

Breeding Policy for Improvement and Conservation of Bovine Genetic Resources

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Introduction

Livestock is a vital element of agriculture and playing a multilayered part in supporting livelihood of more than 2/3rd of the rural population in India. Besides the contribution to the national economy, livestock also provides employment prospects, asset creation, nutrient-rich food products (milk, meat, egg), draught power, dung as organic manure and domestic fuel, hides and skin, insurance against crop failure and financial security. Livestock is the foremost source of animal protein. It is projected that about 70 million rural households in India own livestock of any one of the livestock species. Hence sustainable development of the livestock sector would lead to more progress of livelihood of small and marginal farmers, landless labourers and empowerment of women. Livestock production systems in India are mostly based on traditional knowledge, low-cost agricultural residues and agro-byproducts leading to lower productivity. Livestock sector is facing newer challenges, like increased incidence of emerging animal diseases, shortage of feed and fodder and need to increase production to meet demand for animal products etc., and it require an appropriate strategy to address these issues.

Livestock Breeding Policy

The purpose of animal breeding is not to genetically improve individual animals but to improve whole animal population i.e., to improve future generations of animals. To achieve this improvement, the breeder is provided with two important tools: Selection and Breeding. These two tools are the decision making in livestock improvement. Selection decides which animals are going to become parents to produce offspring for the future generation and breeding decides which males should be mated with which females. Therefore, applying proper selection and system of breeding,

the improvement in type, production, longevity, regularity of breeding etc. as well as the ability to transmit these desirable qualities to many progenies will result.

Cattle and Buffalo Breeding Policy – India

1. Selective breeding

Selective breeding is followed for well-defined indigenous breeds of dairy, draught, and dual cattle in their respective breeding tract for improvement of milk, draught capacity and both through associated herd progeny testing programme. By selective breeding it is expected that genetic improvement will be 1 to 1.5 % per annum in organised herds and 10 to 20 % per annum in farmer's herds. Selective breeding of indigenous breeds of cattle having high milk yield, and those with excellent draft abilities, will be promoted to improve their production and reproduction potential. This will help their proliferation, conservation and genetic upgradation. Intrusions of crossbreeding in their defined breeding tracts will be avoided.

2. Improvement of low producing non-descript cattle

The low producing local non-descript cows at drought prone areas, where feed and fodder resources are not available in sufficient quantity can be genetically improved by bulls belongs to superior indigenous breeds like Sahiwal, Tharparkar, Red Sindhi, Gir, Deoni, Haryana, Kankrej etc. available in that breeding tract.

3. Crossbreeding for improvement of low producing non-descript cattle

In milk shed areas around cities and industrial town where good market for milk is available and good resources of feed and fodder and water supply are existing, crossbreeding of low producing non-descript zebu cows with exotic

breeds like Holstein Friesian and Jersey can be undertaken. The choice of the exotic breeds: Holstein Friesian for the hilly areas and Jersey for plains areas. The optimum level of exotic inheritance should be 50%.

4. For breeding crossbred cattle

Inter-se mating with crossbred pedigreed / proven bulls (exotic inheritance 50 %) is recommended.

5. For improving buffaloes

India possesses most important breeds of buffaloes and has about more than half of the total world buffalo population. The breeding policy recommended for buffaloes are Selective breeding for recognized breeds in their respective breeding tract. For improving non-descript buffaloes grading-up with recognized breeds viz., Murrah, Surti is recommended (Table).

BREEDING POLICY -TAMIL NADU

Tamil Nadu has vast resources of livestock and poultry, which play an important part in refining the socio economic status of the rural people. As per the 20th Livestock Census (2019), Tamil Nadu has 95.19 lakhs of Cattle and 5.19 lakhs of Buffalo and ranks 13th in Cattle and 14th in Buffalo population in the country. The breeding policy for improvement of Cattle and Buffalo productivity in Tamil Nadu state is as follows.

1. Indigenous Cattle breeds

Selective breeding of native breeds is to be followed for Kangayam (Tiruppur, Erode, Coimbatore and Karur districts), Umbalachery (Thanjavur, Tiruvarur, Nagapattinam and Cuddalore districts), Alambadi (Dharmapuri, Erode and Salem districts), Pulikulam (Sivagangai, Madurai, Dindigul and Theni districts) and Bargur (Erode District) breeds where these animals are found true to type. The lesser-known breeds such as Malaimadu and others must be surveyed, characterized, and conserved. Selective breeding of these breeds in their respective breeding tracts is to be followed.

2. non-descript cattle

Crossing of low-yielding non-descript cows with Jersey or Holstein Friesian depending on the agro-climatic conditions and availability of inputs such as feed, fodder, veterinary aid, economic conditions of the farmer etc. as defined below to increase milk production. Jersey is the breed of choice for crossing with non-descript cows in the

plains of Tamil Nadu considering the shortage of roughage, high cost of concentrate feed, the preference and economic advantage of high fat milk. Holstein Friesian breed is preferred for crossing with non-descript cattle in the hilly areas of the Nilgris and Kodaikanal, high rainfall zone of Kanyakumari district and highland area of Krishnagiri district if inputs like quality feed, fodder, housing and other management conditions are available. Wherever crossing of non-descript cows with exotic germplasm is practiced, the level of exotic inheritance should be restricted to 50 per cent. Backcrossing to the exotic breeds should be avoided. In addition to the use of pure breed Jersey, high pedigreed Indian milch breeds Red Sindhi, Sahiwal and Tharparkar may also be used for crossing non-descript cows.

