

NATIONAL DAIRY RESEARCH INSTITUTE

Genesis and Growth

Southern Campus of National Dairy Research Institute is the pioneering institution and has been contributing significantly to the development of dairying in the country. Since its inception in 1923 as Imperial Institute of Animal Husbandry and Dairying at Bangalore, the institute has undergone a series of metamorphoses. In 1955, the institute was reorganized, shifting its Head Quarters to Karnal in Haryana to become National Dairy Research Institute. The establishment at Bangalore was renamed as Southern Regional Station of the institute. The NDRI was accorded Deemed University status in 1989.



The Station was strengthened through creation of new sections from time to time to support dairy research, education and extension activities. It is to the pride of the institute that Father of the Nation Mahatma Gandhi visited this campus and got acquainted with the scientific dairy farming.

The institute celebrated its Platinum Jubilee to commemorate its accomplishments. Recently, the station has been renamed as Southern Campus, NDRI, Bangalore, with revised mandate to cater to the regional needs in the changed scenario.

Mandate

- Identify the region specific problems of dairy production, processing and management on continuing basis and evolve suitable solutions.
- Establish centres for technology development, assessment and dissemination.
- Establish centres of advanced studies for R&D and HRD with SRS as the Southern Campus of NDRI Deemed University.

Infrastructure

The Campus has the required infrastructure for carrying out the research, educational programmes and extension activities in the field of dairying. The major facilities include:

- Staff of about 290 including about 80 scientific and technical staff.
- Land area of about 46 hectares, of which 22 hectares are devoted for fodder cultivation.
- Dairy herd of about 200 indigenous cattle.
- Modern laboratory facilities for research on molecular genetics, screening of microbes, sensory, chemical and microbial analyses of dairy products.
- Experimental dairy for research and training in processing of milk and milk products.
- Library, computer & internet facilities, staff dispensary, hostel and guest house.

Accomplishments

Some of the major accomplishments are as follows:

Dairy Production

- Success of crossbreeding programme made Bangalore as the prime market for crossbred cattle in the country.
- Key Village Scheme facilitated artificial insemination and provided veterinary health care.

- Nutritional survey indicated deficiency of minerals in cattle ration in Southern India.
- Urea treatment of paddy straw augmented nutritive value of the straw.
- Progeny testing programme in farmers' herds helped in identifying superior bulls and elite crossbred cows as future bull dams.
- Close monitoring, timely AI and veterinary services improved reproductive efficiency of cattle in farmers' herds.
- Crossbred bullocks are suitable for agricultural operations and have an edge over zebu bullocks in hauling heavier loads.
- Introduction of taurine buffer into the genital tract before AI improved conception in repeat breeding cattle.
- Survey indicated that Krishna Valley, a dual purpose cattle breed, is on the verge of extinction.
- Molecular genetic characterization of seven South Indian zebu breeds shows marked genetic divergence between dual and draft breeds; Malnad Gidda differs distinctly from others.
- Quality of dairy animal shelters depends on the income from dairy activity.

Dairy Processing

- Ghee stored with ghee residue has enhanced shelf-life.
- Developed a TLC method to detect adulteration of ghee with vegetable oils.
- Suggested bacteriological standards for grading of milk and quality evaluation of pasteurized milk.
- Developed a simple and rapid electrometric method for estimation of SnF.
- Developed simple analytical methods for estimation of starch, sucrose, taurine, cholesterol etc.
- Designed a lactometer for more accurate estimation of SnF which has been adopted by BIS.
- Evaluation of flexible packaging material for whole milk powder helped to amend PFA Rules.
- Accelerated methylene blue reduction test was developed for enumeration of psychrotrophs in milk.
- Developed / modified methodologies for manufacture of fruit flavoured high fat yoghurt, low cost cream spread, *kadhi* powder, cholesterol free mozzarella cheese and *basundi*.

- Developed / modified methodologies for commercial manufacture of indigenous dairy products like *palada payasam* mix, *chhana podo* and *kunda*.
- DDT and BHC, the predominant pesticide residues present in milk, are largely due to contaminated feed ingredients.
- Pasteurization, boiling and fermentation do not reduce levels of organochlorine pesticide residues in milk.
- Homogenized concentrated milk is a good tea / coffee whitener and suitable for preparation of good quality *dahi* and yoghurt.
- Partial replacement of steam in dairy plants with hot water, saves fuel cost.
- Development of upgraded oxidation ponds for dairy effluents.
- Developed technique for recycling of whey for production of bio-gas and reduction of effluent pollution.
- Developed simple tools for automation in cleaning of dairy equipment.

Dairy Economics & Extension

- Expenditure on feeding forms the major component of cost of milk production.
- Timely availability of credit and technical inputs influence adoption of improved technologies.
- Optimisation of route scheduling reduces cost of milk procurement.
- Strict inventory control is required for high consumption value, fast moving and high unit value items in dairy plants.
- Participation of farm women is higher in dairy farming as compared to their counterparts.

Research Thrust

- Genetic characterization and improvement of indigenous breeds of cattle and buffaloes using biotechnological tools.
- Dairy farming systems in different agro-climatic zones.
- Dairy farming practised by different ethnic groups.
- Clean milk production and post-milking quality improvement.
- Characterization and process upgradation for manufacture and packaging of regional dairy products.
- Nutritional and therapeutic aspects of milk and milk products.

- Application of biotechnological methods for process modification of dairy products.
- Design and development of equipments for manufacturing & packaging of regional dairy products.
- Energy conservation and resource optimisation in dairy processing.
- Treatment of dairy plant effluents for pollution control.
- Data base on dairying in the southern region.
- Socio-economic and cultural aspects of dairying in different agro-climatic regions of southern states.
- System modelling for dairying in the southern region.
- Impact of dairy training regimes on productivity of dairy industry.
- Integrated rural development with dairying as the major intervention.
- Indigenous knowledge systems and practices related to dairying.

Education and Training

Systematic training in dairying was initiated in 1923 at this institute. The alumni played a pivotal role in building dairy industry in the country. At present the institute is offering the following training programmes:

- Short-term courses on milk production and market milk plant operation.
- Specialized short-term training on various aspects of dairy production, processing and management.
- Tailor-made short-term training in different areas of dairying.
- In-plant / farm training for dairy science students.
- M.Sc. (Dairying) in Dairy Chemistry and Dairy Technology
- Ph.D. in different disciplines of dairying.

Consultancy, Analytical Services and Other Services

The Southern Campus provides expert consultancy and analytical services in different areas of dairy production and processing.

Analytical Services

The analytical services rendered by the institute include, analysis of feeds and fodders; sensory, chemical and bacteriological analysis of milk and milk products; checking the calibration of lactometers, butyrometers etc.; analysis of additives and contaminants, pesticide, antibiotics residues in feeds, milk and milk products.

The other services provided include supply of root-slips for raising fodder crops, frozen semen from elite bulls and starter cultures for fermented products.

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