The research project entitled “Standardization of nursery and production technology of Cactus (Opuntia ficus indica) for livelihood development in the arid and semi-arid regions” is being implemented at BAIF since June 2015 with support from NABARD. Cactus also known as prickly pear or cactus pear, has emerged as one of the most suitable crop species for arid and semi-arid climate. It is tolerant to drought, high temperature and frost, adapted to hot arid environment because of xerophytic characters, multiplication through vegetative means, having multipurpose uses as fruit, vegetable and nutritive fodder, industrial importance for value added products and good species to withstand emerging conditions of climate Change.

General objective:
- Promote and develop the cactus (Opuntia ficus indica) a new emerging potential crop for improving the livelihood of the people in the arid and semi-arid zones of India

Specific objectives:
- To standardize the nursery techniques and production technology of the cactus for fodder, fruit and vegetable production
- To evaluate the nutritional value of different accessions of cactus
- To evaluate the performance of the cactus as fodder for small ruminant (goat) through feeding trial at farmers field

Important Visits
- Visit of Dr. Louhaichi Mounir, ICARDA
- Visit of Dr. Uriel Safriel, Ecologist, Israel
- Visit of Mr. R. Amalorpavananthan, Dy. MD, NABARD

Future Prospects
- Development of decentralize cactus nurseries
- Introducing cactus as supplementary fodder crop in the farmer’s field
- Exploration of medicinal properties of cactus

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Cactus Research and Development Program

- Germplasm collection
- Establishment of cactus arboretum
- Evaluation of germplasm for growth, yield and nutritional parameters
- Development of multiplication techniques through nursery trials
- Agronomy trials for development of production technology
- Cactus feeding trials in small ruminants (goats)
- Adaptability and multiplication trials in arid regions in Rajasthan and Gujarat
- Dissemination of cactus production technology through publications and demonstrations

Key Research Highlights

- Collected 73 cactus accessions from various ICAR and private research institutes and explorations by personal visits
- Developed cactus arboretum for evaluation of various accessions for adaptability, growth and yield performance
- Field experimentations on standardization of nursery techniques and production technology in cactus and protocol developed for nursery techniques for mass multiplication
- Nutritional analysis of various cactus accessions for proximate and trace minerals undertaken
- Undertaken the cactus feeding trial in goats and positive results obtained in feeding trial under farm conditions
- Identified most suitable Fodder Accessions
- Multiplication and adaptability trial of various cactus accessions undertaken at Nanodara in Gujarat and Barmer in Rajasthan
- The dragon fruit (var. Red and white), a species of cactus (Hylocereus undatus) for edible fruit, has been established
- Developed network with National and International organisations working on cactus

Propagation through cladode pieces

Hardening of propagules

Transplanting the propagules in the field

Cactus feeding trial in goats

Chaffed cactus pieces

Fruiting in cactus

Agronomy trial for development of production technology

Cactus arboretum

Regeneration in old cactus plants after lopping

Nursery techniques standardization

Cactus plantation in degraded wasteland