

GLOBAL STATUS OF FORTIFIED FOOD COVERAGE

Technical Brief | May 2021



Global Fortification DATA EXCHANGE

Fortified food coverage data, or the proportion of fortified food that is reaching the population, are a reflection of how well mandatory food fortification programs are being implemented. However, the availability of these data in countries with mandatory food fortification are sparse, suggesting that few countries monitor the implementation of food fortification.

INTRODUCTION

After mandatory fortification legislation and standards are put in place, how do we know if people are actually consuming fortified foods so that they can benefit from added nutrients?

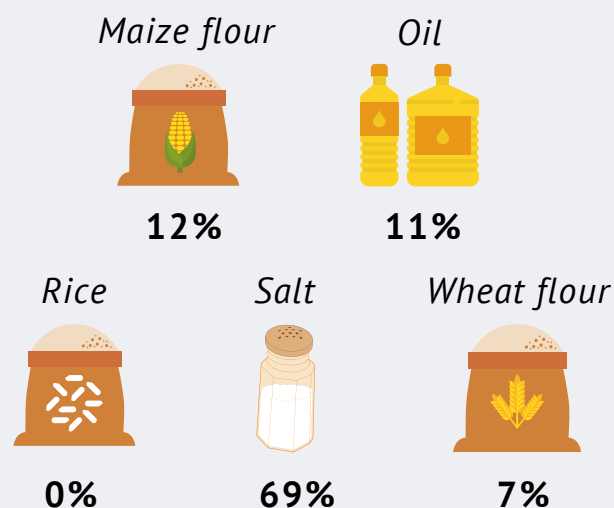
There are multiple ways of measuring coverage of a fortified food - some methods may be better suited for certain food vehicles than others (**Figure 1**). To interpret whether a fortified food has successfully reached a maximum proportion of the population, it's also essential to know coverage of the food itself and the coverage of the industrially processed food (**Figure 2**).

KEY MESSAGES

Understanding coverage of fortified food (who has access or eats the food after it's been fortified) is essential to understand how well a program has been implemented and identifying who is benefiting from fortification.

Despite successes in passing fortification legislation, only 88/142 countries have any data on coverage of a fortified food. Of those countries, only 64 have coverage levels above 80%.

Countries with mandatory fortification with population coverage data for each fortified food:



THERE ARE DIFFERENT METHODOLOGIES TO MEASURE COVERAGE OF FORTIFIED FOOD

Coverage of fortified foods in the population describes the proportion of the population consuming the fortified food. But measuring coverage of fortified foods is not so straightforward. There are multiple ways to measure coverage of fortified foods (**Figure 1**), which can impact the interpretation of how well a fortified food is reaching the population.

Of course, before coverage of fortified foods in the population is measured, fortification compliance - the production of fortified foods according to national standards - should be assessed. After all, if foods are not fortified properly at the point of production, then good coverage of fortified foods in the population is also unlikely.

FIGURE 1. METHODS TO MEASURE FORTIFIED FOOD COVERAGE

Because food vehicles differ in how they are used in the diet, certain methods may be better suited for different food vehicles. Since each method provides different information, fortification program evaluators may also choose to use more than one method.

	METHODOLOGY	HOW IT'S MEASURED	CONSIDERATIONS
BY HOUSEHOLD OR POPULATION SURVEYS* OR SURVEILLANCE SYSTEMS	NUTRIENT CONTENT IN FOOD (QUALITATIVE)	Typically through rapid tests done onsite. These tests only identify whether the nutrient is present or not - not the amount.	Iodine, iron, and vitamin A are the nutrients most typically measured using rapid tests and often used as <i>proxies</i> to indicate the presence of other nutrients in the same food.
	NUTRIENT CONTENT IN FOOD (QUANTITATIVE)	Food samples are collected from households and analyzed in a laboratory for the amount of nutrient present.	Can also be more expensive than qualitative tests. An option is to conduct quantitative testing on a subset of qualitative samples.
	CHECKING FOOD LABELS FOR FORTIFICATION CLAIMS	Foods are checked for labeling claims on food packaging, such as a logo, "fortified" or "enriched", or nutrition labels.	Cannot be done for unbranded foods or foods eaten outside of the home. Labeling claims may be false or inaccurate.
	PRODUCTION OF FORTIFIED FOOD AND PER CAPITA CONSUMPTION (Calculated estimate)	The amount of fortified food produced (according to compliance or industry data) divided by per capita consumption of the food	Provides an average coverage at national level. Estimate depends on the accuracy of production or consumption data.

