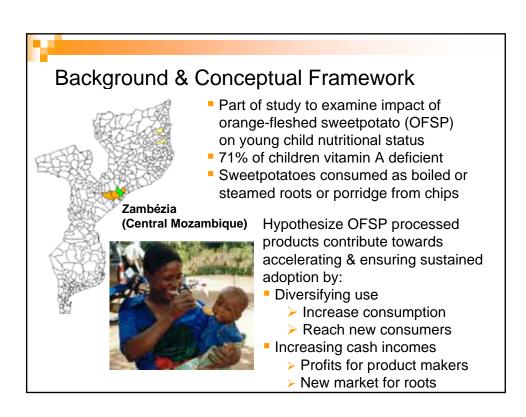


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#### Objectives of the Pilot Study

- Identify a viable candidate for OFSP processed product development for poor consumers utilizing rural markets
- Develop and test whether the product is acceptable to producers and consumers
- Establish whether the processed product is sufficiently rich in vitamin A
- Assess its profitability
- Assess potential for widespread adoption

### Step 1: Rapid Assessment of Existing Products

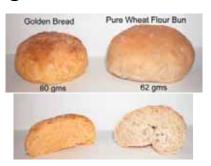


- Modifying existing product easier than introducing new product
- Low purchasing power
  - □ (4 USD cents/unit (1000 MT) maximum
- Best profits: bread, doughnuts
- Substitute imported wheat flour
- 60% rural study HHs consumed bread

PRODUCT	Price per Unit	Profit per Unit	
	Meticais	Meticais	USD
(1) Bread Buns	1000	287	0.012
(2) Twisted Berlim Bun	1000	75	0.003
(3) Coconut-Sugar Bar	500	119	0.005
(4) Biscuit	1000	69	0.003
(5) Fried Doughnut	500	358	0.015
(6) Juice from Powder	500	85	0.004

### Step 2: Developing the Product

- Substitute wheat flour with OFSP in existing bread recipes
- Maximize OFSP use to ensure adequate betacarotene content
  - □ 38% wheat flour by weight
  - □ OFSP heavier, less volume
- Modify preparation procedure to maximize volume
  - □ No gluten in sweetpotato
  - □ Rise once, not twice





## Step 3: Consumer Acceptance & Promotion Campaigns







- Rapid market assessments evaluating different varieties & shapes
  - □ Heavy texture of golden bread preferred
  - Golden color preferred
  - Round preferred to elongated
  - Buns from fresh, mashed preferred to re-hydrated, dried chips
  - 92% preferred golden bread over white in spite of smaller size
- 3 pilot villages for 1 season
  - □ Bakers introduced twisted buns
  - ☐ Trained farmers did not produce products for sale
  - Children buy 500 MT buns; adults prefer 1000 MT buns



#### Step 4: Determine if Golden Bread Buns are a Good Source of Vitamin A

- Buns made from boiled and mashed OFSP were compared to those made from re-hydrated dried OFSP chips from 5 different OFSP varieties
  - □ 2 samples for each analysis, 10 variety-form groups in total
- Three-quarters of the beta-carotene was in the bio-available trans-beta-carotene form.
- Processed products with at least 15 μg/gm of trans-betacarotene can be considered good sources of vitamin A.
  - □ Medium intensity OFSP varieties (Resisto, MgCl01, and Gabagaba) met criteria in fresh, boiled and mashed form.
  - □ Re-hydrated chips just under cut-off point for these varieties
  - □ Lighter intensity varieties (TIB4, LO-323) did not reach cut-off point (8.8-9.3 µg/gm)

### Ultimate Value Depends on Age & Sex of Consumer & Total Amount Consumed

- Foods contributing 10% of Recommended Daily Intake per serving are considered good sources of vitamin A
- Those contributing 20% per serving, excellent sources of vitamin A
   CONTRIBUTION OF BUNS MADE FROM RESISTO TO VITAMIN
   A INTAKE BY AGE AND SEX GROUP

	Size of Bun			
	60 gms	110 gms		
Vitamin A value (µg RAE) (12:1 conversion)		138		
% Contribution to Dietary Reference Intake				
Children 1-3 years old	25	46		
Children 4-8 years old	19	35		
Children 9-13 years old	13	23		
Non-pregnant women 14 years & above	11	20		
Pregnant Women	10	18		
Lactating Women	6	11		
Men 14 years old & above	8	15		

# Step 5: Assess Profitability & Potential for Widespread Adoption

		% Increase in
Relative price	Relative price	Profit with
wheat	wheat	Golden Bread
flour/raw	flour/cooked	Batch of 264
sweetpotato	sweetpotato	Buns
1.5	1.25	6.7
1.8	1.50	11.8
2.1	1.75	19.0
2.4	2.00	27.4
3.1	2.50	54.4
3.4	2.75	78.0
3.5	2.84	92.7
3.5	2.90	101.6
3.7	3.00	123.3
4.0	3.25	209.7
4.3	3.50	489.7



Widespread adoption will depend on ability to establish reliable links between producers and bakers to ensure consistent root supply



#### Conclusions

- Potential exists for Golden bread buns to add value to rural diets & increase profits to rural bakers when:
  - □ Bread consumption already exists at rural markets
  - ☐ The price of wheat flour relative to raw sweetpotato roots is at least 1.5
  - Consumers are willing to purchase buns smaller in volume because they are heavier & more attractive
  - ☐ Good links to root suppliers can be established
- OFSP processed product development should focus on:
  - Incorporating OFSP into existing products
  - Working with individuals already involved in processed product production and sale

