



Tanzania/Uganda FACT Summary & Recommendations

The Maize Fortification Strategy Meeting 3 - 7 October 2016.
Dar es Salaam



National Food Fortification Assessment Survey in Tanzania, 2015

Using the Fortification Assessment Coverage Tool

(2015 FACT)

Summary Maize Flour Findings

Background

- ❑ In Tanzania, mandatory fortification of wheat flour, maize flour and oils with micronutrients was implemented in 2011
- ❑ Mandatory iodization of salt has been in effect since 1995. Data exists on implementation and coverage.
- ❑ Lack of information on household coverage and consumption of fortified foods

FACT Objectives

- ❑ To assess the coverage and consumption of fortified salt, wheat flour, [maize flour](#), and vegetable oil among households;
- ❑ To measure levels of select nutrients in samples of salt (iodine), wheat flour (iron), [maize flour \(iron\)](#), and vegetable oil (vitamin A) gathered at the household;
- ❑ To estimate the contribution of fortified salt, wheat flour, [maize flour](#), and vegetable oil to the intake of select nutrients in the diet of women of reproductive age (15 to 49 years); and
- ❑ To evaluate indicators for other health and nutrition conditions to determine their association with the consumption of fortified foods (e.g. poverty, dietary diversity, rural residence)

Survey design and sampling

Survey design:

- ❑ Cross sectional two-stage cluster household survey
- ❑ Representative nationally, with urban and rural stratification
- ❑ Target population: households and women of reproductive age (15-49 years)
- ❑ Sample size: 1050 households total

Sampling:

- ❑ A two-stage random sampling approach was applied:
 - ❖ **First stage:** Selection of 70 Enumeration Areas (EAs) using probability proportional to size (PPS) sampling
 - 29 Urban EAs (including 4 EAs from Zanzibar)
 - 41 Rural EAs (including 7 EAs from Zanzibar)
 - ❖ **Second Stage:** Selection of 15 households per EA using systematic random sampling

Data collection

❑ Questionnaire 1: Collected information on

- Household demographics;
- Household characteristics

❑ Questionnaire 2: Collected information on

- Fortified food use
- Purchasing information; and
- Fortification logo information

❑ Women Questionnaire: Collected information on

- Woman's pregnancy status;
- Woman's dietary diversity; and
- Individual intake of products made from wheat flour.

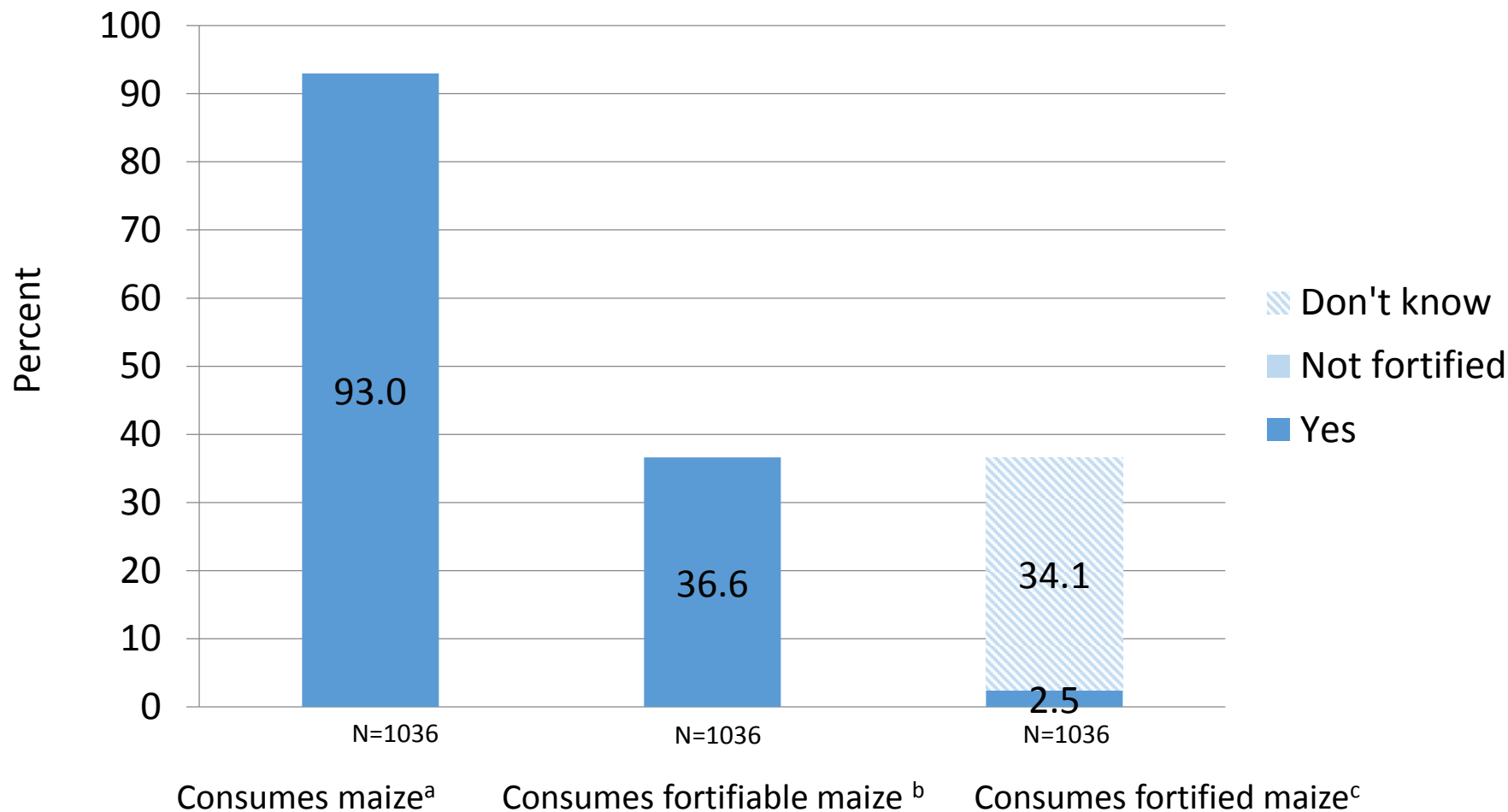
❑ Household food samples collection

- Samples of maize flour were collected and tested quantitatively for nutrient levels

