Consumption Study
Consumption Study Methodology

In partnership with the MOH and sanctioned by the Ministry of Statistics, PHC conducted a nationwide consumption study of six staple food products.

• From April to June 2008, data was collected for 6 staple foods: cassava flour, maize flour, rice, salt, sugar and oil*
• Target audience included women of reproductive age (16-45 years) and children less than 59 months of age
• Interviews were conducted in all 5 provinces of Rwanda
• 30 sectors selected using a cluster sampling methodology
• 7 interviews were conducted per district using a random walk methodology
• A single woman/child pair was the focus of each survey
• Data was collected using handheld computers and aggregated into a single database

*Data on oil includes: sunflower, vegetable, palm and cow’s milk.
Consumption Study: Revised Analysis

Initial analysis included numerous records in four sectors within Kigali province. In this revised analysis, records have been randomly removed from those four sectors to achieve equal representation, removing potential bias towards urban consumption patterns.
Daily Consumption: Women

Percent of Women Who Consume Each Staple Daily
n = 1001

- Oil
- Sugar
- Salt
- Rice
- Maize
- Cassava

Comparison by Region:
- Total
- Western
- Southern
- Northern
- Kigali
- Eastern
Daily Consumption: Women

Percent Who Consumed Each Combination In Past Day: Women

n = 1001

Salt Only  Salt & Oil  Maize, Salt & Oil  Cassava, Salt & Oil  Maize, Salt, Sugar & Oil  Maize, Salt, Sugar & Oil  Cassava, Salt & Oil  Salt, Sugar & Oil  Cassava, Salt, Sugar & Oil  Rice, Salt, Sugar & Oil  Cassava, Rice, Salt & Oil  All Other Combos
Weekly Consumption: Women

Percent Who Consumed Each Combination In Past Week: Women

n = 977
Daily Consumption by Region: Children

Percent of Children Who Consume Each Staple Daily
n = 981

- **Oil**
- **Sugar**
- **Salt**
- **Rice**
- **Maize**
- **Cassava**
Daily Consumption: Children

Percent Who Consumed Each Combination In Past Day: Children

n = 981

Salt Only
Salt & Oil
Maize, Salt & Oil
Maize, Salt, Sugar & Oil
Cassava, Salt, Sugar & Oil
Maize, Rice, Salt, Sugar & Oil
Salt, Sugar & Oil
Cassava, Salt & Oil
Cassava, Salt, Sugar & Oil
Rice, Salt, Sugar & Oil
All Other Combos
Weekly Consumption: Children

Percent Who Consumed Each Combination In Past Week: Children

$n = 954$

![Bar chart showing weekly consumption combinations for children]
Cassava: Daily and Weekly Consumption

Consumption: Women

Last 24 Hours
n = 1001

Last 7 Days
n = 977

Consumption: Children

Last 24 Hours
n = 981

Last 7 Days
n = 954
Cassava: Frequency of Consumption

Weekly Consumption Frequency: Women

\[ n = 590, \sigma = 1.43 \]

Average = 2.48

Weekly Consumption Frequency: Children

\[ n = 544, \sigma = 1.38 \]

Average = 2.48
Cassava: Average Amount Consumed

Average Amount Consumed: Women
n = 321

National Distribution by Serving Size: Women
n = 321, 1 serving = 0.1kg, σ = 0.40

Average Amount Consumed: Children
n = 299

National Distribution by Serving Size: Children
n = 299, 1 serving = 0.05kg, σ = 0.62
Cassava: When Consumed

Season Consumed
n = 892

100%

All

Time of Day Consumed
n = 321

64%

Morning

35%

Afternoon

1%

Night
Cassava: Purchase Rate and Location

**Percent Who Purchase**
- **Eastern**: 80%
- **Kigali**: 60%
- **Northern**: 60%
- **Southern**: 60%
- **Western**: 60%
- **TOTAL**: 80%

**Purchase Location**
- **Shop**: 54%
- **Market**: 40%
- **Miller**: 5%
- **Market or Shop**: 1%

n = 1028

n = 850
Cassava: Purchase Amount and Frequency

**Average Amount per Purchase**

n = 855

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Amount (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>3.2</td>
</tr>
<tr>
<td>Kigali</td>
<td>3.8</td>
</tr>
<tr>
<td>Northern</td>
<td>3.4</td>
</tr>
<tr>
<td>Southern</td>
<td>3.1</td>
</tr>
<tr>
<td>Western</td>
<td>2.9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3.4</td>
</tr>
</tbody>
</table>

