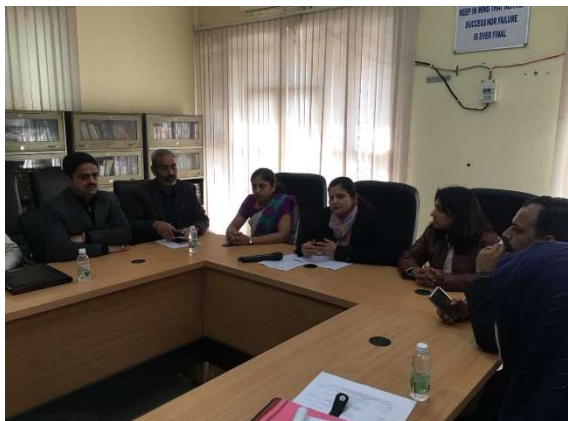


# Training of Food Safety Officers (FSOs) Report 15<sup>th</sup> February, 2018 Drug & Food Testing Lab Complex, Patoli Mangotrian, Jammu

## Objective

To train FSOs on Food Fortification



Drugs & Food Control Organisation, Jammu & Kashmir in collaboration with Food Safety & Standards Authority of India (FSSAI) organised Induction Training Program for Food Safety Officers at Jammu & Kashmir from 15 February, 2018.

## Training Schedule

A session on food fortification was integrated into the currently running Induction Program for FSOs.

During the one-hour classroom session, Food safety officers **Annexure 1** were trained on technical aspects of **Food Fortification**. The recent FSSAI directive on Standards was discussed to create better understanding at regulatory front. The training presentation shared by **Food Fortification Resource Centre**, placed at **Annexure 2** captured details like:

- Open market availability
- How to handle and store premix
- Perform qualitative spot tests



## Conclusion

- 14 Food safety officers were trained on **Food Fortification**.
- They were also introduced to the **Food Fortification Resource Centre (FFRC)** and its online portal <http://ffrc.fssai.gov.in/ffrc/home>.

## **Annexure 1**

### **List of Food Safety Officers**

- Sh. Jameel Ahmed Chauhan
- Sh. Ishfaq Ahmad Bhat
- Sh. Tawheed Amin
- Sh. Firdous Ahmad Ahangar
- Sh. Suneel singh
- Ms. Sadiya Javaid
- Ms. Arjumand Nisar
- Ms. Nadiya Rashid Malik
- Ms. Nadia Bhasir
- Sh. Faheem Raja
- Sh. Ishtiaq Ahmad
- Ms. Renu Bharti
- Ms. Chitra Pokhriyal
- Ms. Jiji Mary Johnson

## Annexure 2



# Food Fortification

Food Fortification Resource Centre  
Food Safety and Standards Authority of India

## Contents



- Introduction to Food Fortification
- Fortification Standards
- Fortification Technology
- Role of a Food Safety Officer

# Introduction to Food Fortification



- Fortification is addition of key vitamins and minerals such as Iron, Iodine, Zinc, Vitamins A & D to staple foods such as rice, wheat, oil, milk and salt to improve their nutritional content
- India has a high burden of micronutrient deficiencies caused by Vitamin A, Iodine, Iron and Folic Acid leading to Night Blindness, Goitre, Anaemia and various birth defects
  - 58.4 percent of children (6-59 months) are anaemic
  - 53.1 percent women in the reproductive age group are anaemic
  - 35.7 percent of children under 5 are underweight

(Source: National Family Health Survey (NFHS))



- In India Food Fortification has been implemented for commodities, namely:
  - Rice (Iron, Folic Acid, Vitamin B12)
  - Milk (Vitamin A & Vitamin D)
  - Salt (Iron & Iodine)
  - Edible Oil and Vanaspati ((Vitamin A & Vitamin D)
  - Whole wheat flour & Refined wheat flour (Iron, Folic Acid, Vitamin B12)

# OPEN MARKET AVAILABILITY



## Fortification Standards – May 2017

Micronutrient	Atta & Rice (/kg)	Oil (/gm)	Milk (/ltr)	Salt (/kg)
Vitamin B12	10 µg			
Folic Acid	1300 µg			
Iron	20 mg			850-1100 mg
Vitamin A	1500 µg RE	25 IU	770 IU	
Vitamin D		4.5 IU	550 IU	
Iodine				30 mg
Zinc	30 mg			
Pyridoxine	5 mg			
Niacin	42 mg			
Riboflavin (B2)	4 mg			
Thiamin (B1)	3.5 mg			

Mandatory Voluntary

## +F Logo Specifications



- **square** represents completeness
- **plus sign (+)** is about adding extra nutrition and vitamins to daily meals
- **ring around the letter 'F'** illustrates the ring of good health, protection and an active life
- **Colour Blue** symbolizes purity and good health
- basic need for good health and food fortification



- +F logo shall be displayed on the Fortified Food Labels as given in the Schedule-II of Food Safety and Standards (Fortification of Foods) Regulations, 2017, together with the statement "**Fortified with.....** (name of the fortificant)
- The statement "**SAMPOORNA POSHAN SWASTHA JEEVAN**" is optional and may also be given under the logo

