



Inspiring Trust, Assuring Safe & Nutritious Food



FOOD SAFETY AND STANDARDS
AUTHORITY OF INDIA

Food Fortification in India: Progress and challenges on ground

Line Ministries



Dinesh Kumar. PhD. (IIT Delhi-AIIMS)

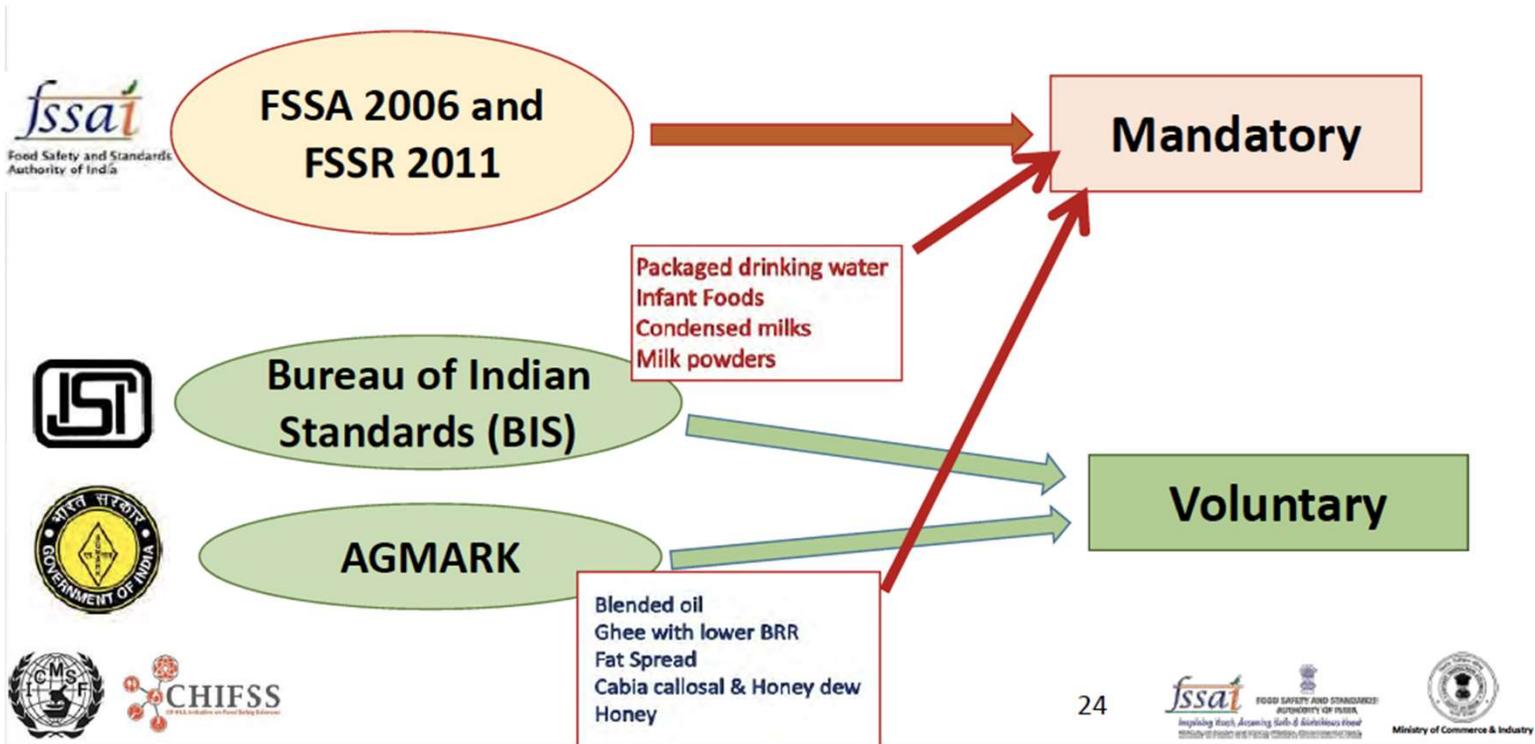
*Assistant Director (Tech),
Quality Assurance, FSSAI HQ.*

