

# STAKEHOLDERS' NUTRITION DIALOGUE

**Improving Workforce Nutrition**

**Leveraging Rice Fortification to  
Combat Birth Defects including  
Spina Bifida in Nigeria**

*Adeyinka Onabolu*



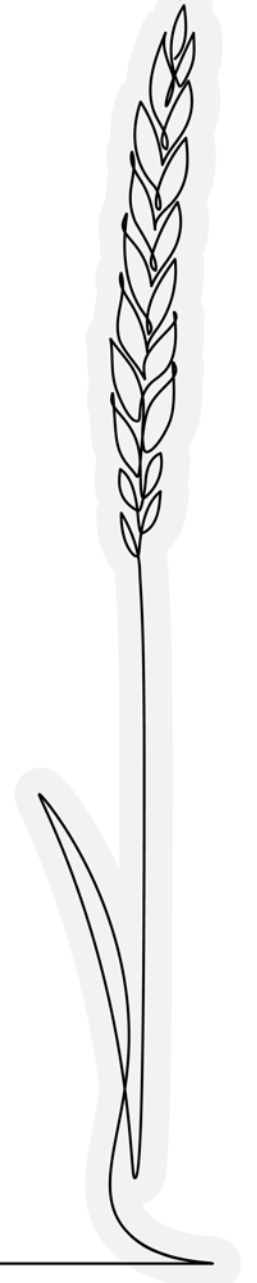
# PRESENTATION OUTLINE

## Workforce Nutrition

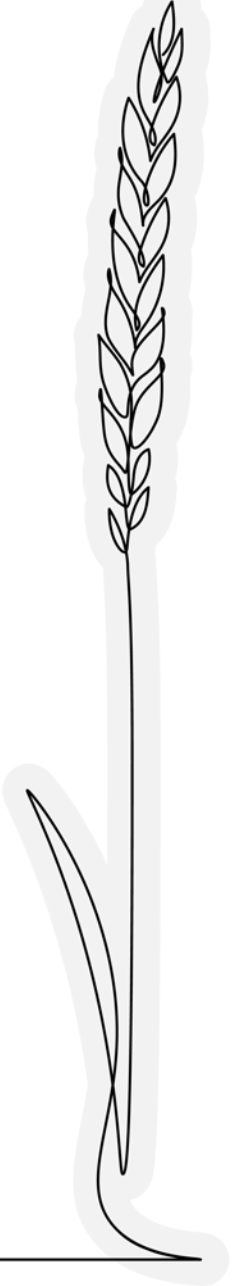
1. Definition of workforce nutrition programmes.
2. How workforce nutrition programmes tackle malnutrition.
3. Evidences of the effectiveness of workforce nutrition programmes.
4. Current workforce nutrition related policies and interventions in Nigeria
5. What still needs to be done?

## Leveraging Rice Fortification to Combat Birth Defects such as Spina Bifida in Nigeria

1. Prevalence of, and consequences of micronutrient deficiencies in Nigeria
2. Folate deficiency and birth defects
3. Potential of rice fortification as a public health intervention – the evidence so far
4. What needs to be done?



**‘A healthy workforce makes a  
healthy business’**



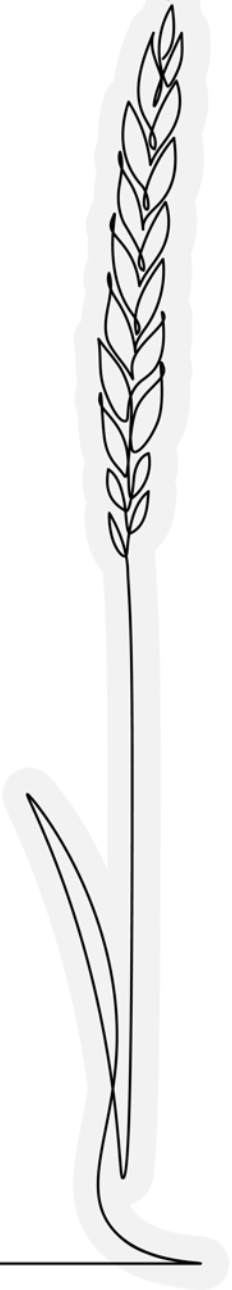
## WORKFORCE NUTRITION: BACKGROUND ANALYSIS

Workforce nutrition (WFN) programmes are a compelling part of the solution to malnutrition.

