
Session 1. Presentation of the seven most relevant cases of on-field buffalo recording

The Dairy Herd Improvement Programme Actions (DIPA) have been organized in a few selected districts in the State of Gujarat in India through the dairy cooperatives. Registration of buffaloes through eartagging and monthly milk recording have been integrated with milk collection, processing and marketing activities of the dairy cooperatives. Promoter of the DIPA is the National Dairy Development Board of India (NDDDB). NDDDB has developed its own software for recording inputs and providing feed-backs. As an incentive to farmers to participate in the programme, the dairy cooperatives give free concentrate in kind (about 350-400 kgs) for every daughter born under the programme over a period of one and a half years. Apart from providing an incentive to farmers, the practise of feeding concentrate to every daughter born under the programme has helped to improve calf rearing practises in the area and also helped in identifying true genetic differences by minimising some management differences.

Farmers have one to three or a maximum of five buffaloes. The information provided to each farmer about performance of his animals is not that important to him as the information provided for a whole village comparing performance of all animals within the village. An individual farmer knows everything about his animals and therefore a performance report for an individual animal does not add much to what he knows, but when the performance of his animals has been recorded in relation to all other animals in a village, the information becomes very relevant to him. He compares his performance with that of other farmers' animals in the village and tries to improve his animals' performance. It helps him in taking management and culling decisions. Thus, in generating information, each village is considered as a "herd". One finds considerable variability between villages and relatively less within the village. In estimating breeding values of animals, village-year-seasons are taken as fixed effects.

**India
(Gujarat),
presented by
Kamlesh
Trivedi**

**Bulgaria,
presented by
Tzonka Peeva**

The high yielding Bulgarian Murrah was created three decades ago by crossing Bulgarian buffalo with Indian Murrah. The cross-breeding programme was considered very successful and all of the Bulgarian buffalo population is now Bulgarian Murrah.

A well organized buffalo recording system has been in force for many years. However, after the collapse of the communist system, many difficulties have arisen. Buffalo recording and selection was based on the big cooperative farms: they used machine milking and were submitted to a complete selection programme: animal identification, milk recording, genetic evaluation, selection of bulls and bull mothers. No money is provided any more by the Government for such activities. The number of selection centres has fallen from 29 to 7. It is very difficult to convince farmers to pay for the recording and selection activity. Most farmers have one or two buffaloes. For full cooperation of the farmers in the recording activity, they should not be requested to pay any involved costs.

A Buffalo Breeders' Association was recently created. The participation of the farmers in this association, together with the lowering of the recording costs, could be a possible solution to the present crisis.

**Italy,
presented by
Riccardo
Aleandri**

A comprehensive system of milk recording and progeny testing programme is in operation, completely equivalent in the conduction to the system used for dairy cows.

Milk performance recording in buffalo started in 1974 with 1 451 recorded animals. In 1999 there were 31 133 recorded animals (20 percent of the Italian population) in 283 herds and 21 991 recorded lactations.

The Italian Breeders' Association supervises the milk performance recording, which is operated by staff of the local Breeders' Association. All data are centrally processed (Rome).

The breeding scheme was operated through five progeny testing cycles performed by distributing the semen of the bulls tested to private farmers. Pregnancy rate from artificial insemination increased from 0.26 percent at the first cycle to 0.39 at the third, being around 0.50 percent now (i.e. similar to the one for dairy cows). Today, 25 000 doses are available from 25 bulls, ten of which are proven bulls.

Dam selection is performed by independent culling levels based on the following:

- lactation milk yield over 3 100 kg
- fat percentage over 7.7 percent
- protein percentage over 4.5 percent
- udder score over good +
- assessment of sire and dam through DNA testing.

In Italy there is an adequate market of buffalo dairy products (mozzarella cheese) buffalo milk recording and selection can be performed in the same manner as that for dairy cows.

Eighty-five percent of 22 million buffaloes are kept by smallholders (one to five animals). In Punjab, the Livestock Production Research Institute, dependent on the Government of Punjab, has since 1980 carried out the progeny testing programme, involving both the research station, the State farms and the private farmers. Currently, 7 000 breeding females are recorded; the farmers do not pay; the milk record is performed on a monthly basis.

