# RWANDA

# FOOD AND NUTRITION SECURITY MONITORING SYSTEM

FNSMS Round 3

Data collected in September 2011

United Nations RWANDA Unity in Diversity

Inside this issue:


| | |
|---|---|
| Main Findings | 1 |
| Key definitions | 1 |
| Seasonal food insecurity | 2 |
| Stable or slightly improving nutrition | 2 |
| Who are the food insecure, and why? | 3 |
| What do they eat? | 3 |
| Where do they live? | 3 |
| Conclusion and recommendations | 4 |
| Background and methodology | 4 |


## Main findings

In September 2011, more than one of three households in Rwanda (excluding Kigali city) were food insecure as they had either poor or borderline food consumption patterns (10% and 26% of the households respectively).

**Seasonal food insecurity:** When comparing the three FNSMS rounds(*) conducted in 2010 and 2011, percentages of food insecure households fluctuated between 25 (Mar 2011) and 34 percent (Sept 2011).

The changes in the percentage of food insecure households can be explained by the seasons, with households having more food stocks in March (1-2 months after the main season A harvest) than in September (3-4 months after season B harvest). It is expected that at the height of the lean season (just before the season A harvest, in November, December) the percentage of food insecure households will exceed the 34 percent observed in September.

**Households vulnerable to food insecurity are** those headed by women, elderly and unmarried people. Landless and households with little land (<0.5 or even 0.1 ha), households living on only one activity and those surviving on agriculture combined with daily labour, spending less that 5000 RWF per week are more likely to be food insecure than others.

**The South and the Western provinces**, especially along the Congo Nile Crest are the parts of the country with the highest percentages of food insecure households.

**The diet of the most food insecure households is nutritionally inadequate:** they eat starches 5 days per week and only rarely vegetables (2 days/week) or pulses (only once per week).

**There are no significant differences between rounds in terms of nutritional indicators.** Levels of stunting at 42% - although possibly lower than in 2010 - can still be qualified as 'critical', and underweight (13.8%) as 'poor.' Wasting at 2.1% is the only indicator within 'acceptable' limits.

## Key definitions

**Food security** is the state at which all people, at all times, have physical and economic access to sufficient food in both quantity and quality. In the FNSMS a household is considered to be food insecure if it has poor or borderline food consumption. Household food consumption is estimated with the food consumption score, a WFP corporate indicator that measures the frequency of household level consumption of the main food groups.

**The Food Consumption Score** (FCS) is a score calculated using the frequency of consumption of different food groups consumed by a household during the 7 days before the survey. It is used to measure household food security. If the household FCS is below a certain threshold value (21) the household has poor food consumption and is qualified as food insecure. Above another threshold value (35) the household has acceptable food consumption and is food secure. Between 21 and 35 consumption is borderline and households are either food insecure or at risk of becoming food insecure.

**The Coping Strategy Index (CSI)** is a quick and simple indicator of household food security behavior that reveals how households manage or cope with shortage of food. The CSI measures the frequency and severity of actions taken by households in response to a perceived food shortage. A high CSI means more stress and potential declining food security in a household.

(*) **IMPORTANT :** in order to compare levels of food insecurity between the 3 rounds only households with children under 5 were considered as these constituted the totality of the Sept 2010 (FNSMS round 1) sample.


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# Seasonal food insecurity

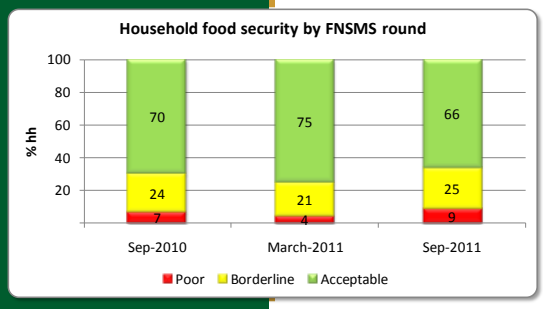


Fig. 1: Food consumption groups in households with children under 5 years in FNSMS rounds 1,2,3(*)

The FNSMS rounds conducted in 2010 and 2011 show that percentages of food insecure households fluctuate between 25 (Mar 2011) and 34 percent (Sept 2011).

