The Adoption of Orange Flesh Sweetpotatoes (OFS) by Ghanaian Small Farmers for Nutritional and Economic Well-Being

By

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Problem Statement

Nutritional deficiencies (e.g., Iron and Vitamin A) take heavy health and economic tolls on rural peoples across the globe, especially among young children and women

Iron Deficiency Anemia

What: inadequate levels of iron in the body

Causes: blood loss, poor diet, inability to absorb iron

Who: young children, women of child-bearing age and pregnant women

Symptoms: fatigue, heart and spleen problems, lowering of resistance to infections

Vitamin A Deficiency

What: inadequate levels of vitamin A in the body

Causes: poor diet

Symptoms: night blindness, specific eye problems, lowering of resistance to infections

The Sweetpotato (*Ipomoea batatas*)—

A source for both iron (the leaves) and Vitamin A (in orange flesh varieties)

In Ghana, West Africa, the sweetpotato lags behind other root crops such as cassava and yam in terms of production and food preference

This research explores ways in which orange flesh sweetpotatoes can be adopted by Ghanaian small farmers and introduced to the general public for increased health and economic benefits.

Through the use of multidisciplinary teams that included plant science, extension, agricultural economics, nutrition and anthropology, it was found that adoption by farmers of a new variety of sweetpotato was not based on a single production—marketing decision but, rather contingent on a series of adoption decisions by a series of actors and based in a value-added chain of production—processing—new product development, each with technical, economic and commercial considerations.

Sweetpotato in Ghana: Production

Compared to other traditional leafy vegetables, the sweetpotato:

- **Has a shorter and year-round production season**
- **Is drought resistant**
- **Requires a minimum of inputs**

Current Use of Sweetpotato

Traditional Uses:

- **"Famine" food: when cassava, yam and cocoyam are not available**
- **Snack Food: chips**

New Uses:

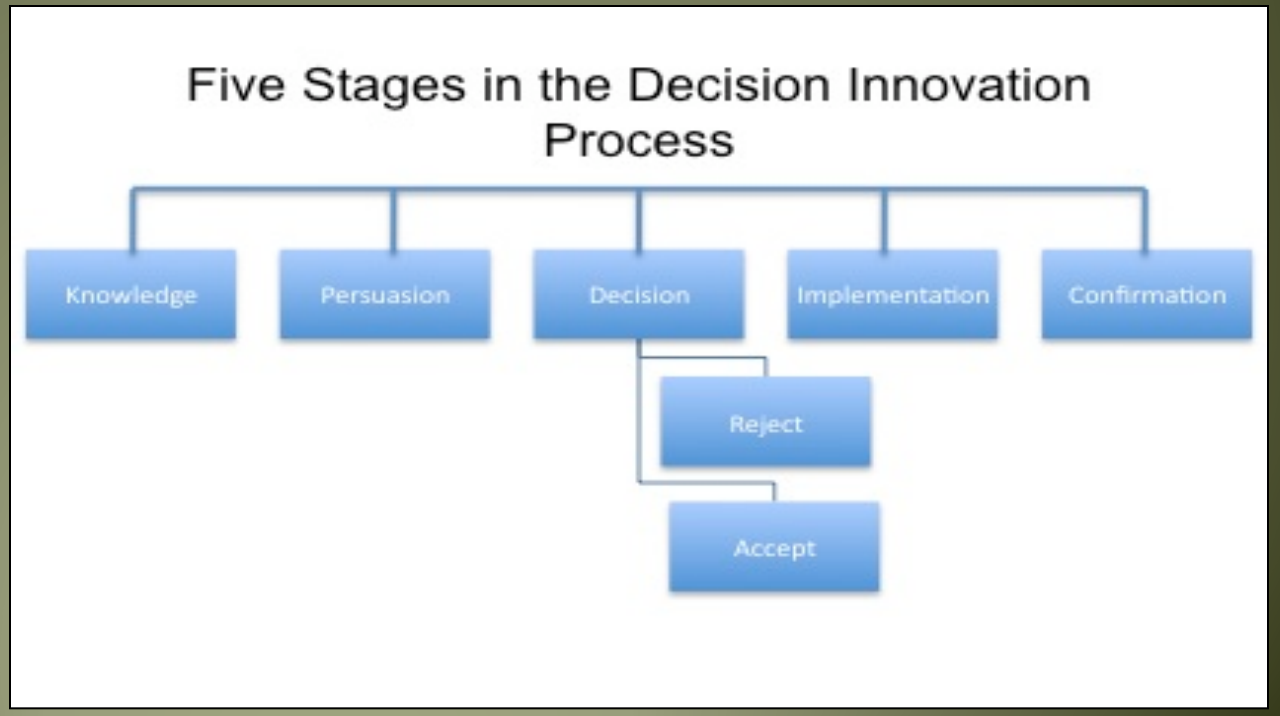
- **Stew**
- **Potpie**

Research Question:

Can and Will Sweetpotato be adopted as an additional food to enhance both the nutritional and economic well-being of Ghanaian small farmers?

Rogers' Characteristics of Innovations

- Relative Advantage
- Compatibility
- Complexity
- Trialability
- Observability



Strategic Decision-Making and Adoption of Agricultural Technologies and Risk

- Efficient use of resources
- Technology is similar
- No risk of total failure
- Easy to apply
- Inexpensive
- Environmentally compatible

Adapted from Mariam, Galaty, and Coffin (1993)

New Technology-Innovation:

Sweetpotato Greens

Previous Research: Sweetpotato Greens

Gboma Toga, Yevu Gboma, Sweetpotato

Previous Research: Sweetpotato Greens

Previous Research: Sweetpotato Greens

New Technology-Innovation:

Orange Flesh Sweetpotato

2007 CRI Report

Previous Research: Sweetpotato Puree

The Value-Added Chain

Farmer

Processor

Product Developer

Consumer

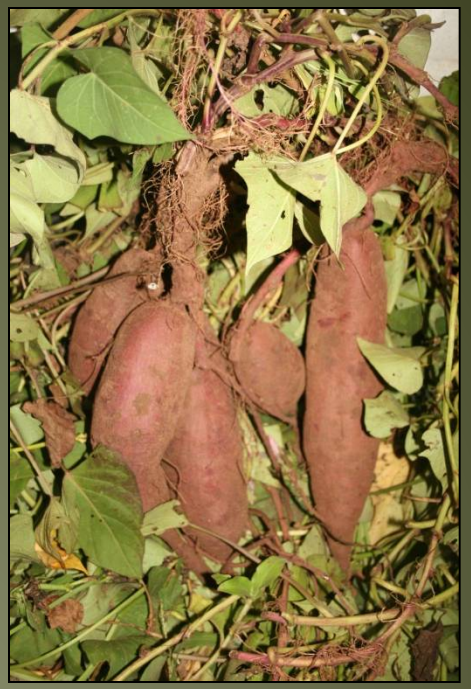
Farmer Adoption Decision: Orange Flesh Sweetpotato

Adoption Questions:

1. **Access to plants**
2. **Compatibility with existing farming system**
3. **Any possible improvements to farming system**
4. **Marketing possibilities (sunflower experience)**

Non-Traditional Production:

Orange and Purple Flesh



Key Farmer Constraints:

- Labor and
- Storage

New Innovations:

- Rows vs. Mounds
- Technology vs. Labor

and…

Mechanization

Diversify Marketing Opportunities

Processor Adoption Decision: Orange Flesh Sweetpotato

Adoption Questions:

1. Access to quality potatoes
2. Compatibility with existing processing system
3. Any possible improvements to processing system
4. Product possibilities

Key Processor Constraints:
Quality Product and Labor

Diversify Processing Opportunities

Baker Adoption Decision: Orange Flesh Sweetpotato

Adoption Questions:

1. Access to quality ingredients-Puree
2. Compatibility with existing baking system
3. Any possible improvements to processing system
4. Product possibilities
5. Consumer acceptance and willingness to pay

Baker Adoption Decision:
Compatibility

Diversify Product Possibilities

Consumer Acceptance and Willingness to Pay

Conclusions

- Three Adopters: Farmers, Processors and Bakers
- Adoption decisions based on: compatibility, innovation, diversity and market risk
- Potential in the individual market, additional potential in the value-added chain.
- Benefit to consumers with product choices.

Team Approach

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