dinesh.k@fssai.gov.in

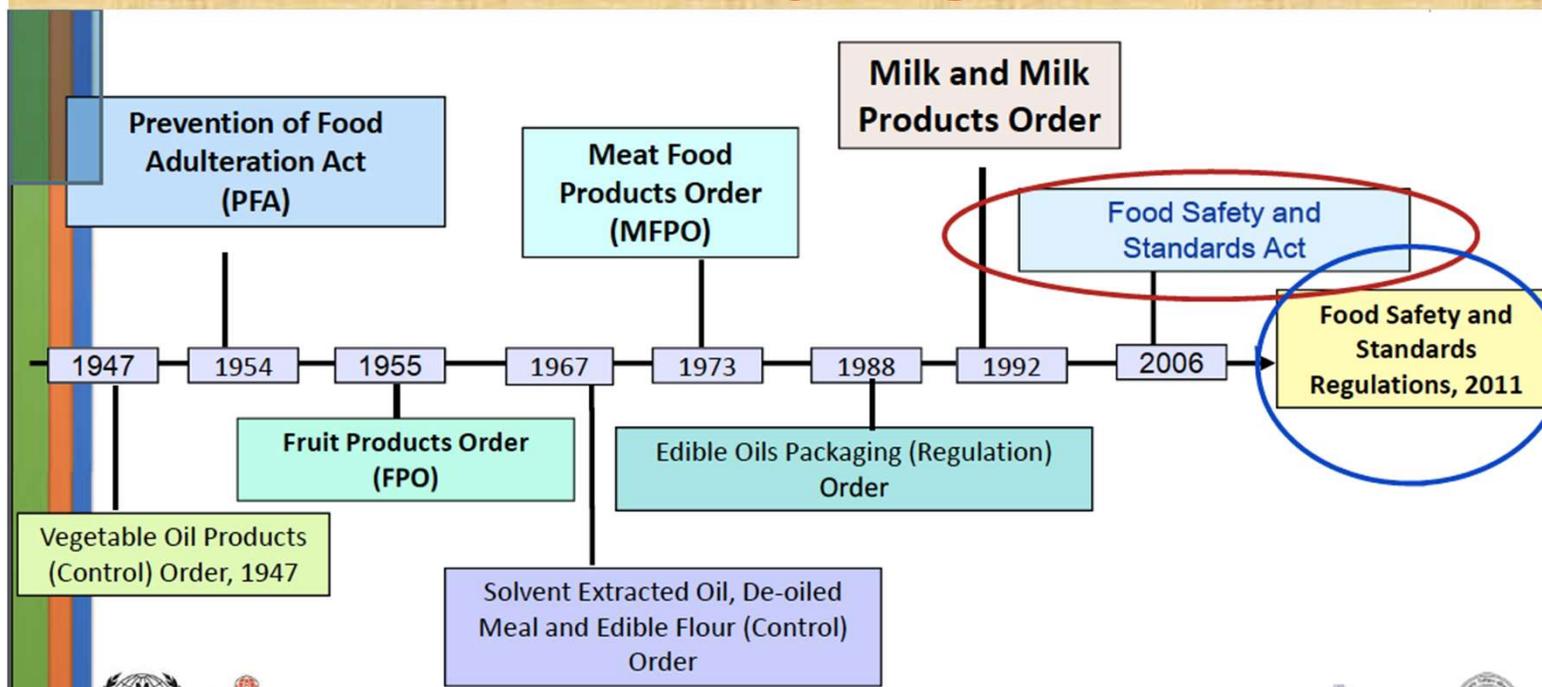


Ministry of Health & Family Welfare
Govt. of India

Domestic Food Regulatory System in India



Timeline – Food Safety Regulations in India



Mandate of FSSAI

Ensure Safe & Wholesome Food



Food Standards & Safe Practice



Food Testing



Food Safety Compliance



Training & Capacity Building

Focus on Nutrition
Consumer Connect and Social and Behavioural Change

The Need

Nutrition Emergency



195 million
Indians are
undernourished



46.6 million
Indian children
under 5 are stunted



25.5 million
Indian children
under 5 are wasted



India ranks **103rd**
among **119**
countries in the
Global Hunger Index

Source : The Global Nutrition Report 2018; Global Hunger Index (GHI)