Key Findings- Maize Flour

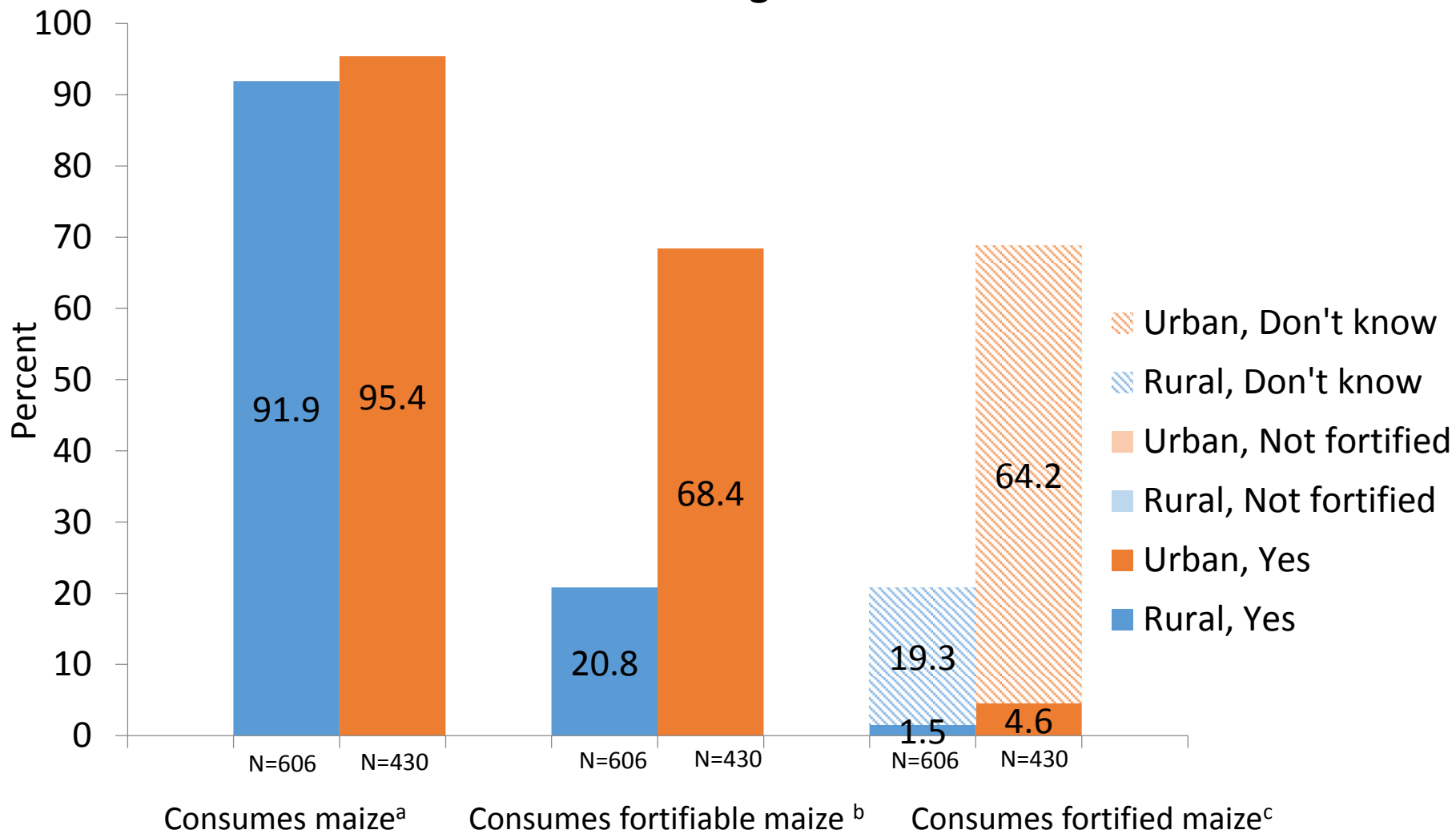


National Coverage, Tanzania, 2015: Household coverage of maize flour



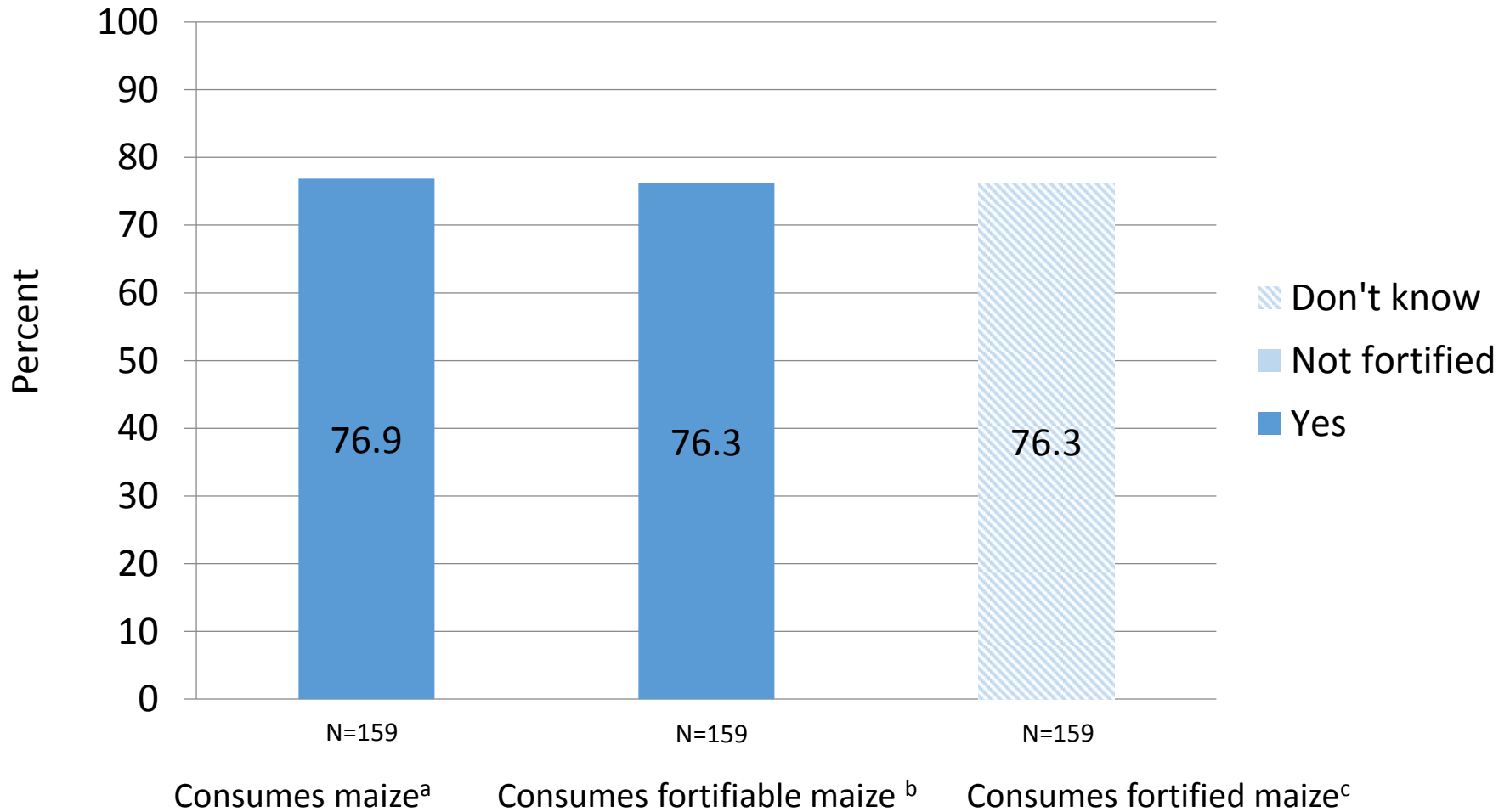
^aReported; ^bFortifiable refers to a food that was not made at home and is assumed to be industrially processed; ^cHouseholds were classified as fortified if they provided a sample or reported consuming a brand that was confirmed to be