These food insecure households have either poor or borderline food consumption patterns and their diets are based on starches, pulses, oil and vegetables. (see section 'what do they eat').

As illustrated by Fig. 1, variations in the percentage of food insecure households are seasonal; the percentage of food secure households is significantly lower in September 2011 than in March of the same year whereas, the difference in prevalence of food insecurity between Sept 2011 and Sept 2010 was not found to be significant.

The higher level of food insecurity of households in September largely reflects the difficulty they have in economically accessing food, especially once the food from their own production is depleted. Indeed, on average households have more food stocks in March (1-2 months after the season A harvest) than in September (around 3-4 months after the season B harvest). It is therefore expected that at the height of the lean season (just before the season A harvest, in November, December) the percentage of food insecure households will exceed the 34 percent observed in September.

A relatively small percentage of households for which food security situation worsened (from acceptable to borderline or poor food consumption patterns, or from borderline to poor food consumption) were in the Eastern province (see fig. 2). This could be due to the fact that households in the eastern province have on average larger plots (CFSVA, 2009), have relatively higher incomes (ibid) and could probably benefit from the season C harvest (marshland).

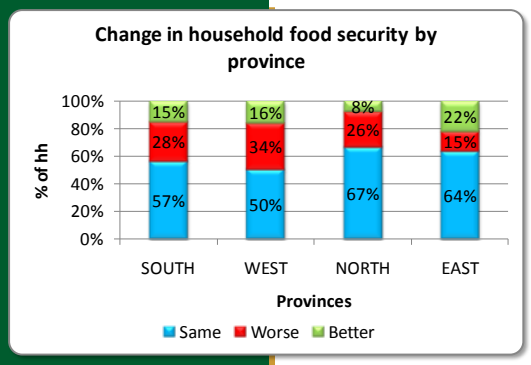


Fig. 2: Changes in food security status of households by province

# Stable or slightly improving nutrition

In terms of nutrition, September 2011 results are not significantly different from the previous rounds. They are also comparable to the 2010 Rwanda Demographic Health Survey (RDHS ) (fig. 3, 4)

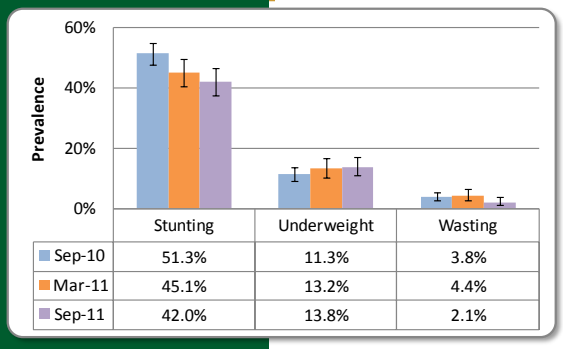


Fig. 3: Prevalence of malnutrition in FNSMS rounds 1,2,3

Nevertheless, and although the sample is too small to statistically prove it, the FNSMS results seem to indicate that the prevalence of stunting in rural areas has decreased since 2010.

Despite possible improvements, the stunting prevalence (42.0%, CI: 37.5-46.6%) can still be qualified as 'critical' and underweight prevalence as 'poor' (13.8%, CI: 10.9-17.3%) according to the 'Measuring and interpreting malnutrition and mortality manual (WFP, 2005)'.

At 2.1% acute malnutrition (CI 1.1-3.9%) is the only nutrition indicator within 'acceptable' limits. This is confirmed by the relative low percentage of women with low MUAC (1.8%).

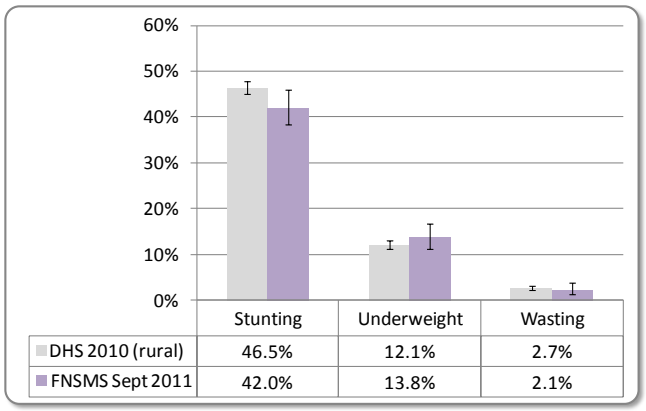


Fig. 4: FNSMS round 3 malnutrition rates compared with 2010 RDHS preliminary results

(*) **IMPORTANT :** in order to compare levels of food insecurity between the 3 rounds only households with children under 5 were considered as these constituted the totality of the Sept 2010 (FNSMS round 1) sample.

