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# Establishment of nutrition garden at schools: A means for food security

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**Abstract**
Food security and nutrition are basic human rights and fundamental to a healthy and productive live. Nutrition garden is an effective tool to improve the quality of food consumed and is a better strategy to prevent and combat malnutrition and micronutrient deficiencies in the community. Present study was undertaken during 2018-19 by establishing nutrition garden in selected schools of Lingasugur taluka. Five government schools were selected based on interest of school teachers, availability of area and water facility. Vegetable seeds kit (Ridge guard, cucumber, tomato, chilli, beans, methi, coriander, spinach and pumpkin) was distributed to each school along with seedlings of curry leaves, drumstick, lime and amla during *kharif* season. In the initial stage teachers and students from 5$^{th}$ standard to 10$^{th}$ standard were introduced to the concept of nutrition garden and its importance through orientation on balanced diet, role of nutrients, sources of nutrients etc., further vegetables grown under nutrition garden were utilized in preparation of mid day meal food. Though there is a provision for purchase of vegetables for mid day meal (Rs.1/head/day) which is not sufficient to provide required nutrients. Later impact of incorporation of vegetables in mid day meal was assessed by pre structured schedule. Results revealed that working in nutrition garden gave them hands on experience of cultivation practices which helps them to understand the concepts of plant growth, soil fertility, water management etc., as opined by students. It was also observed that leaving a food in plate was reduced due to increased taste and consumption of fresh vegetables got increased which in turn increases the resistance to infections. It can be inferred from the study that nutrition garden can improve the nutritional status of community and develops the life skills for the children.

**Keywords:** Nutrition garden, food security, malnutrition, nutritional status, balance diet

## Introduction
School age children need a good diet in order to develop and grow well, to study, to be protected from diseases and to have the energy to get through the day. Major detriment of health status in adulthood is their nutritional status in childhood. Protein Energy Malnutrition is the most important nutritional problem globally which is more severe in third world countries affecting children of under 5 age category. 20-80% of primary school children are suffering from nutritional deprivation (Shivaprakash and Joseph, 2014). Nutritional status of the population largely depends on the consumption of food in relation to their needs which in turn influenced by availability of food and purchasing power. Agriculture, nutrition and health should go hand in hand. Despite impressive gain in agricultural production and greater availability of food, a large population suffering from nutritional imbalance (Nagarajn *et.al*., 2014) [4]. Nutrition garden is important in rural areas where people have limited income earning and poor access to markets (Jindal and Dhaliwal, 2017) [2]. Therefore improvement in total agricultural production alone may not combat malnutrition, it should also include awareness programmes on nutritious food and quality food production through kitchen gardens, nutri farms and nutrition gardens. A school garden program is an educational tool to teach students about agriculture, nutrition and health. School garden support students' connection to the natural world. Students involved in gardening generally take pleasure in learning and show positive attitudes towards education. To address the problem, nutrition garden at schools was planned. This paper assess the impact of nutrition garden established at schools with the following objectives

1. To assess the impact of nutrition garden on consumption of raw vegetables and quality of mid day meal
2. To assess the impact of school garden on overall learning and involvement in physical activities

## Methodology
The study was conducted in five government schools of Lingasugur taluk, Raichur district.

(Government primary school, Ichanal, Government higher primary school Sarjapur, Government higher primary school, Kasaba Lingasugur, Government primary school Karadakal and Government primary school, Neeralakeri). Schools were selected based on availability of space at schools, water facility and interest of teachers and students. In the initial stage, teachers and students from 5th standard to 10th standard were introduced to the concept of nutrition garden and its importance through orientation on balanced diet, role of nutrients, sources of nutrients *etc*., Later, during *kharif* season vegetable kit comprising of different seeds (Ridge gourd, cucumber, radish, tomato, chilly, pumpkin, Spinach, coriander) and seedlings (Curry leaves, lime, drum stick, guava, chikku, mango) were distributed to each of selected schools and demonstrated the method of sowing vegetable seeds and method of planting seedlings. Consecutive visits were made to schools to collect their opinion on nutrition garden by structured schedule and their queries regarding growth of plants were solved.

## Results and Discussion

**Table 1:** Quantity of vegetables harvested by different schools

| Name of the school | Area allotted (Guntas) | Vegetables harvested/ week(kg) |
|---|---|---|
| Govt primary school, Ichanal | 2 | 5 |
| Govt Higher primary school, Sarjapur | 10 | 3 |
| Govt higher primary school, Kasaba lingasugur, | 4 | 1 |
| Govt primary school karadakal | 2 | 1 |
| Govt primary school, Neeralakeri) | 2 | 2 |

It is inferred from the Table-1 that, Government school at Ichanal harvested higher quantity of vegetables followed by Sarjapur and Neeralakeri. This may due to the fact that compound and water facility in these schools were in good condition. Further, students and children were more interested in maintaining the saplings and vegetable garden. However, schools of kardakal and Kasaba lingasugur were in outer edge of the villages and do not possess proper compound. Hence they could not harvest much.

**Table 2:** Impact of nutrition garden on school children N=150

| S. No | Statements | Opinion of respondents (%) |
|---|---|---|
| 1 | Gardening at school gives good physical exercise | 100 |
| 2 | Provides fresh vegetables for consumption | 74 |
| 3 | Children able to understand the concept of plant growth practically | 100 |
| 4 | Nutritional quality of sambar was improved by adding fresh vegetables | 95 |
| 5 | Consumption of mid day meal food was improved | 85 |

Cent percent of children felt that gardening is good exercise rather than mass drill. Around 75% of children expressed that they enjoyed consumption of fresh vegetables like cucumber and tomato. All most all the teachers and students opined that teaching and learning the concepts of plant growth found to be easier. Addition of vegetables to mid day meal sambar improves the quality of food and the consumption rate too as expressed by majority of students. This in turn provides nutritional security. Food production on small plots adjacent to human settlements is the oldest and most enduring form of cultivation which improves availability of fresh vegetables and fruits (Galhena *et. al*., 2013) [1].

## Conclusion

Government school at Ichanal harvested higher quantity of vegetables compared to other schools and incorporation of vegetables in mid day meal sambar improves nutritional quality of sambar and consumption quantity of food, which in turn helps to reduce wastage of food in plates. Children and teachers were happy to continue the same in future years. Nutrition garden can improve the nutritional status of community and develops the life skills for the children. Further, promotion of nutrition gardens at schools is an eco friendly and sustainable agricultural practice to improve food security and nutritional status of the community.

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