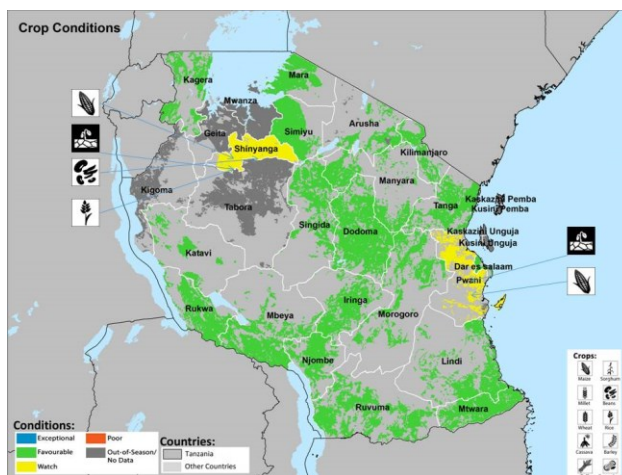***Figure 1***:   This Crop condition map syntheses information for all crops as of 31st January, 2019. Crop conditions over the main growing areas based on combination of national and regional crop analyst inputs along with remote sensing data and rainfall data provided by Tanzania Meteorological Agency. Crop with conditions other than favorable a marked indicated on the map.

NATIONAL HIGHLIGHTS

- In bimodal areas, farmers continued with threshing of beans while in Unimodal areas weeding activities of maize and beans crops were continued. In Bimodal areas farmers have started land preparations for the coming Masika rainy season which is expected to start by mid of March.
- Cassava continue to have favorable conditions all over the country and the crop is at different growth stages.
- Lindi, Kinondoni, Songea, Arusha and Mtwara had the highest prices for rice while Shinyanga, Musoma, Geita and Singida had lowest market prices
- Lindi, Mwanza, Kinondoni and Bukoba had above average maize price while Njombe, Mbeya, Iringa, Songea and Babati were all below average maize prices.
- However, the lowest maize price was observed in the Njombe, Mbeya, Iringa, Songea and Babati

Crop Conditions for Major Food Crops

Maize

Maize is at maturity stages and in favorable condition in most parts of the bimodal regions. In some few parts of Bimodal regions, land preparation is proceeding. In Unimodal areas maize is at vegetative stages and favorable conditions in most parts were observed except for Shinyanga and some parts of Pwani regions which experienced watch condition due to prolonged dry condition.
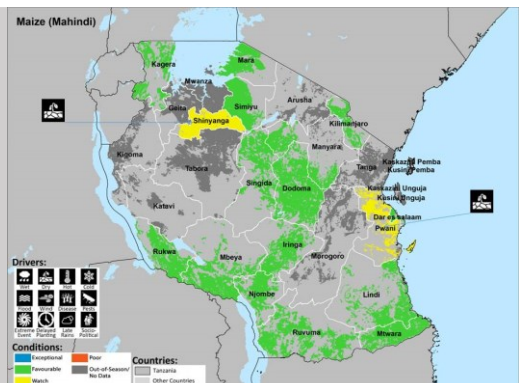
Beans

In most parts of Bimodal areas, the crops are at maturity stages and threshing activities is proceeding while in Unimodal areas crops are at different stages of growth with favorable condition in most parts except for some parts of Shinyanga Region where watch condition was observed due to poor rainfall distribution.
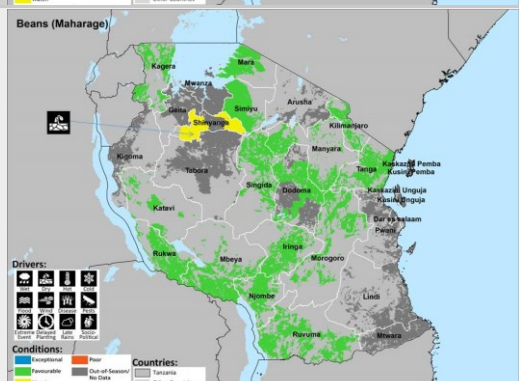
Cassava

Favorable conditions were experienced in most of the regions.
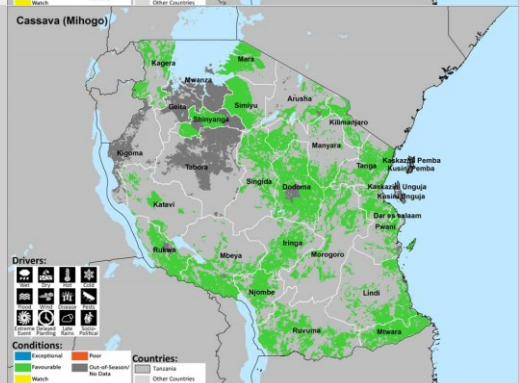
Paddy

The favorable conditions were observed in most parts in both Unimodal and bimodal regions except for some parts of Shinyanga Region where watch condition was observed.

