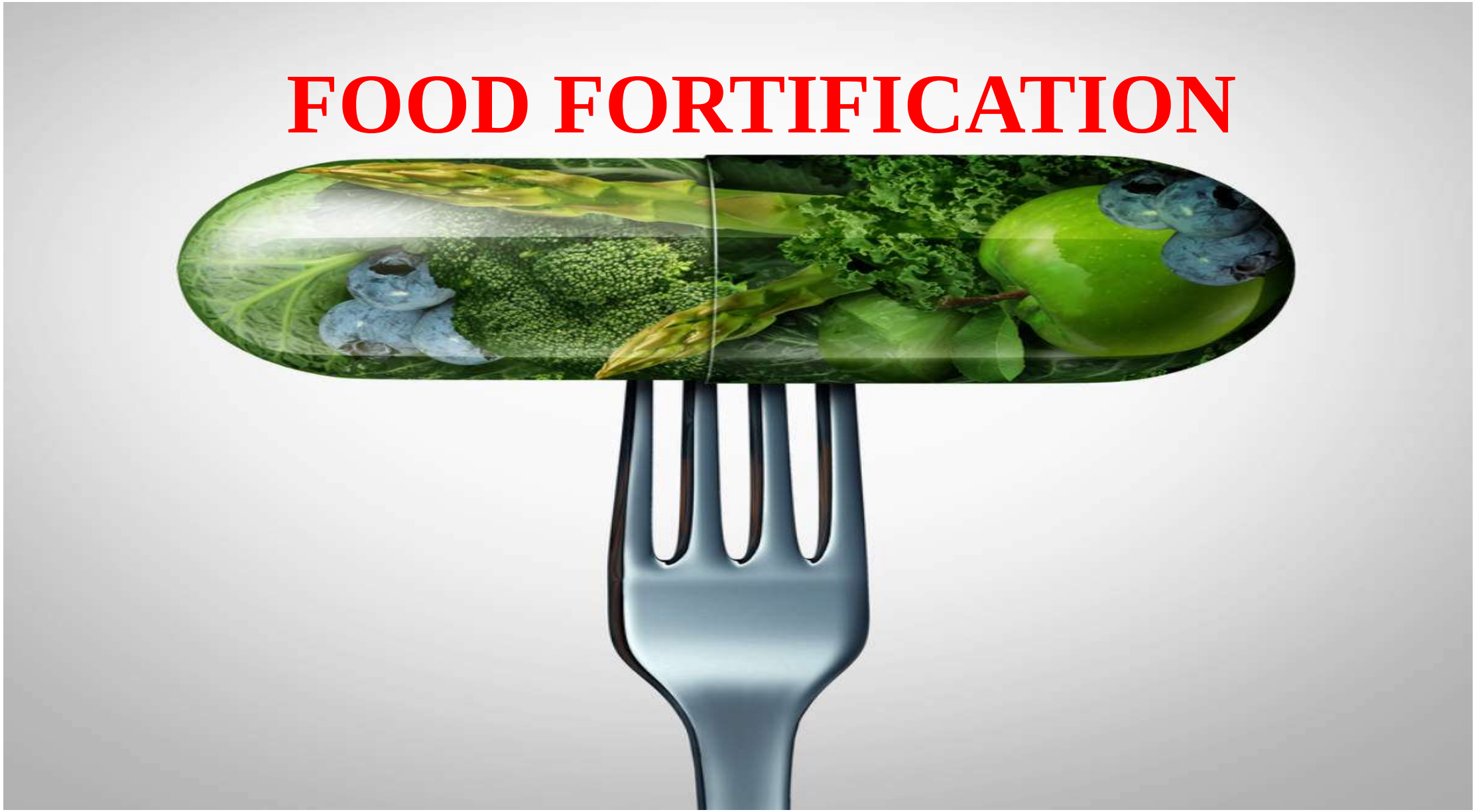
D.Pharm, First Sem

Social Pharmacy

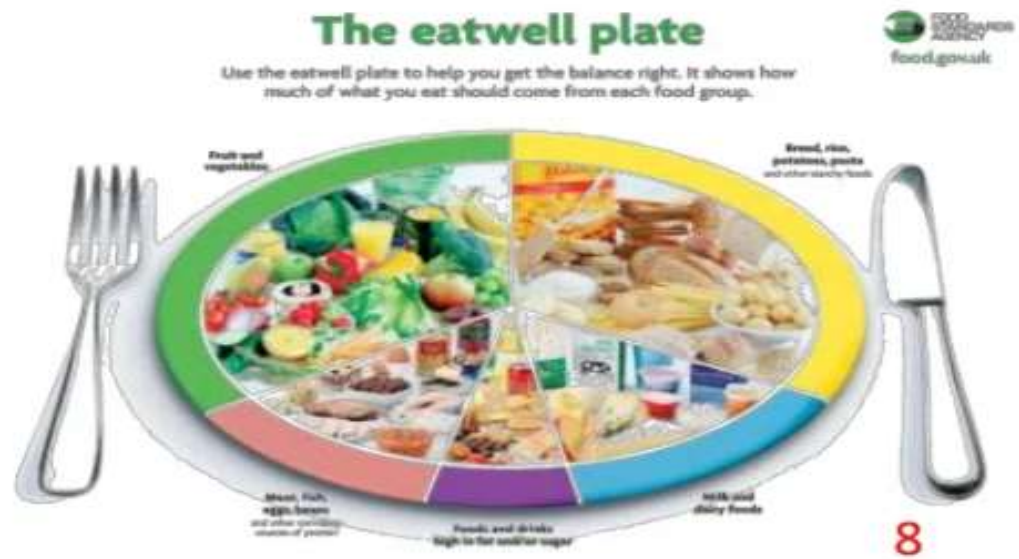
Food Fortification

FOOD FORTIFICATION



Food Fortification

- WHO – "The process whereby nutrients are added to foods (in relatively small quantities) to maintain or improve the quality of the diet of a group , a community or a population."



History of Food Fortification

- Iodised Salt was used in the United States before World War II
- Niacin has been added to bread in the USA since 1938
- Vitamin D was added to margarine in Denmark in early 50's
- Vitamin A & D were added to Vanaspati (hydrogenated Vegetable Oil) in India since 1954 as per mandate

Cont.....

- Folic acid was added to bread for preventing neural tube defects in infants in 60's.
- Over the last 3 decades fortification of foods has become a public health measure for preventing deficiencies of Vitamin -A, Iron, Folic acid and Iodine.

Need For Regulation For Micronutrient Fortification Of Staple Foods

Fortification is the addition of one or more essential nutrients to a food, whether or not normally contained in food, for the purpose of preventing or correcting a demonstrated deficiency of one or more nutrient in the population or specific population groups .

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Vehicles for fortification with combinations of micronutrients

Vehicles	Micronutrients
Edible common salt	iron and iodine
Whole wheat flour & Maida	iron, folic acid, calcium, zinc