WFN programmes can improve the health of the workforce and significantly reduce the burden of malnutrition in a wide variety of settings

In a work setting, proper nutrition can significantly affect an employee's energy levels, concentration, productivity, and overall health.

A well-nourished workforce is more likely to be energetic, focused, and less prone to illness.





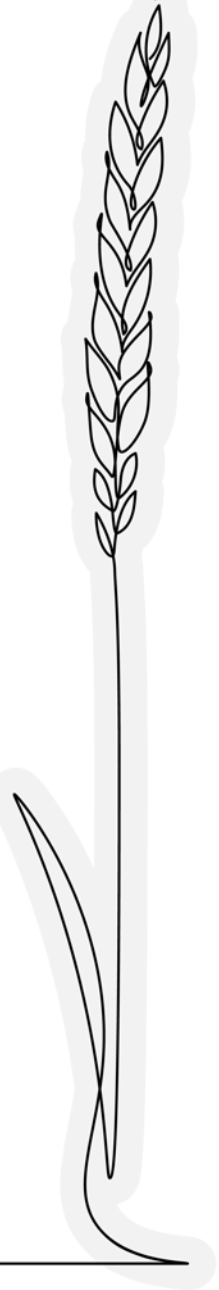
## BACKGROUND ANALYSIS CONTD.

### **Workplaces are unique settings for nutrition interventions. They provide**

- repeated interaction with a specific group of people,
- a contained environment that can be modified to achieve good eating habits,
- the potential for significant returns on investment, making workforce nutrition a potentially sustainable investment.

### **Justification for implementing work force nutrition programmes**

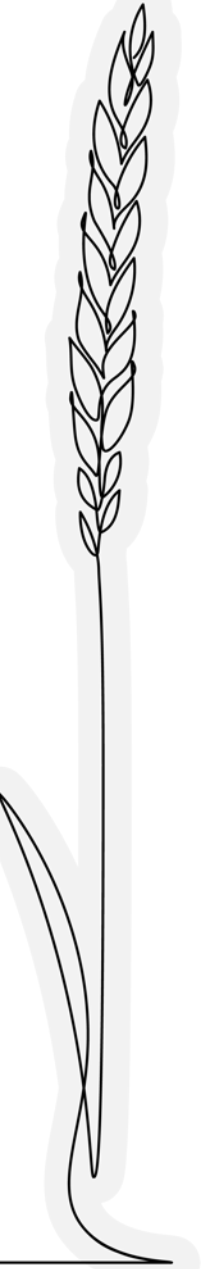
- Poor nutrition is more than a health care concern; it has economic implications.
- Poor nutrition is a key risk factor for many diseases, such as obesity, heart disease, type 2 diabetes, and many types of cancer.
- Diseases deprive individuals of their health and quality of life, as well as their work potential, and hinder their efforts to work full-time or at all, leading to lower earning capacities.
- For employers, absenteeism pose tremendous costs.



## BACKGROUND ANALYSIS CONTD.

### Evidences of the effectiveness of workforce nutrition programmes: Individual level outcomes observed

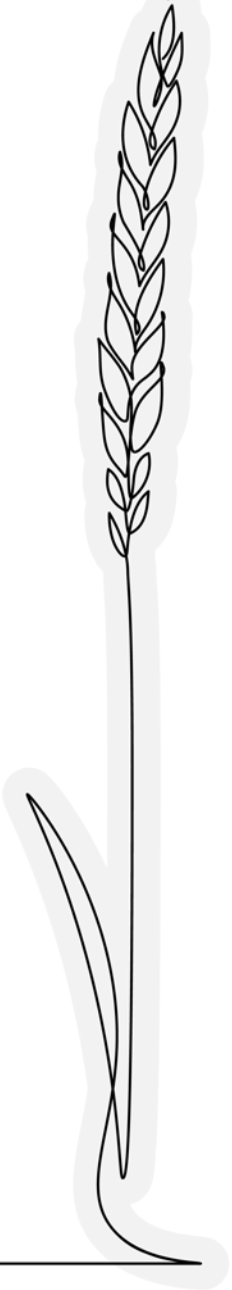
- Increased job satisfaction
- Reduced days taken off work due to illness
- Increased earnings
- Better nutrition knowledge
- Increased consumption of healthy foods
- Reduced risks of non-communicable diseases such as diabetes
- Increased duration of exclusive breastfeeding