fortified by quantitative analyses; Don't know refers to a household that could not be classified because no food sample was available and no brand was reported. * P < 0.05

Urban and Rural Coverage, Tanzania, 2015: Household coverage of maize flour



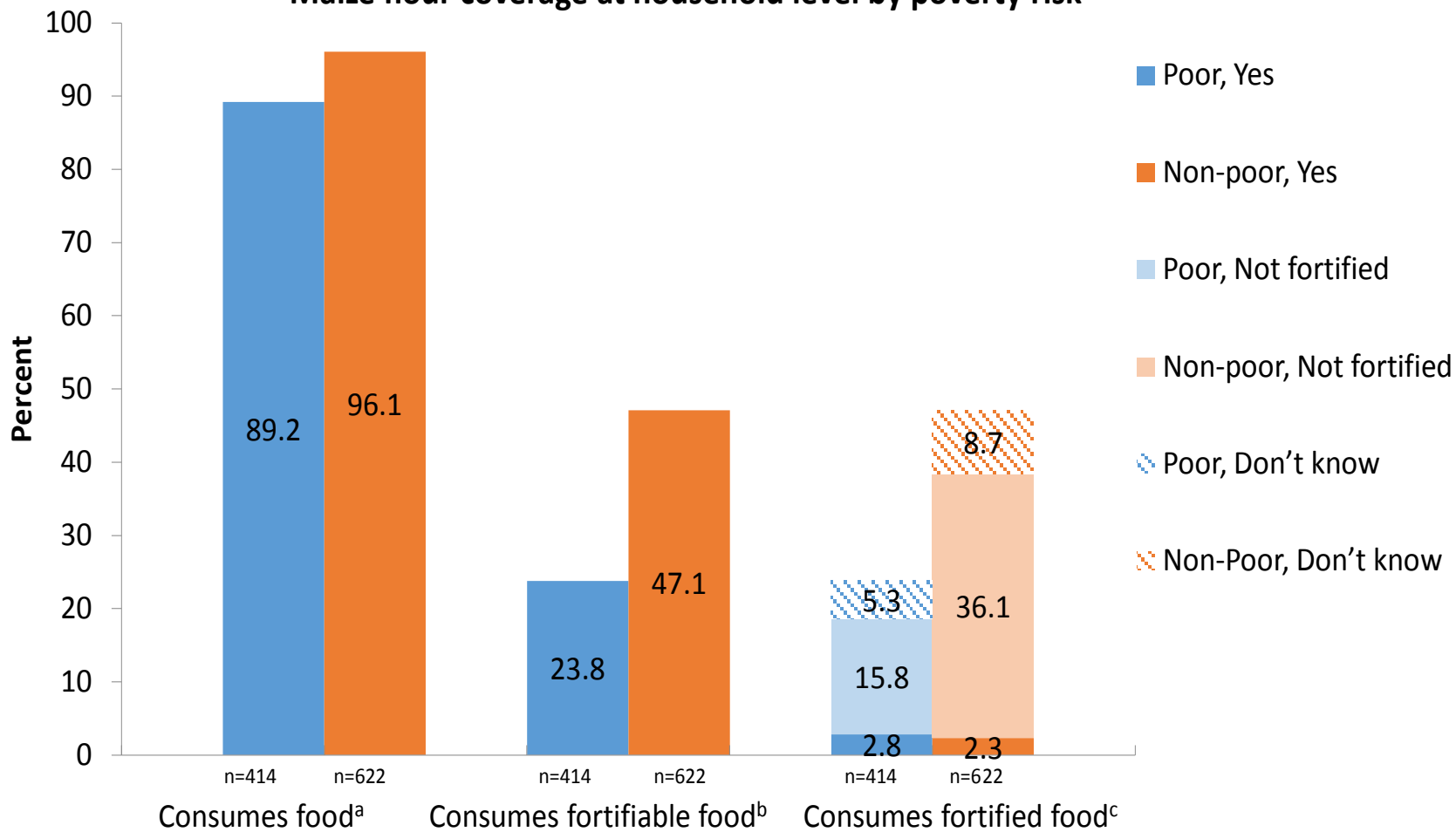
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Zanzibar Coverage, Tanzania, 2015: Household coverage of maize flour



