# CO-DEVELOPING NUTRITIOUS FOODS TO IMPROVE CHILD NUTRITION IN NORTH BENIN DRYLANDS

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BACKGROUND

- **Child malnutrition persists in Africa.**

- **Diversity of potentially nutritious food products**

- **Low adoption of nutritious foods developed through research**

- **Goal:** Test the extent to which the collaborative approach can deliver nutritious, affordable and desirable food to combat child malnutrition.
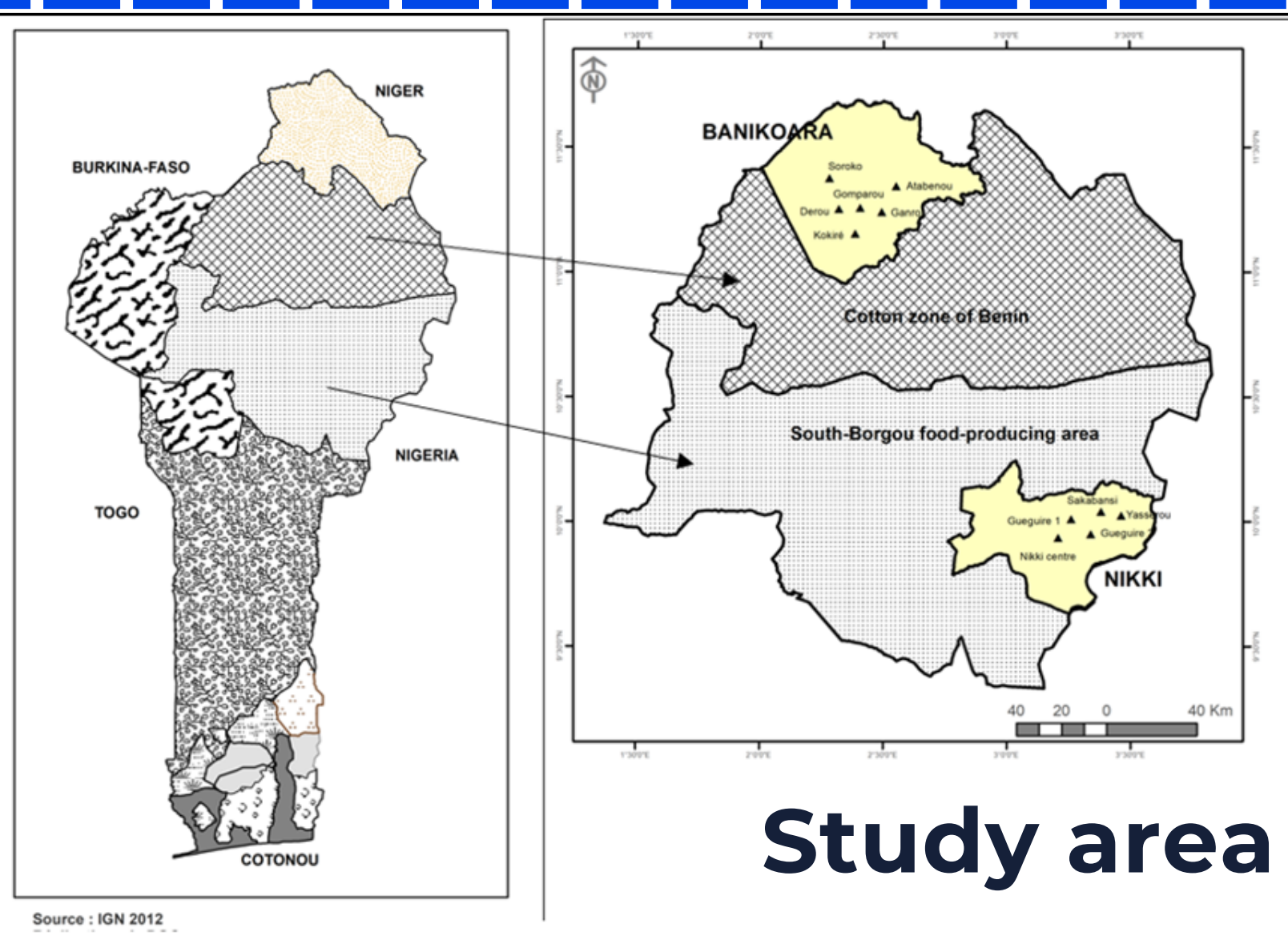
Study area