The progeny testing scheme was intended to evaluate 45 bulls, every year, with a minimum number of five daughters, in order to keep 20 proven positive bulls (50 percent discarded). The last evaluation was performed in January 1999, through an animal model. In Pakistan all recording and breeding activity is carried out by the Government, through its own institutions and staff.

In Nepal 3.3 million buffaloes are reared by smallholders (with one to five animals) throughout the country across the high mountains, middle hills and Terai plane. The milk recording system is at the introductory stage. Milk recording in buffalo is either carried out in institutional herds for farm management purposes or in farmers' herds for research trials, both are small in number. Lumle Agricultural Research Station has been recording milking buffaloes of the smallholder farmers (with one to five buffaloes) at a number of its Outreach Research sites in the western hills to compare performance of local and Murrah buffalo cross-bred buffaloes. Some incentives such as free technical advice to the farmers and free anthelmintics and vaccinations for their animals are provided to the participating farmers. As national breeding programmes have considered up to now only cross-breeding by Murrah to local buffaloes, a systematic genetic improvement programme based on milk performance recording is necessary taking into account the improvement of the local breeds (river type).

In Egypt the majority of buffaloes (97.5 percent) belongs to smallholders (one to five animals); only 0.3 percent of these buffaloes are milk recorded. Herds with over six buffaloes are 2.5 percent; in the larger herds 3.5 percent of the buffaloes are milk recorded.

The national milk recording activity is supervised by the Cattle Information System/Egypt (CISE), which records 1 200 buffaloes. The Animal Production Research Institute (APRI) performs the milk recording in the experimental and some commercial farms (2 000 buffaloes). Some universities and research institutes record 1 000 more buffaloes.

**Pakistan,
presented by
Munir
Chaudhry**

**Nepal,
presented by
Drona Rasali**

**Egypt,
presented by
Ali Nigm**

The CISE recording activity is performed according to the ICAR A4 method and the data are centrally processed.

Purposes of the recording activity are:

- improved farm management;
- genetic improvement;
- establishing a national dairy database to serve planning and research.

The following traits are measured and considered:

- milk volume;
- reproduction parameters;
- somatic cell count.

Data analysis is performed at CISE, which produces monthly feedback reports including:

- herd summary;
- attention list;
- individual cow information.

Involvement:

- the Government is not directly involved in the organization and processing of recording data;
- the Government pays the salaries to the part-time recording staff;
- national and international agencies support in some way the recording activity;
- some large commercial farms pay the recording costs.

Breeding programme:

- Cairo University started the progeny testing trial, but lack of coordination with the various institutions slows down the results of the trials;
- major constraints in running an efficient breeding programme are structural, cultural and financial.

Prompt efforts are being practiced to implement a “National Dairy Herd Improvement System (DHIS)” which was planned with FAO/Technical Cooperation Projects in 1997.

**Iran,
presented by
Reza
Mollasalehi**

The Animal Breeding Centre of Iran (Headquarters in Karaj) is a Governmental institution in charge of all livestock recording and selection activity. In Iran there are 7.5 million cattle (native, cross-bred and exotic) and 519 000 buffaloes. The buffalo herd size is on average five, ranging from one to 100 animals. Fifteen thousand buffaloes are officially milk recorded. Lactation milk production ranges from 1 600 to 2 000 kg milk. Farmers regularly receive the results of the recording activity.

Artificial insemination is performed yearly with fresh semen (7 200 inseminations) and frozen semen (1 800 inseminations).

The price of buffalo milk in Iran is twice as much as the price of cow milk. Making the records of buffalo performances available to the farmers may help to encourage them to participate in milk recording and selection programmes.

The main features of the seven on-going and effective cases of on-field milk recording for buffalo are as follows:

1. Farm management and selection of buffaloes are the main purposes of milk recording in four cases (Bulgaria, Egypt, Iran and Italy) while selection of breeding animals or cross-breeding at national or regional levels is the main purpose in three cases (India, Nepal and Pakistan).
2. Milk recording and selection activities are performed and controlled directly by the governments through their own established structures and staff in three cases (Iran, Nepal and Pakistan), by cooperative efforts of several institutions, including farmers cooperatives, in three cases (Egypt, India and Italy) and by farmers' associations in one case i.e. Bulgaria (it was being carried out directly by the Government).

Conclusions