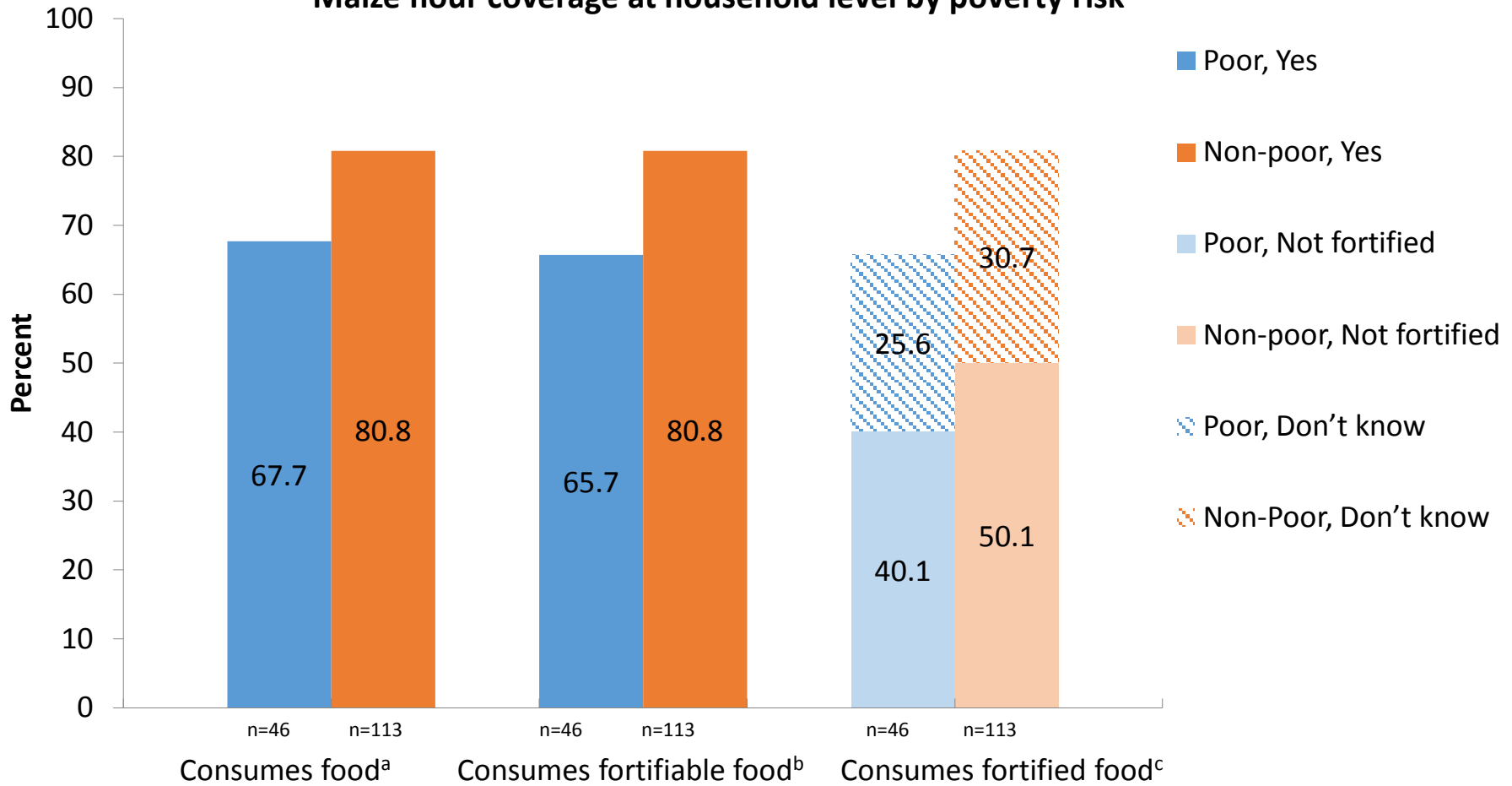
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National, Tanzania 2015: Maize flour coverage at household level by poverty risk



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Zanzibar, Tanzania 2015: Maize flour coverage at household level by poverty risk

