FHSA
Food Health Systems Advisory

Who Gets Fortified Foods?

Mapping Vitamin A Fortification Inequality in Nigeria

About FHSA

Food Health Systems Advisory (FHSA) is a Management Consulting and Business Advisory firm with operations across Africa, transforming Africa's food system to deliver equitable, safe, nutritious, and sustainable food. We are on a mission to solve Africa's most pressing food systems challenges by delivering expert consulting, technical services, and research in partnership with private-sector, governments, and development partners.

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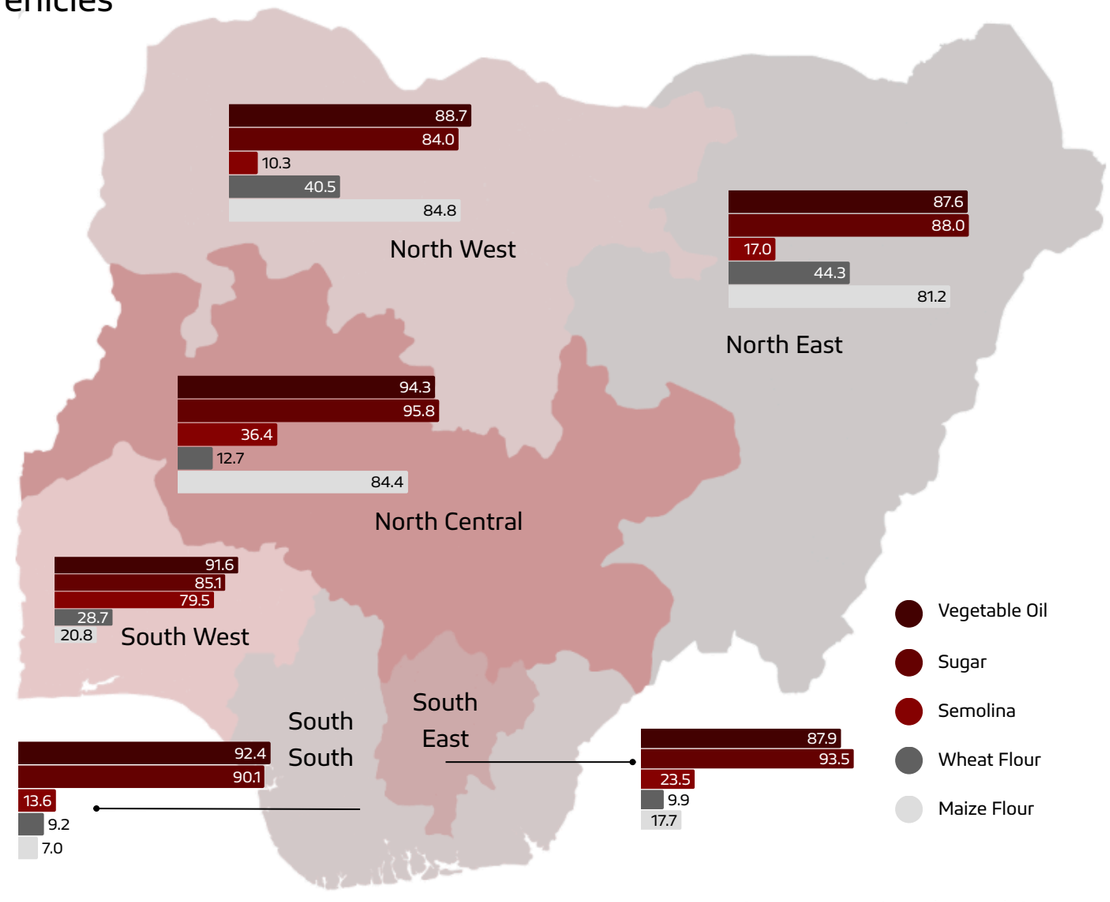
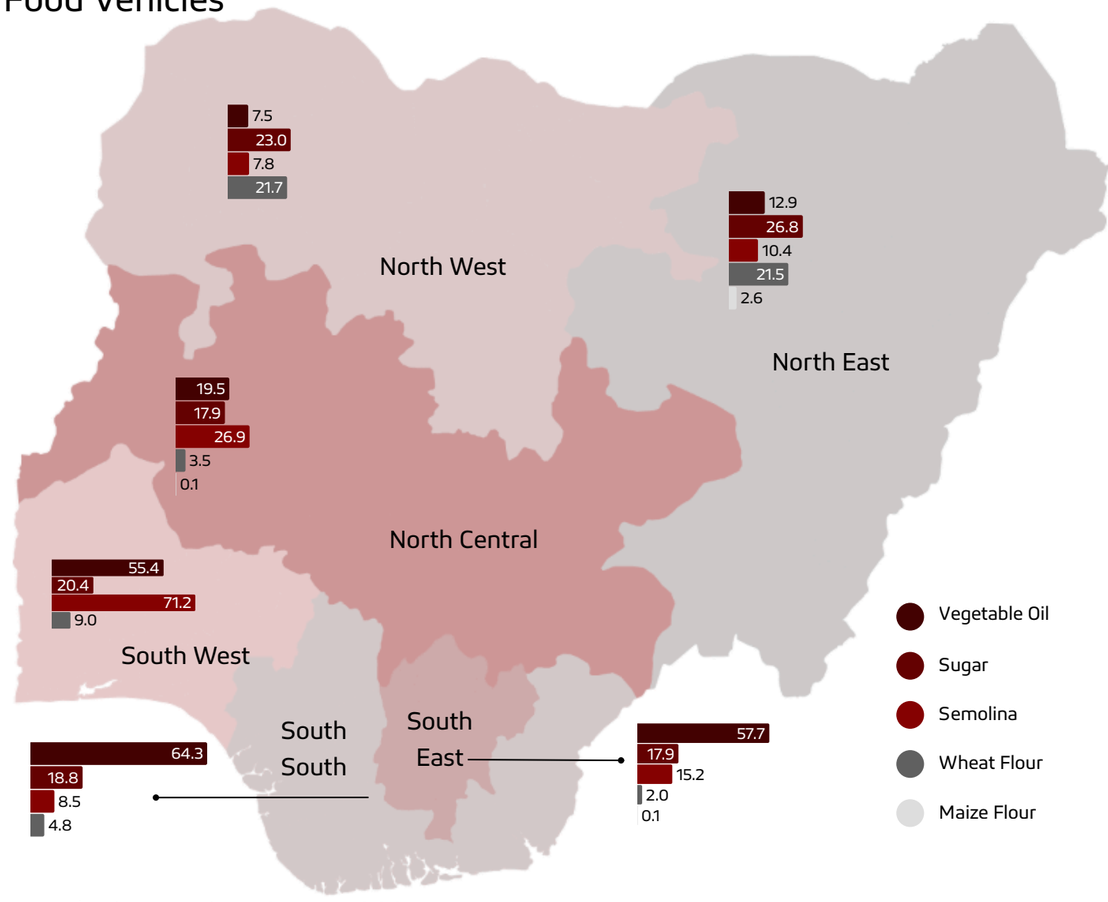
Over 80% of Nigerians eat vitamin A food vehicles, but only a fraction consume them in fortified form

