

## Leveraging Agriculture for Nutrition through Nutrition Gardens



A large percentage of the population in South Asia is malnourished. The population in the region is largely dependent on agriculture and allied activities. This provides the scope for harnessing the potential of agriculture as a strong driver of nutrition in the region. The M S Swaminathan Research Foundation (MSSRF) has undertaken a study to demonstrate a Farming System for Nutrition (FSN) approach to address malnutrition. The FSN design integrates crop and animal husbandry and **nutrition garden** interventions to mainstream the nutrition dimension in the farming system to address the nutrition needs of rural families.

A nutrition garden may be defined as a home garden of natural and bio-fortified fruits and vegetables of high nutritive value. The selection of fruit species and vegetables for nutrition garden is inclusive of the three groups of green leafy vegetables, roots and tubers and other vegetables with particular attention to addressing micronutrient deficiencies, particularly anaemia and vitamin A. Creating awareness on importance of consuming fruits and vegetables to address micronutrient deficiencies is a related component.

The objective of promoting nutrition garden is to increase availability and access to nutrient dense vegetables and fruits in the household food basket.

### Study Locations

The FSN study is underway in a core set of seven villages (658 households with population of 2,845) in Koraput district of Odisha and five villages (556 households with population of 2,254) in Wardha district in the Vidarbha region of Maharashtra (see Fig 1).



**Fig.1: FSN study locations**

Although agro-ecologically the two study intervention locations are different, both of them are characterized by rain-fed farming and high burden of malnutrition.

A little over 40 per cent of the population belongs to Scheduled Tribe communities in the study areas. Baseline survey in both the locations in 2014 revealed high levels of undernutrition and micronutrient deficiency: more than 40 per cent of children under age five were underweight (low weight for age), 35 per cent stunted (low height for age) and 27 per cent wasted (low weight for height); about 33 per cent suffered from vitamin A deficiency; 39 per cent adult men and 47 per cent women were undernourished; high levels of anaemia (>60%) prevailed among children under five, adolescent girls and women (18-45 years). The diet of people in both areas is cereal dominated with consumption of all other food groups being less than the recommended levels.

Based on the baseline information, crop and nutrition garden interventions were designed in discussion with the community. Three models of nutrition garden were developed: a) Household nutrition garden, b) Community nutrition garden, and c) School nutrition garden.

A seasonal calendar of locally available vegetables was prepared and seed kits/saplings were distributed accordingly (See **Box 1**). Technical support was provided on the design and layout of the garden.

Nutrition awareness programmes on the importance of consuming vegetables and the nutritional deficiencies specific vegetables can help address, and recipe demonstrations were also conducted.

### **Box 1. Seasonal calendar for growing different groups of vegetables in nutrition garden**

**Fruit / tree species:** amla, banana, custard apple, papaya, sapota, mango, moringa (drumstick), lemon, curry leaves, jackfruit, agati, pomegranate

#### **Kharif season:**

*Leafy vegetables:* \*amaranthus, \*sepu, green sorrel, coriander

*Roots and tubers:* orange flesh sweet potato (OFSP), yam

*Other vegetables:* cowpea, cluster bean, ladies finger, bitter gourd, brinjal, bottle gourd, cucumber, ridge gourd, \*pumpkin

#### **Rabi season:**

*Leafy vegetables:* \*amaranthus, \*sepu, green sorrel, coriander, spinach, fenugreek, onion spring, cauliflower, ridge gourd

*Roots and tubers:* carrot, radish, beet root

*Other vegetables:* chilly, tomato

\*specifically grown in anaemic households



**Household Nutrition Garden**

### a) Household Nutrition Garden

Households with backyard area and with members having incidence of anaemia and vitamin A deficiency were particularly targeted for cultivating nutrient-rich vegetables and fruits. The average area of backyard land ranges from 6.3 to 15.9 sqm in Wardha and 80 to 600 sqm in Koraput. Since a large part of the time is spent in the fields in Wardha, many households preferred to cultivate vegetables on a patch in the field itself and were encouraged to do so. During 2016, 215 households in Koraput and 246 households in Wardha maintained nutrition gardens. Data collected reveals increased availability of different groups of vegetables. In Wardha, households were found to share surplus produce after consumption, with neighbours and relatives. In Koraput, some sale in the local market was also observed.