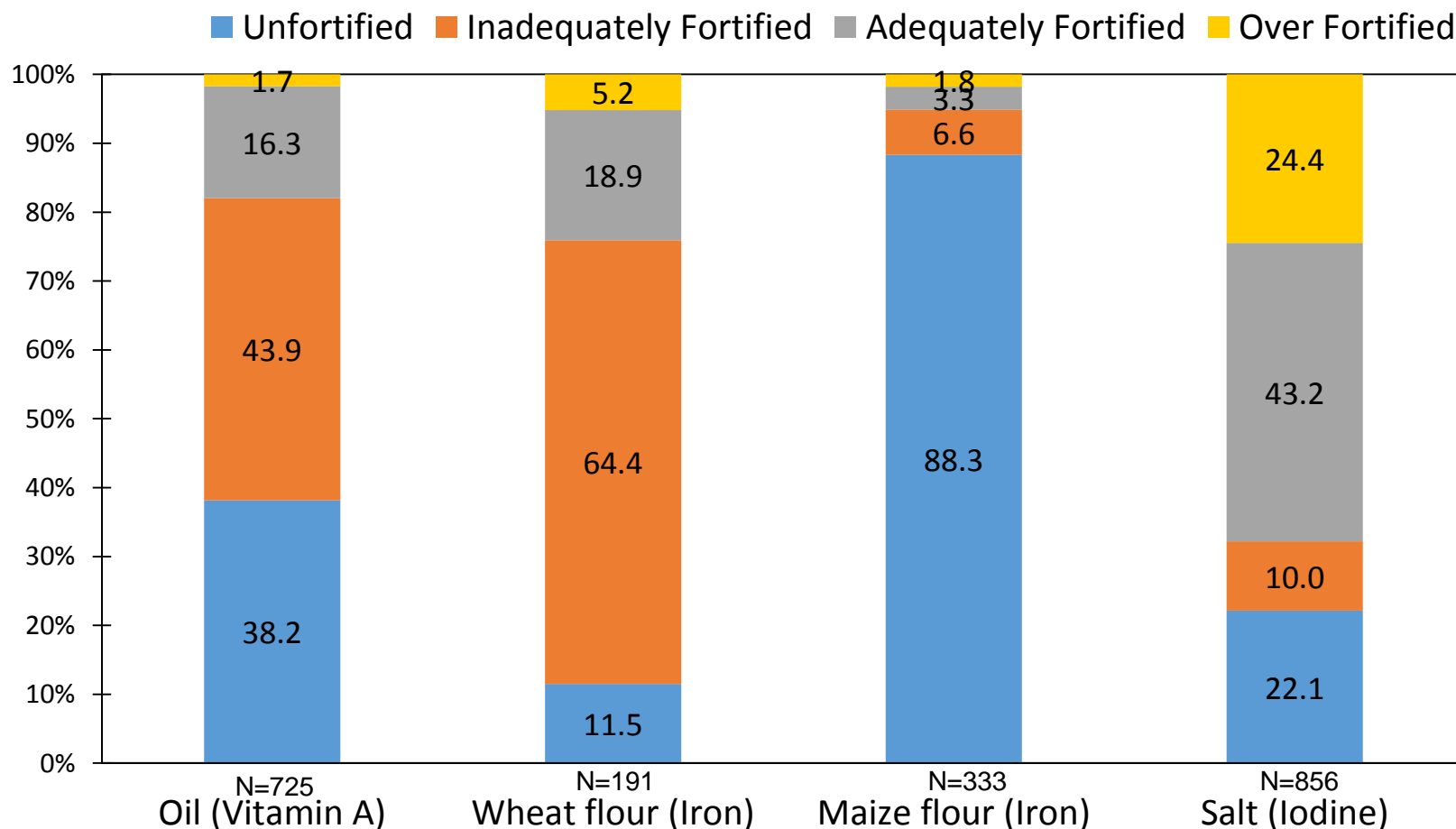


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Adherence to standards



Fortification quality of household samples using Tanzania National Standards



Vitamin A in oil: "Unfortified" <3 mg/kg, "inadequately fortified" 3-<16 mg/kg, "adequately fortified" \geq 16- 28 mg/kg, and "over fortified" >28 mg/kg; **Iron in wheat flour:** "Unfortified" \leq 0 mg/kg, "inadequately fortified" 0-<30 mg/kg, "adequately fortified" \geq 30- 50 mg/kg, and "over fortified" >50 mg/kg (standard is based on "added" iron so results were adjusted to account for 29.8 mg/kg of intrinsic iron based on analysis of unfortified wheat flour samples); **Iron in maize flour:** Unfortified" \leq 0 mg/kg, "inadequately fortified" 0-<5 mg/kg, "adequately fortified" \geq 5- 25 mg/kg, and "over fortified" >25 mg/kg (standard is based on "added" iron so results were adjusted to account for 19.6 mg/kg of intrinsic iron based on analysis of unfortified wheat flour samples); **Iodine in salt:** "Unfortified" <7.57 ppm, "inadequately fortified" 7.57-<15 ppm, "adequately fortified" 15-<40 ppm, and "over fortified" \geq 40 ppm.

