

NEW STRATEGY FOR RURAL HARYANA PROSPERITY

By Suraj Bhan Dahiya

Agriculture is the science of growing crops, raising livestock and improving the quality and quantity of farm products. The agriculture profession in the state is facing the serious problem of unemployment. Therefore, the state requires new strategy in the agricultural sector.

Agriculture offers numerous career opportunities in farming, horticulture, floriculture, cultivating rare medicinal herbs, mushrooms and hybrid seeds, dairy, poultry and fish farming, commercial forestry to food processing and agri-exports, all of which are lucrative options. With the application of scientific research and technology the output and profitability of this sector should be increased so that economic conditions of farmers in the state are improved. From soil, water and pest management to post-harvest management, there is a growing demand for qualified professionals at all levels. These opportunities should be made available to young Haryanvi farmers. Infact, every inch of agricultural land in Haryana is a commercial venture. The agriculture entrepreneurial skill of Haryanvi peasantry should be exploited which may provide million of jobs to the unemployed youths of the state. The kisan call centers manned by agriculture experts in eight states to provide answers and advice to farmers who dial a toll free number being launched by the Prime Minister hold an interesting potential. This is first step towards agricultural youth's involvement in rural prosperity. This has been well elaborated in my paper 'New Vision on Haryana.'. I strongly emphasise that Haryanvi farmers should capture vast bazaar of the National Capital.

Since independence, we have created a number of development functionaries at the Central, State, District and Block levels, but unfortunately they have not made any significant impact on the rural society because of a variety factors. For rural prosperity in Haryana, entire administrative structure now will have to undergo radical charges from elite IAS down to the block level officers if efforts of development planning have to bear any fruit. It is proposed that at the block level it would be advantageous to appoint Rural Development Manager of rural background incharge of development centers. He will have to

work directly under Chief Executive Officer Block-an IAS Officer and may look after 10 to 15 thousand target population. The experience gained by the Chinese in this direction is worth noting in context of rural development of Haryana. It will have little burden of exchequer. In fact, sub-tahsil, tahsil and sub-division do not fit this dynamic administrative model. Originally, the block establishment was conceived as a people's organization, but when the generalist and technical cadre officials are posted to a block with career oriented loyalists to the respective departmental heads, they could not make coordinated efforts for block development. Development is a full time activity and if professional cadres and to be built up the State Administrative structure will have to be properly reoriented beginning from the village level workers to the Secretariate. Thus management of rural development will have to be thought of as an integrated approach.

National Bureau of Animal genetic resources, Karnal

National Bureau of Animal Genetic Resources (NBAGR) and National Institute of Animal Genetics (NIAG) were established on 21st September, 1984 in the campus of Southern Regional Station of National Dairy Research Institute, Bangalore. The Bureau and the Institute were shifted to Karnal in July, 1985 and temporarily housed in NDRI campus and occupied their own campus at Makrampur, Karnal in 1994. The National Institute of Animal Genetics and the Bureau were merged in 1995 to function as a single unit National Bureau of Animal Genetics Resources.

The diversity in animal genetics resources of India exists as a vast array of breeds and livestock population that have evolved and adapted over centuries to varied climatic conditions. India as one of the world's mega biodiversity center harbour a broad spectrum of native breeds of Cattle (30), Buffalo (10), Sheep (42), Goats (20), Camel (9), Equines (6), Poultry (18) besides pigs, yak, Mithun, Ducks, Quails and Geese, Indiscriminate crossbreeding, extensive system of rearing and substitution with exotic germplasm have lead to the genetic dilution of local. This has resulted in the erosion of native germplasm.

Objectives

1. To conduct systematic surveys to characterize, evaluate and catalogue farm livestock and poultry genetic resources and to establish their National Data Base.
2. To design methodologies for ex situ conservation and in situ management and optimal utilization of farm animal genetic resources.
3. To undertake studies on genetic characterization using modern techniques of molecular biology such as RFLP analysis, DNA fingerprinting, molecular cytogenetics and immunogenetics etc.
4. To conduct training programmes as related to evaluation, characterization and utilization of animal genetic resources.

RESEARCH ACHIEVEMENTS

Breed Descriptors for characterization for ANGR

Breed descriptor formats for cattle, buffalo, sheep, goat and poultry species have been developed and distributed to various organizations for uniform characterization of Animal Genetic Resources of the Country.

Data Base Management

An information system (AGRI-IS) has been evolved for storing and retrieval of information on animal genetic resources of the country. Data Bank on livestock census, livestock literature, germplasm resources and breed characteristics has been developed.