Indicators	NFHS-5
Children age 6-59 months who are anaemic (<11 g/dl) (%)	67.1
Non-pregnant women age 15-49 years who are anaemic (<12.0 g/dl) (%)	57.2
Pregnant women age 15-49 years who are anaemic (<11.0 g/dl) (%)	52.2
All women age 15-49 years who are anaemic (%)	57.0
Men age 15-49 years who are anaemic (13.0 g/dl) (%)	25.0

Addressing the Nutrition Gap



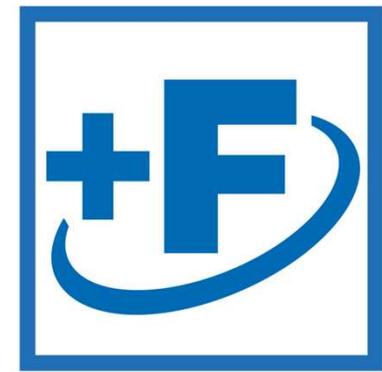
Dietary Diversification

*Longest to create impact
Consumer awareness*



Supplementation

*Targeted approach
Difficult to monitor*



FORTIFIED

Food Fortification

*Complimentary approach
Covers population*



CURRENT UPDATES ON RICE FORTIFICATION IN INDIA

Cabinet Committee on Economic Affairs (CCEA)

Cabinet approves distribution of fortified rice across Government Schemes

PM had announced the fortification of rice in his Independence Day speech

Entire cost of rice fortification (around Rs. 2,700 crore per annum) would be borne by the Govt. of India

Fortification will provide nutrition to every poor person of the country to overcome malnutrition and lack of essential nutrients in women, children, lactating mothers

FCI and State Agencies have already procured 88.65 LMT of fortified rice for supply and distribution

Posted On: 08 APR 2022 3:58PM by PIB Delhi

Ministry of Consumer Affairs, Food & Public Distribution

One Year of Announcement of Rice Fortification.

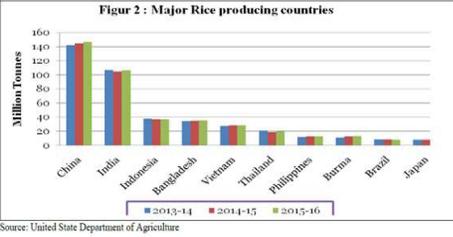
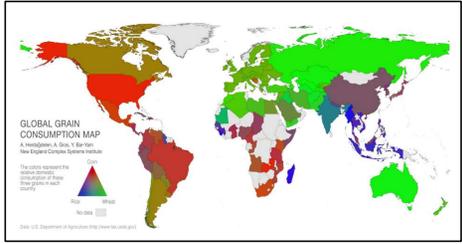
151 districts in 24 states lifted fortified rice; 6.83 LMT distributed by the States/UTs in Phase II

7.36 LMT lifted by the States/UTs under ICDS and PM POSHAN in Phase II

Hon'ble PM on the 75th Independence Day announced the supply of Fortified Rice in every scheme of Government of India

Within one year, number of rice mills having blending infrastructure for fortified rice increased from 2690 to 9000.

Posted On: 11 AUG 2022 6:07PM by PIB Delhi



PMO India @PMOIndia

सरकार अपनी अलग-अलग योजनाओं के तहत जो चावल गरीबों को देती है, उसे फोर्टिफाई करेगी, गरीबों को पोषणयुक्त चावल देगी।

राशन की दुकान पर मिलने वाला चावल हो, मिड डे मील में मिलने वाला चावल हो, वर्ष 2024 तक हर योजना के माध्यम से मिलने वाला चावल फोर्टिफाई कर दिया जाएगा: PM @narendramodi

7:59 AM · Aug 15, 2021 · Twitter Web App

Narendra Modi @narendramodi

The Cabinet decision of fortified rice is in line with our endeavours to improve nutrition levels and further the welfare of our Nari Shakti as well as Yuva Shakti.

pib.gov.in/PressReleasePa...

