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# Factors Affecting Bean Consumption and Choice in Zambia


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**Feed the Future Innovation Lab for Collaborative Research on Grain Legumes**

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# Background

- Common beans (Phaseolus Vulgaris) is the most widely consumed legume crop in sub-Saharan Africa
- In Zambia, its economic importance among legumes is second to groundnuts
- Beans contribute towards poverty reduction and improvement of soil fertility and structure
- Consumption is in the form of fresh green pods, fresh grain, fresh leaves or dry grain.

# Some Nutritional Benefits of Beans

- Rich source of concentrated but inexpensive protein (20- 30%)
- High carbohydrate content (70%)
- Have essential minerals such as magnesium, copper, phosphorous and manganese.

# Dry Bean Consumption in Zambia

Bean consumption still relatively low:

- 10 Kg per capita per year in Zambia;
- Compared with 40-60 kg in Eastern and Central Africa (Sichilima R. et. Al., 2016).
- Thus, there is still a lot of unexplored potential

# Why study Bean Consumers?

- Little is known about who the dry bean consumers are and in Zambia, what drives their levels of consumption
- Empirical evidence in this area is one of the key ingredients to foster growth in bean consumption

# Objectives of the study

- Provide basic information on bean consumption
- Understand the characteristics of bean consumers
- Identify the factors that affect consumption of dry beans

# Data and Sources

- Bean Consumption Survey
- Conducted in 2015 in Zambia, Malawi and Tanzania
- Dry Grain Legume Innovation Lab project
- Sampling: Two stage cluster design; stratified by residential area
- In Zambia, a total of 844 households were interviewed in seven constituencies of Lusaka

# Analysis

A combination of

- Descriptive analysis; and
- Econometric analysis

# Analysis (2)

1. Descriptive analysis

Key issues highlighted in the descriptive analysis:

- Socio-economic characteristics of the respondents/households
- Importance ranking of beans as a food security crop
- Bean varieties consumed

# Analysis (3)

1. Econometric Analysis

- Used to identify factors that influence monthly per capita bean consumption levels
- We tested several socio-economic characteristics
  - Postulated by theory and literature
  - Available in the bean consumption survey dataset
- Estimated by Ordinary Least Squares (OLS)

# Analysis (4)

Independent variables ($X_1$ to $X_k$) are:

- Age of the respondent,
- Households income level
- Level of economic class
- Employment classification of respondent
- Level of education
- Marital status
- Person who conducts food preparation
- Food purchase made by the respondent
- Presence of children in the household.

# Results: Some characteristics of respondents

| Variable | Frequency | Mean |
|---|---|---|
| Gender | | |
| Male | 16.5 | |
| Female | 83.5 | |
| Age | | 34.5 years |
| Household Size | | 5.14 |

# Respondents characteristics: Education

| Formal Education | Percentage |
|---|---|
| None | 2.56 |
| Primary | 27.26 |
| Secondary | 40.36 |
| Technical/vocational | 4.07 |
| College/university | 25.75 |

- 68% had gone as far as primary or secondary school
- 30% had even attained tertiary education
- Only 2% had not attained any formal education

# Respondents characteristics: Marital status

| Marital Status | Percentage |
|---|---|
| Single | 18.67 |
| Married/Cohabiting | 65.66 |
| Divorced | 9.64 |
| Widowed | 6.02 |

- 66% of the respondents were married/cohabiting
- 28% were single, divorced or separated

# Perceived Economic Status of Respondent

| Economic Condition | Percentage |
|---|---|
| Poor | 26.52 |
| Working class | 18.90 |
| Middle class | 46.49 |
| Upper middle class | 5.95 |
| Rich | 2.13 |

- 46% consider themselves as being in the middle class
- 26% considered themselves poor
- Only 2% considered themselves to be rich

# Importance of legumes to hh food security

| Rank | Legumes | Cereal | Meat | Roots/Tubers |
|---|---|---|---|---|
| Critical | 47 | 55 | 42 | 18 |
| Moderately critical | 26 | 17 | 28 | 20 |
| Fairly critical | 17 | 14 | 18 | 27 |
| Fair effect | 5 | 8 | 8 | 18 |
| Moderate effect | 2 | 4 | 3 | 10 |
| Least effect | 3 | 2 | 1 | 7 |

- Legumes largely considered critical to food security
- Fairly comparable to cereals and meat products

# Bean varieties consumed

| Bean variety | Local name | Percentage |
|---|---|---|
| Purple | Kablangeti | 98* |
| Yellow | Lusaka | 28 |
| Mottled red | Solwezi | 13.6 |
| Mixed yellow | White and yellow | 30.6* |
| White | Plain white | 20.4* |
| Red | Red | 9.1 |
| Mottled brown | Butter | 5.1 |
| White with brown spots | Sugar beans | 3.4 |

- Per capita per year beans consumption: 19.4 kg
- Eight commonly consumed bean varieties were assessed
- Purple Beans is by far the most frequently consumed

# Factors affecting the consumption and choice of beans

- Type of residence or income stratum
- Employment status of household head
- Whether or not food purchases are made by the respondent;  and
- Presence of children in the household
- Attributes of the bean variety

# Factors affecting beans consumption

| Variable | More kg |
|---|---|
| High income resident | 0.170*** |
| Working class (full-time salaried employment) | 0.186*** |
| Food purchases by respondent | 0.133* |
| Presence of children in the household | -0.343*** |

# Factors Affecting Choice Beans Consumed

| Attribute | Level | Likelihood of choice |
|---|---|---|
| Colour | Purple | 0.876 |
| | Yellow | 0.245 |
| | Mixed yellow | 0.397 |
| Cooking time | Slow | -0.251 |
| Gravy quality | Poor | -0.921 |

# Conclusions and implications

- Dry beans is considered an important food item
- The most popular bean variety is “Kabulangeti”
- It seems that the bean message has filtered very well to the elite but remains a challenge among the poor
- Nutrition interventions that target women seem to be justified

# Conclusions and Implications (2)

- That households with children consume less beans per capita needs further exploring and follow up:
  - Is it because children consume smaller food portions than adults?
  - Is it because children do not like beans and parents have not figured out a way to encourage them to eat it?
- Bean breeders need to pay attention to **colour**, **cooking time**, and **gravy quality**
  - Grain size not considered important by consumers
- Nutrition and agricultural programming needs to view beans using this “new” lens

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**Thank you**