Forage Research Programme

Forage Crop Varieties/Hybrids:

B x N Hybrid

BAIF Napier Hybrid-10 (BNH-10): Perennial, green foliage, very long and broad semi-drooping leaves without pubescence, quick regenerating and profuse tillering

Crude protein content: 8-9 %

Avg. Yield: 150-160 MT per ha per year from 6-8 cuttings

BAIF Napier Hybrid-11 (BNH-11): Perennial, green foliage, thick elliptical stem, soft, long and broad leaves without pubescence, quick regenerating, vigorous tillering, non lodging and high yielding

Crude protein content: 7-8 %

Avg. Yield: 180-200 MT per ha per year from 6-8 cuttings

BAIF Napier Hybrid-14 (BNH-14): Perennial, dark green foliage, thin stem, soft, long and narrow semi-erect leaves without pubescence, profuse tillering, non lodging and high yielding

Crude protein content: 7-8 %

Avg. Yield: 130-150 MT per ha per year from 6-8 cuttings

Forage Bajra:

BAIF Bajra-1: Multicut variety, tall and erect growing, dark green foliage, broad leaves, pubescence absent, very long spike distinctly tapering towards tip
Crude protein: 9-10 %
Avg. Yield: 65-70 t/ha

BAIF Bajra-5: Summer multicut variety, very tall and erect growing with thick stem, light green foliage, broad and long leaves, pubescence absent, non lodging
Crude protein: 9-10 %
Avg. Yield: 85-95 t/ha

BAIF Bajra-6: Summer multicut variety, very tall and erect growing with medium thick stem, small intermodal distance, dark green foliage, more tillers, broad and medium leaves, pubescence absent, non lodging
Crude protein:9-10 %
Avg. Yield: 90-95 t/ha

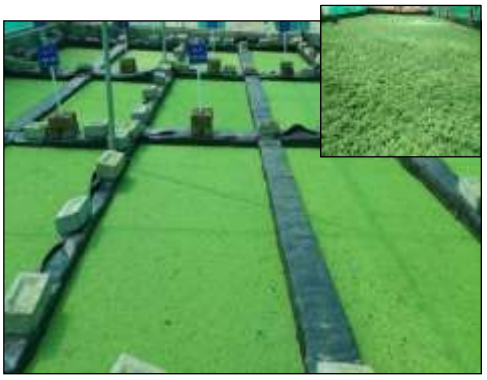
Forage Production Technologies:

- Sowing methods and cutting management in Lucerne
- Planting methods and crop combinations in Forage crops
- Influence of different cutting management practices and nitrogen levels on dual purpose pearl millet and oat
- Different forage cropping systems for green fodder production
- Weed management in fodder maize.
- Seed priming techniques for forage maize and oat

Non-Conventional Fodder Resources:

Azolla

- A free floating water fern
- Contains 22-28% protein on dry weight basis
- Rich in essential amino acids, minerals, vitamin A, B12 and carotenoids
- Quick and easy to grow with less inputs
- Improved milk quality and production
- Savings in concentrate feed by 20-25%



Hydroponics Fodder

- Innovative technique of green fodder production
- Highly nutritious green fodder (Crude protein 14-15%)
- Produce more fodder in short period with optimum use of water

Spineless Cactus

- Good species for Climate Change
- Tolerant to drought, high temperature and frost
- Multipurpose plant species for fruit, vegetable and nutritive fodder
- Multiplication through vegetative means
- Can be grown on rangelands, community grazing lands, wastelands, fodder growing blocks, cropland bunds.
- Crude protein 5-7% and rich in minerals

Potential source of Green fodder

Legume Blocks

- Protein supplements to improve the nutritive value of the low quality diets
- Supply main nutrients as possible alternatives for farmers during the dry season
- Convenience for packaging, storage, transport and ease of feeding

- Nutritional value - Crude protein 20-22%

Silage

- Silage is succulent roughage, prepared by freshly cut or partly-dried forage under anaerobic conditions.
- Maize, sorghum, Bajra, hybrid Napier, oats, sugarcane and many grasses can be used for making silage.
- Animals consume more silage because it is more palatable, nutritious and mild laxative.
- Milk produced by silage fed animals, is higher in vitamin A and carotene and is less subject to the oxidized flavour.

Bio char as a soil amendment to improve soil health

- Bio char is a super charcoal made by heating any biomass
- Bio char helps
  - To maintain water holding capacity (moisture) of the soil.
  - Increase nutrient use efficiency
  - Increasing the number of microorganisms
  - Maintain the soil fertility and productivity

Available Services:

Grafts and Seedlings:

- **Tamarind**: PKM, No. 263, Sweet tamarind
- **Dragon fruit**: white type
- **Medicinal and Aromatic plants**

Fodder Crop Seeds

- **Maize:** African Tall
- **Bajra:** BAIF Bajra-1, BAIF Bajra-5, BAIF Bajra-6
- **Oat:** Kent
- **Cowpea:** EC-4216, UPC-9202
- **Berseem:** Wardan
- **Desmanthus:** Velimasal, local
- **Subabul:** K-8
- ***Stylosanthus seabrana***

Perennial Grasses: Planting Material

- **B x N Hybrid:** BNH-10, BNH-11, BNH-14
- **Marvel:** Phule Gowardhan, Marvel 40
- **Guinea grass**: Mumbasa

- **Spineless cactus**
- **Azolla culture**

Training:

- Forage production - conventional and non-conventional
- Fodder preservation
- Sustainable agriculture
- Vegetable cultivation
- Nursery production and management
- Biochar production
- Ethno Veterinary Medicine
- Dragon fruit cultivation

On-going Research Projects:

All India Coordinated Research Project on Forage Crops and Utilization, ICAR, New Delhi: The Centre works for development of improved varieties and hybrids of crops like maize, pearlmillet, lucerne, BN hybrid, *Chenchrus* and *Stylosanthes*, generation of intensive forage production technologies, breeder seed production and technology transfer in the field.

All India Coordinated Sorghum Improvement Project, IIMR, Hyderabad: Conducting multi-location coordinated research trials on single cut and multicut during *kharif* and *summer* season.

Maharashtra Gene Bank Programme for Conservation, Management and Revival of Local Bio Resources, RGSTC, Government of Maharashtra and IISER, Pune:

- **Crop Diversity:** On-farm maintenance of 425 accessions of Rice, Millets, Maize, Sorghum and Beans across 5 Clusters of Maharashtra. *Ex-situ* conservation of 644 accessions of different crops in Gene Bank under cold storage at Urulikanchan.

- **Non-Timber Forest Produce:** *Ex-situ* conservation of Mahua candidate trees and other NTFP species at Urulikanchan and Wagholi campuses; Seedling preparation and plantation on community land.

Azolla Cultivation and Promotion as Supplementary Nutritive feed to Livestock, RGSTC, Government of Maharashtra: Cultivation of azolla at household level, backyard poultry level and feeding of azolla to goats and cattle on farmers' field. Research study on Azolla cultivation on different water sources is also being undertaken to observe the effect on yield and nutritional quality.

Soil protection rehabilitation for food security in Amravati and Yavatmal districts of Maharashtra, GIZ, Germany: Production of biochar from crop residues like cotton stalks, tree branches and pigeon pea stalk by using Biochar kiln and its application to soybean wheat cropping system.