Nutrition sensitive integrated farming for dietary diversity and food security

The need to improve food availability and diversity under the LANN approach has been resolved through nutrition sensitive agriculture. The primary objective of the nutrition sensitive agriculture is to combat malnutrition by creating household food security and increasing dietary diversity. The approach stresses better land utilization and focuses on making a shift from chemical to organic farming and on maximizing productivity without compromising the environmental balance.

Integrated Farming statistics in FHFI project areas

Total no. of meetings – **9198**
Villages covered – **300**
Direct beneficiaries reached – **44289**
Families that have adopted nutrition sensitive practices **- 19288**

Some nutrition sensitive agriculture interventions are :

- Improving cropping sequence and land management
- Use of traditional seeds and seed preservation

- Multi-storey arrangement and mixed cropping
- Integrating crop, tree, livestock, poultry, aquatic system and bio-digester.
- Poshan Wadi (Kitchen gardens)
- Use of traditional local crop variety

The journey from hunger to satiety

In the Rayagada district of Odisha, the Kond tribes were habituated to struggling through hunger periods extending up to 5 months. Today, **"Eating 3 meals a day is no longer a luxury," Singhna, Lanji Village**

Freedom from indebtedness

The families used to borrow from money lenders at 5% interest rate per month and repay in the form of grains that remained after harvest sale. They had to go back to the money lender to borrow grains for their own consumption. The families were caught in a vicious cycle of indebtedness. **"The money lenders now say that the farmers have become smart" – Bichitra Biswas, field staff, Living Farms (Odisha).**

Making the most of land resources

A few years ago, growing pulses and oil seeds were unheard of in Rayagada. While a high yielding variety of paddy was grown in *Jhuli* (lowland), the *Dongar* (uplands) lay fallow. Things have begun to change now, as explained by Ramesh Kumbrukar of Kudna Padar village. "We are utilizing our land much better now. For example, I grow a variety of crops such as sorghum, fox tail millet, maize, corn millet, horse gram, black gram, pigeon pea, green gram. I have added 3 additional acres of Dongar to the total cultivable land. Even the bunds are being used for cultivating black gram. The leaves of the pulses fall and turn in to manure for the main crop. We harvested 2 quintals of *dal* (pulses) this year," says **Ramesh Kumbrukar, Kudna Padar village, Odisha**,

while elaborating on the mixed cropping he does. "We are utilizing our land much better now," he adds.

Revival of indigenous seeds

"The high yielding and hybrid seeds that we used to buy from the market could not be preserved for the next year's crop. We were left with no choice but to buy seeds every year from the market and the seeds are very high priced. A kilogram of corn would cost 10 INR but a Kg of its seeds would be 100 INR or more. When we shifted to *Desi Khadd* (organic manure) we also shifted to indigenous seed varieties as they don't need chemical fertilizers. This has cut down our expenses by almost 2500 INR per year. We have now started drying and preserving seeds for the next cropping season. We have also started growing rice varieties like *Paathariya and Jeera* which need less water. We don't have to buy seeds in the market anymore" – **Gauri Devi Solanki, Mahadev Self Help Group, Anandpuri block.**

Diversity

"Earlier, even with 100 INR we could not get a week's vegetables from the market but now we have so much variety, all through the year without spending any money." - Mala Devi, Barjora Village, Deoghar district.

Limba Hikoka's story

Limba and her husband from Kalipadar village, Durgi Gram Panchayat (Odisha) attended LANN meetings and adopted nutrition sensitive agriculture. Using the knowledge gained, they began to do mixed cropping. "From 4 crop varieties, we are now growing 24 varieties," says Limba. "Earlier for 2 rounds of crops in 2 acres of a cultivable land we used to buy fertilizers and pesticides worth 20,000 INR and now we spend only 10,000 INR as the rest is home grown organic. The sale from annual harvest has increased from 30,000 to 50,000 INR," she says, adding that she wants to use the savings for her 3-year-old son's education.

Significant outputs of nutrition sensitive agriculture

- Women have become central to the agricultural ecosystem
- Families are not buying fertilizers and hybrid seeds has resulted in significant reduction of costs
- Families have a second crop cultivation as well as mixed cropping
- Reduced dependence on markets
- Kitchen gardens improved dietary diversity
- Kitchen gardening increased from 3 to 7 months
- Families report lesser instances of sickness and undernutrition

Input Cost for 2 Decibel of land

Sl No	Items	Description	Unit	Unit cost	No of Unit	Total
1	**Labour Cost**	Seed bed preparation-4 person days	Person days	150	4	600 INR
		Fencing-4 person days			4	600 INR
		Sowing, planting-6 person days			6	900 INR
	Own contribution	Intercultural operation, including preparation of NPM formulations and spray-30 person days in a year in three seasons			30	4500 INR
2	**Input cost**	Seed, materials to be used for NPM and other compost preparation, fencing etc. @Average INR 10 per plant, INR 1000 in three seasons	plant	10		
	Actual out of pocket expenses	Seed, seedling-Veg- 250 INR per season for sapling for fruit plants-drumstick-4, papaya-3, custard apple-2, lemon-1-Rs 15 plant, NPM formulation-Rs 200 per season				1500 INR
		For irrigation-pots	pots	20	21	420 INR

Total input cost INR 8520.00 (onetime cost) Cost reduces with increase in live fence, own seeds and compost.

Output Minimum 1.5 kg per day for 9 months, keeping one month per season as preparation/lean period. 405 kg of vegetables @30/- per kg will fetch 12,150 INR worth poison free vegetables in a year. In a family of 5 each person will get 200gms of vegetables/fruits every day.

Scalability, Replicability and Sustainability

The Nutrition sensitive farming may be adopted through the Paramparik Krishi Vikas farming under the Ministry of Agriculture and the Mahila Kishan Sashakti Pariyojna (MKSP) under the NRLM. Under MKSP the krishi sahayaks or village agriculture workers are SHG women who can be trained on integrated farming systems. The training must be in collaboration between the Agriculture, Horticulture, Animal Husbandry and fisheries departments.

The interested farmers can be linked to individual benefit scheme under the MGNREGA for asset creation like land labelling, farm bunding, compost pits, cattle sheds, pond excavation, orchard plantations, irrigation, revival of traditional water harvesting systems as well.

Links:

http://welthungerhilfeindia.org/wp-content/uploads/2017/02/Sustainable-Integrated-Farming-Systems-a-facilitators-guide-Welthungerhilfe-September-2014.pdf

http://welthungerhilfeindia.org/wp-content/uploads/2016/09/SIFS-India.pdf