**National Distribution: Amount per Purchase**

n = 855, σ = 4.3kg

Average = 3.4kg

**Purchase Frequency**

n = 855

- Less than yearly, more than monthly: 1%
- Daily: 10%
- Less than daily, more than weekly: 9%
- Weekly: 44%
- Less than weekly, more than monthly: 7%

**National Distribution: Purchase Frequency**

n = 855, average = 76, σ = 102

Number of Respondents

Purchases per Year

Average = 76
Cassava: Storage

Average Amount In Home
n = 165

National Distribution: Amount In Home
n = 165, average = 3.7kg, σ = 3.8kg

Storage Method
n = 165
Maize: Daily and Weekly Consumption

Consumption: Women

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

Last 24 Hours: n = 1001
Last 7 Days: n = 977

Consumption: Children

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

Last 24 Hours: n = 981
Last 7 Days: n = 954
Maize: Frequency of Consumption

Weekly Consumption Frequency: Women

\[ n = 638, \sigma = 2.16 \]

average = 4.03

Weekly Consumption Frequency: Children

\[ n = 613, \sigma = 2.17 \]

average = 4.25
Maize: Average Amount Consumed

Average Amount Consumed: Women
n = 445

kg

Eastern
Kigali
Northern
Southern
Western
TOTAL

Average Amount Consumed: Children
n = 436

kg

Eastern
Kigali
Northern
Southern
Western
TOTAL

National Distribution by Serving Size: Women
n = 445, 1 serving = 0.09kg, σ = 0.52

0.5 serving: 2%
1 serving: 69%
1.5 servings: 22%
2 servings: 2%
3 servings: 2%

National Distribution by Serving Size: Children
n = 436, 1 serving = 0.05kg, σ = 0.80

0.5 serving: 2%
1 serving: 48%
1.5 servings: 30%
2 servings: 20%
3 servings: 2%
Maize: When Consumed

Season Consumed
n = 925

- All: 100%

Time of Day Consumed
n = 450

- Morning: 7%
- Afternoon: 10%
- Night: 83%
Maize: Purchase Rate and Location

Percent Who Purchase
n = 1026

Eastern  Kigali  Northern  Southern  Western  TOTAL

Purchase Location
n = 932

- Market: 57%
- Market or Shop: 39%
- Miller: 3%
- Shop: 1%
Maize: Purchase Amount and Frequency

**Average Amount per Purchase**

- **n = 925**

**National Distribution: Amount per Purchase**

- **n = 925, \( \sigma = 5.8 \text{kg} \)**

**Purchase Frequency**

- **n = 927**

**National Distribution: Purchase Frequency**

- **n = 927, average = 50, \( \sigma = 68 \)**
Maize: Storage

Average Amount In Home

n = 262

National Distribution: Amount In Home

n = 262, average = 3.5kg, σ = 4.9kg

Storage Method

n = 264

In a tin; 8%
In a box; bucket; 2%
In a bottle; 1%
In a bag; 86%
Rice: Daily and Weekly Consumption

**Consumption: Women**

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

- **Last 24 Hours**
  - Eastern: 40%
  - Kigali: 30%
  - Northern: 20%
  - Southern: 10%
  - Western: 5%
  - TOTAL: 100%
  - n = 1001

- **Last 7 Days**
  - Eastern: 80%
  - Kigali: 70%
  - Northern: 60%
  - Southern: 50%
  - Western: 40%
  - TOTAL: 100%
  - n = 977

**Consumption: Children**

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

- **Last 24 Hours**
  - Eastern: 20%
  - Kigali: 15%
  - Northern: 10%
  - Southern: 5%
  - Western: 5%
  - TOTAL: 50%
  - n = 981

- **Last 7 Days**
  - Eastern: 80%
  - Kigali: 70%
  - Northern: 60%
  - Southern: 50%
  - Western: 40%
  - TOTAL: 100%
  - n = 954
Rice: Frequency of Consumption

