

Diversified Farming

through livestock and agriculture

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Location and selection of area

Project under FFP was initiated in villages Khokha, Kharkhadi and Dhansu of Hisar (Haryana) and for spread of technology, villages Jhansal Maharana, Chiriya Gandhi, Bhirani, Biran, Dhani of Modakheda, Chani Badi, Ninan, Ghandhi, Janana, Ramsra (Rajasthan) were selected.



Number of farm families

A total of 908 farm families participated in this research project.

OBJECTIVES

- Improving scientific livestock (Buffalo) production system to increase productivity and round the year employment opportunity.
- Diversifying agricultural farming system through horticulture (fruit, vegetables, mushroom) and honey bee farming.

Livestock based module

Empowering farmers by associating with Farmer FIRST buffalo herd

Primarily, following main interventions were selected to achieve

major objective:

- One health (clean and quality milk production, buffalo health and welfare).
- Reproductive health management (health and reproductive management camps).
- Calf for future.
- Trainings and visits.
- Farmer FIRST Agricultural Technologies Demonstrations and Entrepreneurship Promotion Unit (FFP-ATU) for learning to earning.

Rationale of the intervention

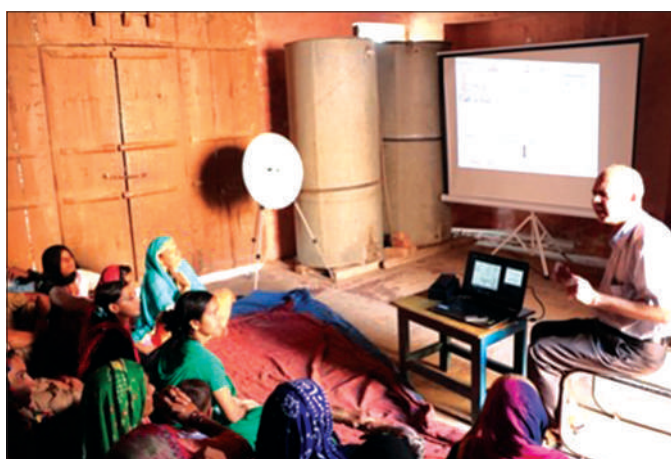
In Haryana, buffaloes serve as fixed deposit for the landless, small and marginal farmers during marriage of daughter, education and construction of a house. Buffalo

land and increasing cost of rearing has turned buffalo husbandry into a livelihood and resource generating enterprise system full of challenges. To bring economic advantages and sustainability to farm families, scientific practices for buffalo production, apiculture and horticulture are being used.

In Farmer FIRST villages, major challenges identified were during initial phase of this project, viz. low productivity of buffaloes, involuntary culling, mastitis, indiscriminate use of antibiotics, higher feeding cost and no ration balancing and compromised animal welfare, higher calving interval and age at first calving, low genetic potential of calf for future, higher calf mortality, stunted development and higher cost of replacement heifer. Possible reason for exacerbation of these problems may be lack of knowledge and awareness among farmers. Trainings, demonstrations, visits, Farmer FIRST Tele-clinics, laboratory liked diagnosis followed by therapeutic and preventive strategies were initiated to address these challenges.

OUTCOME

The nutritional garden and mushroom farming were initiated by 319 and 39 farmer families respectively for nutritional security. Beekeeping presents an excellent opportunity for farmers to earn additional income



Demonstration under the intervention.

contributes more than half of total milk production in country of total milk production in India. Decreasing land holding, diminishing pasture



Glimpses of bee-keeping equipments given to women.

along with enhancing the productivity of agricultural, horticultural and fodder crops through pollination services. The farming community pertaining to these villages was contacted and awareness was created in them about the benefits of beekeeping. Initially a group of women farmers were provided hand-holding training of apiculture. Next year, other 30 farmers approached for bee keeping training. The farmers were exposed to hands-on training, visits to various state-of-the-art facilities for beekeeping, viz. Apiculture Unit, CCH HAU, Hisar and PAU, Ludhiana and Integrated Beekeeping Development Centre, Kurukshetra. Thereafter, the farmers were further sensitized and motivated to take up beekeeping. After training, 20% farmers out of the whole group initiated the beekeeping as a subsidiary enterprise alongside the routine agricultural activities in participatory approach. The farmers were encouraged by Farmer FIRST by providing bee boxes, beekeeping equipments like bee veil, gloves, hive tool and brush, etc. The farmers got further motivated and purchased equal number of bee boxes during honey flow period. Continuous

Table 1. Intervention outcomes

Observation	Result of interventions
1 Calving abnormalities	Nil
2 FMD outbreaks	Nil
3 HS outbreaks	Nil
4 Highest lactation milk yield	5,856 Kg
5 Calf mortality rate	3.6%
6 Somatic cell count (Quality milk and udder health)	
100,000 or less	57.73%
200,000-300,000	22.68%
300,000 or greater	19.59%
7 B:C Ratio (3 rd year)	0.99 to 1.26
8 B:C Ratio (1 st year)	0.95 to 1.12
9 B:C Ratio (Farmer to consumer linkage for quality milk)	1.35 to 1.46
10 B:C Ratio (milk product)	1.33 to 1.40

hands-on training on seasonal hive management, migration, quality honey extraction and solving their problems with help of experts motivated other farmers also to take up beekeeping enterprise.

TRAINING

A total of 9 trainings including 524 farmers on कृषि विविधीकरण से आर्थिक सशक्तिकरण, Production and Marketing of Honey bee products and mass queen bee rearing

techniques, Production technology and Post-harvest handling of fruit crops (11-16 January, 2019), भैंसपालन, उद्यमिता व नारी सशक्तिकरण (24-30 March, 2019), पशुपालन व डेरी व क्षेत्र में आधुनिक प्रगति, सामुहिकता एवं कृषि विविधीकरण, Farm diversification and entrepreneurship: Livestock – Apiculture – Horticulture (NDRI, DMR, CCSHAU, CIRB, FF villages) (July 26 to October 28, 2019), Farm diversification and entrepreneurship: Learning to earning and one health (February 3 to 5, 2020), Scientific buffalo production and farm diversification (4 March to 13 March 2020), Field experience training of ARS scientist probationers (25 February to 16 March 2020) were conducted.

IMPACT

The farmers sold their quality honey up to ₹ 220/kg during mela and direct linkage with the consumer. Participating farmers with Farmer FIRST buffalo herd are not only making buffalo farming sustainable and resilient but also getting recognition and growth.

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Avoid wasting food

While millions of people go hungry, vast quantities of food are lost every day, either spoiled during production or transport or thrown into the waste bins of households, retailers or restaurants. Squandering food is also a waste of the precious resources used to produce it. Up to 10 percent of global greenhouse gas emissions are associated with food that is not consumed. Food waste is filling up the world's landfills, where it decomposes and generates methane, a greenhouse gas that is more harmful than CO₂. In developing countries, there is a need for improved storage and infrastructure to avoid food loss, as well as access to technologies that can match agri-food supply and demand.