Phenotypic Characterization

The Phenotypic Characterization has been accomplished in 23 breeds of Cattle, Buffalo-7, Sheep-17, Goat-14, Poultry-7, Horses-3, Camel-2, and one breed of Mithun.

Molecular Genetic Characterization

The Molecular Genetic Characterization of various populations/breeds has been carried out using microsatellite markers to study the genetic structure and establishing relationships among them in various livestock species viz., Cattle-13, Buffalo-4, Sheep-12, Goat-9, Poultry-7, Horses-3, Pig-3 and Camel-1.

Cytogenetic Characterization

The karyotypic features of all the species of domestic livestock i.e. Cattle, buffalo, Sheep, Goat, Equine, Camel, Pig and Poultry has been covered. Cytogenetic screening services for breeding bulls are being provided to various agencies throughout the country.

Animal Genetic Resource Evaluation

- Evaluation of interleukins in indigenous cattle breeds to study disease resistance.
- A new mutation in exon 2 of GDF-9B was discovered in indigenous Garole Sheep.
- Myostatin, a negative regulator of skeletal muscle mass, causing muscular hypertrophy was characterized in indigenous cattle, buffaloes and chicken.

- ACNDA Library from lactating buffalo mammary glands has been created as a resource for characterization of EST/genes association with milk production.

Conservation of Animal Genetic Resources

- Ex-situ conservation programme on following livestock breeds has been undertaken by NBAGR

Species	Breeds
Cattle	Punganur, Bagori, Rathi, Kangayam, Krishan Valley, Ponwar, Kherigarh
Buffalo	Bhadawari, Pandharpuri, Tarai, Jaffarabadi
Sheep	Garole, Bhakarwal, Pugal
Goat	Black Gengal, Chegu
Camel	Jaisalmeri

- In-situ conservation programme on following livestock breeds has been undertaken by NBAGR

Species	Breeds
Cattle	Tharparkar
Buffalo	Toda
Sheep	Nilgiri, Chokla, Mandya, Magra
Goat	Surti, Beetal
Horse	Spiti

- **Somatic Cell Bank** have been established to conserve the breeds of livestock showing sharp decline in population (Bhadawari Buffao and Pugal Sheep).
- **DNA Bank** for livestock breeds has been established for posterity.
- **National Gene Bank** at NBAGR : Cryopreserved semen available for 7 breeds of cattle, 4 breeds of buffalo, 2 breeds of goat and one breed each for sheep and camel.

Awareness Programmes on Animal Genetic Resources

The Bureau has been undertaking Brain Storming Sessions for creating awareness among stakeholders of various States including policy makers, field workers and farmers. Till now Awareness Programmes have been conducted for the States of Uttarpradesh, Orissa, Karnataka, Maharashtra, Rajasthan, West Bengal and Nagaland.

Human Resource Development

NBAGR has been regularly conducting training programmes on various aspects of animal genetic resources characterization, evaluation and conservation. Specific modules have been prepared for policy planners and field veterinarians for ANGR characterization. Also training on Biotechnology tools are being imparted to Researchers, Teachers, Scholars and Students.

PUBLICATIONS

Books-005, Research Bulletins-015, Research Papers-350 and Gene Bank Accession-088

TECHNOLOGY DEVELOPED

- Cytodiagnostic sex chromatin test for early prediction of reproductive performance in farm animals.
- Soamtic cell technology for conservation of animal genetic resources.
- Information system on animal genetic resources of India (AGRI-IS) – a software package available on CD with animal genetic resource information of the country.
- Standardized indirect and direct test for fecundity gene in sheep and goats.

TECHNOLOGY DEVELOPED

Laboratores	Activities
Central Instrument Facilities	Provides basic facilities for DNA sequencing & molecular genotyping
Core Lab	Molecular Characterization and genetic relationship of different livestock species under All India Network Project.

Functional Genomics Lab	Gene expression profiling of economically important traits
Molecular Genetics Lab	Biodiversity and genome analysis of different livestock species.
Animal Cloning Lab	Nuclear transfer and animal cloning research
Gene Mapping Lab	Localization and mapping of genes in livestock species
Cytogenetic Labs	Karyotyping for screening of cytogenetical abnormalities in breeding bulls
Immunogenetic Lab	Immunogenetic studies on indigenous livestock breeds
Data Bank	Inventorization of livestock census, literature, germplasm resources and breed characteristics
Gene Bank	Semen cryopreservation of indigenous livestock breeds for posterity
Somatic Cell Bank	Cryopreservation of somatic cells for future animal cloning
DNA Bank	Repository of molecular voucher specimen of livestock breeds