NOTE: Other important crops grown in wide range and contribute in the food basket include banana, sorghum, millets, potatoes, wheat and other pulses.

Satellite-based crop Conditions
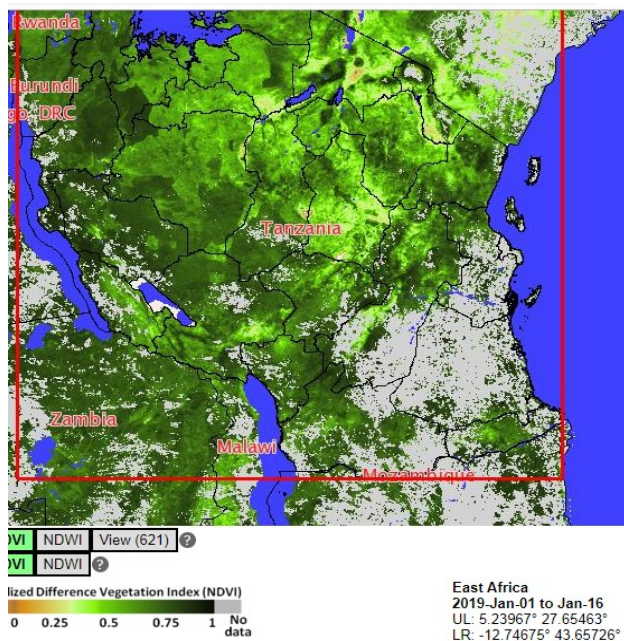
Figure .6: *Normalised Difference Vegetation Index (NDVI) anomaly for 01-16 January, 2019*

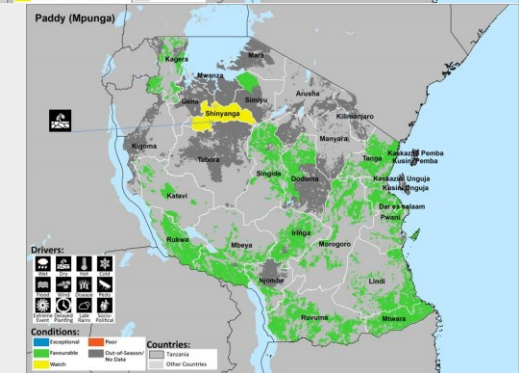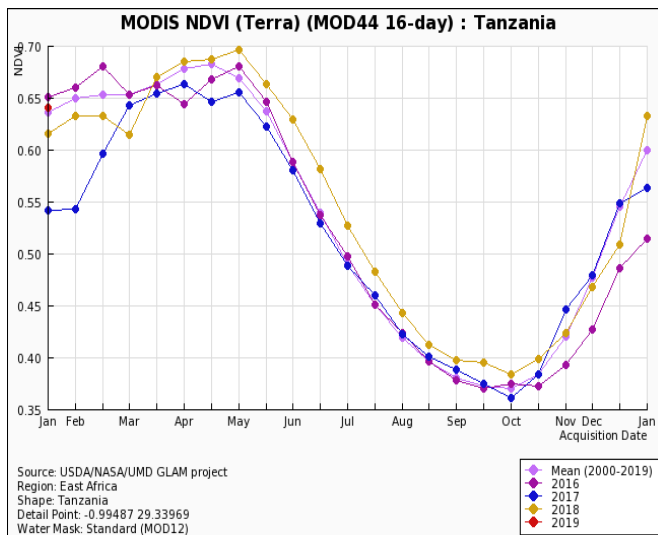
Figure 7: *16 **days for January, 2019 as it compares to 2015,2016,2017,2018 and the long term mean. Data shows NDVI values bordering average for the whole country***.

