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## **Case study on animal recording for improved breeding and management strategies on Buffalo. Country: Italy**

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The buffalo recording system for dairy buffalo in Italy is organized as dairy cattle recording (AIA). The Italian Animal Breeders' Association organizes, collects and manages information from recorded animals. Provincial Animal Breeders' Associations (APA), associated to AIA and located in each Italian province, are authorised to record productive and reproductive data from animals in the province, send recorded data to AIA and receive elaborated information from AIA to give to breeders.

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**Approximate  
overall input  
level of the  
production  
environment**

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In Italy 283 herds are registered for official data recording (AIA, 1999). The number of recorded buffalo cows is 20 882 with an average milk production of 2 092 kg, a fat percentage of 8.37 and protein percentage of 4.8 (AIA, 1999).

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**Approximate  
number of  
recorded herds**

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The recording process for milk production involves lactating cows, while the recording process for pedigree involves all animals (male and female offspring, parents).

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**Animal  
categories  
involved**

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The purposes of the recording system are to facilitate farm breeding management by furnishing to breeders information on productive and reproductive performances of animals; to organize a central breeding decision by overall information on productive performances from all recorded animals and their genetic merit; and to allow genetic improvement for milk production and quality.

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**Purposes**

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Animal identification is carried out by giving all offspring an identification code. The code is common for the recording authority (AIA and APA), Ministry of Public Health (which is in charge of controlling animal health and related diseases) and the National Buffalo Breeders' Association (ANASB) who are responsible for the Buffalo Herd Book.

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**Type of  
identification  
employed**

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**Traits measured, frequencies, etc.**

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The recorded traits are milk yield and milk quality; samples are taken to estimate fat and protein percentages with standard instruments and procedures in official laboratories. Milk recording is performed following the International Committee for Animal Recording (ICAR) guidelines. Type B records are not performed. Each animal production is recorded with the A4 method; the average interval between subsequent controls is four weeks. Information involving lactation (drying date, recording dates, last recording date, number of recordings, number of milking per day) are also recorded.

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**Other information collected**

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Other information collected during the recording process are pedigree and other reproductive information as calving date, insemination date, calving difficulty, sex of calf, etc.

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**Data computerisation and storing**

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Data are collected by APA's technicians: production data are sent to AIA which is in charge of collecting production information from the country and analysing it, while pedigree information was sent to ANASB for use in the Herd Book.

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**Government and farmer involvement**

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No data analyses are performed on raw data while on farms; data are analysed when received by AIA. Data are loaded in APA computers using specific software and sent by e-mail to AIA, which stores the information in the central national database for buffalo milk production. Data are then analysed and some calculations are performed to create, for each recorded animal, information about lactation length, total milk yield, fat and protein production, 270-d production. Data analyses are performed following ICAR guidelines. Information related to each specific farm is printed with data on all lactating animals for that farm. The forms are then returned to the provincial office, which distribute them to each farm.

Government and farmer are both involved in financial support of the recording activity. Actually, the Government pays for about 80 percent or total costs while farmers pay the rest.

The proportion of the Government's and farmer's financial support has changed over time, the actual trend is to increase the farmer's contribution. The acceptance of the scheme is positive.

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**Genetic improvement programme for buffalo**

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Italy has an on-going genetic improvement programme for buffaloes. The genetic programme is under the responsibility of ANASB; the Technical Office of AIA, on ANASB's request, produces genetic indexes. Progeny testing is carried out on buffalo sires. Genetic estimates for milk, fat and protein yield and fat and protein percentages for several buffaloes are available. Genetic merit information is available for nine males and

1 960 females. The first genetic evaluation was carried out by AIA in 1997 and the next one should be completed by 2000. An amount of 39 437 females and 377 males were genetically evaluated. A BLUP Animal Model establishes the genetic merit. Mozzarella yield is considered as a selection index.

ANASB is responsible for genetic improvement of the buffalo species. Genetic indexes are provided by AIA. The best males and females are identified and their male offspring are selected by pedigree index and checked for morphological and health problems before being included in a progeny test trial. A designed scheme is applied to identify best dams and sires based on genetic indexes and accuracy. Genetic improvement is distributed all over the country by using tested bull semen and by making high genetic merit animals available to herd book farms.