**Weekly Consumption Frequency: Women**

- $n = 349$, $\sigma = 1.65$
- Average = 2.46

**Weekly Consumption Frequency: Children**

- $n = 366$, $\sigma = 1.60$
- Average = 2.37
Rice: Average Amount Consumed

Average Amount Consumed: Women
n = 198

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

kg

Average Amount Consumed: Children
n = 185

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

kg

National Distribution by Serving Size: Women
n = 198, 1 serving = 0.08kg, σ = 0.38

- 0.5 serving: 3%
- 1 serving: 81%
- 2 servings: 16%

National Distribution by Serving Size: Children
n = 185, 1 serving = 0.04kg, σ = 0.59

- 0.5 serving: 2%
- 1 serving: 46%
- 2 servings: 42%
- 4 servings: 10%
Rice: When Consumed

**Season Consumed**
n = 822

- 100%

**Time of Day Consumed**
n = 199

- 74%
- 26%
Rice: Purchase Rate and Location

**Percent Who Purchase**
- **Eastern**: 39%
- **Kigali**: 2%
- **Northern**: 59%
- **Southern**: 20%
- **Western**: 40%
- **TOTAL**: 80%

**Purchase Location**
- **Market**: 2%
- **Market or Shop**: 39%
- **Shop**: 59%

Sample sizes:
- **Percent Who Purchase**: n = 1025
- **Purchase Location**: n = 834

Rwanda Consumption Study
Rice: Purchase Amount and Frequency

**Average Amount per Purchase**
- $n = 828$

**National Distribution: Amount per Purchase**
- $n = 828$, $\sigma = 5.4$ kg
- Average = 2.9 kg

**Purchase Frequency**
- $n = 827$
- 41% monthly
- 27% weekly
- 26% more than weekly, less than yearly
- 6% more than daily

**National Distribution: Purchase Frequency**
- $n = 855$, average = 50, $\sigma = 90$
Rice: Storage

Average Amount In Home

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

National Distribution: Amount In Home

- n = 100, average = 5.1kg, σ = 5.7kg

Storage Method

- In a bag: 92%
- In a tin: 3%
- In a bottle: 2%
- In a bucket: 2%

Eastern

Kigali

Northern

Southern

Western

TOTAL

kg

0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
12.0
15.0
20.0
24.0

0 5 10 15 20 25 30 35

kg

Number of Respondents

kg

n = 103
Salt: Daily and Weekly Consumption

Consumption: Women

Last 24 Hours
n = 1001

Last 7 Days
n = 977

Consumption: Children

Last 24 Hours
n = 981

Last 7 Days
n = 954
Salt: Frequency of Consumption

**Weekly Consumption Frequency: Women**

- $n = 970$, $\sigma = 0.67$
- Average = 6.85

**Weekly Consumption Frequency: Children**

- $n = 937$, $\sigma = 0.69$
- Average = 6.85
Salt: When Consumed

Season Consumed
n = 1019

100%
Salt: Purchase Rate and Location

**Percent Who Purchase**

- **Eastern**: Not specified in the chart
- **Kigali**: Not specified in the chart
- **Northern**: Not specified in the chart
- **Southern**: Not specified in the chart
- **Western**: Not specified in the chart
- **TOTAL**: Not specified in the chart

- **n = 1024**

**Purchase Location**

- **Market**: 24%
- **Market or Shop**: Not specified in the chart
- **Shop**: 74%

- **n = 1021**
Salt: Purchase Amount and Frequency

Average Amount per Purchase
\( n = 1022 \)

- Eastern
- Kigali
- Northern
- Southern
- Western
- TOTAL

Number of Respondents

Average Amount per Purchase
\( n = 1022, \sigma = 0.3 \text{kg} \)

National Distribution: Amount per Purchase

Purchase Frequency
\( n = 1024 \)

- less than weekly, 3%
- weekly; 91%
- more than daily, 5%

Number of Respondents

National Distribution: Purchase Frequency
\( n = 1024, \text{average} = 54, \sigma = 54 \)

Number of Respondents
Salt: Storage

Average Amount In Home
n = 796

<table>
<thead>
<tr>
<th>Region</th>
<th>Amount (kg)</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>0.55</td>
<td>550</td>
</tr>
<tr>
<td>Kigali</td>
<td>0.55</td>
<td>400</td>
</tr>
<tr>
<td>Northern</td>
<td>0.55</td>
<td>350</td>
</tr>
<tr>
<td>Southern</td>
<td>0.55</td>
<td>300</td>
</tr>
<tr>
<td>Western</td>
<td>0.55</td>
<td>250</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.55</td>
<td>2000</td>
</tr>
</tbody>
</table>

