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COURSE TITLE: NUTRITION PLANNING AND POLICY

ASSIGNMENT

1. List and explain types of food fortification.
2. Enumerate 5 advantages and disadvantages of food fortification.

ANSWER

1. Food fortification is the process of adding micronutrients such as essential trace elements and vitamins to a food item. It is done to improve the nutritive values of the food. These nutrients may or may not have been originally present in the food before processing.

Types of food fortification.

1. Commercial and industrial fortification

It refers to adding micronutrients and minerals to industrially processed and widely consumed edible products. Common fortified foods, for example, include salt; wheat and maize flours; edible oils; and sugar, but can also include bouillon cubes or soy sauce.

1. Home fortification (e.g. Vitamin D drops)

Efforts are under way in a number of countries to develop and test practical ways of adding micronutrients to foods at the household level, in particular, to complementary foods for young children. In effect, this approach is a combination of supplementation and fortification, and has been referred to by some as “complementary food supplementation”. The efficacy and effectiveness of several different types of products, including soluble or crushable tablets, micronutrient-based powder (“sprinkles”) and micronutrient-rich spreads are currently being evaluated. Crushable tablets, and especially micronutrient-based powder, are relatively expensive ways of increasing micronutrient intakes, certainly more costly than mass fortification, but may be especially useful for improving local foods fed to infants and young children, or where universal fortification is not possible.

1. Bio-fortification (which can include both conventional selective breeding and genetic engineering)

The bio-fortification of staple foods, i.e. the breeding and genetic modification of plants so as to improve their nutrient content and/or absorption is another novel approach that is currently being considered. The potential for plant breeding to increase the micronutrient content of various cereals, legumes and tubers certainly exists; for instance, it is possible to select certain cereals (such as rice) and legumes for their high iron content, various varieties of carrots and sweet potatoes for their favorable β-carotene levels, and maize’s for their low phytate content (which improves the absorption of iron and zinc).

1. Mass fortification

This is the addition of one or more micronutrients to foods commonly consumed by the general public, such as cereals, condiments and milk. It is usually instigated, mandated and regulated by the government sector. Mass fortification is generally the best option when the majority of the population has an unacceptable risk, in terms of public health, of being or becoming deficient in specific micronutrients.

1. Targeted fortification

In targeted food fortification programs, foods aimed at specific subgroups of the population are fortified, thereby increasing the intake of that particular group rather than that of the population as a whole. Examples include complementary foods for infants and young children, foods developed for school feeding programs, special biscuits for children and pregnant women, and rations (blended foods) for emergency feeding and displaced persons.

1. Market driven fortification

The term “market-driven fortification” is applied to situations whereby a food manufacturer takes a business-oriented initiative to add specific amounts of one or more micronutrients to processed foods. Although voluntary, this type of food fortification usually takes place within government-set regulatory limits.

1. Advantages of food fortification.

* Fortified foods are considered to be better at lowering the risk of multiple deficiencies that can result from seasonal deficits in the food supply or a poor quality diet.
* Fortification does not require any behavior modification or compliance that is expected in supplementation. It does not require a change in the individual’s food habits and consumption pattern.
* Fortification is planned in such a way that the intrinsic characteristics of the food are not altered, such as the taste, the appearance and the texture.
* Fortification is one of the most cost effective strategies that can be implemented on a larger scale since the cost of fortification is generally less than other techniques to address nutrition deficiencies.
* The quantity of micronutrients added to the food product is small and well regulated, and so the likelihood of an overdose of nutrients is unlikely.

Disadvantages of food fortification.

* Population groups who consume relatively small amounts of food, such as infants, young children and the elderly are less likely to benefit from the consumption of fortified foods.
* Individuals in the community who cannot afford to buy the staples or are dependent on government’s PDS system for their staples may not get benefitted via normal food fortification plans. For such populations, fortified staples must be circulated to them via the PDS system.
* There are technological issues relating to food fortification, especially with regard to appropriate levels of nutrients, stability of fortificants, nutrient interactions, physical properties, as well as acceptability by consumers.
* More knowledge is required about the impact of interactions among nutrients. For example, the presence of large amounts of calcium can inhibit the absorption of iron from a fortified food; the presence of vitamin C has the opposite effect and increases iron absorption.
* Fortified foods have some added micronutrients. Many researchers believe that dietary diversity is a better approach to attain the nutrient requirements in a natural manner.