Compared to the long term mean NDVI and the NDVI anomaly for 2016, 2017 and 2018, the NDVI for January, 2019 was higher than 2017, 2018 and the long term mean but it was below than 2016 (Fig. 7).

During the month of January, 2019, most areas of the unimodal regions continued to receive the 'Msimu' rains. Bimodal areas, particularly Lake Victoria Basin, Northeastern Highlands and Northern Coast received wide spread off-seasonal rains. Satellite image show a favorable vegetation condition in most part of the country.

Water and pasture availability for livestock has improved in most parts of the country as a result of good rainfall distribution (Fig.6).

Satellite-based crop Conditions

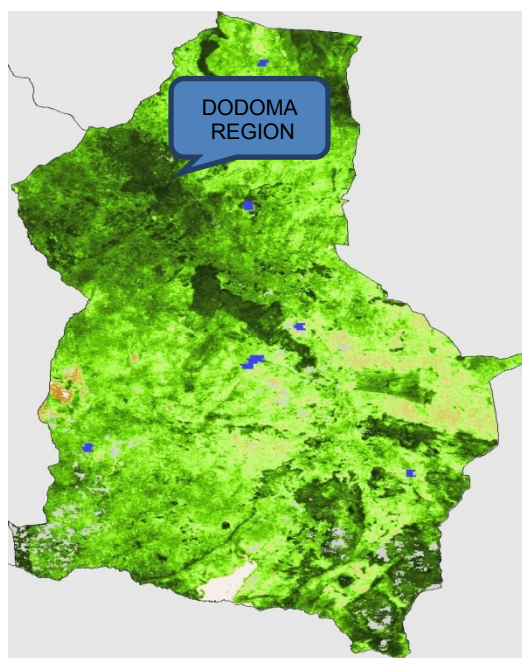Figure .8: *Normalized Difference Vegetation Index (NDVI) for Dodoma anomaly for 1-16 October 2019.*
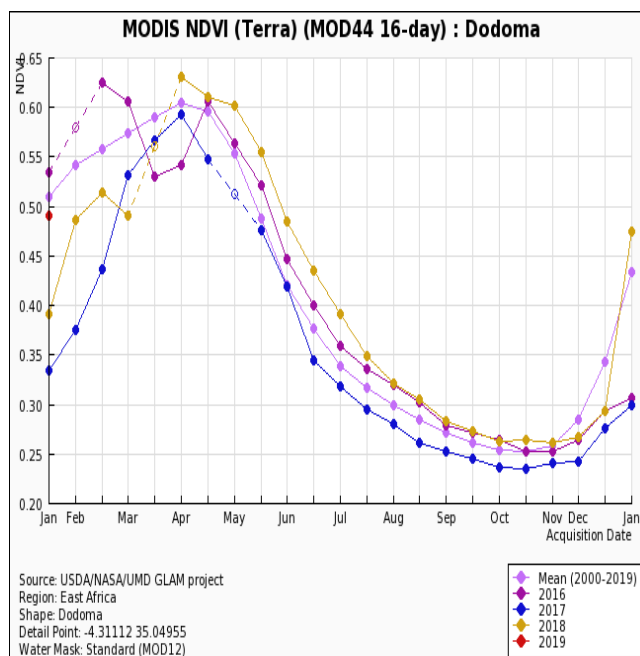

Figure 9. *16 days NDVI for January, 2019 as it compares to 2016, 2017, 2018, and the long-term.*
.

During the month, the country was generally dry except few patches over Lake Victoria basin, northern. Compared to the long term mean NDVI and the NDVI anomaly for 2016, 2017 and 2018, January 2019 NDVI for Dodoma is higher than January, 2017 and 2018 but it is below 2016 and the long term mean. (Fig.9). Water and pasture availability for livestock has improved to some extent due to availability of rainfall.

Rainfall Performance during January, 2019:
During the month of January, 2019, most areas of the unimodal regime (Western, Southwestern Highlands, Central, southern coast and Southern parts of the country) continued to enjoy the 'Msimu' rains. Bimodal areas, particularly Lake Victoria Basin, Northeastern Highlands and Northern Coast received wide spread off-seasonal rains. Short periods of heavy rains were reported over some areas of both bimodal and unimodal. On 5th of January, 2019, Mahenge station reported 56.4mm of rainfall, which was the highest amount recorded for the unimodal areas during the month, further more on 17th of January, 2019, KIA station reported 63.3mm of rainfall and it was the highest amount recorded for the bimodal areas during the month of January, 2019. Generally, the ongoing 'Msimu' rains progressed well over most parts of unimodal areas.