- **11 villages from**
  - Banikoara
  - Nikki

METHODOLOGY

FOODS SELECTION

- 4 Focus group with 100 mothers and 12 local processors
- Criteria of selection : mothers' preference, nutritional value, cost production

CO-DEVELOPMENT METHOD

- Co-Diagnosis of current processes
- identification of combinations of ingredient
- Generation of least-cost test formulas
- 2 Workshop to test the formulations with processors

SENSORIAL PREFERENCE TEST

- A pairwise preference test with a panel of 45 tasters.
- Binomial test with a 95% confidence interval was performed

COVERAGE OF RECOMMENDED DAILY ALLOWANCES BY IMPROVED FOODS

- Determination of nutrients in improved foods using standard food analysis methods (AOAC, 2005; AOCS, 2009).
- Percentage of RDA intake coverage based on the recommendations of Institute of Medicine, (2011) :
  - %RDA= Vd/RDA * 100 ; Vd =value determined for the nutrient ;

FOOD SELECTED (4 ON 10)

- **Kpankpanu** fermented sorghum porridge
- **Wagarou:** Cooked corn and cowpea grains
- **Bohiri Lamouni:** fermented sorghum porridge
- **Kaladje afuludje:** Steamed cowpea flour donut

IMPROVEMENTS

- **Combination** with locally available, nutrient-rich food resources: soybeans, moringa leaves, cowpea pulp, sorghum malt

Photos: Ingredients

- **Addition of new operations**: drying (stabilization), pre-cooking, crushing, body separation (starch and sorghum grains), grain depeliculation (corn ..)

separated starch   Drying   Pre cooking

IMPROVED FOOS

- **Kpankpanu :** Enriched fermented granulated flour (for baking)
- **Wagarou:** Enriched corn and cowpea gritz
- **Bohiri Lamouni:** Enriched fermented granulated flour (for baking)
- **Kaladje afuludje:** Enriched cowpea flour for doughnuts

PREFERENCE FOR IMPROVED VS. TRADITIONAL FOODS

- Improved foods were preferred in the same proportion as traditional versions: Kpankpanu, Wagarou, and Kaladje afuludje.
- Foods requiring taste enhancement: Bohiri Lamouni