3. Crossbred/graded cattle

Jersey crosses/grades are to be bred with bulls of 50 per cent Jersey inheritance by *Inter se* mating. Holstein Friesian crosses/grades are to be bred with bulls of 50 per cent Holstein Friesian Inheritance by inter se mating.

4. Breeding Policy for Buffaloes

Pure breeding of registered Toda (Nilgiri) and Bargur (Erode) buffaloes is to be followed. Upgrading of non-descript buffaloes with Murrah is to be followed. Graded Murrah buffaloes are to be upgraded with Murrah.

In general, production of breeding males having high genetic potential will be an essential element of the breeding policy for each breed. Formation of breed associations by involving farmers for improvement of indigenous breeds and identification/registration of animals having good genetic potential would be promoted by providing financial, technical and organizational assistance. For the purpose of cross-breeding, semen of progeny tested bulls would be used as far as possible.



Table: CATTLE BREEDING POLICY IN DIFFERENT STATES			
S.No	State/UT	Breed	Breeding Policy
1	Andhra Pradesh	Ongole	Selective breeding
		Malvi	Selective breeding
		Hallikar	Selective breeding
		Non-descript	Grading up, with Ongole, Tharparkar and Deoni, Cross breeding with Jersey and Holstein Friesian
2	Arunachal Pradesh	Local cattle	Grading up, with Haryana and Red Sindhi , Cross breeding with Jersey
3	Assam	Local cattle	Grading up, with Haryana and Red Sindhi , Cross breeding with Jersey
4	Bihar	Local cattle	Grading up with Tharparkar Haryana and Red Sindhi; Cross breeding with Jersey
5	Chattisgarh	Local cattle	Grading up, with Tharparkar Haryana and Sahiwal; cross breeding with Jersey and Holstein Friesian
6	Gujarat	Gir, Kankrej	Selective breeding in Gir and Kankrej
7	Goa	Local cattle	Grading up, with Red Sindhi; cross breeding with Jersey
8	Haryana	Haryana	Selective breeding
		Sahiwal	Selective breeding
		Non-descript	Grading up, non-descript with Haryana, Sahiwal, Tharparkar; cross breeding with Jersey and Holstein-Friesian.
9	Himachal Pradesh	Local cattle	Grading up, with Haryana and Red Sindhi; cross breeding with Jersey
10	Jammu & Kashmir	Local cattle	Grading up, with Haryana and Red Sindhi; cross breeding with Jersey
11	Jharkhand	Local cattle	Grading up, with Tharparkar Haryana and Red



			Sindhi; cross breeding with Jersey
12	Karnataka	Deoni	Selective breeding
		Krishna Valley	Selective breeding
		Khillari	Selective breeding
		Amrit Mahal	Selective breeding
		Hallikar	Selective breeding
		Non-Descript	Grading up, non-descript with Red Sindhi; cross breeding with Jersey and Holstein-Friesian.
13	Kerala	Local cattle	Grading up, non-descript with Red Sindhi and Tharparkar; cross breeding with Jersey and Holstein-Friesian.
		Crossbreds	Selective breeding with F1 cross bred bulls obtained from progeny tested either Jersey or Holstein bulls
14	Madhya Pradesh	Nimari	Selective breeding
		Malvi	Selective breeding
		Kenkatha	Selective breeding
		Non-descript	Grading up, with Gir, Tharparkar, Hariana Sahiwal and Ongole; cross breeding with Jersey and Holstein Friesian
15	Maharashtra	Khillari	Selective breeding
		Dangi	Selective breeding
		Gaolao	Selective breeding
		Nimari	Selective breeding
		Non-descript	Grading up, with the breeds of the region and Hariana; cross breeding with Jersey and Holstein Friesian

16	Manipur	Local cattle	Grading up, with Red Sindhi; cross breeding with Jersey
17	Meghalaya	Local cattle	Grading up, with Red Sindhi; cross breeding with Jersey
18	Mizoram	Local cattle	Grading up, with Haryana; cross breeding with Jersey
19	Nagaland	Local cattle	Grading up, with Haryana; cross breeding with Jersey
20	Odisha	Local cattle	Grading up, with Red Sindhi and Haryana; cross breeding with Jersey and Holstein
21	Punjab	Local cattle	Grading up, with Sahiwal and Haryana; cross breeding with Holstein Friesian and Jersey
22	Rajasthan	Nagori	Selective breeding
		Malvi	Selective breeding
		Rathi	Selective breeding
		Non-descript	Grading up, with Haryana, Gir, Tharparkar and Rathi; cross breeding with Jersey and Holstein Friesian
23	Sikkim	Siri	Selective breeding
		Local cattle	Grading up, with Haryana; cross breeding with Jersey
24	Tripura	Local cattle	Grading up, with Tharparkar; cross breeding with Jersey
25	Uttar pradesh	Kenkatha	Selective breeding
		Non-descript	Grading up, with Haryana, Sahiwal, Tharparkar and Red Sindhi; cross breeding with Jersey and Holstein Friesian
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