## BACKGROUND ANALYSIS CONTD.

### Evidences of the effectiveness of workforce nutrition programmes: Business level productivity outcomes


- Reduced absenteeism
- Improved productivity
- Reduced medical costs as a result of illnesses
- Significantly lowered rates of accidents and mistakes
- Increased returns on investment

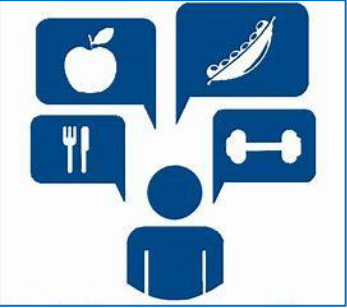




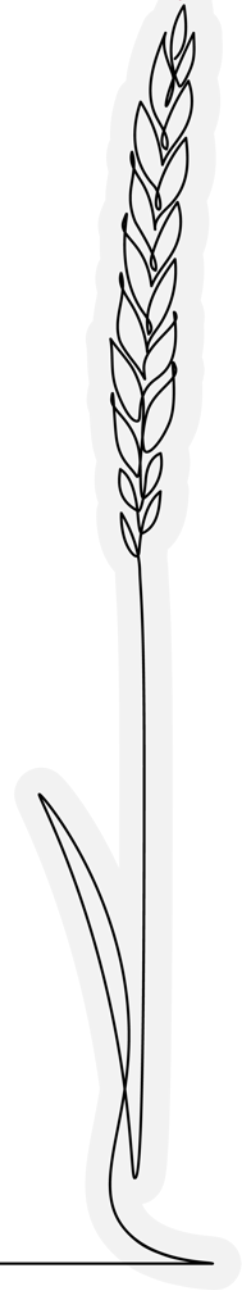
## BACKGROUND ANALYSIS CONTD.

### Nutrition Pillars for Work force Nutrition

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1. Access to healthy food interventions - increasing access to nutritious foods for free or at subsidised costs, and/or making changes to the types of foods available for purchase around the work environment (e.g., healthier foods served in the canteens, healthier foods for sale around the work environment).
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2. Nutrition education programmes that aim to change employees' dietary and/or lifestyle behaviours: increasing knowledge about what makes good eating habits, basic nutrition knowledge and how what we eat affects us, and cooking demonstrations.



## BACKGROUND ANALYSIS CONTD.

3.



Nutrition-focused health checks and counselling: periodic one-to-one consultations with a health or nutrition professional to assess and discuss the employee's nutritional and health status. Health checks help employees gain a better understanding of their nutritional and health risk factors. Follow-up counselling can be provided in addition to health checks, to advise employees on potential dietary and lifestyle changes.

4.



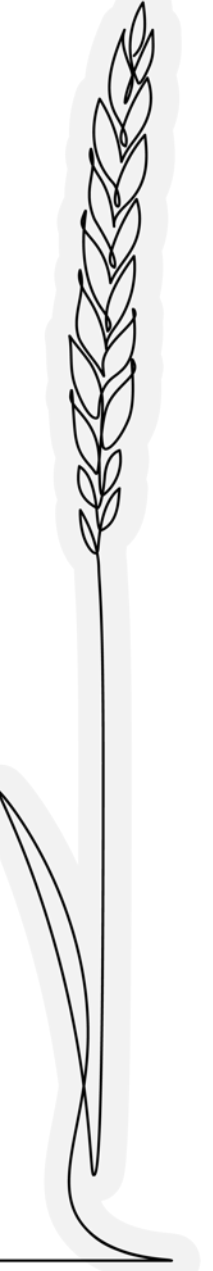
Support for breastfeeding: providing support that will enable working mothers to breastfeed their children exclusively for 6 months and up to 2 years, e.g., policies and interventions on the duration of paid maternity leave, providing breastfeeding rooms, breastfeeding or breastmilk expression breaks, and flexible work schedules for mothers. Support may also include raising awareness or nutrition education campaigns for mothers and co-workers on the importance and benefits of breastfeeding.