National Distribution: Amount In Home
n = 796, average = 0.5kg, σ = 0.1kg

<table>
<thead>
<tr>
<th>Amount (kg)</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>50</td>
</tr>
<tr>
<td>0.50</td>
<td>600</td>
</tr>
<tr>
<td>1.00</td>
<td>300</td>
</tr>
<tr>
<td>1.50</td>
<td>200</td>
</tr>
<tr>
<td>2.00</td>
<td>100</td>
</tr>
<tr>
<td>2.50</td>
<td>50</td>
</tr>
<tr>
<td>3.00</td>
<td>20</td>
</tr>
</tbody>
</table>

Storage Method
n = 795

- In a tin: 36%
- In a box: 8%
- In a bottle: 1%
- In a bag: 55%
Sugar: Daily and Weekly Consumption

Consumption: Women

- Last 24 Hours: n = 1001
- Last 7 Days: n = 977

Consumption: Children

- Last 24 Hours: n = 981
- Last 7 Days: n = 954
Sugar: Frequency of Consumption

**Weekly Consumption Frequency: Women**

- **n = 559, σ = 1.93**
- Average = 4.63

**Weekly Consumption Frequency: Children**

- **n = 566, σ = 1.91**
- Average = 4.85
Sugar: When Consumed

Season Consumed
n = 805

100%

All
Sugar: Purchase Rate and Location

**Percent Who Purchase**
\[ n = 1018 \]

**Purchase Location**
\[ n = 802 \]

- Eastern: 67%
- Kigali: 30%
- Northern: 3%
- Southern: 30%
- Western: 67%
- TOTAL: 30%

**Eastern:**
- Market: 3%
- Market or Shop: 67%
- Shop: 30%
Sugar: Purchase Amount and Frequency

Average Amount per Purchase
n = 797

kg

Nat'l Distribution: Amount per Purchase
n = 797, σ = 2.4kg

Average = 1.3kg

Purchases per Year

National Distribution: Purchase Frequency
n = 855, average = 67, σ = 88

Number of Respondents

Less than yearly, more than yearly, less than weekly, more than weekly, less than daily, more than daily, 7% less than daily, more than daily; 57%

monthly; 24%

Project Healthy Children
Rwanda Consumption Study
Sugar: Storage

**Average Amount In Home**

- **n = 260**

**National Distribution: Amount In Home**

- **n = 260, average = 1.0kg, σ = 1.6kg**

**Storage Method**

- **n = 259**

- In a bag; 60%
- In a bottle; 2%
- In a box; 7%
- In a tin; 31%
Oil: Daily and Weekly Consumption

**Consumption: Women**

- Last 24 Hours: 1001 respondents, 80% consumption
- Last 7 Days: 977 respondents, 90% consumption

**Consumption: Children**

- Last 24 Hours: 981 respondents, 70% consumption
- Last 7 Days: 954 respondents, 80% consumption
Oil: Frequency of Consumption

**Weekly Consumption Frequency: Women**

- **Number of Respondents**
- **n = 892, σ = 1.92**
- **average = 4.86**

**Weekly Consumption Frequency: Children**

- **Number of Respondents**
- **n = 861, σ = 1.91**
- **average = 4.83**
Oil: When Consumed

Season Consumed
n = 998

100%

All
Oil: Purchase Rate and Location

Percent Who Purchase
n = 1027

Purchase Location
n = 1005
Oil: Purchase Amount and Frequency

**Average Amount per Purchase**

- *n = 1003*
- Range: 0.125 to 1.5 kg

**National Distribution: Amount per Purchase**

- *n = 1003, σ = 1.0 kg*
- Average = 0.6 kg

**Purchase Frequency**

- *n = 1003*
- Less than daily: 25%
- More than weekly: 65%
- More than less than weekly: 1%
- More than daily: 25%

**National Distribution: Purchase Frequency**

- *n = 1003, average = 112, σ = 137*
Oil: Storage

**Average Amount In Home**

- **n = 476**

**National Distribution: Amount In Home**

- **n = 476, average = 0.5kg, \( \sigma = 0.8kg \)**

**Storage Method**

- **n = 475**

- In a bottle; 82%
- In a tin; 7%
- In a box; 4%
- In a bucket; 1%
- In a bag; 6%