Regional Patterns of Household Consumption of Vitamin A Food Vehicles



Regional Patterns of Household Consumption of **Fortified** Vitamin A Food Vehicles



Data Source: National Food Consumption and Micronutrient Survey, 2021

Food vehicle refers to the food that is selected for the addition of one or more nutrients. In Nigeria, key food vehicles for Vitamin A fortification include vegetable oil, sugar, wheat flour, maize flour, and semolina.

Fortified food vehicle refers to a food vehicle that has been confirmed by laboratory analyses to contain the added micronutrient(s) (in any amount).

Consumption of Vitamin A food vehicles varies markedly across regions. While vegetable oil and sugar show widespread household use nationwide, consumption of other staples such as maize flour, wheat flour, and semolina reflects regional dietary preferences, with maize flour dominant in the North and semolina more prevalent in the South West and North Central zones.

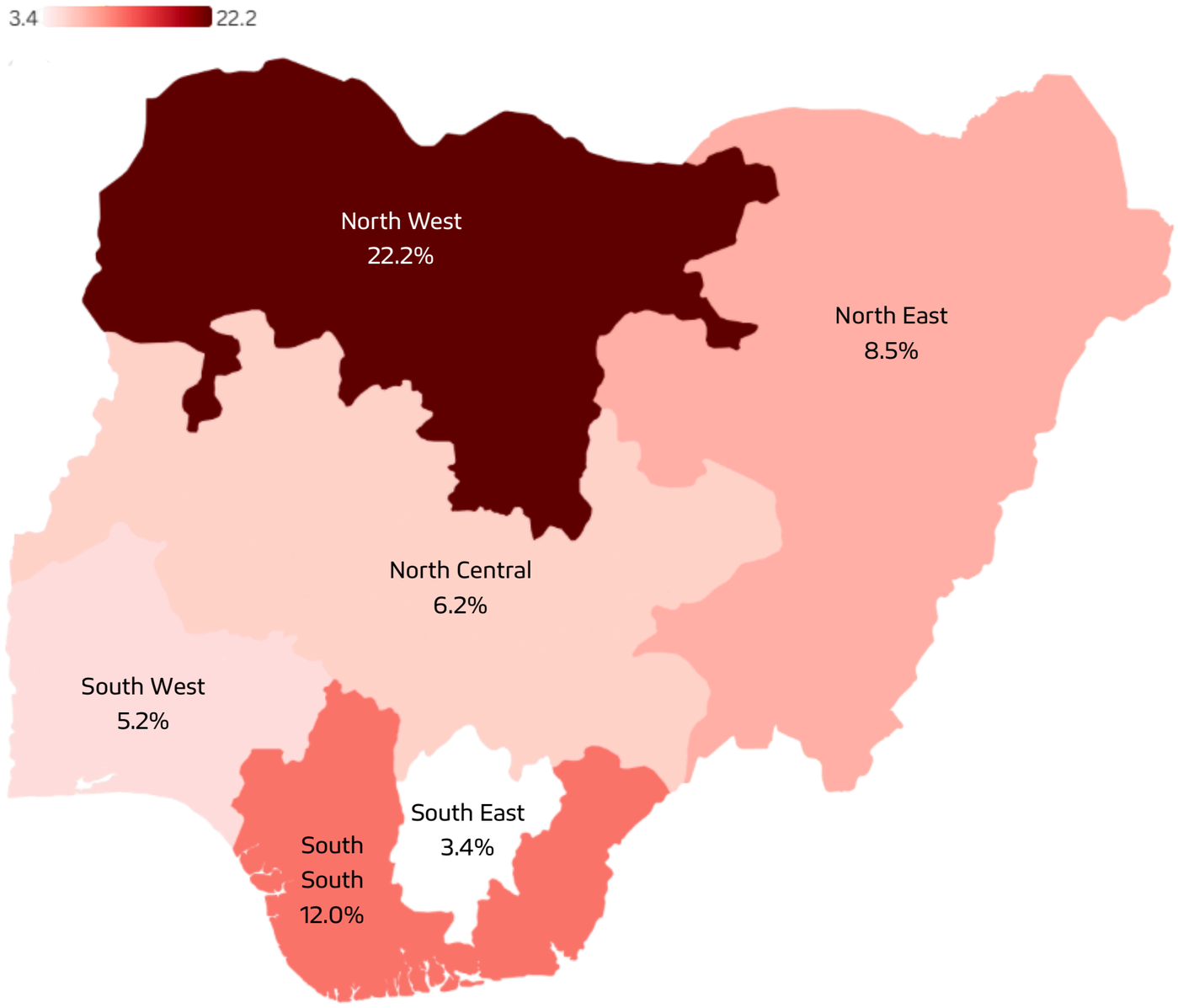
Although Vitamin A food vehicles are widely consumed, fortification coverage remains low. Fortified oil is more prevalent in the South, fortified sugar is highest in the North Central, and maize flour fortification is nearly absent.