Summary of key results

Maize flour

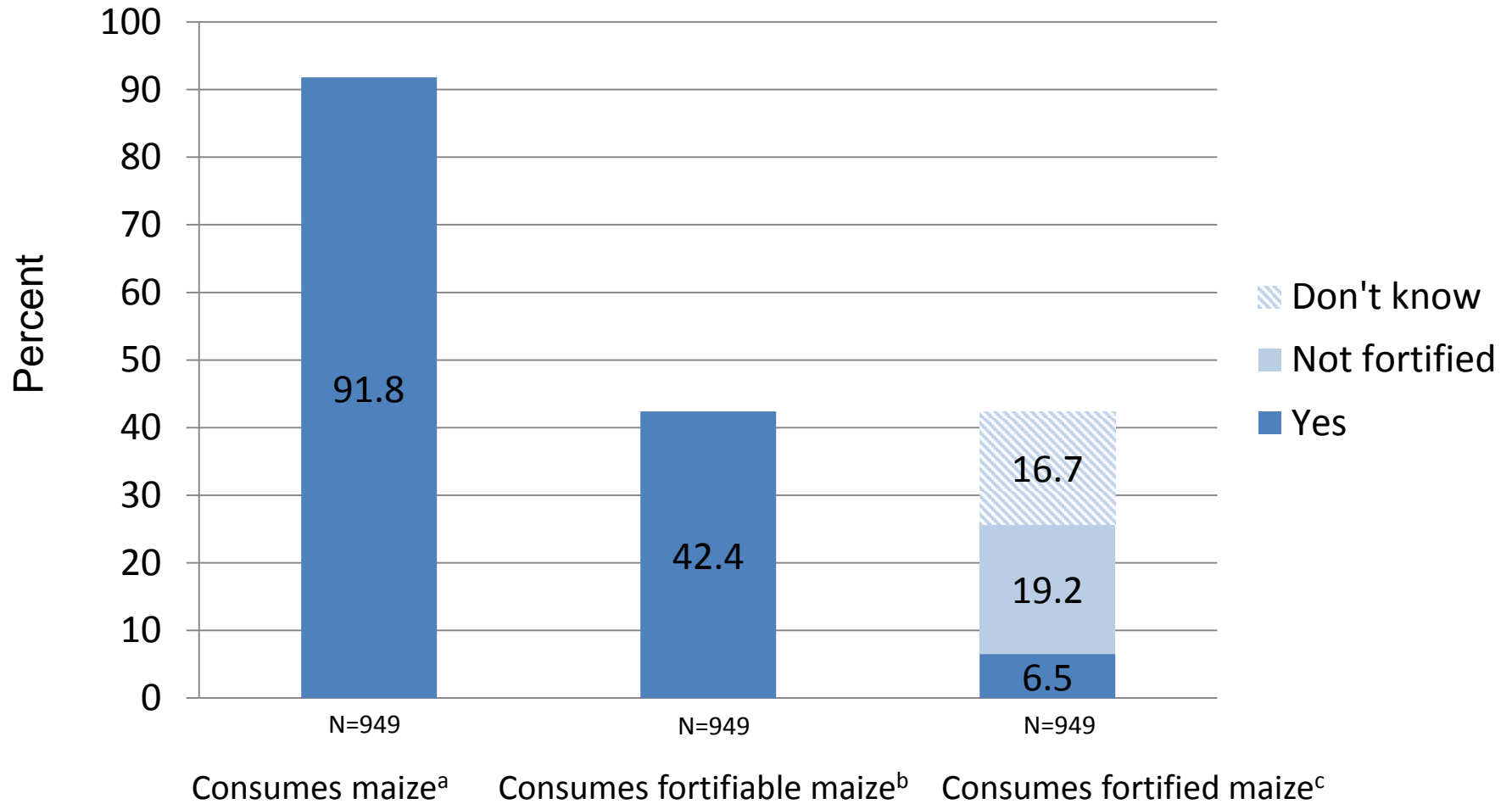
- Coverage of fortifiable maize flour is lower than other vehicles due to high levels of home production but there is still potential for impact, particularly in urban areas.
- Fortification quality remains a challenge.
- From this study, the contribution of small scale millers was not explored but needs further exploration