9:00 PM · Apr 8, 2022 · Twitter for iPhone



FSSAI INITIATIVE


भारत का राजपत्र
The Gazette of India
 सौ.जी.-डी.एल.-अ.-28052022-236096
 CG-DL-E-28052022-236096
 EXTRAORDINARY
 PART III—Section 4
 PUBLISHED BY AUTHORITY
 नई दिल्ली, बुधवार, मई 26, 2022/वेद 5, 1944
 NEW DELHI, THURSDAY, MAY 26, 2022/JVAISHTA 5, 1944

F.No. STD/FA/38/FSSAI
भारतीय खाद्य सुरक्षा और मानक प्राधिकरण
 (खाद्य सुरक्षा और मानक अधिनियम, 2006 के तहत स्थापित एक वैधानिक प्राधिकरण)
 (विज्ञान एवं मानक प्रभाग)
 एफडीए भवन, कोटला रोड, नई दिल्ली- 110002
 Dated, the 23 June, 2022

Subject: Direction under Section 16(5) of Food Safety and Standards Act, 2006 regarding operationalization of Draft Food Safety and Standards (Food Product Standards and Food Additives) Amendment Regulations regarding the standards of Fortified Rice Kernel

In exercise of the power conferred under Section 92 of the Food Safety and Standards Act, 2006, FSSAI had framed the Draft Food Safety and Standards (Food Product Standards and Food Additives) Amendment Regulations w.r.t. the standards of Fortified Rice Kernel and the same has been draft notified in the Gazette of India on 25th May, 2022.

2. The above mentioned draft amendment regulations are in the process draft consultation from the stakeholders. Finalising the said amendment notification after considering the comments of stakeholders and its final notification in the Gazette of India are likely to take further more time. Meanwhile, to strengthen the National level fortification programme and its implementation, it has been decided to operationalize the provisions related to Fortified Rice Kernel of the above mentioned draft amendment, as provided in the **ANNEXURE-1**, with immediate effect.

3. This issues with approval of the competent authority in exercise of the power vested under the Section 18(2)(d) read with 16(5) of the Food Safety and Standards Act, 2006.


 (भास्कर, एन)
 सलाहकार (विज्ञान एवं मानक)

https://ffrc.fssai.gov.in/assets/file/Standards_Fortified_Rice_Kernel.pdf

(4) Fortified rice kernels shall also conform to the following requirements of fortificants-

S. No.	Micronutrients	Sources	Fortificans level for1:50 blending ratio	Fortificans level for1:100 blending ratio
1.	Iron, mg/100 g	Micronised Ferric pyrophospahe; or	140 - 212.5	280 - 425
2.		Sodium iron (III) ethylenediamine tetraacetate trihydrate (sodium feredetate-NaFeEDTA)	70 - 106.25	140 - 212.5
3.	Folic acid, µg/100 g	Folic acid	375 - 625	750 - 1250
4.	Vitamin B12 µg/100 g	Cyanocobalamine or Hydroxycobalamine	3.75 - 6.25	7.5 - 12.5

How to Identify Fortified Foods



FORTIFIED
SAMPOORNA POSHAN
SWASTH JEEVAN



फोर्टिफाइड
सम्पूर्ण पोषण
स्वस्थ जीवन

Fortified with ____ (vitamin/mineral)

- Ingredient declaration
- Nutritional information declaration
- FBOs to endorse their products and obtain +F logo if fortifying as per FSSAI Standards
- FBOs manufacturing final product will be given +F endorsement.
- +F endorsement will not be given to FRK and vitamin-mineral premix manufacturers.

Food Fortification

Fortification: Deliberately increasing the content of essential micronutrients to improve nutritional quality



Benefits of Food Fortification

Health

- ✓ Iron essential for fighting against anaemia.
- ✓ Folic acid and vitamin B12 help in maintaining normal functioning of the vital body systems and blood formation.
- ✓ Vitamin A helps in better vision.
- ✓ Vitamin D supports stronger bones

Economic

- ✓ Increased cognitive ability of children and productive capacity of adults
- ✓ Less burden on health care system

Social

- ✓ Food security
- ✓ Positive impacts on nutrition, public health and overall social welfare