*A major shortcoming of all surveys conducted at the household is that they do not capture consumption of foods outside of the home or may miss coverage in households that consume the food but did not have the food on the day of the survey.

HOW TO INTERPRET FORTIFIED FOOD COVERAGE

It's not always realistic to expect to reach 100% coverage of the population with fortified food. If people don't typically eat rice, or they eat a non-fortifiable version of rice (e.g., self-grown and milled), then it's unlikely that fortified rice will reach these individuals. So to know whether a program has reached its maximum population coverage, it's necessary to also know the proportion of the population that consumes an industrially processed version of the food.

In Tanzania (**Figure 2**), almost everyone (93%) in the country consumes maize flour, but only 36.6% of the population is consuming maize flour that is industrially milled. Since industrially milled flour is the most feasible under fortification, 36.6% is the maximum coverage of fortified maize flour possible in Tanzania. However, actual data on coverage of industrially produced, fortified flour is only 2.5%.

In Senegal, 51.2% coverage of industrially milled wheat flour indicates room for improvement, since the maximum potential coverage of fortified wheat flour is 81.5% of the population.

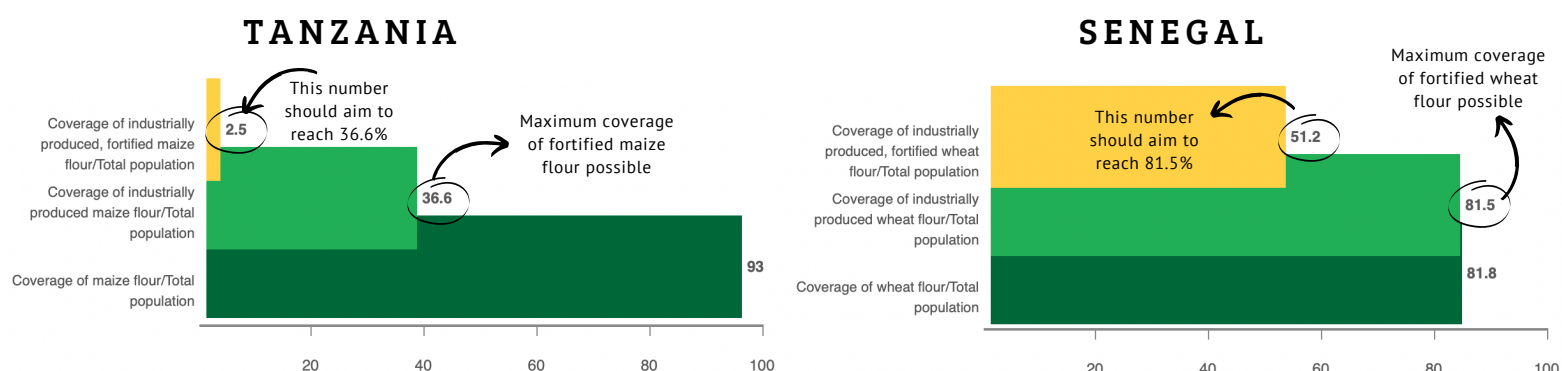
IS FOOD 'ADEQUATELY FORTIFIED'?

If the nutrient content in a food is measured quantitatively, then it may be possible to describe whether the food is 'adequately fortified', or meets nutrient level requirements (e.g., minimum nutrient levels specified in standards).

However, it may not be possible to use minimum requirements for samples collected at the household or market if level standards only apply at production. Recommended nutrient levels at household are only available for iodized salt. Calculating coverage of adequately fortified food using compliance data is possible if nutrient content in the food was measured quantitatively.

Given lack of data availability, GFDx only refers to coverage of a fortified food, containing *any* level of nutrient(s).

FIGURE 2. INTERPRETING COVERAGE OF FORTIFIED FOOD



EFFECTIVE COVERAGE

Although fortification programs will ultimately cover everyone consuming the food, not everyone in a country may need to benefit from fortification. *Effective coverage* describes whether the population most in-need of fortification is consuming and benefiting from fortified foods. Identifying effective coverage requires two separate analyses in the same populations:

- 1. Identifying the population in-need of fortification, through:
 - a. Assessing micronutrient biomarkers for nutrient deficiencies; or
 - b. Identifying dietary intake gaps.
- 2. Dietary consumption of the fortified food.