Uganda FACT Summary & Recommendations

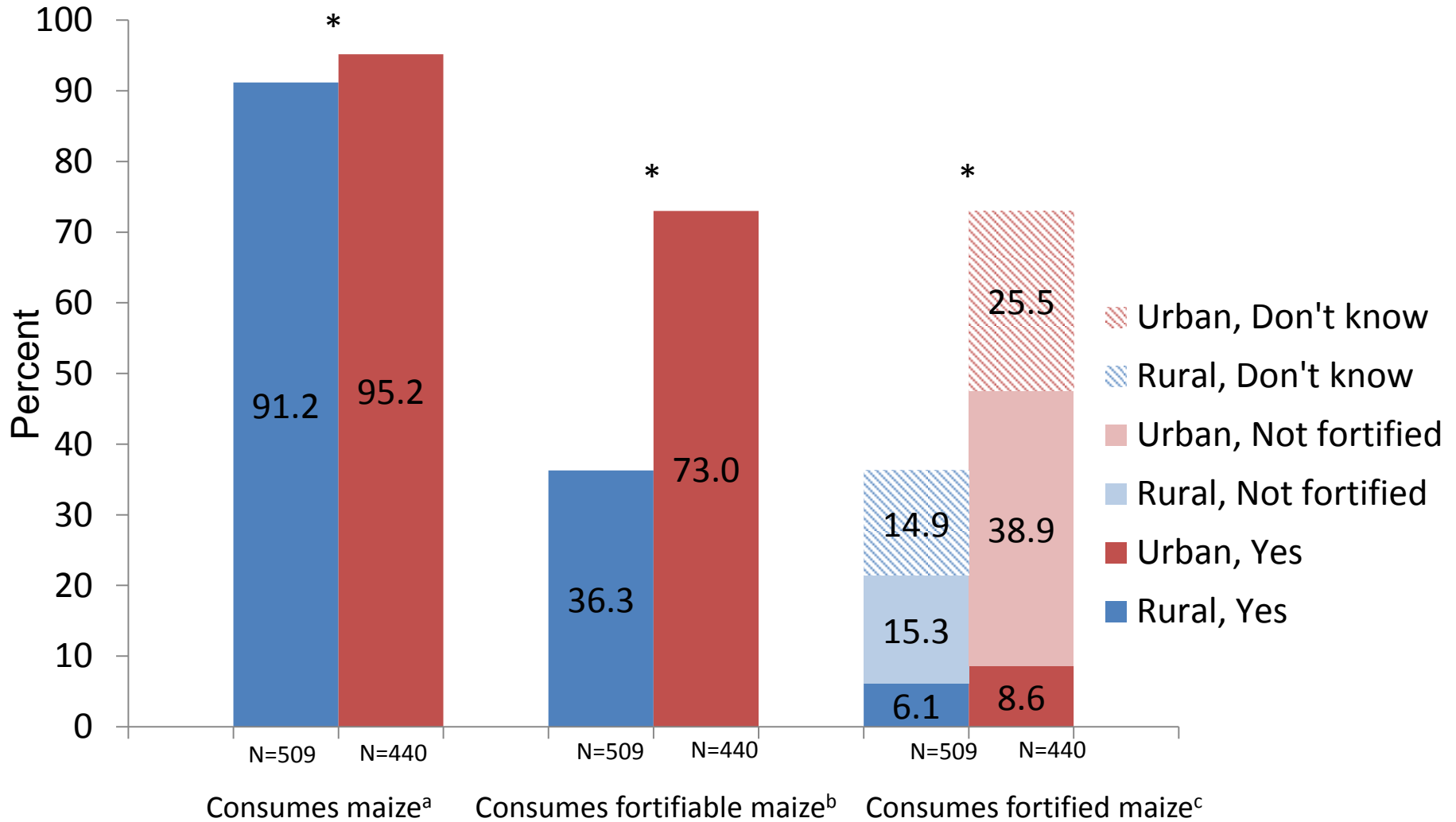


National Coverage, Uganda, 2015: Maize flour usage at the household level



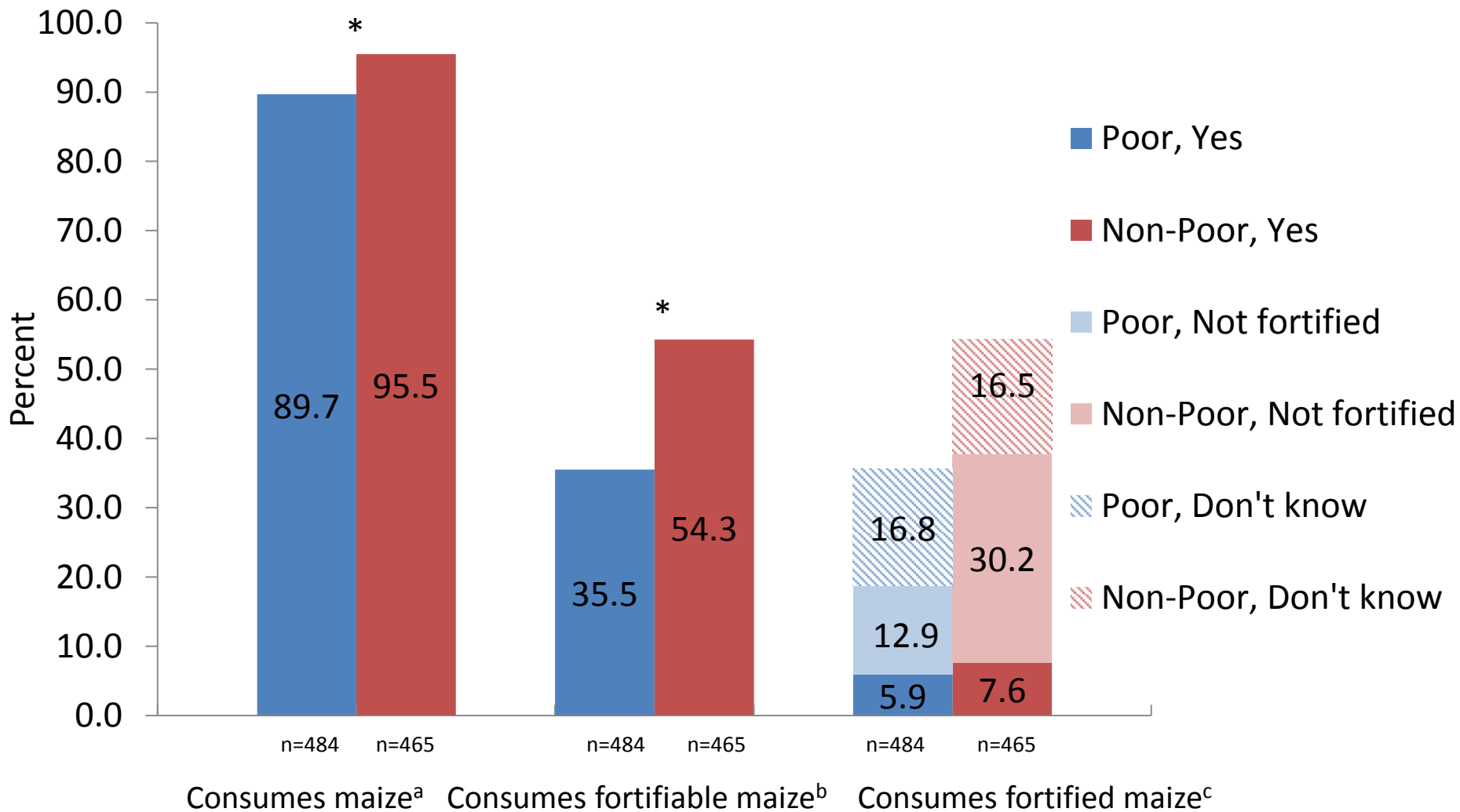
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Urban and Rural Coverage, Uganda, 2015: Maize flour usage at the household level