p= 0.5424 p= 0.1263 p= 0.0335 p=0.8714

Kpankpanu   Wagarou   Bohiri Lamouni   Kaladje Afuludje

■ Improved ■ Traditional
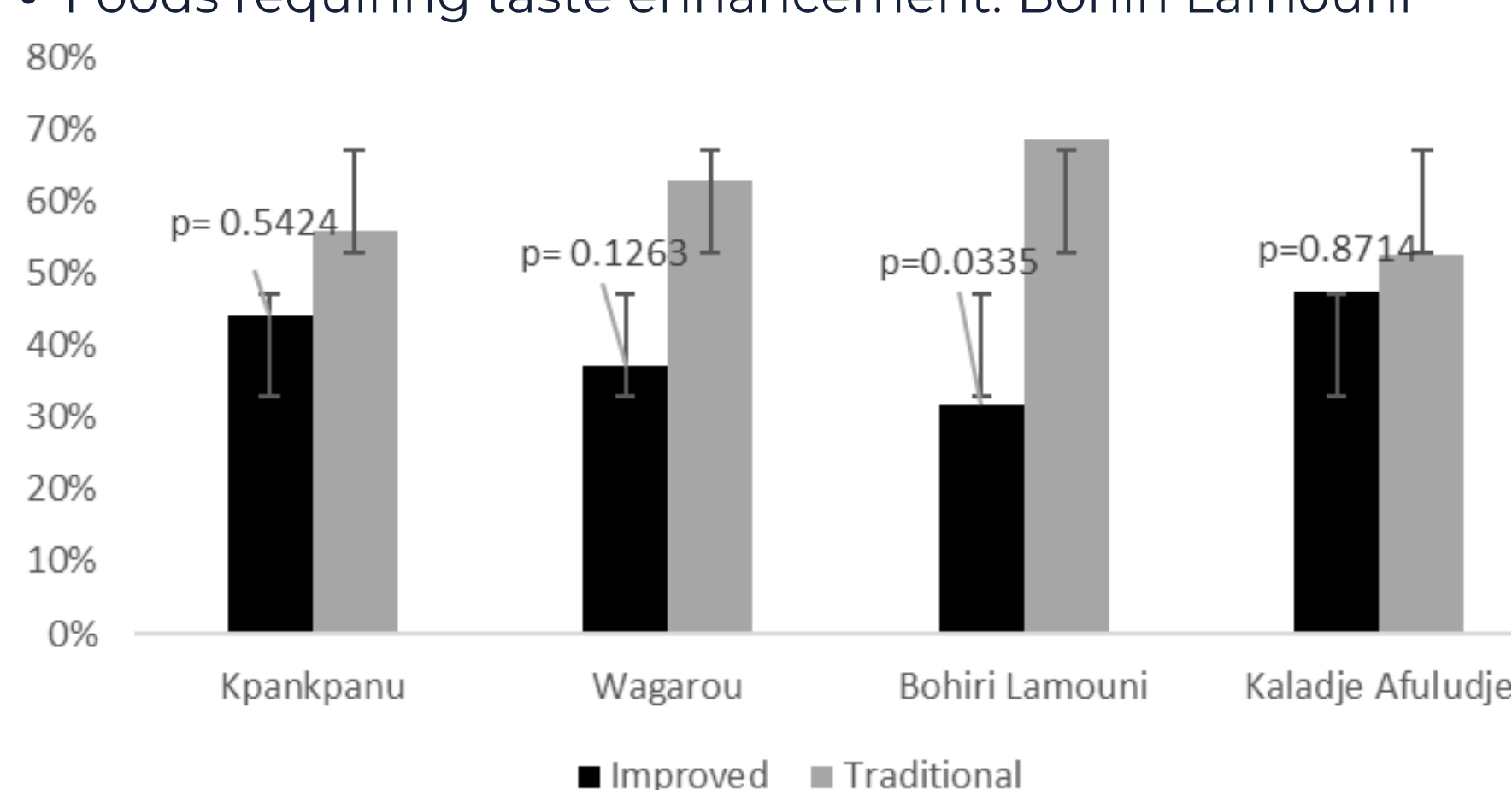
COVERAGE OF RDA INTAKES

Table : Coverage of the Recommended Daily Allowance for children aged 6 to 12 months (IOM, 2011) by improved foods

Nutrients of Interest	Kpankpanu	Wagarou	Bohiri Lamouni	Kaladje afuludje
Carbohydrates (g)	63%	61%	67%	58%
Proteins (g)	99%	109%	83%	155%
Calcium(mg)	20%	92%	16%	42%
Iron (mg)	50%	60%	48%	73%
Zinc (mg)	70%	95%	64%	134%
Vitamin C (mg)	35%	173%	50%	36%

CONCLUSION

- **Nutritious foods:** The improved foods provide at least 35% of the RDA in essential nutrients for children

- **Reproducible methods:** Simple and inexpensive improvement methods that can be easily reproduced by small-scale processors.

- **Desirable foods:** The improved foods were preferred in the same way as the traditional versions

- **Co-development of nutritious foods could be a promising way of combating child malnutrition without changing people's eating habits, and generating income for small-scale processors.**

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