# Who are the food insecure, and why?

Statistical analysis of the FNSMS data confirms that households that are commonly qualified as **vulnerable** - such as households headed by females, by people over 60 years old, or by a non married head of household (representing 28%, 18% and 44% of the sample respectively) - were more likely to have poor food consumption patterns. The same was true for households with less diverse and more precarious livelihoods, owning little land, and those who reported a recent shock.

**WHO?**

Among households headed by women, only 53% showed acceptable food consumption patterns compared to 67% among those headed by men. Forty four percent of households headed by people over 60 years old reported poor or borderline food consumption while only 34% among those headed by people under 60 years old reported the same.

Households headed by married couples (69% of households) showed significantly better food consumption patterns than others.

**WHY?**

Households that faced shocks in the 3 months preceding the survey were more likely to be food insecure. Among households that reported shocks (46% of the sample), only 60% had acceptable food consumption, while 67% of those that did not face shocks had acceptable food consumption.

The most reported shocks were serious illness or accident of a household member (37%), followed by drought (15%), floods, landslides or hailstorms (14%) and crop diseases (10%).

In terms of **livelihoods** households with little land, having less diverse and more precarious livelihoods were the less food secure.

Households practicing only one activity (35%) were more likely to be food insecure; especially households that did not practice any agricultural activity compared to those who did.

Households who relied on agriculture and livestock (representing 18% of the sample) or on agriculture and petty trade (13%) were significantly better off than those who relied on one non-agricultural activity (10% of households) or on agriculture and daily labour (24% of households).

The more **land** households had the less likely they were to be food insecure. The current FNSMS found that households with less than 0.5 ha (representing 70% of the sample, see Fig. 5) were significantly more likely to be more food insecure than those who owned more than 0.5 ha of land.

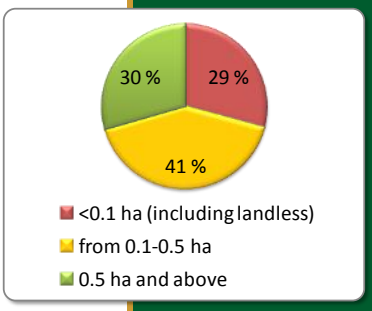


Fig. 5: Household land-ownership

Households with less than 0.5 ha of land also had to deal more with lack of food, as a result they more often had to adopt negative coping strategies—such as skipping meals, or limiting the portion size during meals.

"Households headed by women, elderly or unmarried people are more likely to be food insecure "

"The less land households have the more likely they are to be food insecure, and the more they need to cope with lack of food"

# What do they eat?

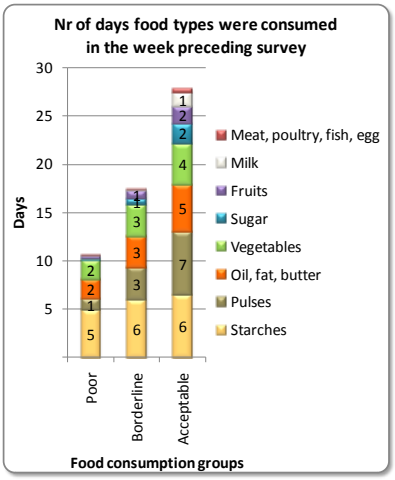


Fig. 7: Types of food consumed by food consumption groups

Households relying less on **own production** were more food insecure. At the same time the less households **spent on food** the more likely they were to be food insecure. For example out of the 80% households spending less than 5000 RWF per week on food, 40% did not have acceptable food consumption compared to 21% among those spending more than 5000 RWF per week.

Starches and pulses are the most commonly consumed food groups in Rwanda (see Fig. 7. Meat, poultry, eggs and fish are only consumed by the most food secure households and less than once per week on average. The diet of the most food insecure households is of poor nutritional quality; it consists only of starches (consumed 5 days per week) and very little oil, vegetables (twice per week) or pulses (only once per week on average). They consume fruits, milk and sugar only once per week or less.