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National coverage by poverty risk, Uganda, 2015: Maize flour usage at the household level

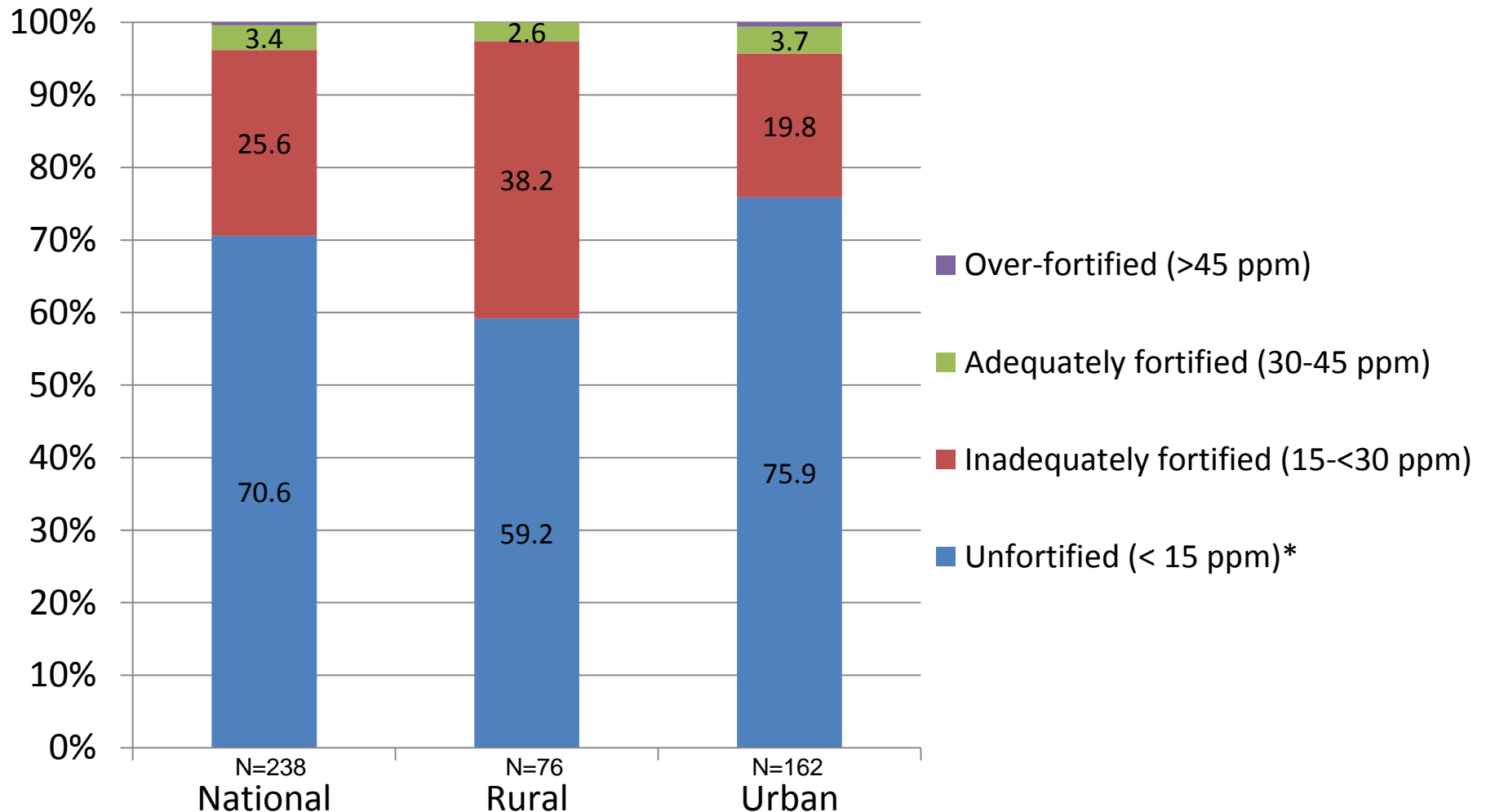


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Adherence to standards

Fortification quality in household samples against Uganda Standard 2006: Maize flour quantitative analyses of iron levels



*Intrinsic iron was estimated to be 15 ppm based on quantitative analyses of unfortified maize samples.

Summary of key results

Maize flour

- Potential for impact from fortified maize flour is higher in urban areas than rural areas, but fortification quality remains a challenge due to many small-scale producers who may not fall under the mandatory fortification legislation

Recommendations and future work

The large-scale fortification programs in Tanzania and Uganda are working and making important contributions to dietary intakes of nutrients, but there is still room for improvement:

- Further efforts are required to improve quality control and enforcement of fortified foods to better address under fortification
- More research is needed to understand what proportion of fortifiable maize flour is coming from producers who are mandated to fortify to better understand the potential for impact from large-scale maize fortification
- The potential for small scale millers fortification needs to be supported and technologies promoted to overcome this barrier
- Critical to know dietary patterns in the population to estimate potential for impact and to ensure fortification levels are set appropriately and adjusted over time as dietary patterns change
- Investment in regular monitoring, surveillance, and continual feedback for program improvement is critical for impact



The 2015 National Food Fortification Assessment Survey in Tanzania, (2015 FACT) was implemented by the Africa Academy for Public Health (AAPH) in collaboration with the National Bureau of Statistics, the Office of Chief Government Statistics, Zanzibar; Ministry of Health, Community development, Gender, Seniors and Children, Mainland; Ministry of Health, Zanzibar; IHI; TFNC. GAIN and CDC provided technical assistance. The survey was funded by the Bill and Melinda Gates Foundation through GAIN.



Tanzania Food and
Nutrition Centre



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Thank You-Uganda!



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