



INTEGRATED FARMING SYSTEM

Nutritional Security through Integrated Nutrition Garden



Monoculture of rice-wheat cropping system in Fatehgarh Sahib district is showing the syndrome of un-sustainability in terms of depletion of groundwater and soil health as well as fertility. Area under fruits and vegetables is 0.6 and 5 %, respectively. A recent survey concludes that in villages, on an average, intake of pulses is around 40 g, vegetables 180 g and fruits in insignificant quantity while an adult requires 85 g pulses, 280-300 g vegetables and 30-50 g fruits per day for normal maintenance of health.

Keeping the above background in view, KVK Fatehgarh Sahib promoted the concept of integrated organic farming unit of kitchen garden for nutritional security of rural people and for diversification of rice-wheat cropping system in project mode from 2006-07 to 2008-09. Introduced model kitchen garden among fifty farm families from Suhag Heri village of the district. Based on soil and water testing report, different varieties of various vegetables, fruits and pulses were cultivated in an area of 1500 sq m meter out of which pulse crops of *rabi* and *kharif* seasons along with fruit plants grown in 1000 sq m and vegetable crops in 500 sq m. A series of activities such as 10 training programmes, 10 method demonstrations, 3 field days, 10 kisan goshties, 18 monitoring/guidance visits and 1 vegetable sowing camp were organized by KVK in the village covering 441 farmers and 445 farm women.



Salient Features

- Introduced model kitchen garden in project mode in Suhag Heri village of Fatehgarh Sahib district
- Created awareness, knowledge and skill among the farmers about the kitchen garden as well as importance of human nutrition through a series of activities
- Farmers gained dual benefits of earning from rice-wheat system and also achieved nutritional security by increasing the intake of vegetables, fruits and pulses

Pre and post survey of village indicated that farmers were able to earn about Rs 14296 from 3 canal area (1500 sq m) by cultivating vegetables, pulse crops and fruits which on far with the income from rice-wheat system. There was positive change in different food items consumption behavior of farm families. Now, on an average 80 g pulses, 250 g vegetables and 20 g fruits are being consumed per day by each member of family covered under project entitled Nutritional Security through Integrated Nutrition Garden.

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IFS Reimbursed in Multiple Ways



Shri P. Kottaisamy (09003442027) belonging to Kutchanur village in Uthamapalayam Taluk of Theni district in Tamil Nadu has 6 ha of cultivated land with adequate supply of irrigation and used to cultivate banana, cotton, coconut and groundnut by using heavy doses of fertilizers and pesticides. On continuous cultivation, he couldn't take up lead because of drastic reduction in production and also increased cost of cultivation. At one particular point of time, the cost of cultivation was equal to gross profit. Subsequent years pulled him down economically and under dept.

He adopted Integrated Farming System (IFS) in 2000 under the technical guidance of KVK Theni. He integrated his farm with horticultural crops, cereals and livestock. He mainly uses organic inputs in his farm. For this purpose, he established infrastructure with the production capacity of 15000 Kg cattle manure (50 cows), 3000 kg dried FYM, 500 kg enriched FYM, 20 t vermicompost, 6 t cattle feed mill (20 hp service motor), 25 t chaffed fodder (2 chaff cutters), 1500 hr use of mechanical weeders per month. Further, he grows maize, sorghum and cumbu in his farm as cattle feed. He solely depends for 90% of the inputs in his farm and only 10% of the inputs are purchased from market. He recycles the farm waste. Excess manure and other inputs sold to other farmers at 10 % less than the market price. Hence the input cost is enormously reduced and relative transport and labour cost also reduced. By reducing cost of cultivation and inputs, net profit increased by 30% and had a net profit of Rs12 lakh/year from all integrated enterprises.



Salient Features

- Produced enriched farm yard manure
- Achieved sufficient fodder production and established cattle feed mill
- Recycled farm waste through production of vermicompost
- Produced Jeevamirtham and PanchaKavya
- Established drip irrigation as well as fertigation systems
- Followed mechanical weed management
- Created employment opportunity for men and women
- Reduced expenditure and increased net profits as well as soil health

Shri Kottaisamy also go for consultancy programme to various places inside and outside the state on IFS. He has provided employment opportunity to 15 women and 5 men who are continuously working in his farm. This IFS is a successful one because of its sustainability since 2000. There are about 200 farmers, farm women and rural youth and students from various parts of India have come and visited his farm and undergone training programme on various organic inputs preparation varying from one day to one week.