Agrometeorological impact during January, 2019:
During the month, the observed rainfall provided favorable conditions for crops development in most of the unimodal areas. Farmers over these areas were mostly engaged with weeding activities and fertilizer application. Maize crop was at vegetative stage and in good state. In most of bimodal

areas crops were at ripening stage except in Kagera region where crops are at full maturity stage, and farmers are engaged with harvesting of maize crops. Water and pasture availability for livestock has improved in most parts of the country as a result of seasonal rains.

Weather Outlook for February, 2019:

No.	Regions	Likely Weather
1.	Tanga, Pwani, Dar es Salaam, northern sector of Morogoro region, Unguja and Pemba Islands	Mainly dry conditions are expected, however light rains are expected during the third to fourth week of February, 2019.
2.	Kilimanjaro, Arusha, Manyara, Kagera, Geita, Shinyanga, Mwanza, Mara and Simiyu regions	Mainly dry conditions are expected during the month of February, 2019.
3.	Kigoma, Katavi, Tabora, Dodoma and Singinda	Periods of dryness are expected over most areas especially during the first and second weeks of February, 2019, thereafter rains are expected to resume during the reminder of the period.
4.	Rukwa, Njombe, Iringa, Mbeya region and Southern sector of Morogoro	Mainly rainy conditions are expected during the first week of February, 2019. Thereafter periods of dry spell are expected over some areas from the second week of February, 2019.
5.	Ruvuma, Mtwara and Lindi regions	Rainy conditions associated with short periods of enhanced rainfall activities during the first three weeks of the month followed by reduction of rainfall during the remaining period of the month

Agro-meteorological Outlook for February, 2019

The expected rains will improve soil moisture conditions over most of unimodal areas where crops are at vegetative stages. The expected episodes of off seasonal rains during the month can affect matured crops; especially over bimodal areas, but on the other hand will favour late grown crops. Farmers are therefore advised to continue with routine farm activities and seek advice from agriculture extension and livestock keepers for optimal use of the forecast and advisory.

AVERAGE PRICES FOR JANUARY, 2019

AVERAGE PRICE OF FIVE MAIN FOOD CROPS FROM SEVERAL MARKETS - JANUARY 2019
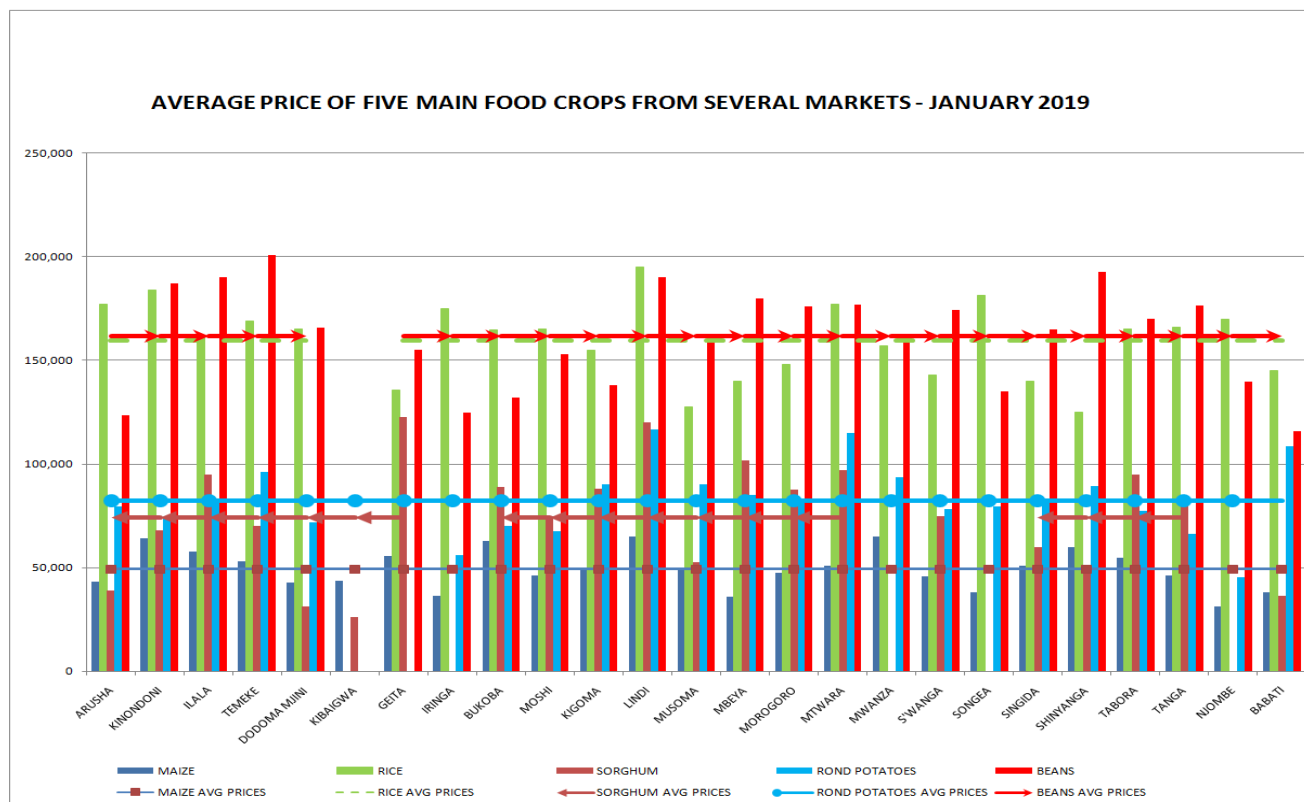
Figure 11: Major Food Prices at Selected Markets

