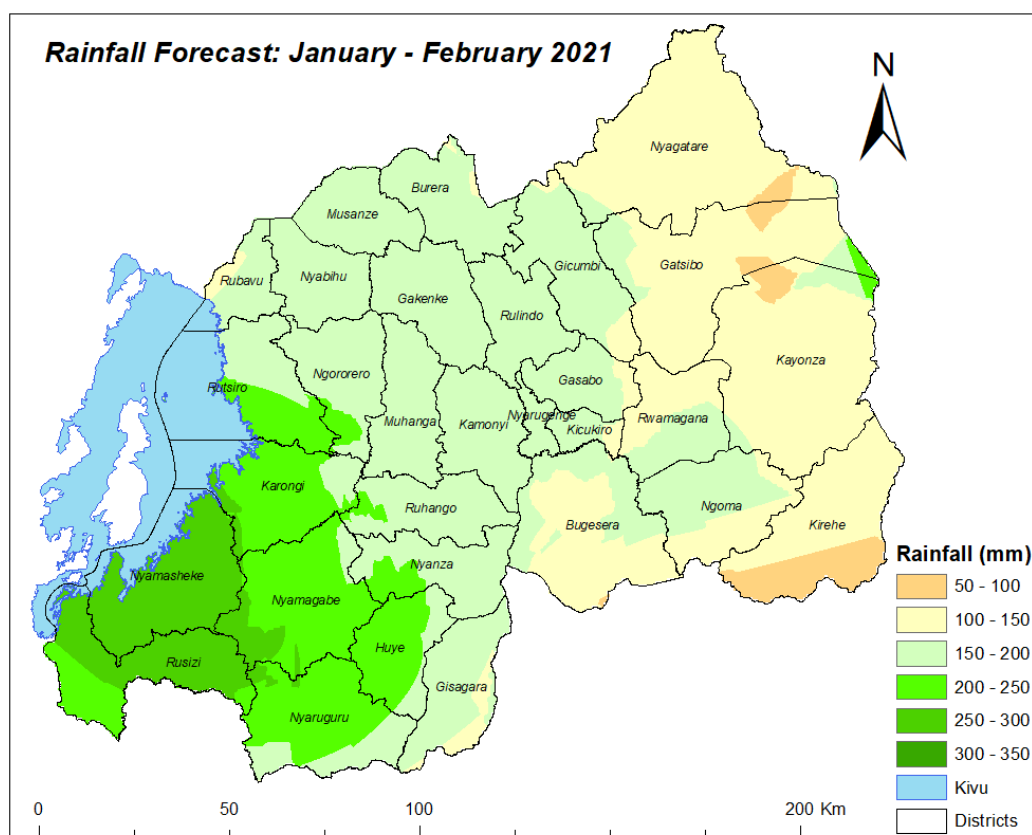


**The maps represent the rainfall observed in December 2020 (left) and long term mean for November (right). Dark green to light green represent level of wetness conditions. (Source: Meteo Rwanda)**

Conditions were normal to above normal in most parts of the country during November. The rainfall distribution show that the Eastern and Western parts near the Lake Kivu region were mostly above normal

conditions and the rest of the country experienced normal conditions. Generally, weather conditions during November were favorable for crop growth.

### Climate outlook for January- February 2021



**January- February 2021 rainfall forecast (Source: Meteo Rwanda)**

The National climate outlook for January to February 2021 rainfall indicates that, South western part of the country are likely to experience slight reduced rainfall (Below average ) while other parts of the country will experience normal rainfall of the period. The expected rainfall is mostly associated with the topographic and land use nature of each area. The Key factors that expected to influence the rainfall pattern of the region during January to February 2021 rainfall forecast are; neutral conditions for Indian Ocean Dipole (IOD) with moderate la Nina conditions in Pacific Ocean throughout February 2021.






The forecast for the specific outlooks are as follows:

- **Rainfall ranging between 250-300 mm** is expected in Nyamasheke District and most part of Rusizi District.
- **Rainfall ranging between 200-250 mm** is expected in most parts of Nyamagabe, Nyaruguru and Huye Districts, and in south western part of Nyanza in the Southern Province, most part of Karongi, Southern part of Rutsiro and South western part of Rusizi and Ngororero Districts..