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IFS for Profitable Agriculture



Tuipui D village in Lunglei district, Mizoram has potential for agriculture, horticulture and animal husbandry like dairy, piggery and poultry. Agro climatic variation offers much scope for cultivation of the temperate and tropical fruits and vegetables. Rice, maize, potato, orange, cabbage, cauliflower are the main crops. Village is mainly engaged in agriculture on their own or leased land and therefore agriculture is essential for subsistence of villagers. KVK Lunglei introduced Integrated Farming System(IFS) in Tuipui D village through a series of activities. As a result, farmers of this village have adopted IFS in an area of 5.5 ha in 2007-2008. Within a short span of two years, area was increased to around 10 ha generating an amount of Rs 50000/ha besides creating self employment.

Farmers integrated poultry and piggery in their farm under the technical backstopping of KVK. They adopted broiler (Vencobb) in deep litter and cage system. Around 40-50 birds are reared in one batch. Birds are sold when they attain 1.5 - 2.0 kg either dressed or live weight @ Rs 180 or Rs 140, respectively. Litters are used as manure to crops in the farm. Many farmers adopted crossbreeds of large white Vorkshire and Hampshire and some farmers still rear local (Zo-Vawk) pigs and Burmese breeds. Pigs are reared mostly for meat purpose in this region. But due to intervention of KVK, now farmers adopted pig breeding. Farmers were highly benefitted under the scientific management resulting in an increase in meat production and number of litters per sow.



Salient Features

- Double cropping paddy followed by vegetables
- Water harvesting structures (WHS) for storing water during lean period
- Scientific nursery management
- Introduction of High Yielding Variety of seeds for vegetables
- Scientific rearing and management of piggery and poultry

Shri R. Lalbela (09436756051), Shri Lalrema (09436777223), Shri Lalhminga (09436761863), Shri Lalrinthanga (09436760915), Shri Lawmsanga (09436955152), Shri Lalmuanawma (09863420576), Shri Vanlalrova (09436960195), Shri Lалуara (09863435410) are few of the successful farmers of Tuipui D village. With the adoption of IFS by farmers, farming system of Tuipui D village is changing and becoming more productive and profitable.

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Retired Army Man Turned in to a IFS Farmer



Shri Kwester Majaw, an army man retired in the year 1983 belonging to Saiden village under Umling block of Ri-Bhoi district adopted Integrated farming System (IFS) under the technical guidance of KVK Ri-Bhoi. He adopted rice, vegetables, pine apple and piggery as components of IFS in his farm of 6.0 ha. Besides he made Jalkund with the financial assistance from NABARD under the technical guidance of KVK for irrigating crops.

He adopted high yielding varieties of rice (Bhalum 1, Bhalum 2, Shahsarang), tomato (Avinash, Chiranjeevi), capsicum (California wonder), soybean (JS - 335), Groundnut (ICGS – 76) and cross breed Piglets (Hampshire) and benefited profoundly. From Shahsarang variety recorded an yield of 40q/ha. From winter vegetables alone, he earned an amount of Rs 95000 in 2006-07. With IFS, his monthly income has increased to Rs 10000 as against he had a tough time to maintain his eight member family of 4 sons and 2 daughters with his lump sum pension amount of Rs 2500 per month.

Salient Features

- Integrated various components in the farm
- Introduced high yielding varieties
- Increased productivity, production and farm income
- Recognized as IFS farmer

Many farmers regularly visit his farm for seeking advices from him. Presently, he is the chairman of Charcha Mandal group. Besides, he is a potential opinion leader in his village.



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Sustained Agricultural Productivity Under Rainfed Condition



KVK Chitrkoot had started its activities in 12 villages after technological gap analysis through survey. Detailed action plan was prepared including training on latest technologies for crop production, use of bio – manures and balanced fertilizers, seed production of improved varieties suitable for rainfed condition, retention of soil moisture for longer period through green manuring and water harvesting techniques, line sowing and proper placement of fertilizers, crop diversification to ensure income through aonla orchard establishment, vegetable and spices cultivation, goat and fish farming, dairy with improved breeds.