The chart above represents January, 2019 average market prices of major food crops in combination with Nation average price data for the selected markets. Lindi, Kinondoni, Songea, Arusha and Mtwara had the highest prices for rice ranging from (1,770/= to 1,950 per Kg) while Shinyanga, Musoma, Geita and Singida had lowest market prices ranging from (1250/= to 1,400/= per kg). Lindi, Mwanza, Kinondoni and Bukoba had above average maize price while Njombe, Mbeya, Iringa, Songea and Babati were all below average maize prices. However, the lowest maize price was observed in the Njombe market (312/- per Kg), Mbeya market (360/= per Kg), Iringa market (365/= per Kg), Songea market (386/- per kg) and Babati Market sold 380/- Tshs per Kg. Temeke, Shinyanga, Ilala, Lindi and Kinondoni had the highest prices for beans, ranging from (1870/= to 2007/= per kg) while Babati, Arusha, Iringa, Bukoba and Songea Markets had the lowest prices of beans ranging from (1,157/- to 1,350/- per kg). Lindi, Mtwara, Babati and Temeke markets had the highest prices for Round potatoes, ranging from (960/- to 1,167/- per kg) while Njombe, Iringa, Tanga and Moshi had the lowest prices of round potatoes ranging from (453/- to 675/- per kg). Geita. Lindi, Mbeya and Mtwara had the highest prices of Sorghum, ranging from (970/-to 1,225/- per kg) while Kibaigwa, Dodoma, Babati and Arusha markets had the lowest prices of sorghum ranging from (261/- to 391/- per kg).

National Food Availability

The table below shows 2017/2018 Final Food Crop Production Forecast for 2018/2019 Food Security in Tanzania.

CEREALS	MAIZE	SORGHUM& MILLETS	RICE	WHEAT	TOTAL CEREALS
Production	6,273,150	988,428	2,219,628	56,651	9,537,857
Requirement	5,462,390	1,916,108	990,044	258,731	8,627,273
Deficit(-)/Surplus (+)	810,760	-927,679	1,229,583	-202,080	910,584
SSR (%)	**115**	**52**	**224**	**22**	**111**
NON-CEREALS	**PULSES**	**BANANA**	**CASSAVA**	**POTATOES**	**TOTAL NON CEREALS**
Production	1,823,472	1,131,832	2,790,737	1,608,076	7,354,117
Requirement	788,122	910,523	2,273,332	970,034	4,942,012
Deficit(-)/Surplus (+)	1,035,350	221,309	517,404	638,041	2,412,105
SSR (%)	**231**	**124**	**123**	**166**	**149**
TOTAL	**CEREALS**	**NON-CEREALS**	**TOTAL FOOD**		
PRODUCTION	9,537,857	7,354,117	16,891,974		
REQUIREMENT	8,627,273	4,942,012	13,569,285		
DEFICIT (-)/ SURPLUS(+)	910,584	2,412,105	3,322,689		
SSR (%)	**111**	**149**	**124**		

Source: The MoA 2017/2018 Final Food Crop Production Forecast for 2018/2019 Food Security.