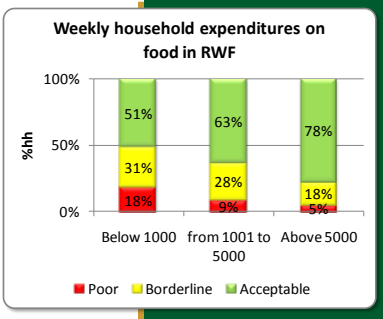


Fig. 6: Food consumption groups and weekly expenditures on food

Individuals relying on this type of diet over long periods of time are at risk of becoming malnourished.

# Where do they live?

Higher percentages of food insecure households were found in the South and Western provinces (see Fig. 8). More than 50 percent of the households interviewed living along the Congo Nile Crest were found to have unacceptable food consumption patterns (either poor or borderline). These are areas where agriculture production is known to be lower compared to other parts of the country.

In the Western and Southern provinces, only 51 and 63% of households were food secure compared to 71% in the Northern province and 74% in the East.

the Coping Strategy Index (CSI) confirms these findings; it measures the frequency and severity of actions taken by households in response to a perceived food shortage. The CSI was higher in the West and South than in the North and East (11 and 15 as opposed to 9 and 8 respectively).

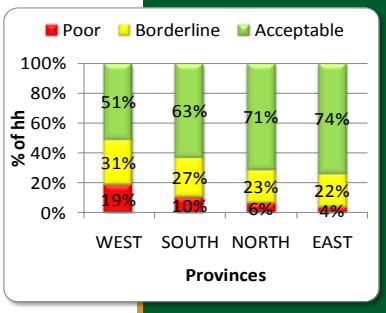


Fig. 8: Food insecurity by province

# Conclusion and recommendations

The 3 rounds of the FNSMS completed since 2010 allowed for the analysis of seasonal patterns of food insecurity. In Sept 2011 one out of 3 households in Rwanda (excluding Kigali) was food insecure. As the lean season advances it is expected that more households will be food insecure in Nov/Dec 2011, just before the main season A harvest of Jan 2012.

The food insecure households are the 'vulnerable' (headed by women, single, elderly), having little land, and precarious livelihoods. They live mostly in the South and West provinces of the country. Along the Congo Nile Crest as many as one out of two households can be considered to be food insecure. No matter what improvements there will be in agricultural productivity most of these households will have to rely essentially on purchased food for their households' diet. If these households have limited off-farm income, the likelihood of their diet being balanced and diversified remains low.

Malnutrition prevalences measured by the FNSMS are very comparable to those of the 2010 RDHS, and the food security analysis findings are confirmed by more in depth studies conducted in the past.

Based on this the following recommendations can be made:

1. Interventions to tackle food insecurity and malnutrition should :

- focus on the Congo Nile Crest (see Fig. 9),
- strengthen safety nets for most vulnerable households and
- diversify/ strengthen livelihoods especially for those with small land and precarious livelihoods (daily labour...)

2. The FNSMS can be considered an adequate tool to monitor nutrition and food insecurity in Rwanda and should be integrated into the Government's M&E system to monitor the impact of efforts to eradicate malnutrition and food insecurity in Rwanda.

| Nr | Livelihood zone |
|---|---|
| 0 | Urban area |
| 1 | Lake Kivu Coffee |
| 2 | West Congo-Nile Crest Tea |
| 3 | Northwest Volcanic Irish Potato |
| 4 | East Congo-Nile Highland Subsistance Farm. |
| 5 | Central Plateau Cassava and Coffee |
| 6 | Northern Highland Beans and Wheat |
| 7 | Cent-North High Irish Potato, Bean and Veg |
| 8 | Bugesera Cassava |
| 9 | Eastern Plateau Mixed Agriculture |
| 10 | Southeastern Plateau Banana |
| 11 | Eastern Agropastoral |
| 12 | Eastern Semi-Arid Agropastoral |

