

# Role of horticulture in nutrition

**A large part of the population in Bangladesh suffers from inadequate micronutrient intake which is a consequence of low dietary diversity and limited consumption of nutrient dense foods. Fruits and vegetables are a natural source of micronutrients essential for the human body; these must be delivered through diet. Household and community level horticultural production has the potential to secure this much-needed supply of fresh and readily available vegetables and fruits throughout the year, thereby increasing dietary diversity among its members.**

## Consumption of vegetables and fruits in Bangladesh

Cereals contribute 70 percent of the total dietary energy intake in Bangladesh, compared to the recommended 60 percent (HIES, 2010). High Dietary Energy Supply (DES) from cereals creates imbalances in the diet, resulting in poor dietary protein quality and insufficient micronutrient intake.

Statistics over the past decade show a nearly 25 percent increase in the consumption of fruits and vegetables between the years 2000 and 2010. However, the average per capita fruit and vegetable consumption in 2010 was still low: 211 g/capita/day (HIES, 2010) compared to the desirable intake of 400 g/capita/day (see figure 1) recommended by WHO and FAO.

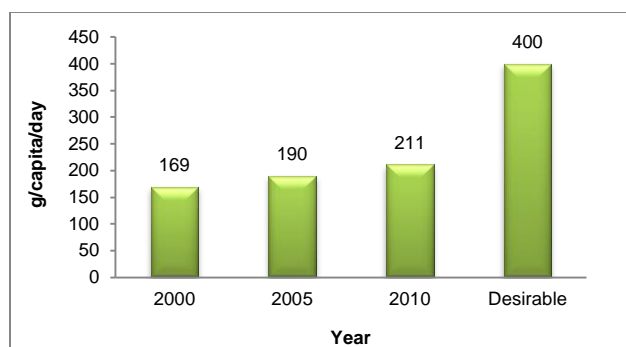


Figure 1: Trends in the intake of fruits and vegetables in Bangladesh

The groups most affected by micronutrient deficiencies are those with particularly high demand for nutrients. These are pregnant and lactating women and young children. Ill effects are manifested through low birth weight, high infant and maternal mortality, and anemia due to iron deficiency, childhood blindness due to vitamin A deficiency, and goiter and cretinism due to iodine deficiency. Around a third of children in Bangladesh are born with a low birth weight. Children also suffer from high levels of under nutrition,

with the levels of stunting standing at 41 percent, wasting 16 percent and underweight 36 percent (BDHS, 2011). Overall, micronutrient malnutrition affects more than 50 percent of Bangladeshi children and women in reproductive age.

## Contribution of horticultural produce to human nutrition

Bangladesh is fortunate to have a plethora of vegetables and fruits available throughout the year. Fruits, vegetables (including leafy vegetables) and nuts are important in daily diet as they contain micronutrients (vitamins and minerals), fiber, vegetable protein and bioactive compounds. Leafy vegetables like red and green amaranth, Indian spinach, water spinach or *kolmi*, drumstick leaves and *jute leaves*, are excellent sources of iron, beta carotene (pro vitamin A), and folic acid. Ripe mango and papaya, carrot, orange fleshed sweet potato and pumpkin contain high quantities of pro vitamin A whereas local citrus fruits as well as star fruit, jujube and guava provide vitamin C, good for enhancing absorption of iron from the diet. For instance, a combination of 1/4 cup pumpkin, 1/4 cup carrot and 1/2 cup of a *fazli mango* together supplies full RDA of vitamin A for a child under 5.



Photo courtesy: FAO



A major advantage of horticulture foods is that they are well accepted by the population, and are available throughout the year in Bangladesh. Moreover, vegetable and fruit gardens are largely managed by women and set close to the households. Horticulture products, therefore, not only make a vital contribution to household food and nutrition security, but they can also generate employment for women and foster economic security.



Photo courtesy: HKI

### Opportunities to increase consumption of micronutrient rich horticulture crops

Horticultural interventions combined with extensive nutrition education offer a long-term, food-based strategy to control and eliminate micronutrient malnutrition.

This approach draws on the National Food Policy (NFP, 2006) objective 3, NFP Plan of Action (2008-2015), the Country Investment Plan (CIP, 2010-2015) program 10, and National Nutrition Services which advocate community-based activities for increasing availability of and access to nutritious foods. With a special focus on most vulnerable groups such as women and children, these interventions focus on establishing and maintaining home gardens through mobilization and active participation of households. Activities should promote cultivation of local and seasonal indigenous fruits and vegetables, and must be combined with nutritional education for the encouragement of behavioral change.

One effective component of nutrition education are cooking demonstrations, where participants actively engage in and learn about correct food preparation methods to reduce nutrient losses, appropriate food combinations for improved nutritive value, along with incorporation of beneficial but seldom

used part of fruits and vegetables (like peels, skin, stalks, stems and seeds) into recipes for relishes, chutneys and others. Personal hygiene and techniques of hand washing are also an important part of these sessions. Finally, the preparation of horticulture-based complementary foods for children under the age of 2 should be promoted.

For longer-term use and sustainability, food production systems need to be linked with local initiatives. Developing community-based processing ventures and activities can increase year-round availability of food, thereby directly contributing to reducing the lean season's effect on overall food security. By working through women's groups, it can also be an important opportunity for income generation and economic empowerment. Ultimately, the benefits of investing in horticulture production for better nutrition are clear, and its multiple positive effects on other dimensions of well-being make it a vital avenue for development work in this sector.

### Recipe from locally available ingredients:

#### Sabji Misrito Soup, 6 servings

- Green papaya: 100 g
- Pointed gourd: 100 g
- Snake gourd: 100 g
- Sweet pumpkin: 100 g
- Yard long beans: 100 g
- Leafy vegetables (*pui/lal shak*): 100 g
- Potato: 100 g
- Onions (finely chopped): 1 tsp
- Flour (rice or wheat): 2 tsp
- Egg: 2 pcs
- Oil: 3 tsp
- Spices: cumin, green chilies, black pepper powder, ginger and garlic paste – to taste
- Lemon: 1 pc

Clean and wash vegetables, chop them into medium size pieces. Boil 10 cups of water in a large vessel, add oil, salt, ginger/garlic paste and chopped onions. Add all chopped vegetables except the leafy vegetables. Add paste of flour, stir and bring to boil. Add beaten egg and cumin, stir slowly. After 1 minute add leafy vegetables and remaining spices. Serve with lemon.

**Nutritive value/serving** Energy 142 kcal; CHO 11 g; Protein 7 g; Fat 7 g; Vitamin A [RAE] 139 µg; Iron 2 mg; Calcium: 60 mg; Vitamin C 28 mg.