Contribution of Different Crops for Food Security 2018/2019 Consumption Year

The proportional contribution crop wise for 2018/2019 consumption year is as indicated in the figure below
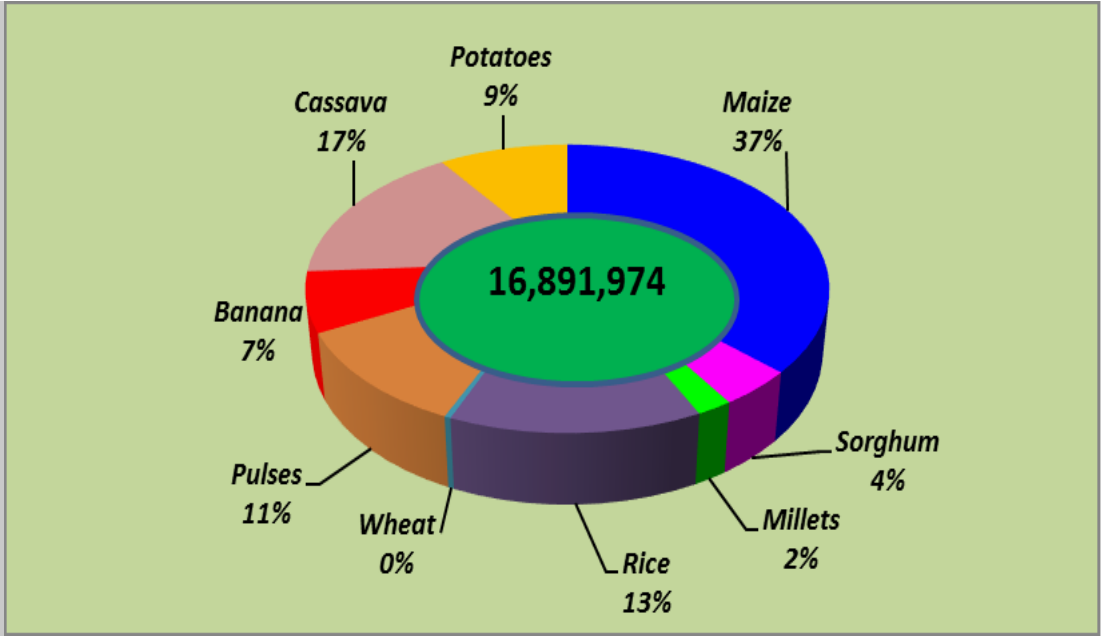

Figure 22: Crop wise proportional contribution

Source: The MoA 2017/2018 Final Food Crop Production Forecast for 2018/2019 Food Security.

Public Awareness

CAN NATURAL ENEMIES BE A SOLUTION TO FALL ARMY WORMS? *"A CASE STUDY OF A PINEAPPLE FIELD INTERCROPPED WITH MAIZE PLANTS IN GEITA REGION"*

For the past three production years, the agricultural sector experienced a terrifying situation in the area of food crop and commercial crop production. The sector experiences a massive attack from the invasion of Fall Army Worms (FAW) which for the first time was seen in the production year 2016/2017 in the regions of Mwanza and Geita. However, at that time, both farmers and agricultural officers confused them with normal army worms although their way of behaving was still doubtful. "I have never seen army worms of this type in my entire life as a farmer!" The farmer said in fear.

Fig 1   **Fig 2**
Fig 1 and 2 show a maize field which was attacked by FAW in Magu district, Mwanza region in June, 2017

For the production year 2017/2018, the final forecast assessment was done in early December of 2018. During this period, the teams had the chance to visit different places including farms and warehouses. During the visit, the team that went to Geita had the opportunity to visit some maize fields in Kisota village. The village is located in the Bugurura ward of Geita District Council. At Nyansalwa hamlet, the team met Mr. Saakumi Makungu, a lifetime farmer producing both food and commercial crops. On arrival and after a little introductory chat, Mr. Makungu started commenting on the vuli season. "Vuli rains have delayed, however, since it started, its distribution is not that bad. If it continues as it started, we hope for good harvest; but then, FAWs seriously affect our crops although the effects are not as bad as last year's".