Role of FSSAI

FSSAI's Role Set **Standards**, Create **+F Logo**

- **Setup** a Fortification Division

Alignment **Alignment & Advocacy** - Industry & State Consultations

- **Nudge & Facilitate** - Both Open Market and State Governments

Ensuring Supply Ensuring **open market availability**

- **Linking** Govt Safety Net Programs to Fortified Supplies

Creating Demand Building **Consumer Awareness**

- Joint Marketing Campaigns

Training For **Food Safety Officers/Designated Officers**

- For Labs/ FBOs/ MSMEs/Retails with Development Partners

Surveillance **Compliance** with Standards

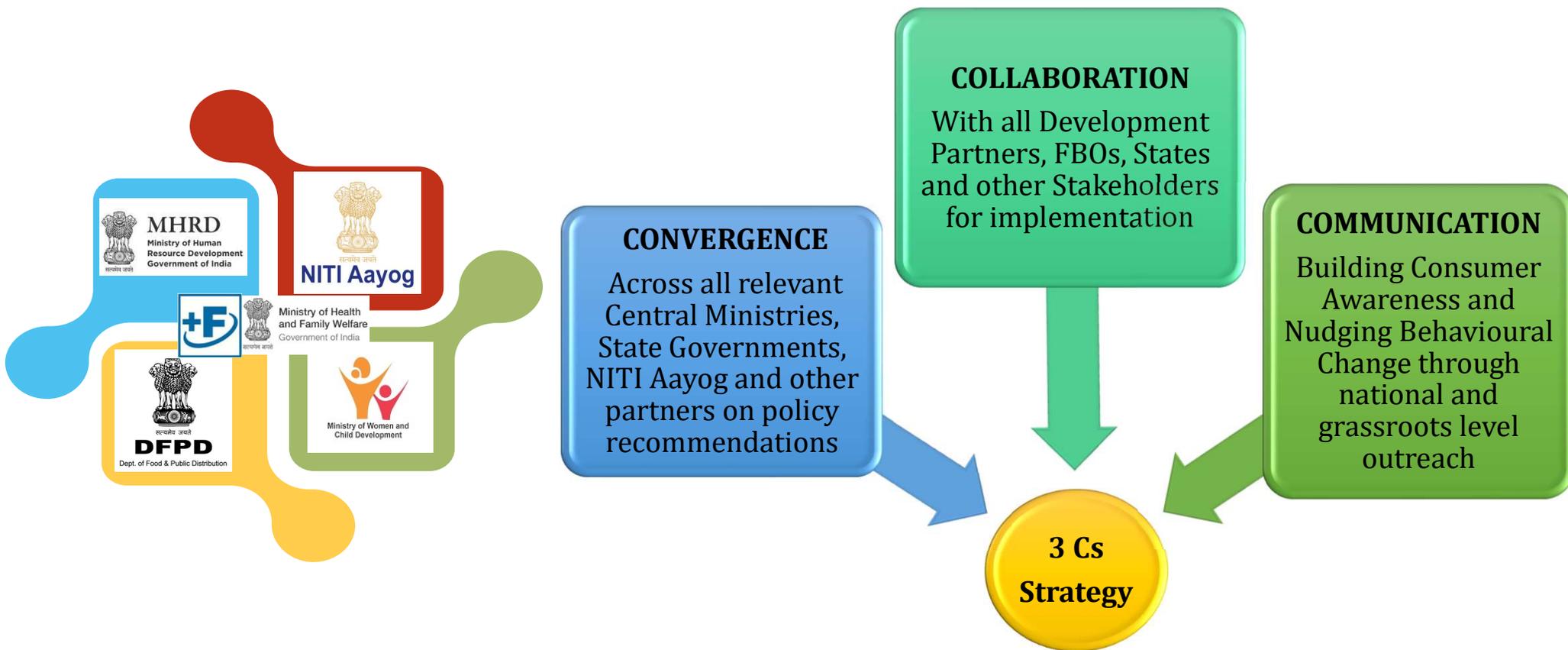
- **Monitoring & Evaluation**



Food Fortification Timeline



Convergence of Food Fortification with line ministries



Fortified Staples & Micronutrients



Iron
850-1100
ppm

Iodine
15-30 ppm



Iron
28-42.5 mg /
kg

Folic Acid
75-125 mcg

Vitamin B12
0.75-1.25
mcg / kg



Iron
28-42.5 mg /
kg

Folic Acid
75-125 mcg

Vitamin B12
0.75-1.25
mcg / kg



Vitamin A
6-9.9 mcg
RE / gm oil

Vitamin D
0.11-0.16
mcg / gm oil



Vitamin A
270-450
mcg RE

Vitamin D
5-7.5 mcg

Note: For Fortified wheat flour and rice there are other optional micronutrients like Zinc, Vitamin A, Thiamine, Pyridoxine, Riboflavin and Niacin.