## BACKGROUND ANALYSIS

### Existing Workforce Nutrition related Policy components and opportunities

- 1. *Healthy Food at Work:*** The Agricultural Sector, Food security and Nutrition Strategy 2016-2025: Ensuring that workplaces offer healthier meals is an entry point for Strategic Priority Area 7 of the strategy.
- 2. *Nutrition Education:*** The National Health Promotion Policy mentions a healthy work environment; the National Policy and Strategic Plan of Action on prevention and control of NCDs refers to health promotion and dietary advice, with special mention of workplaces.
- 3. *Health Checks:*** No direct reference found under existing laws, rules, or policies on the inclusion of health checks in worksites, beyond occupational health and safety and none on provision of antenatal screening for pregnant employees.
- 4. *Breastfeeding support:*** Government workers are entitled to 16 weeks of maternity leave (full pay) and 2 hours off-duty per day for breastfeeding or expressing milk. Labour law stipulates 12 weeks of maternity leave (6 weeks prenatal + 6 weeks postnatal) at 50% of pay.



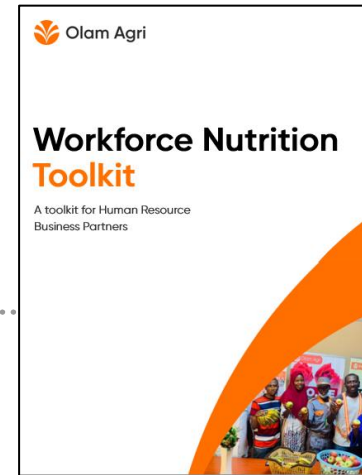
# IMPLEMENTATION OF WFN IN NIGERIA: OLAM AGRI



Official N4G Side Event: Leveraging Workplace to Bring Improved Nutrition to Millions of Employees

Congratulations on reaching Bronze status on your Workforce Nutrition Programme!

<b>Total Score:</b>	<b>36 points out of 100</b>
Healthy Food at Work:	16 points out of 30
Nutrition Education:	7 points out of 20
Health Checks and Follow-up:	12 points out of 20
Breastfeeding Support:	1 points out of 30



## 2021 Commitment

By 2030, 100% of our workforce has access to nutrition programmes



## Understanding our starting point

Rollout the self-assessment scorecard to assess where we stand, prioritize actions and unify our actions under one framework



## Taking Action

Work with businesses to develop action plans, connect with partners, raise awareness among staff and increase capacity



## Creating Sustainable impact

Businesses implement action plans with annual self-assessments to track progress and celebrate impact

# IMPLEMENTATION OF WFN IN NIGERIA: INITIATIVES IMPLEMENTED IN NIGERIA BY OLAM AGRI

## Once a week free meal

Provides employees with a nourishing meal, reducing the need to spend money on food on the selected day.

Saves staff money and contributes to improved morale and motivation.

Enhances productivity - a well-fed workforce is better equipped to concentrate and perform at their best.

Sharing a meal together fosters a sense of community and strengthens team bonds, creating a positive and collaborative work.

**Pillar – Healthy Meal at Work**

## On-site creche

Offers a convenient and safe environment for children while parents work.

Provides peace of mind for parents, especially new mothers, knowing their children are nearby and accessible throughout the day.

Parents are able to focus on work without worrying about the children's safety & well-being, save money on childcare costs, and avoid stress of commuting to and from day-care centres.

**Pillar – Breastfeeding Support**

## On-site Cafeteria

Offers a convenient and cost-effective dining option.