Rice	iron, folic acid, calcium, zinc
Vegetable oils	vitamins A & D
Milk and Dairy products	vitamin D, A iron, folic acid, calcium, Omega-3,6 fatty acids
ICDS supplementary foods	iron, folic acid, calcium, zinc
Sugar	vitamin A

Criteria for Fortification

- Nutrient deficiency should be widespread.
- The vehicle food must be consumed by the target group.
- The high consumption of fortified food will not lead to toxicity.
- Addition of micronutrient should not change the taste, colour, flavour, texture and shelf- life of the food item.

Cont..

- The item of food should be centrally controlled and monitored
- The cost of fortification should be affordable.

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Approaches For Arriving At Fortification Levels

- National RDA of nutrients
- Prevalence of deficiency in the region
- Per capita consumption of food vehicle to be fortified
- Current dietary habits of the population
- Stability of the nutrient in the food being fortified
- Chemical sources

Advantages

- Providing certain nutrients simultaneously in the same food improves the utilization of certain
- vitamins and minerals, e.g. vitamin C enhances the absorption of iron
- Providing nutrients through the regular food supply and distribution system reduces costs.

Disadvantages

- Shelf life of fortified milled cereals is reduced
- Regular quality control is essential.
- Prolonged cooking of fortified food leads to 90% loss of vitamin C
- Fortified commodity is more expensive .