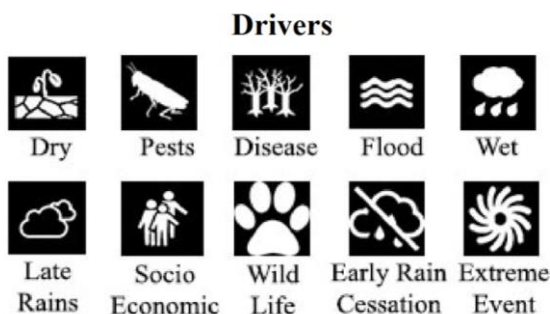
- **Rainfall ranging between 150-200 mm** is expected in Northern Province (Musanze, Burera, Gicumbi, Gakenke and Ruindo), Western Province (Rubavu, Nyabihu, remaining part of Ngororero and n Rutsiro Districts), Southern Province (Gisagara, Ruhango, Muhanga, Kamonyi, remaining part of Nyanza and eastern parts of Huye and Nyaruguru), Kigali city (Nyarugenge, Kicukiro and Gasabo) and Eastern Province (north eastern part of Bugesera, nNorthern part of Ngoma and southern part of Rwamagana).
- **Rainfall ranging between 100-150 mm** is expected in Eastern Province (Nyagatare, Gatsibo, Kayonza, northern Rwamagana, southern Bugesera and Ngoma and most part of Kirehe).
- **Rainfall ranging between 50-100 mm** is expected in extreme south of Kirehe District

## Terms and Definitions

### Crop Condition Classes

	<b>Exceptional</b>	Conditions are much better than average* at time of reporting. This label is used only during the grain filling through harvest stages.
	<b>Favourable</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. This label is only used during the planting-early vegetative and the vegetative-reproductive stages.
	<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 stunted and are not likely to recover, and impact on yields is likely.
	<b>Failure</b>	Crop conditions are extremely poor. Crop yields are likely to be 25% or more below average.

### Driver Definitions:



These represent the key climatic drivers that are having an impact on crop condition status. They result in production impacts and can act as either positive or negative drivers of crop conditions. **Wet:** Higher than average wetness, that results in destruction ie due to water logging and leaching of nutrients

- **Extreme Events:** This is a catch-all for all other climate risks (i.e. frost, hailstorms, mudslides etc.)
- **Late rains:** Late start of the season. **Flood:** Area is flooded
- **Early Rains Cessation:** Rains end earlier than expected in the season

- **Pests:** Destructive insects, birds or animals.
- **Diseases:** Destructive plant diseases.
- **Dry:** Drier than average
- **Socio-economic:** Social or economic factors that impact crop conditions (i.e. policy changes, agricultural subsidies, government intervention, etc.)
- **Conflict:** Armed conflict or civil unrest that is preventing the planting or harvesting of the fields by the farmers.
- **Wildlife Damage:** Crop destruction by wildlife

## Terms

The normalized difference vegetation index (NDVI) is a measurement of plant health based on how a plant reflects light (usually sunlight) at specific frequencies.

Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS) is a blended rainfall dataset combining satellite and weather station data and developed by the University of Santa Barbara (UCSB). The dataset has been widely tested and calibrated in the region. The forecast is based on NCEP's Global Ensemble Forecast System (GEFS), which has been bias corrected and downscaled with CHIRPS.

CHIRPS	Climate Hazards Group InfraRed Precipitation with Station data
GEFS	Global Ensemble Forecast System
METEO	Rwanda Meteorological Agency
MINAGRI	Ministry of Agriculture and Animal Resources
NAEB	National Agricultural Export Development Board
NCEP	National Centers for Environmental Prediction
RAB	Rwanda Agriculture and Animal Resources Development Board
RCMRD	Regional Centre for Mapping of Resources for Development
SERVIR	Joint development initiative of NASA and USAID
UCSB	University of California Santa Barbara
UMD	University of Maryland
USAID	United States Agency for International Development

## Partners