KVK adopted the strategy of peoples participation through formation of different working groups and farmers clubs, village development committee, youth club, women club, village health committee, etc. It was decided that all the programmes and works regarding development of villages would be planned and executed through these committees and clubs. Responsibilities were framed for all-round development of villages- clean and green village, abolition of poverty through increasing production, employment to rural youths good health and education of villagers. Village development committee decided that the seed produced in village will be utilized in villages for its further use as seed on exchange basis. In this way selected villages were covered under high yielding varieties in next season. Major crops and their varieties under seed production programme used were rice (NDR-118, Pant-12, Sonam), pigeonpea (NA-1, Bahar), mustard (Uravashi, Maya, Vardan), gram (KGD-1168, KWR-108), lentil (DPL-62), and wheat (GW-273, WH-147, K-9465). Total seed produced was 210 q in 2007-08



Salient Features

- Working through peoples involvement by farmers groups
- All-round development by improving poverty, employment to rural youths, health and education of villagers
- Seed production in village and its utilization for further use as seed in neighbouring villages
- Change in farming system, average productivity increased up to 30-60%.
- Area under improved varieties increased from 9 to 55 % and area under vegetables increased from 2 to 5%

covering 113 villages and 1424 farmers (840 ha area).

Major outputs in agricultural development were change in farming systems. Prevailing farming system of crop + animals was changed in to a) crop + vegetable, b) crop + fruit + animals and c) crop + animals + fish. Average productivity increased between 30-60%, area under high yielding varieties from 9 to 55 % and area under vegetables increased from 2 to 5%. Common understanding of villagers for health, vaccination, cleanliness and education have improved which has changed the villagers attitude. Area under green fodder has increased. Agriculture and allied sectors productivity and average income have increased. These villages are treated as a model for better agricultural development in the district.

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Multi Layer Horti Based Cropping System for Sustainable Livelihood among Tribals



Bastar district is situated southern part of Chhattisgarh state. Most of the area (851867 ha) is covered by forest. Rich forest of Bastar has enforced farmers to develop agro- silvi horticultural pattern of farming. In the district, 66% of population is dominated by tribals. Local beverages like Sulfi, Mahua, Landa are taken by tribal and hunting is one of the tradition. Dryland horticulture has tremendous scope for utilization of these land and upland soils by cultivation of suitable Agri-horti crops. KVK introduced Multi layer horti based cropping system in the village Malgaon during 2002-2003. Total area selected initially in the village was 20 ha of upland and number of farmers selected under area was 10. Field crops such as rice, maize, pulses cultivated with horticultural crops like fruits and vegetables round the year and created irrigation facilities through KVK + Convergence Programme (SJGSY) for these crops. Further, KVK organized awareness campaign, training courses, exposure visits, demonstrations and other extension activities for better understanding of technology.

Shri Tulsiram from Malgaon adopted Multi layer horti based cropping system in his 2.5 ha of upland. He cultivated vegetables round the year in *kharif*, *rabi*, *zaid* and obtained around Rs 300000 as net income as against Rs 15000 from the same land by mono-cropping with traditional technologies. Consequent years, he strengthened his farm by standardizing various crop combinations to achieve high returns from a piece of land with out affecting soil health under the technical guidance of KVK at regular intervals. His hard work with innovative ideas, Shri Tulsiram received Progressive Farmers Award by IARI, New Delhi and Hon'ble Chief Minister, Chhattisgarh. He is now providing employment to local villagers (2500-3000 man days/year) in his farm. Shri Tulsiram became a Role Model farmer for many farmers.



Salient Features

- Cultivated crops like rice, maize, pulses with horticultural crops like fruits and vegetables round the year for obtaining higher returns per unit area from a piece of land
- Improved soil health
- Generated rural employment
- Improved living standards of tribal farmers

Multi layer horti based cropping system horizontally spread to near by 8-10 villages through the principle of seeing is believing and learning by doing. Area under *rabi*, *Kharif* and summer crops was increased by 114, 12.15 and 96.52 %, respectively, after six years of implementation of this model in the village. This is due to assured irrigation facilities developed through convergence programmes. Productivity of different agri-horti cultural crops increased between 13 to 84%. Looking to the success of model, Panchyat Bastar sanctioned Rs 20 lakh for development of same model in other villages of Bastar under BRGF scheme. Department of Horticulture, Bastar division also implemented this model in 50% of upland area in the district. Hon'ble C.M., Chhattisgarh state, Hon'ble Vice Chancellor, IGKV, Raipur, and Collector Bastar district awarded and recognized to KVK for the work on dissemination of Multi layer horti based cropping system in the district.

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