Reduces time spent on commuting to purchase meals, improves work-life balance and boosts morale.

Fosters a sense of community and strengthens team bonds through shared mealtimes.

Employees are well-nourished, more productive, focused, and satisfied

Resulted in improved performance and overall company success.

**Pillar – Healthy Meal at Work**

## Routine health check

Routine checks on Cholesterol, Complete blood count (CBC), blood sugar, Eye check, Uric acid - provided a convenient and valuable opportunity to overall health and well-being.

Personalized guidance & recommendations and on dietary improvements to help in making informed choices about their health.

Resulted in improved productivity and reduced healthcare costs.

**Pillar – Nutrition-focused health checks**

## Fruity Friday

Fresh fruits are served on the last Friday of each month.

Fruits which are low in calories and high in fibre are served to employees, providing them an excellent addition to a balanced diet.

Employees embraced the initiative to enjoy healthy snacks, take a break, and recharge. Contributed to a positive and productive work atmosphere.

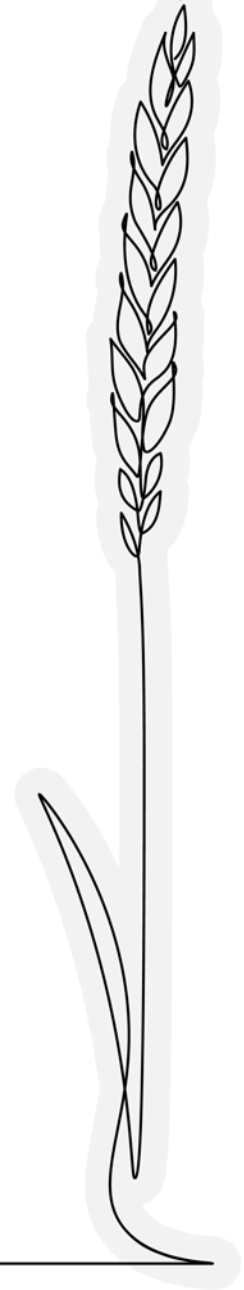
**Pillar – Healthy Meal at Work**

## IMPLICATIONS AND OPPORTUNITIES

Enact laws that mandate government and the private sector to feed its workforce once a day, 5 days a week towards Human Capital Development in Nigeria as part of the Social Investment Portfolio of government.

There are several options – full payment for lunch by employers, some contribution by the employees, set up a garden to provide some of the foods to be cooked for the workforce.

- An alternative way of implementing workforce nutrition may be to regulate foods sold around workplaces and what canteens can sell.
- Associated policies required include those that would support consumption of healthy diets such as Nutrient Profiling, Food labelling, and prohibition of advertisement and sale of unhealthy foods around schools and workplaces.