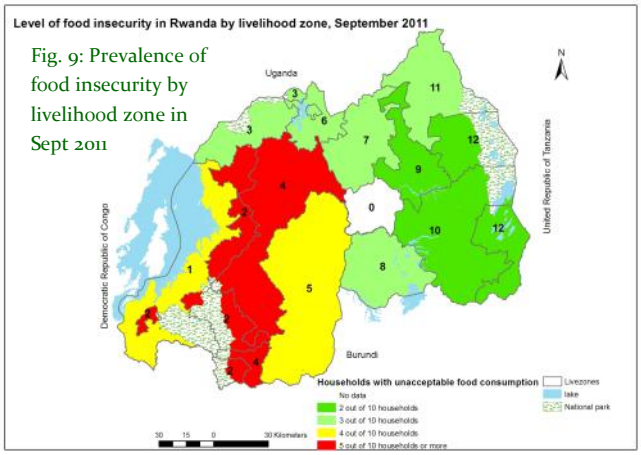


Fig. 9: Prevalence of food insecurity by livelihood zone in Sept 2011

# Background and Methodology

The FNSMS was set up in 2010 by the Ministry of Agriculture (MINAGRI) and the World Food Programme. It is coordinated through a Technical Committee composed of MINAGRI (chair), WFP (co-Chair), Ministry of Health (MINISANTE), Ministry of Local Government (MINALOC), Ministry of Disaster Management and Refugee Affairs (MIDIMAR) The National Institute of Statistics (NISR), UNICEF, FAO, FEWSNET and World Vision.

The first two rounds were conducted in September 2010 and March 2011.

For the third round of the FNSMS, data was collected in September 2011; 1344 households were interviewed with a closed questionnaire. The households were selected for interview through a 2 stage sampling approach within 16 strata (groups of districts): 96 enumeration zones (see Fig. 10) were randomly selected (cells at the administrative level). Within each cell 14 households were interviewed. Anthropometric measurements were taken for 877 children under 5 (weight and height, and MUAC for those older than 6 months) and 1364 women aged 15 to 49 (only MUAC).

Between rounds 2 and 3, a total of 978 of the same households were visited.

Ten teams composed of 3 enumerators and 1 supervisor collected the data for the survey after having undergone a 5 day training on food security and nutrition concepts, data collection methods and the use of Personal Digital Assistants (PDAs).

Data analysis was done using SPSS for food security and ENA (using 2006 WHO standards) for nutrition indicator calculations.

Data is representative at the national level. When comparisons were made between groups (either demographic, geographical or other) statistical significance of the differences were tested using SPSS statistical tests.

Food security information and nutrition indicators calculated by the FNSMS largely concur with previous reports on food security and nutrition (eg: 2009 CFSVA and 2010 RDHS) and demographics of the sampled households are in line with population demographics as reported by the 2002 census.

No urban areas were sampled and no micronutrient deficiencies were tested .

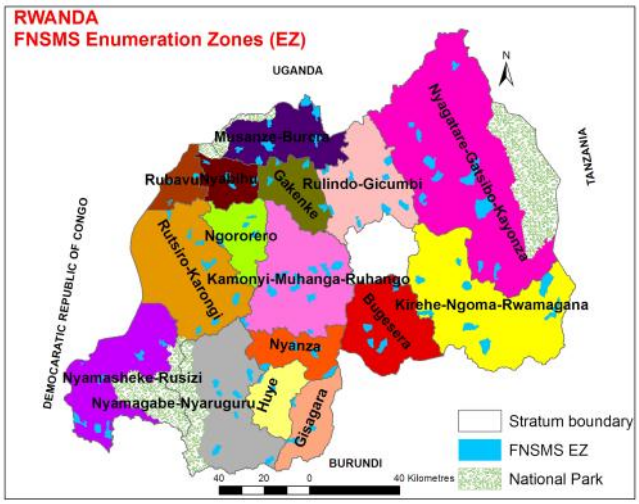


Fig. 10: Distribution of the sampled FNSMS enumeration zones in Rwanda

Except the introduction of PDAs in data collection during FNSMS round 3, the methodology between rounds remained the same. The use of PDAs allowed to collect data using electronic questionnaires. GPS was used to locate villages where interviews were conducted.

Additional zones were included in the sample to monitor the food security in 2 Integrated Development Project Villages managed by MINALOC. Their results were analyzed separately.