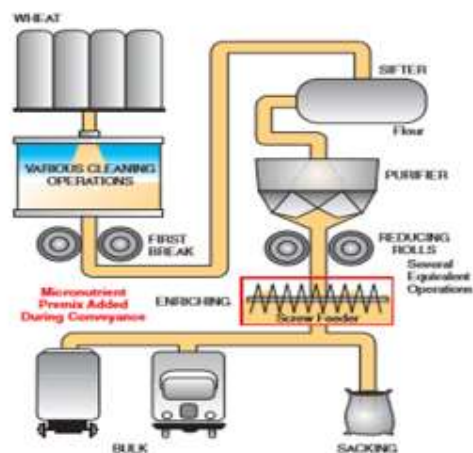
## Process/ Technology of Fortification

- Rice ( Iron, Folic acid & Vitamin B12)
  - ✓ Can be fortified using dusting, coating or extrusion technology
  - ✓ Extrusion is the technology of choice
  - ✓ Milled broken rice is pulverized, mixed with a premix containing vitamins and minerals
  - ✓ Fortified rice kernels (FRK) are produced through an extruder machine
  - ✓ FRK is added to non-fortified rice in ratio ranging from 1:50 to 1: 200

## Wheat Flour ( Iron, Folic acid & Vitamin B12)

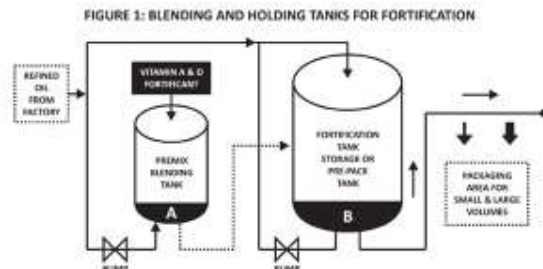
- simple and cost effective technology
- premix is added through a volumetric feeder located towards the end of the milling process

Simplified Flow Chart for Flour Milling



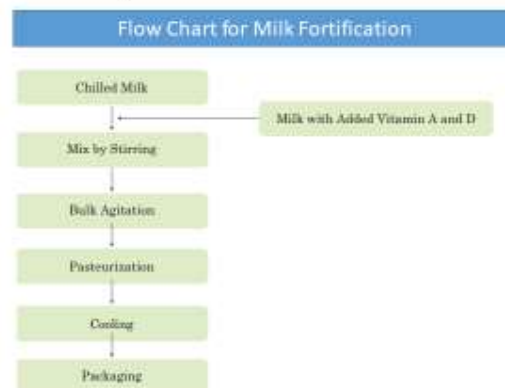
## Edible Oil (Vitamin A & Vitamin D)

- simple blending and easily achievable
- these are fat-soluble vitamins, they permit easy and cost-effective addition without the need for elaborate equipment and can be uniformly distributed in oil



## Milk (Vitamin A & Vitamin D)

- technology to fortify milk is simple, well-established, available, and the cost of fortification is low
- Vitamin A and D premixes are widely available in India





## Double Fortified Salt (DFS) (Iodine & Iron)

- DFS may be produced by mixing iodized salt with either/or Ferrous Sulphate and Encapsulated Ferrous Fumarate
- While producing DFS with Ferrous Sulphate, Sodium hexametaphosphate (SHMP) is used as a stabilizer
- Ferrous Fumarate is encapsulated with Soya Stearin to prevent interaction between iodine and iron

## Role of a Food Safety Officer

### 1. To Check Quality, Storage, Handling of Premix

- Is the premix stored in clean, dry and hygienic conditions?
- Is the temperature of premix storage between 25°C -30°C?
- Is the premix storage tank in direct contact with sunlight?
- Does the plant follow 'FIRST IN – FIRST OUT' system?

## 2. To Check Labelling and Packaging of fortified foods



Food Fortification  
Resource Centre

- Does the packet of the product have Fortified logo?
- Does the packet contain warning information for people sensitive to fortificants?
- Is the sample labelled as per FSSAI Regulations for Fortification of Food?
- Does the packet contain license no?

## 3. To perform Qualitative Tests



Food Fortification  
Resource Centre

- These tests indicate only the presence or absence of micronutrient in sample. For eg:

### Ring test for Vitamin A in oil and milk

- colorimetric method involves adding a chromogenic reagent Tri-Fluoro acetic acid (TFA) to a volume of solubilized fortified food sample
- TFA reacts with retinol to produce a blue color, whose intensity is proportional to the amount of retinol in the sample

### Iron spot test for Iron in wheat flour

- ferric iron added to flour reacts with a thiocyanate (KSCN) reagent to form a red colored complex
- deeper red color will be formed with enriched and fortified flour compared with the untreated flour



Deep red/brown fortified wheat flour

### Iron spot test for Iron in Fortified rice

- In this test, reagents react with ferric (iron) ions to generate a dark brown-red pigment



Fortified kernels in fortified rice turn red/black indicating presence of iron

### **Iodate spot test for Iodine in Salt**

- iodate in salt oxidizes an iodide reagent in the presence of hydrogen ions to form free iodine which turns starch blue

FSOs must follow all the legal procedures after sampling and should penalize the accused.

# THANK YOU

For more information visit: <http://ffrc.fssai.gov.in/ffrc/home>