

## Food for the Gods



*Sri Baidyanath Malik of Gunjigan in his yam plot*

### **Background and Objectives**

Potato is the favourite tuber crop in almost everybody's list. It is the king when it comes to street food across the country. Potato is so much part of our lives now that it is difficult to imagine that it came to us only about 180 years ago. Originally from Bolivia and Peru, legend has it that it was brought to India to please the palate of Warren Hastings in 1780. By 1830, potato was growing in Dehradun, and the rest, indeed is history.

The tribals in Kandhamal, Kalahandi and Koraput districts of Orissa have a long tradition in foraging for food, collecting different forest roots and tubers, of course other than potato, to meet their food demand at times of scarcity. Ecological degradation, erratic rainfall and of drought are the principal causes of food insecurity in these areas, resulting in increasing migration among tribals and periodic starvation deaths. Agriculture is the major source of livelihood of tribals in these districts as they get more than half of their income from settled agriculture and shifting (podu) cultivation.

Some tuber crops can however withstand long periods of drought and low fertility levels. The most important tuber crops are “Elephant Foot Yam” (*Amarphophallus paconiifolius*), “Cassava” (*Manibot esculenta*), “Yam” (*Dioscorea alata*) and “Sweet Potato” (*Ipomea batatas*). These crops have attracted increasing attention worldwide because of their remarkable ability to produce tremendous amount of food at a modest cost. Equipped with the ability to adapt to various agro-ecological situations, these tuber crops are found suitable for mixed farming with millet, maize, bean, niger and pulses. Cassava can be a very useful crop in ensuring food security and promotion of agro-based industries. Yam and elephant foot yam offer excellent scope for staple food.

Based on this special affinity of the tribals, Orissa Tribal Empowerment Livelihood Project (OTELP) is being implemented from the year 2006-2007 for cultivation of the above mentioned varieties of tubers in Tumudibandha block of Kandhamal District to make tribals habituated for its cultivation rather than depending on forest produce.

The project was developed with the aim of livelihood improvement of tribals through production and value addition of indigenous tuber crops, pineapple and organic spices by OTELP under the aegis of Rashtriya Krishi Vikas Yojana (RKVY). The tribal areas of Koraput, Kalahandi, Kandhamal and Gajapati districts of Orissa were covered under OTELP.

The overall objectives of the programme have been to achieve food and nutritional security, increasing household income through scientific methods of cultivation and value addition, up-scaling of tuber crops area, contour cultivation techniques of pineapple, area expansion under organic spices, and intercropping of turmeric and yam.



*Trial harvesting of yam in the plot of Sri Keshab Bihari Dalai*

## **Intervention**

Various stages of the intervention in a staggered time-line include selection of the beneficiary, procurement of seeds, layout of demonstrations, training, harvest and marketing, exposure and monitoring, data collection and analysis, and finally documentation.



Root and tuber crops are important food crops of tribal community which ensure lean season food security. The old varieties grown over many years have low yield potential, poor in quality and marketability. Research findings suggest that these crops can be grown as commercial crops in tribal areas.

Considering the importance and suitability of these crops, a production-cum seed multiplication programme was taken up under RKVY during 2011-12 in the tribal areas covered by Orissa Tribal Empowerment & Livelihoods Programme (OTELP).

*Amorphophallus paeoniifolius*, commonly known as elephant foot yam and *Dioscoria alata* or greater yam were cultivated by selected tribal farmers. Two improved varieties of elephant foot yam (Gajendra) and yam (Odisha Elite) were supplied as planting materials. These crops have yield potential of 30-50 t/ha. Quality planting materials along with required agro-techniques were provided by OTELP to the selected farmers for higher production and seed multiplication.

## Outcome

Through the sustained efforts of extension personnel of the agriculture department and effective social mobilization by the NGO partner “Pradan”, there has been significant shift in terms of adopting scientific method of cultivation of tuber crops by tribals of KBK (Kalahandi, Bolangit, Koraput) Region. The kind of behavioural changes and agri-entrepreneurship the project inculcated in the tribals of these regions is indicated as under:

<b>Present status</b>	<b>Improvement</b>
<b>Growing few plants in backyard here and there</b>	<b>Compact patch by following scientific method including staking</b>
<b>Growing yam and cassava</b>	<b>Introduction of elephant foot yam apart from cassava and yam</b>
<b>Not aware of improved varieties</b>	<b>Introduction of improved varieties</b>
<b>Inadequate application of organic manures and mulches</b>	<b>Application of recommended dose of organic manures and mulches</b>
<b>No value addition</b>	<b>Value addition to be made</b>
<b>No Collective marketing</b>	<b>Collective marketing to be supported</b>
<b>Yield 10-15 t/ha</b>	<b>Yield 25-30 t/ha</b>

Sri Keshab Bihari Dalai of Telimunda village in Tumudibandha Block of Kandhamal district had planted 25 kg of yam in his field. As per trial harvesting made in the presence of OTELP officers and local farmers, the yield on his field was calculated at 45 tonnes/acre (111 t/ha). His total cost of production was Rs 2400, including cost of planting material, farm yard manure (FYM) and labour. The estimated yield from 165 pits was 495 kg, which can be sold @ Rs 10/kg, with an estimated profit of Rs 2550.

In village Gunjigaon of K. Nuagaon Block in Kandhamal district 45 farmers were supplied with 50 kg yam each. Sri Baidyanath Mallik of the village had planted 250 pits of yam with application only of FYM in the pits before planting and zero chemical fertiliser usage. During trial harvest in January 2012, 8.15 kg was harvested from 5 pits. Estimated production from 250 pits is around 407 kg which can be sold at Rs 4070 @ Rs 10/kg with a net profit of Rs 1530. The net profit will be higher if the farmer is able to sell his produce in urban centres where prices are @ Rs 15-20/kg. Assuming 15000 pits per acre, the estimated yield per acre is around 24 t (60t/ha).

Two other women farmers of the same village, namely Smt Gitanjali Digal and Reeta Digal have harvested 3.75 quintals and 3.5 quintals, respectively out of 250 pits where 50 kg of yam was planted. In their case the yield per acre is estimated to be 22.5 tonnes and 21 tonnes, respectively and the seed multiplication ratio is 1:7. Farmers are willing to preserve at least 50% of their produce as planting material for the next season, which can be utilised by them and other villagers also.



*Smt Gitanjali Digal of Gunjigaon of Gunjigaon showing yam*



*Harvested yam of Smt Reeta Digal of Gunjigaon (Kandhamal)*



*Sri Sarat Kumar Beruk of Dangarpadar viullage (Tumudibandh)  
Displaying harvested elephant foot yam*

Orissa has a tradition of its many temples serving wholesome, multi-course meals as “Prasadam” to its deities and its distribution to the devotees at a modest cost. This also is a good source of revenue for the temple exchequer. Yam, cassava and other indigenous tuber crops are preferred as raw materials for preparation of temple food over potato, cauliflower and tomato, which are considered to be of “foreign” origin. The purchase of these vegetables by temples all over the state is easily to the tune of hundreds of tonnes every day.

The produce of the tribals thus has a ready domestic market. The religious commitment of the innocent tribals would provide a further fillip to cultivation of non-potato tuber crops in large area, if marketing tie-up with temple administrations for procurement of these indigenous organic varieties of vegetables is ensured. The district administration is understood to be working in this direction. Undoubtedly, the presence of a domestic market would ensure long-term viability of this project and provide sustainable livelihood to the tribals of the State.