Future Challenges of Food Fortification

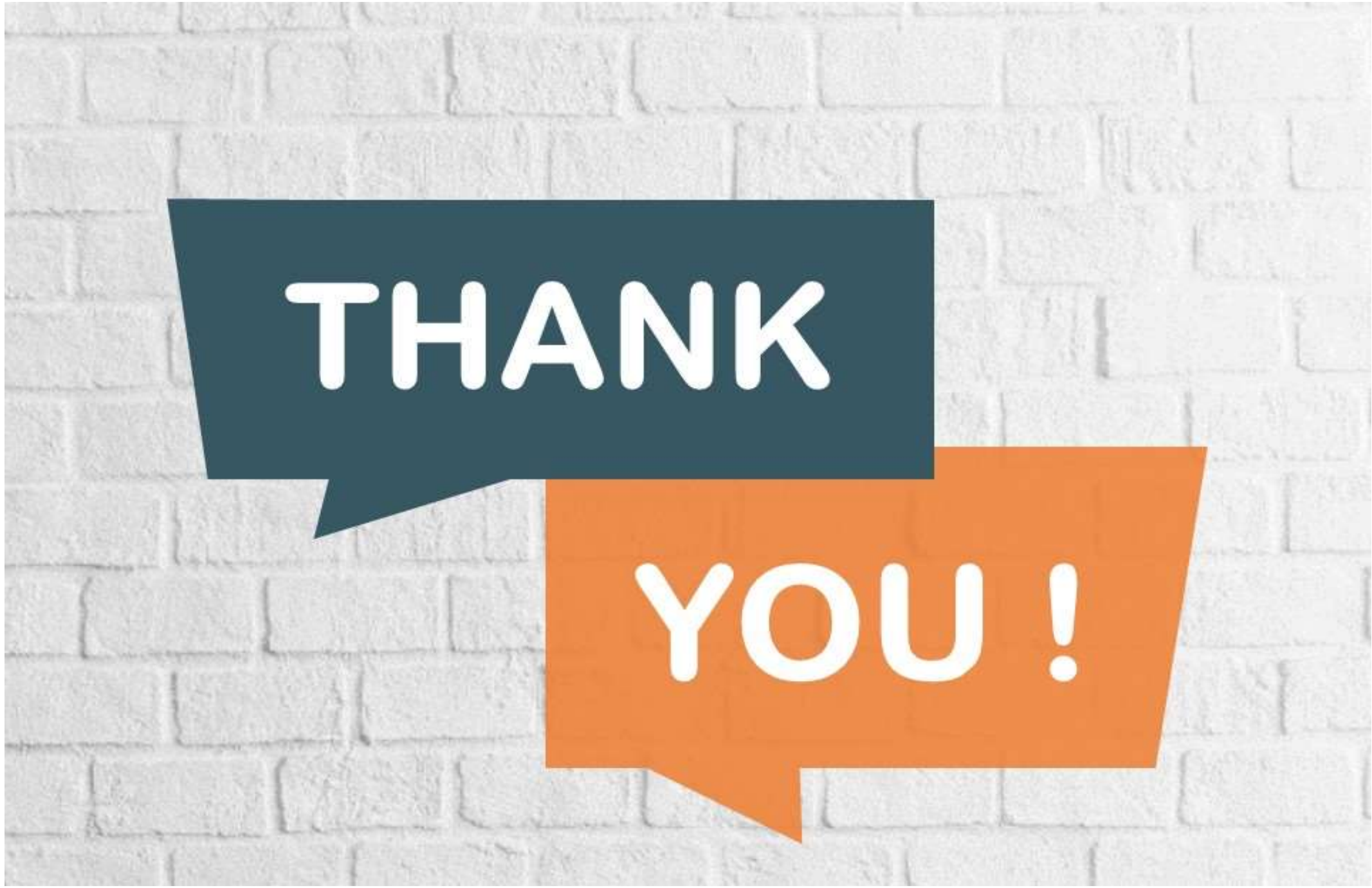
1. Create **community awareness** about benefits of food fortification.
2. Private Sector, Governments & International Agencies need to make **commitments** for investing in food fortification.
3. Ensure increased **availability** of fortified foods to the vulnerable groups of populations.

Cont..

4. Governments & International Agencies should encourage fortification by way of **tax concessions** or **duty rebates**.

5. Regulatory authorities to recommend **Uniform Food Fortification Guidelines** to the group countries.

6. Develop **Technologies** that will produce the Futuristic food.


THANK
YOU !