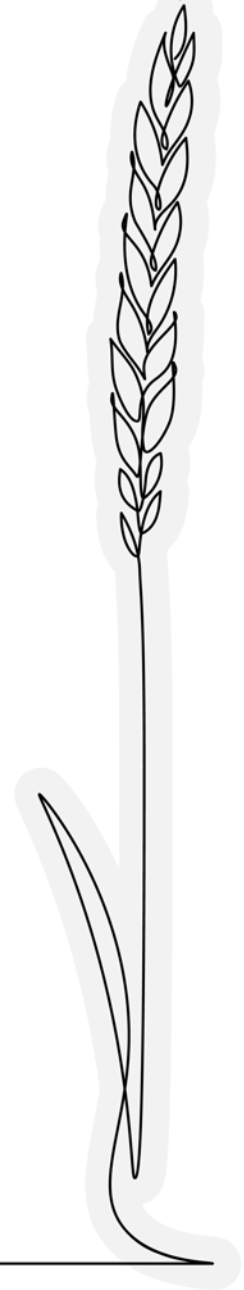


# **Leveraging Rice Fortification to Combat Birth Defects such as Spina Bifida in Nigeria**

## PREVALENCE OF MICRONUTRIENT DEFICIENCIES IN NIGERIA

- Iron deficiency: Children 6 – 59 months: 20.7%; Adolescent girls 10 – 14 yrs.: 4.2%; WRA 15-49 years: 10%; Pregnant women 15 – 49 years: 26.1%
- Vitamin A deficiency: Children 6 – 59 months: 31.3%; Adolescent girls 10 – 14 yrs. 23.6%; Pregnant women 15 – 49 years: 27.1%
- Vitamin B12 insufficiency/ deficiency: Children 6 – 59 months: Insufficiency: 12.6%, deficiency: 2.6%; Adolescent girls 10 – 14 yrs. Insufficiency: 7.3%, deficiency: 2.0%; WRA 15 – 49 years: Insufficiency: 9.5%, Deficiency 1.6%; Pregnant women 15 – 49 years: Insufficiency: 32.1%, Deficiency 11.8%

Federal Government of Nigeria (FGoN) and the International Institute of Tropical Agriculture (IITA). 2024. National Food Consumption and Micronutrient Survey 2021. Final Report. Abuja and Ibadan, Nigeria: FGoN and IITA. 550 pp.

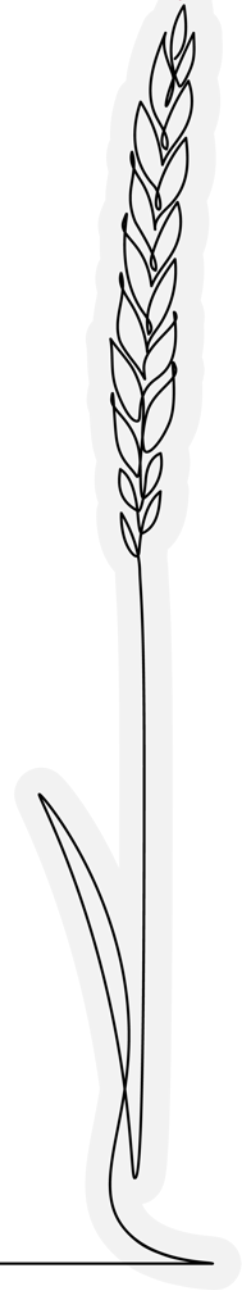




## PREVALENCE OF MICRONUTRIENT DEFICIENCIES IN NIGERIA

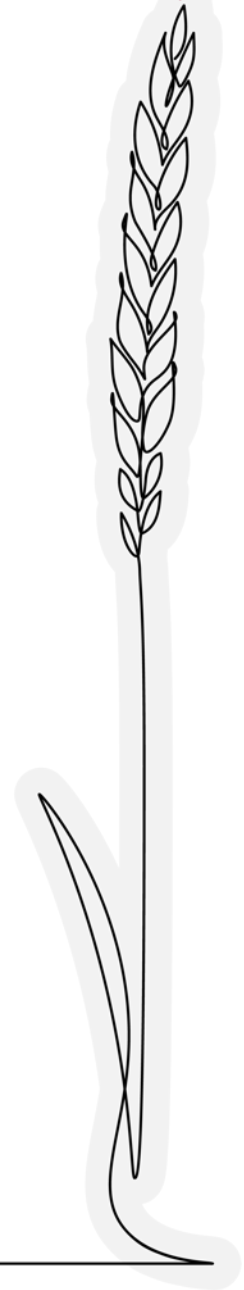
- Zinc Deficiency: Children 6 – 59 months: 35.2%; Adolescent girls 10 – 14 yrs.: 33.5%; WRA 15-49 years: 35.1%
- Serum Folate Deficiency (risk of megaloblastic anaemia): Adolescent girls 10 – 14 yrs. 22.7%; WRA 15-49 years 23.1%; Pregnant women 15 – 49 years: 19.7%
- RBC folate deficiency: Adolescent girls 10 – 14 yrs. 91.3%; WRA 15-49 years – 95.4%; Pregnant women 15 – 49 years: 85.2%
- Vitamin B2 deficiency: WRA 15-49 years: 78.6%

Federal Government of Nigeria (FGoN) and the International Institute of Tropical Agriculture (IITA). 2024. National Food Consumption and Micronutrient Survey 2021. Final Report. Abuja and Ibadan, Nigeria: FGoN and IITA. 550 pp.