“I am actively involved in backyard kitchen garden where I am growing papaya, moringa as well as other seasonal vegetables and climbers in addition to newly introduced orange fleshed sweet potato. My children especially, love to eat OFSP due to the colour but I am aware that eating vegetables having orange colour flesh is good for eyesight. Earlier, I did not have any idea on importance of consuming carrot and coriander. Now through nutrition awareness programs, we all have started consuming carrot and coriander”

**Ghenu Khillo,**  
**Farmer, Atalguda village, Koraput**  
- Shared at Block level consultation on FSN,  
Boipariguda, Koraput, 27 April 2017

### b) Community Nutrition Garden

Community nutrition gardens (CNG) on common or leased land have been operating in Saheli, Heti, and Borgoan Gondi villages in Wardha since late 2013. They are maintained by a group of 7-10 women in each village and the produce is shared by them. Surplus produce is given to neighbours, relatives or to the village school for inclusion in the midday meal (MDM).

“From CNG, we are harvesting the produce two to three times in a week and sharing it equally. Sometimes we give the surplus after sharing to the local school for their Midday Meal. We all are now getting most of the vegetables from the CNG and are no longer dependent on market. We have also planted some fruit trees viz., lemon, sapota, mango, guava, moringa etc. which will also provide fruits in coming days. Also during awareness activities, we have learnt some recepies to be prepared from newly introduced leafy and root vegetables such as OFSP, bottle squash, coriander etc. My pregnant daughter in law is including and consuming a lot of vegetables in the diet. During these eight months she has not been troubled by any kind of illness”.

**Ushatai Kourati,**  
**a CNG member, Borgoan Gondi village,**  
**Wardha**  
-Shared at District level consultation on  
nutrition garden and nutrition awareness to  
address malnutrition, Wardha, 23 May 2017



Community Nutrition Garden and sharing of produce

### c) School Nutrition Garden

Nutrition garden is in operation on land within the premises of the village school in four villages in Koraput and three villages in Wardha. The gardens help ensure a regular supply of fresh vegetables for inclusion in the midday meal. The gardens are maintained primarily by the MDM cook and village



The Nutrition Garden approach and particularly the school nutrition gardens are being appreciated. Government officials at block and district level consultations conducted in Wardha and Koraput earlier this year have expressed interest to promote the model in more government schools and ICDS Centres, with technical support from MSSRF.



#### School children participating in nutrition garden activities

volunteer. They also serve the educational purpose of making children aware of the nutrient content of different vegetables and the importance of consuming them. This knowledge carried by them to their homes will have positive spill over effect. The involvement of the teachers is another plus and the overall response has been encouraging. ICDS centres in two of the villages in Koraput have also started maintaining nutrition gardens.

#### Going Forward

Community seed banks were initiated in all five study villages in Wardha in early 2017, to ensure availability of vegetable seeds for the next season. These are managed by groups of women in each village. They are being trained to maintain registers to record the seed collection and distribution. In Koraput, retaining vegetable seeds for next season is a part of the local culture. Exposure visits and trainings on seed collection and safe seed storage have been conducted at both the study sites.

#### Links:

<http://lansasouthasia.org/blog/sprouting-school-nutrition-gardens-fsn-study-villages>  
<http://lansasouthasia.org/content/school-children-take-baby-steps-toward-nutrition-awareness>  
<http://lansasouthasia.org/search/node/Block%20Level>  
<http://lansasouthasia.org/content/lansa-workshop-nutrition-gardens-and-nutrition-awareness-address-malnutrition>  
[http://lansasouthasia.org/sites/default/files/FSN%20Booklet%20%28final%20to%20print%29\\_0.pdf](http://lansasouthasia.org/sites/default/files/FSN%20Booklet%20%28final%20to%20print%29_0.pdf)

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