Standards for Fortified Processed Foods

Fortified Cereal Products

Level per 100 g

- Iron: 1.4-2.7 mg
- Folic Acid: 8-16 mcg
- Vitamin B12: 0.08-0.16 mcg

Fortified Bakery Wares

Level per 100 g

- Iron: 1.4-2.7 mg
- Folic Acid: 8-16 mcg
- Vitamin B12: 0.08-0.16 mcg

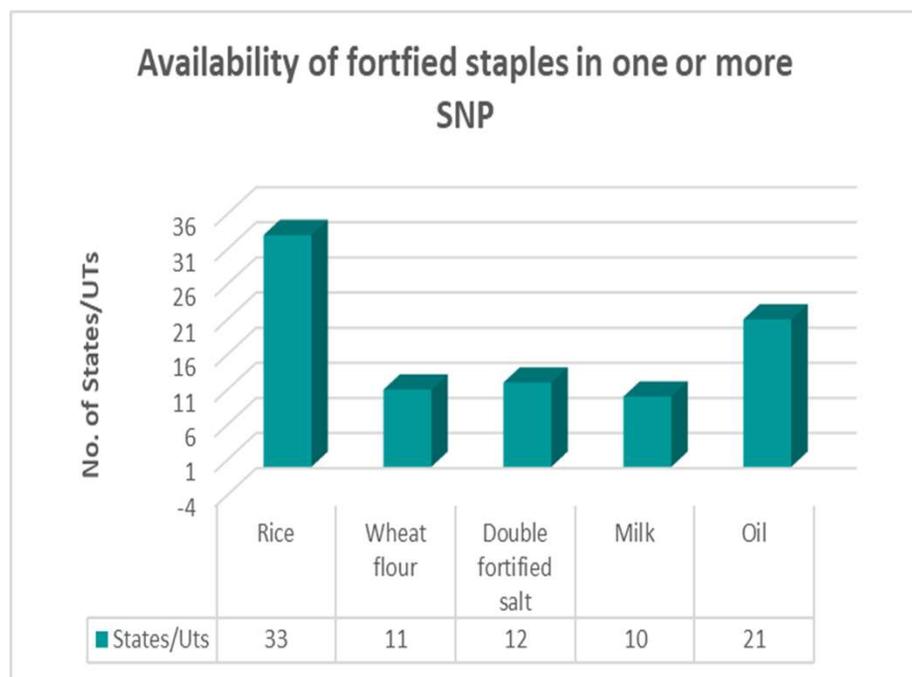
Fortified Fruit Juices

Level per 100 ml

- Vitamin C (Ascorbic Acid): 6-12 mg/100 ml

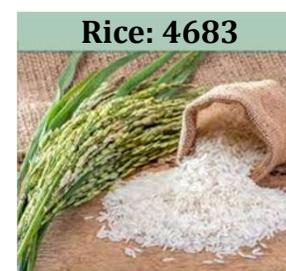
Current Status of Food Fortification

Govt. Food Safety Net Programs



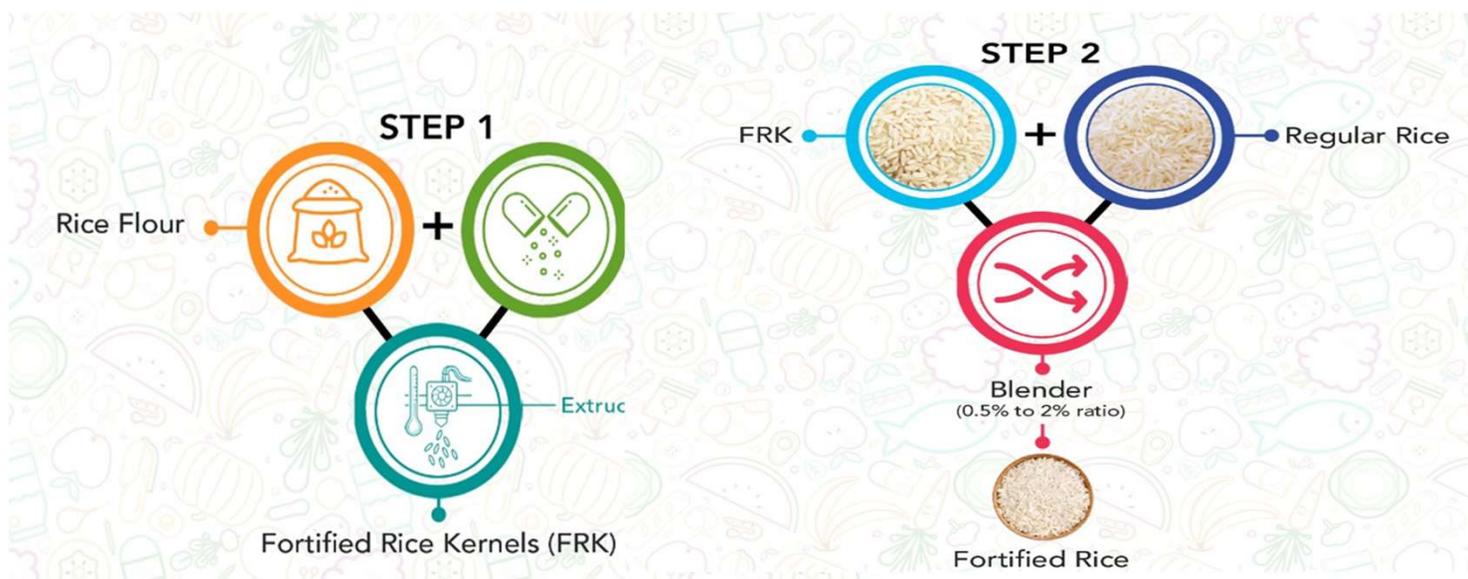
Open Market

No. Of FBOs with +F endorsement



As per the data till 2nd Quarter, 2022

PROCESS OF RICE FORTIFICATION - EXTRUSION TECHNOLOGY





Quality Assurance

Advisory for +F endorsement and FRK license/registration under 99.5 category

Strengthening of NABL Labs – testing of micronutrients

SOP for Premix, FRK and Fortified Rice Suppliers

On-ground **technical support to build capacity** of States/UTs

FSOs, FBOs and MSMEs **training to ensure quality and aligning supply**

Monitoring and **Surveillance by FSOs and self-compliance by FBOs**

Validation and proficiency testing of micronutrients in fortified rice and FRK



Test Methods for Fortified Rice

1. FSSAI has developed test methods, after method verification (SLV/MLV) followed by Proficiency Testing (PT), for detection of Fortificants (Iron, Folic Acid and Vitamin B12) in Fortified Rice as follows:

S.No.	Test Method	Method Number
1.	Method for determination of Iron in Fortified Rice	FSSAI.FR.16.001.2022
2.	Method for determination of Folic Acid in Fortified Rice	FSSAI.FR.16.002.2022
3.	Method for determination of Vitamin B12 in Fortified Rice	FSSAI.FR.16.003.2022

2. The methods can be accessed on FSSAI website on the link:
https://fssai.gov.in/upload/advisories/2022/10/6346b439da8a6Order_Testing_Fortified_Rice_08_09_2022_.pdf