## FOLATE

- B vitamin found naturally in many foods including leafy greens, citrus fruits, nuts, beans, peas, seafood, eggs, dairy, meat, poultry and grains.
- Needed to make new red blood cells and DNA.
- Especially important for pregnant women – plays a crucial role in the development of the central nervous system during the early weeks of gestation, which is generally before the pregnancy is confirmed.
- Synthetic form of folate is **folic acid**. Human body can not store large amounts of natural folate, but can easily absorb folic acid.
- Folic acid is used for food fortification - rice, bread, pasta and some cereals are fortified with folic acid.



## FOLATE DEFICIENCY

- During the early weeks of pregnancy leads to a failure of the primitive neural tube to close and differentiate normally and results in neural tube birth defects (NTD).

NTDs - When defects occur cranially, it causes anencephaly, when caudally, usually in the lumbosacral area, it causes spina bifida cystica (myelomeningocele, meningocele) and spina bifida occulta.

- Can increase the chances of placental abruption, a condition where the placenta separates from the uterus.
- Can result in premature delivery (preterm birth) and/or low birth weight.



## FOLATE DEFICIENCY

- Folate deficiency during pregnancy could lead to the development of autism in a child.
- WHO estimates that folic acid deficiency contributes to approximately 300,000 NTDs globally each year, a significant portion of which occur in sub-Saharan Africa, including Nigeria.
- Prevalence of Neural Tube Defects in Nigeria:
  - North-West Nigeria: 2.2/1,000 births - spina bifida 72.7%, anencephaly 22.7% and encephalocele 4.6% (1)
  - South-East Nigeria: 2.8 per 1,000 births, with spina bifida being the predominant defect (2)
  - Kano: 2.75/1000 births Kano (3)
  - Sokoto: 2.2/1000 births (4)
  - Ebonyi 5.3/1000 births (5).
- A systematic review and meta-analysis estimated a pooled birth prevalence for NTD in Nigeria as 3.28/1,000 births (6)



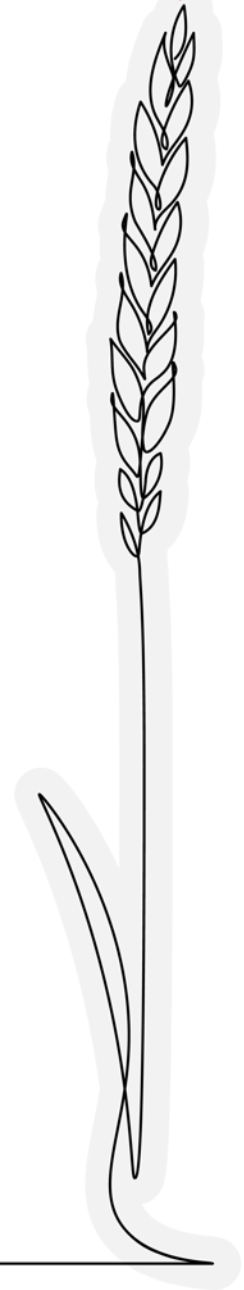
Encephalocele

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2. Ajah, Leonard & CC, Amah & Ezeome, Ijeoma & Ozumba, Benjamin & Anozie, Okechukwu & US, Asogwa. (2017). A 10 Year Review of Neural Tube Defects in South-East Nigeria. 22.
3. Anyanwu LC, Danborbo B, Hamman WO. The prevalence of neural tube defects in live born neonates in Kano, North-Western Nigeria. Afr J Med 2015;2:105-9.
4. Nnadi DC, Singh S. The prevalence of neural tube defects in North-West Nigeria. Saudi J Health Sci 2016;5:6-10
5. Personal communication
5. Oumer, M., Tazebew, A. & Silamsaw, M. Birth prevalence of neural tube defects and associated risk factors in Africa: a systematic review and meta-analysis. BMC Pediatr 21, 190 (2021). <https://doi.org/10.1186/s12887-021-02653-9>

