Animal recording for improved breeding and management strategies of Buffalo in Pakistan

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Buffalo recording system in Pakistan

Input level of production environment

Buffalo is the main dairy animal in the country. About 22 million buffaloes supply 17 million tons of milk, which is about 70 percent of the milk produced in the country. Buffaloes are part of the traditional small mixed farming system integrated with crop production. Herd size is very small; 85 percent of buffaloes are raised in herds of size one to five. Recording of buffaloes is mainly done in the seven institutional herds and on a few military farms. Apart from these, buffaloes at farmer level are recorded under the progeny testing programme which has been carried out since 1980. Dairying is not quite commercial so the level of inputs is very low. Generally, animals are fed on crop residues with some additional forage/fodder grown for the purpose. Hay and silage making does not exist, except to some extent for institutional herds. Concentrates are fed to those animals that are kept for the sale of milk. The Government facilitates vaccination against contagious diseases at nominal prices. About 5-10 percent of breedable females are artificially inseminated while the rest are mated naturally with bulls of a good type. Credit facilities have also been made available to the farmers for the purchase of milch animals but on a limited scale.

Number of herds

The number is estimated between four and five million, with more than 85 percent of buffaloes in one to five animals. The recorded herds are less than one percent of the population.

- Recorded buffaloes.
  There are about 1 000 breedable Nili-Ravi buffaloes in seven institutional herds in Punjab along with about 5 000 recorded buffaloes with 27 field recording centres.
- Animal categories involved in the recording process.

In institutional herds, all animals are recorded but at farmer level, only registered females are recorded.

- Purposes of the system.
  The field recording is mainly done for progeny testing bulls. The registered farmers are provided help in disease coverage and AI.
- Type of animal identification employed.
  Animals are generally eartagged. Hot or cold branding is also practised on institutional herds.
- Traits measured.
  Milk yield is the most commonly measured trait along with age, lactation length, calving interval, etc. Frequency of milk recording is once a week at institutional and once a month at field level.
- Other information collected.
  Information on pedigree, breeding records and vaccination is also maintained.
- Types of analyses of crude data.
  - on-farm: calculations for lactation milk yields, calving intervals, etc. are done at farm level.
  - at the central location: contemporary comparison has been the bull comparison method at the central location. Recently, the animal model has also been employed to calculate breeding values of bulls and buffaloes.
- Data computerisation and storage.
  Data collected at farmer level is merged with the data collected on institutional herds and stored in computers for statistical analysis.
- Government and farmer involvement.
  - financial support: field recording is Government sponsored. Participating farmers are facilitated in terms of free AI and help in disease coverage.
  - levels of acceptance of the scheme: the venture is very limited at field level but quite acceptable to the farmers.
- Payment for recording.
  Farmers do not pay for recording but are facilitated to participate in the recording activity. This has not changed with time.

Genetic improvement programme for buffalo

- Buffaloes are officially recognised as being of higher genetic merit. Simultaneous buffalo and bull evaluation is being carried out and elite buffaloes which are one standard deviation above the recording centre's mean for milk yield (elite buffaloes), are used for the production of future bull calves.
- Bulls and females evaluated every year.
  The initial progeny testing programme was intended to evaluate around 20 bulls every year with 200 pregnancies per bull. Evaluation has not been as frequent as was intended at the inception of the programme. The last bull evaluation was done in January 1999 where 78 bulls from the first six batches (4, 4, 16, 19, 11 and 24 bulls, respectively) were

evaluated. The average number of daughters per bull was about 20. Bulls from the eleventh batch were progeny tested in 1999. Daughters of bulls for batches seven to ten are at different stages of growth and production. Evaluation of buffaloes is being carried out simultaneously with that of bulls. When bull evaluation was not regular, buffaloes were still evaluated using a production index such as milk yield per day of age at second calving.

- System of establishing genetic merit.
  The breeding value for the first lactation milk yield was the criteria to evaluate bulls and buffaloes. Recently, such breeding values have been calculated under an animal model. A minimum number of five daughters was the criteria to include a bull in the evaluation.
- Organization responsible for genetic evaluation.
  Basically, the programme is being run by the Livestock Production Research Institute, Bahadurnagar (Okara). The researchers at the University of Agriculture, Faisalabad, collaborate in these efforts especially in data entry/editing/analysis. About 40 personnel are involved including 27 recorders/inseminators and other office/laboratory staff.
- Genetic improvement distribution.
  Semen of progeny tested bulls is distributed in the country through AI and is priced slightly higher than the non-proven sires.
- Genetic improvement programme established in the past.
  The current progeny testing programme, established in 1980, still continues with ups and downs. Attempts in the past include buffalo recording efforts in the central and southern districts of Punjab (10-Districts project) which ended with the termination of the project before its scheduled time. A cooperative organization (Idara-e-Kisan) which collects milk from its member farmers for processing and packing, plans extensive buffalo recording in central Punjab. The Directorate of Breed Improvement, Government of Punjab, is also planning a more vast recording system for execution. The weak link between teaching, research and extension is also being strengthened.