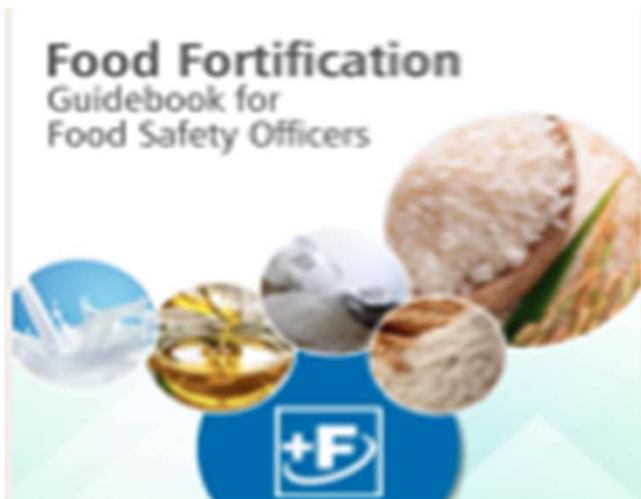


Laboratory Infrastructure for testing Fortificants in Fortified Rice

- Till date, total 43 laboratories have been notified for testing of **Fortified Rice**.
- Approx. 10 more labs to be notified soon after completion of Proficiency Testing (PT).
- State Food Testing Laboratories (SFTLs) are also being engaged for testing of fortified rice to cover different regions across the country.
- Trainings for lab personnel and funds for procurement of necessary equipment has been provided to 25 SFTLs.
- For testing of fortificants in **Fortified Rice Kernel**, Proficiency Testing (PT) of 14 labs has been completed successfully.



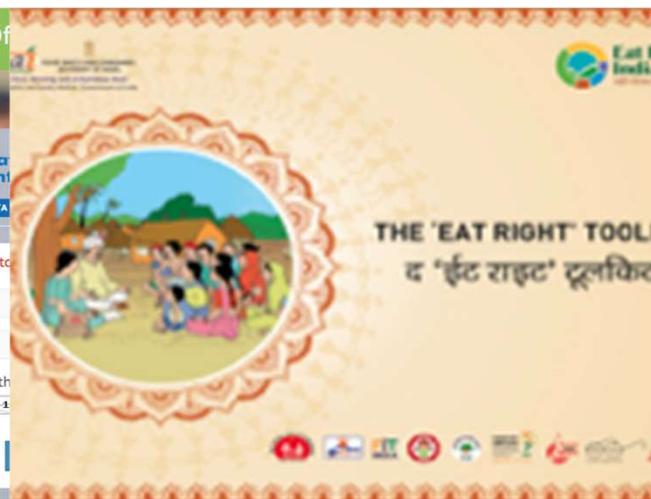
Training and Capacity Building



**Guidebook for
Designated Officers and Food
Safety Officers**



**Online Training for
Food Safety Officers and
Designated Officers certified
2012 FSO
278 DO**



**Food Fortification module in Eat
Right Toolkit for frontline health
workers on benefits of fortified
staples, usage and storage and
+F logo identification**



Resources- Portal

<https://ffrc.fssai.gov.in/>

The screenshot displays the website's header and main content area. The header includes the FSSAI logo, the Government of India emblem, the FORTIFIED logo (SAMPORNA POSHAN SWASTH JEEVAN), and the Food Fortification Resource Centre logo (Enhancing Food, Enriching Lives). A navigation menu contains links for Home, About Us, Fortified Staples, Safety Net Programs, Retailers, Resources, and Capacity Building. A search bar is located on the right side of the menu.

The main content area features a sidebar on the left with the following menu items: +F Logo Endorsement, Commodity Dashboard, State Food Fortification Index, Logistic Support, Premix, Media Gallery, and Partner Dashboard. The main content area is divided into five circular sections, each representing a different commodity:

- Wheat Flour**: Includes a sub-menu with Double Fortified Salt, Milk, Edible Oil, Rice, and Wheat Flour.
- Rice**: Represented by a circular image of rice grains.
- Double Fortified Salt**: A green circle with the text "Fortified With Iron Iodine".
- Edible Oil**: Represented by a circular image of yellow oil.
- Milk**: Represented by a circular image of milk being poured into a glass.





Consumer Awareness and Demonstration Activities



FORTIFIED RICE COOKING AND TASTING DEMONSTRATION ACTIVITIES



Fortified staples stall in 35 Eat Right melas conducted in the country



CONSUMER AWARENESS CAMPAIGN AT NAFED AND KENDRIYA BHANDAR



Cost is more important
than quality but quality is
the best way to reduce cost.

Genichi Taguchi

 quotefancy

Thank You