## CONSUMPTION OF FORTIFIED FOODS IN NIGERIA

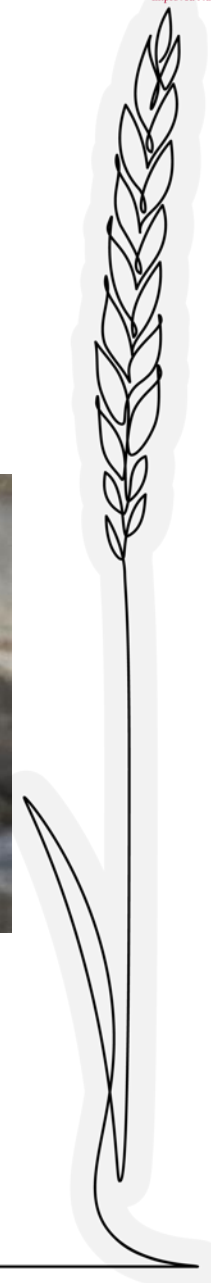
- Salt, bouillon, vegetable oil, and sugar are the most commonly consumed fortified foods across Nigeria.
- Vegetable oil: consumed by 90.3% of respondents, 32.9% was branded, only 31.4% labelled as fortified.
- Wheat flour: consumed by 28% of respondents, 12.9% was branded and labelled as fortified.
- Maize flour: consumed by 57.4% of respondents, 1.2% was branded, while only 0.5% was labelled as fortified.
- Semolina: consumed by 28.7% of respondents, 22.8% was branded and fortified.
- Sugar: consumed by 88.2% of respondents, 59.4% was branded, only 22.2% was labelled as fortified.
- Salt: consumed by 99.2% of respondents, 46.6% was branded, only 20.8% was labelled as fortified.
- Bouillon: consumed by 98.9% of respondents, 94.3% was branded, 60.7% was labelled as fortified.



# RICE FORTIFICATION AS A PUBLIC HEALTH INTERVENTION TO PREVENT FOLATE DEFICIENCY RELATED BIRTH DEFECTS

## Why rice?

- Rice is a staple food consumed daily by a large proportion of the Nigerian population across all socioeconomic groups.
- Per Capita consumption is 32kg
- The widespread consumption of rice makes it an ideal vehicle for fortification with folate and other micronutrients.
- Early results from the Promoting Rice Fortification in Nigeria (PRiFN) project demonstrated promising results, showcasing acceptability of fortified rice making rice a viable food vehicle for fortification.



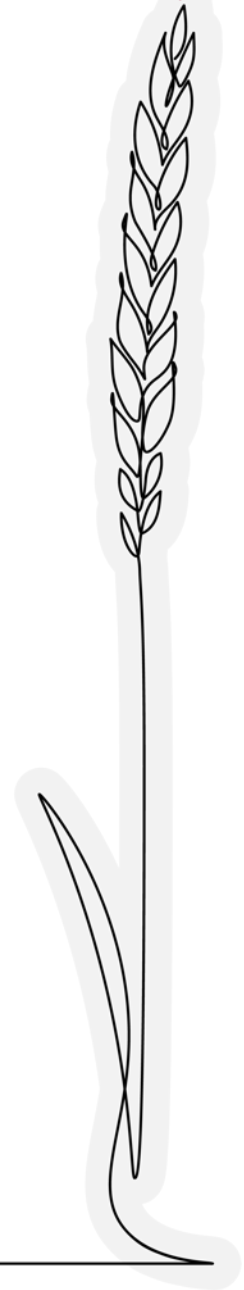
# RICE FORTIFICATION AS A PUBLIC HEALTH INTERVENTION

## The challenge

- Absence of a mandatory fortification policy limits the widespread adoption and impact of rice fortification initiatives as a public health intervention to reduce birth defects as a result of folate deficiency.
- Voluntary fortification programs often have low compliance rates and inconsistent implementation, limiting public health benefits.

## What next?

Need for policy intervention to make rice fortification mandatory in Nigeria, ensuring that fortified rice reaches all population segments and contributes significantly to reducing birth defects and Spina Bifida in Nigeria.





**Thank you**