Lack of available data is one of the main reasons the GFDx does not currently include effective coverage.

RESULTS

Fortified salt coverage data is widely available (69% of countries with mandatory salt fortification; **Figure 3**) because if its inclusion as a standard indicator in household surveys such as the Demographic Health Surveys or Multiple Indicator Cluster Surveys. The average coverage of fortified salt is 78%. However, coverage data for other foods with mandatory fortification are very low (**Figure 4**). Where there are data, many countries are not reaching their maximum fortified food coverage. Except for salt, there are no data for trend analyses.

CONCLUSION

Expectations for coverage of a fortified food should be based the coverage of the food and coverage of industrially processed food. Household survey methodologies may not be appropriate for foods eaten outside of the home. Fortified food coverage data is nearly non-existent for maize flour, oil, and wheat flour, and none for rice.

FIGURE 3. POPULATION COVERAGE OF FORTIFIED FOOD VEHICLE

85/124 countries with mandatory fortification have population coverage data of fortified **salt**

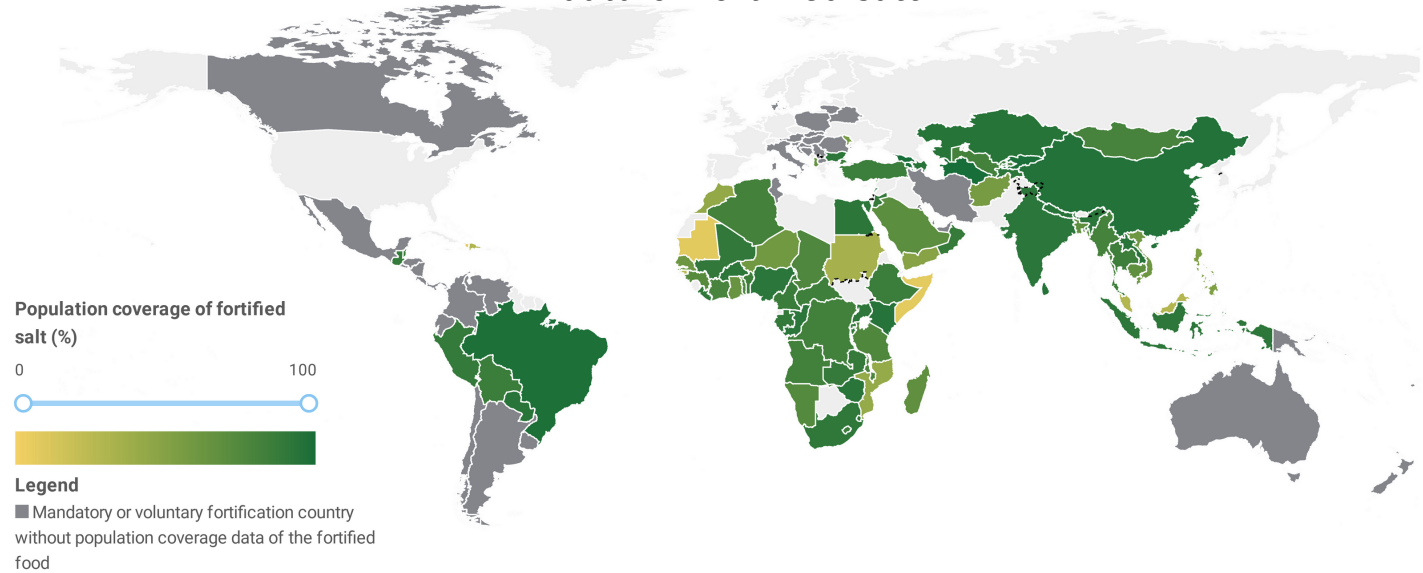
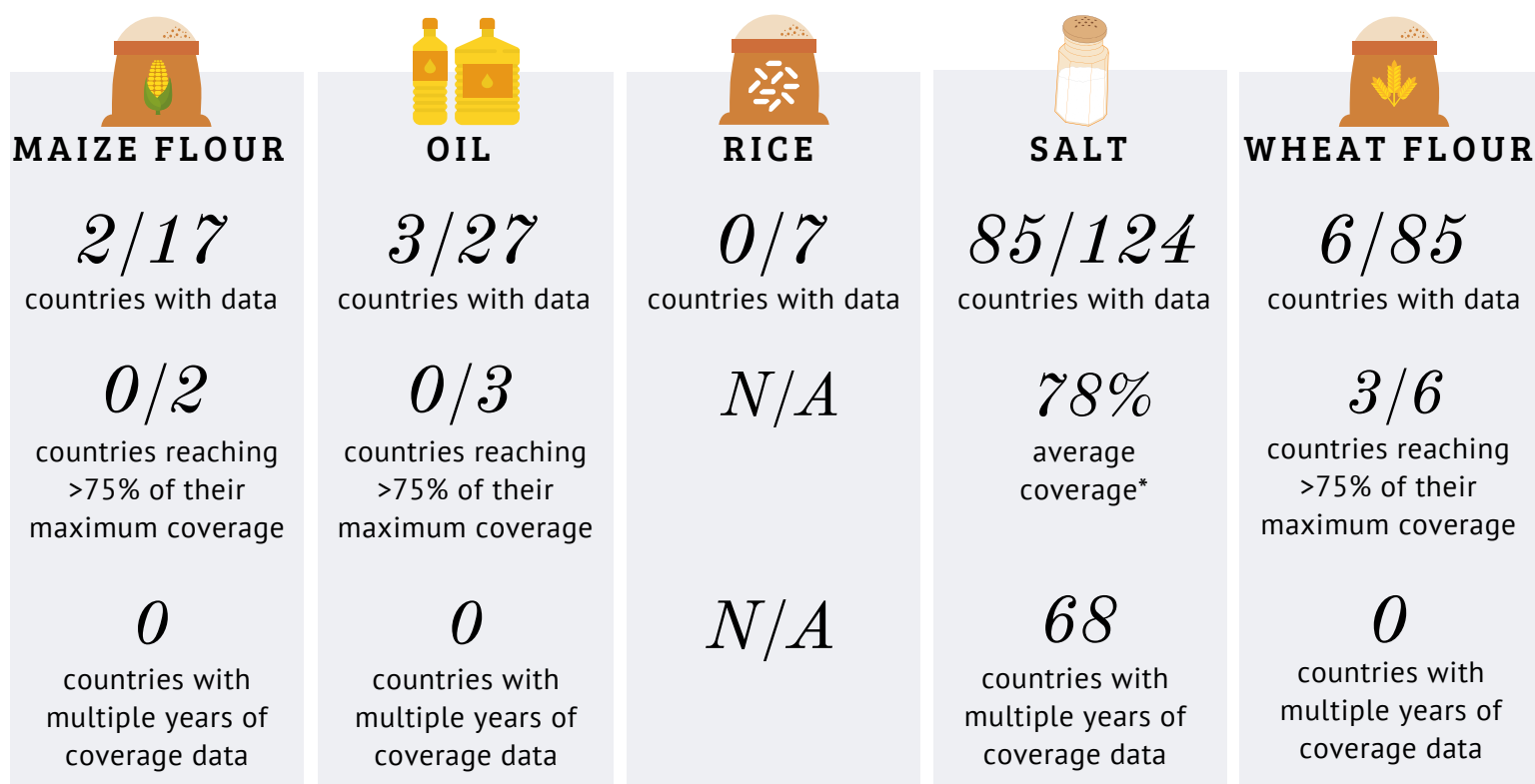


FIGURE 4. SUMMARY OF PERCENT FORTIFIED FOOD IN COUNTRIES WITH MANDATORY FORTIFICATION



*Not possible to calculate the 'maximum coverage' for countries with salt data

SUGGESTED CITATION

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dd/month/yyyy.

[<http://www.fortificationdata.org>.]

CONTACT US

If you have any questions, want to
share your experience using the
GFDx, contribute data, or provide any
other comments and feedback,
please reach us at the email below or
visit our website to learn more about
fortification resources.

 www.FortificationData.org

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METHODS

- GFDx populates its compliance and quality data through a bi-annual survey, aiming to reach 196 countries. Outside of surveys, the GFDx is updated when new information is received directly from fortification partners and/or national stakeholders.

RESOURCES

- Fortification Assessment Coverage Toolkit (FACT) consists of a manual and 10 practical tools and templates that provides standardised methods for the collection, analysis, and synthesis of data on quality, coverage, and consumption of fortified foods across countries while allowing for adaptations to meet specific country needs and contexts.

[<https://www.gainhealth.org/resources/reports-and-publications/fortification-assessment-coverage-toolkit-fact>]