
Buffalo recording and breeding practices in Egypt. A case study

Ali A. Nigm

*Cattle Information System/Egypt (CISE), Gamaa Street,
12613 Giza, Egypt*

The overall input level of the production environment is low. Egyptian buffaloes are mostly kept under a low input production system. About 97.5 percent of these buffaloes are maintained in small herds (one to five breedable females). The small herds suffer from malnutrition, poor housing, lack of proper veterinary services and also from impaired management practices. The supporting services of AI, milk recording, genetic evaluation and milk marketing systems are not available. Larger commercial herds enjoy relatively better input levels according to the herd size. Flying herds located in peri-urban areas have good nutritional and managerial situations due to their high milk revenues.

The cattle Information System/Egypt of the Cairo University (CISE) records about 290 small (one to five heads), 27 medium (6-20 heads) and six large herds (21-100 heads). CISE is a member of ICAR and follows ICAR guidelines in milk recording. However, due to the lack of finance, only the milk volume is recorded. Fat, protein and SCC analyses are not available. The Animal Production Research Institute (APRI) records four State herds belonging to APRI. These herd sizes are 50, 80, 100 and 100 heads. Also, APRI records five buffalo herds of 50, 70, 75, 80 and 500 breedable females. However, there is no data processing yielding herd averages or computer archives to calculate the 305 d or total milk of the whole lactation of individual buffalo cows. The Breeders' Service Unit of APRI provided free complete milk analysis and SCC for the enrolled herds.

Percentage wise, the small recorded herds represent only 0.03 percent of the total small buffalo herds in Egypt; herds of 6-20 heads represent about one percent and those of 21-100 heads represent 3.5 percent with only one very large herd (500 heads) recorded by APRI.

CISE record about 1 200 heads, APRI record about 2 000 including their research farms. Other research institutions record an extra 1 000 heads. The approximate total number of recorded buffaloes is 4 200 heads.

Buffalo Recording in Egypt

The overall input level of the production environment

Number of herds involved

Number of recorded buffaloes

Animal categories involved

At present, CISE covers only milk production and reproductive performance of breedable females. Research institutions keep complete detailed records on all categories of animals maintained on their farms.

Purpose of the system

Most of the farms use hand kept records for controlling farm activity and help decision- making in farm management. Research institutions keep and use records mainly for research purposes. The Cattle Information System/Egypt (CISE) produces technical monthly reports and sends them to the farmers. The reports include: herd summary, individual information on each recorded animal and lists for farmer's attention. In the meantime, CISE recently started to perform the genetic evaluation but to date no sire or cow directory has been published due to the lack of strong and continuous links between milk recording and AI organizations. No herd book (or herd registry) is processed in Egypt.

Type of animal identification

Plastic and metal eartags are the most common identification methods. Liquid nitrogen branding was not successful for buffalo and disappeared after a short time. Some farms use ear tattooing. No national identification programme with original animal ID is applied.

Traits measured and frequency

CISE records milk yield and reproductive performance once a month (ICAR - A4). Also, APRI records milk yield, full milk constitution and SCC once a month. Research institutions use detailed records for daily, monthly and lifetime milk production, health records, feeding records and reproduction records. These records are used to monitor the day to day farm activities.

Other information collected

CISE has archive files to store information on pedigree and health information for individual animals and animal movement (new births, sales, purchases, etc.).

Analysis of data

CISE is the only institution in Egypt performing data analysis centrally. The centre owns a well equipped network for data entry, processing and reporting. CISE produces monthly reports including: 1) herd summary; 2) individual information on each individual buffalo cow; and 3) an attention list to help the farm management process. Recently, CISE started to calculate breeding values of bulls and cows. Most of the other institutions do not process the original data. Few others, however, have farm management programmes working on PCs to analyse the data to help on-farm decision-making.