Women in the North West face seven times more vitamin A deficiency than those in the South East

Vitamin A deficiency remains unevenly distributed across Nigeria. The North West records the highest prevalence (22.2%), nearly seven times higher than the South East (3.4%).

This stark contrast underscores the need for regionally tailored fortification and nutrition interventions rather than a one-size-fits-all national approach.

Prevalence of Vitamin A Deficiency in Non-Pregnant Women per Region



Data Source: National Food Consumption and Micronutrient Survey, 2021

Commentary

Vegetable oil and sugar are the two most widely consumed Vitamin A food vehicles in Nigeria, while consumption of wheat flour, semolina, and maize flour varies across regions. However, the consumption of fortified foods remains generally low and uneven across regions. For instance, although over 90% of households consume vegetable oil, fortified oil reaches only 7.5% of households in the North West and 12.9% in the North East, compared to 64.3% in the South South. Similarly, consumption of fortified wheat flour and maize flour remains negligible nationwide.

Several factors may explain these gaps. Downsizing of 50kg bags or kegs of vegetable oil, wheat flour, and sugar into smaller retail units in open markets dilutes brand visibility and weakens fortification monitoring. Maize flour is largely produced at home or by small-scale cottage mills, making industrial fortification nearly absent; this questions maize's role as a practical fortification vehicle, though biofortified maize remains a promising alternative, particularly in the North, where maize is widely consumed.

These consumption and fortification gaps directly mirror nutritional outcomes. Vitamin A deficiency is highest in the North West (22.2%) and South South (12%). Interestingly, the NFCMS (2021) shows that palm olein is the largest contributor to Vitamin A intake nationally. Yet, the South South zone, where 64% of households reportedly consume fortified oil, still records the second-highest deficiency rate in the country.

This paradox may point to several underlying issues: fortification levels in oil products might be below the required standards; fortified products may lose Vitamin A content during storage, transportation, or cooking. It could also indicate poor dietary diversity, where reliance on a single fortified vehicle is insufficient to meet Vitamin A needs.

Opportunities and Recommendations

For the General Population:

- Increase awareness of the health benefits of fortified foods and purchase fortified products.
- Encourage dietary diversification with Vitamin A–rich foods (e.g., palm oil, orange-fleshed sweet potato, mangoes).

For the Food Industry:

- Strengthen fortification practices by adopting self-regulatory strategies like MFI, particularly in vegetable oil and sugar supply chains.
- Invest in small packaging innovations that preserve fortification levels and improve traceability in informal markets.

For Policy Makers:

- Improve regulatory enforcement and quality monitoring of fortification standards, particularly in cottage industries.
- Promote biofortification of staple crops (e.g., maize, cassava, sweet potatoes) to reach households reliant on cottage production.
- Target high-burden northern zones with fortification programs, complemented with supplementation and targeted nutrition programs.

For Donors and Development Partners:

- Support market-based solutions (e.g., affordable fortified small packs, incentives for millers/processors) to expand fortified food access.
- Fund and scale biofortification research and dissemination for maize and other staples common in rural households.
- Invest in behavior change communication to increase consumer demand for fortified products and improve equity in access.
- Support data-driven targeting systems to identify and reach subpopulations with the highest deficiency and inadequate intake risk.