Fig 3   Fig 4

Fig 3 and Fig 4 show Maize plants' condition in the pure stand farms

The observed destruction was due to delays on application of pesticides. *"I have many farms which are located in different places, I have applied pesticides in other farms but for these three, I delayed!"* **Mr. Saakumi said and then continued;** *"However, one thing amazed me. The situation is different in the intercropped maize fields. The plants have not been affected by FAW and they look healthier than the ones in the pure stand".*

Fig 5

*F*ig **5 above shows maize plants' conditions in the intercropped field which were sown the same day as the ones in the pure stand farm and are without application of pesticides.**

The only reason that came in mind of the whole team was the presence of natural enemies in the pineapples. *"The ants in the pineapples usually have the behavior of feeding on other insects especially those in the form of a lava. Probably ants feed on FAW when they are in the initial stages of growth!" The Question Remains, Could Natural Enemies be the Solution to the* **Deadly FAW?**

The Question calls for More Research!

Interventions
Nutrition Related interventions

On Going Nutrition Related interventions

- Promote production and consumption of high nutritive value crops from a variety of food crops including cereals and non- cereals such pulse, roots, tubers, fruits and vegetables so as to ensure availability of minerals, vitamins and proteins.
- Promote Bio fortification with the view of increasing nutritive value of a crop. Bio-fortification offers the most effective, sustainable and cost-effective delivery model to supply the micronutrients of nutritional importance, such as iron, zinc, vitamin A, and protein.
- Promote post-harvest management technologies that reduce post- harvest losses and hence ensure food and nutrients availability.
- Promote agro-processing with a view to preserve nutrients and ensure availability of food throughout the year.
- Disseminate agriculture related nutrition education among extension workers.

Medium to Long-Term Strategies:

- Provide training sessions on improved crop production, crop diversification as well as marketing in order to increase household income.
- Improve market linkages and accessibility through construction of roads, market infrastructures introduction of regulations for the transport of commodities, etc.
- Construction and rehabilitation of drainage systems and irrigation schemes as well as improved agricultural land management to avoid water logging.
- Promote a fully-fledged watershed management in order to reduce the associated risks of flooding of the agricultural land through - tree planting, land use management plans, riverbank maintenance, construction of dams,etc.

-

Terms and Definitions

MOA	Ministry of Agriculture	
NFSD	National Food Security Division	
TMA	Tanzania Metrological Agency	
RAS	Regional Administrative Secretary	
NDVI	Normalized Difference Vegetative Index. The NDVI is used to measure and monitor plant growth, vegetative cover, and biomass production.	
MODIS	Moderate resolution Imaging Spectro-radiometer	
BIMODAL	Areas receiving rains twice a year. This means that the majority of precipitation falls in two distinct seasons a year i.e short rains Vuli-September to December, Long rains Masika - March to June.	
UNIMODAL	Areas receiving rains once a year Msimu rains i.e. from November to April	
Conditions	Exceptional	Conditions are much better than average at time of reporting
	Favorable	Conditions range from slightly below to slightly above average at reporting time
	Watch	Conditions are not far from average but there is a potential risk to production
	Poor	Crop conditions are well below average. Crop yields are likely to be 10% or more below
	Average	This is only used when conditions are not likely to be able to recover, and impact on production is likely
Drivers	Wet: Flooding	Wetter than Average due to flooding
	Wet: Water Logging	Wetter than Average due to water logging
	Dry	Dryer than Average
	Hot	Hotter than Average
	Cold	Cooler than average or risk of frost damage
	Extreme Event	This is a catch-all for all other climate risks (i.e. hurricane, typhoon, frost, hail, winterkill, wind damage, etc.)
	Delayed Planting	Postponement to the start of season
	Pests	Destructive insects or animals
	Disease	Impairment of the crop that causes abnormal functioning
	Wind Damage	Damage caused by high winds
	Flood	An excessive amount of water located beyond its normal boundaries
	Socio-political	Social or political factors that impact crop conditions (i.e. policy changes, agricultural subsidies, government intervention, etc.)
	Late Rains	Delayed onset of rainy season
Trends	Improving	Crop conditions are improving
	Stable	Crop conditions are stable
	Worsening	Crop conditions are worsening