CISE has a computer network capable of processing data on 50 thousand cows/year. CISE also store the data in archive files to be used in genetic evaluation and ultimately to build a dairy database for research and planning. APRI also has an equipped computer hall, however, no actual data processing or storage is carried out due to lack of required computer software. No other institutions or buffalo farms are known to computerise and store data in Egypt.

Data computerisation and storage

The Government does not provide direct financial support for milk recording. However, the Ministry of Agriculture and Land Reclamation (MALR) has helped CISE to upgrade its computer facility to act as the National Central Data Processing Laboratory. This help was done through TCP/FAO assistance to plan a “Dairy Herd Improvement System in Egypt”. The recording running cost of CISE is covered by a few large cattle farms in addition to financial support from the Central Fund for Developing Animal Wealth in Reclaimed Lands (CFDAW). APRI as one of the MALR institutions receives better financial support from the EU project “Food Sector Development Program (FSDP)”. The farmers’ involvement in financial support is very limited and thus their acceptance of the scheme. However, better enrolment could be achieved for large commercial farms by providing recording incentives, especially, SCC and by determining fat and protein contents of milk.

Government and farmer involvement

Few large cattle farms pay the cost of recording for CISE which also benefits from the financial support of development agencies especially the World Food Programme (WFP) through CFDAW. APRI provides free SCC and milk analyses services depending completely on financial support from the EU (FSDP). The lack of financial support from the Government is due to the lack of awareness to the importance of a recording scheme for developing the dairy industry.

Payment for recording

No genetic improvement programmes are practiced in Egypt due mainly to the lack of links between recording, genetic evaluation and AI institutions.

Genetic improvement programmes

No official identification for buffalo of higher genetic merit exists at present. CISE recently started to perform genetic evaluations on a small scale for some large enrolled herds. It was agreed that the Animal Production Sector of MALR will stamp (authenticate) these evaluations and initiate a national herd book.

Identifying high genetic merit

Frequency of evaluation

CISE is planning to perform a genetic evaluation of recorded animals once a year. The interval could be shortened to six months in the future.

Systems of genetic evaluation

CISE uses the DFREML Animal Model procedure to perform genetic evaluation. All available information is used in the animal model to calculate the animal's transmitting ability. APRI uses the dam's yield to calculate the bull's breeding value, however, the final decision on its use in insemination depends on conformation, physical status and semen quality.

Genetic evaluation organization

No specific organization is assigned to be responsible for the genetic evaluation. CISE is conducting the genetic evaluation at present. The document of the "Dairy Herd Improvement System in Egypt (DHIS)" prepared for MALR by FAO and CISE experts, nominated CISE as the National Central Data Processing Laboratory and APRI, to conduct genetic evaluation since it also largely contributes to AI.

Dissemination of genetic improvement

No genetic evaluation is practiced. Two main institutions that produce bulls and frozen semen for insemination are APRI and the General Authority for Veterinary services (GAVS). APRI selects young buffalo bulls provisionally according to dam milk yield. However, the final decision is based on the bull's physical fitness and its semen quality. The General Authority for Veterinary Services selects buffalo bulls from the market according to their body conformation, physical fitness and semen quality.

APRI provides farmers with frozen semen from buffaloes on a cost recovery basis. Also, APRI provides farms and breeders with insemination bulls tested for health and semen quality. GAVS has AI and natural mating bulls in veterinary clinics spread in some villages of the country.

Past experience in genetic improvement programmes

In 1974 Cairo University started a research project financed by the Egyptian Academy of Science and Technology to establish a progeny testing programme to produce buffalo proven bulls. The project collected about 500 buffaloes representing a buffalo gene pool in Egypt. The project tested ten bulls to produce two proven bulls annually. MALR was expected, as planned before starting the project, to take over responsibility and expand the project to establish a national scale progeny testing scheme with strong links between recording, genetic evaluation and AI organizations. The programme was terminated in 1982 mainly because of financial difficulties and lack of coordination between the university and the Ministry (MALR).