

## CONVENTIONAL BUFFALO FARMING SYSTEM IN NWFP PAKISTAN

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### ABSTRACT

This paper documents the existing state of affairs of the buffalo farming system in the area of North-West Frontier Province of Pakistan. Although the animal has a great potential of production and provides an important economic support for the farming community, its potentials are not efficiently exploited. Factors contributing to the poor performance of the animal including poor management of health, production and reproduction are discussed. The poor marketing system, the farmers' low level of education and their lack of awareness of utilizing the available veterinary service for improvement of their farm production are discussed in the paper.

### INTRODUCTION

The Pakistani buffalo is the best dairy animal of the world as it constitutes 10.40% of the total world buffalo population but it produces 21.5% of the total buffalo milk of the globe (Shan 1988). More than 66% of the 24 million metric tons of milk in a year is produced from buffaloes, while the population of females above three years of age is estimated at 25 million and that of cows at 50 million. Thus an average buffalo is about four times as productive as an average cow (Sundraesan, 1979). The dairy buffalo has a very high milk production potential. A good animal can produce 3.5 to 4.0 metric tons of butter fat rich (6.5-7%) milk in a lactation of 280 to 320 days, but the potential is not efficiently exploited. Some of the main problems in the improvement of buffalo production are deficient nutrition, poor genetic make up, low reproductive efficiency, poor management, high calf mortality, inefficient marketing systems, and lack of education in the farming community.

In this paper the prevailing state of affairs, as experienced by the author in various areas of buffalo farming in NWFP, are presented.

### 1. Selection of animals

Female buffaloes, most of the time accompanied by a calf, are purchased from the local market or from markets or farms in Punjab province. Selection is mostly based on phenotypic characteristics and milk production performance. Prices range from Rs. 10,000 to 30,000 (\$ 333 to 1000). The purchases are made during the one month prior to or after parturition. Little attention is given to herd replacement by growing farm-born calves.

### 2. Farm housing

The housing is semi-covered, comprises of a shed adjacent to an open area. At some farms the sheds are very much closed, dark and air-tight giving a little chance for cross-ventilation. In some areas the floor is cemented, well finished, slippery and dangerous for the animals while in others the floor is muddy and unhygienic, especially in the rainy season. The space per animal ranges from very little to very much depending upon the socio-economic and educational level of the farmer. At some farms sufficient area for exercise or access to a pond, river or canal is available and this has a beneficial effect on animal production, health and reproduction. At other farms the animal's movements are restricted due to scarcity of space. The buffalo likes water and remains almost submerged in it for long periods during the heat of the day or wallows in wet mud and plasters its body with it.

### 3. Nutritional management

In the present farming system of the province, green fodder is supplied to the animals under the cut-and-carry system. The fodder is either produced on the farmer's own land along with a variety of grain, vegetable, fruit and other crops or is purchased from the market. Some farmers purchase fodder crops in the field as one cut or as cuts extending to several months. Fodders commonly

available to buffalo farmers in this area include berseem, lucern, maize, sugar cane tops and millet. Other roughages available include wheat straw, dried maize, rice straw and beet pulp. Fodders are transported to farms in carts drawn by bulls.

Green fodder provided to the buffaloes ranges from 10 to 60 kg per head and usually is not sufficient to meet the total requirements of maintenance, production and reproduction.

Concentrates are fed only to lactating animals and not to calves, breeding bulls, or pregnant dry females. The concentrates commonly used for buffalo feeding are wheat bran, cotton seed cakes, and dry bread. Mustard cake and maize cake are also used. Molasses, beet pallets and beet pulp are used at some farms. The concentrate mixture is softened with water for from a few hours up to 12 hours prior to feeding depending upon the texture of the material and is mixed with wheat straw and offered during milking. Concentrate mixture is offered to lactating animals irrespective of their production level. A difference in milk production by the individual cows results in a difference in the energy loss and ultimately in a difference in the energy requirement. Butter oil or mustard oil is frequently fed to lactating and pregnant females and breeding and draught males.

There is usually no practice of ration formulation according to the requirements of the individual animals, resulting in decreased production and health and reproductive disorders. However, some interested farmers consult a nutritionist in managing their livestock feeding.

The use of mineral blocks for licking is gaining popularity among farmers in response to efforts of veterinarians. Blocks of common salt may be seen in front of the animals at some farms. Dicalcium phosphate is being used with increasing frequency for improving production, maintenance of high production and supportive therapy for health and reproductive disorders. Vitamins and mineral mixtures are used on special advice of the experts.

Water is provided to the animals three times a day in metallic buckets or from a common cemented water tank constructed on the ground. The water source is a tube well and the supply and pressure are not sufficient to clean the premises.

#### **4. Calf management**

After parturition most of the farmers do not feed their calves with colostrum. But on interference of veterinarians, some of them have started feeding colostrum to neonatal calves and have realized its importance because there has been a decrease in calf mortality. Calf mortality in the area ranges from 10 to 90%. Calves are allowed to suckle their dams and they remain mostly underfed, resulting in weak health or death. The calves are used to stimulate milk let-down during the milking process. Suckling is most of the time continued for a period extending to more than one year, delaying the resumption of ovarian activity and rebreeding. In case of death of the calf, the skin is stuffed and presented to the buffalo during milking. Otherwise, oxytocin from 2 to 20 ml is used for milk let-down.

Calf growing and management gets little attention from farmers. Ectoparasitic and endoparasitic load remains high, contributing to weak health, infectious problems, restricted growth and mortality. Calf mortality occurs mostly in the first two months of life and decreases gradually with increasing age.

#### **5. Reproductive management**

Reproduction is given little importance most of the time and the farmers expect a decrease in milk production after conception in a lactating buffalo. They would rather get milk from a buffalo and sell the animal without rebreeding when they assess that the money obtained by sale of milk from a particular buffalo is not sufficient to meet maintenance cost of the animal. Most of the time, resumption of ovarian activity is delayed from a few months to years. Factors contributing to this disorder include high milk production, malnutrition, seasonal stress, increasing day length, high environmental temperature and prolonged suckling. Poor estrus detection regimes, silent estrus, occurrence of estrus at night, non-availability of a breeding bull or inseminator, poor quality of semen and lack of farmer interest in rebreeding their animals are additional factors leading to a decreased number of pregnant animals in a herd. At the national level, Pakistan suffers from an annual loss of 10.66 million metric tons of milk, 4.4 million calves and 52 million metric tons of extra forage consumption by 6.5

million breedable buffaloes per annum worth Rs. 61.35 billion on account of their long calving interval and late freshening (Usmani et al., 1987). The non-pregnant animals get a little chance to be rebred, irrespective of its genetic potential. These animals are sold for slaughter and the practice results in a loss of genetically valuable animals from the national herd.

Doka (milk let down 3-4 days prior to estrus occurrence) is an event very keenly observed by the farmers. It is also considered a positive signal for pregnancy about 17 days after breeding. A type of pulse (lentil) garlic, wheat grain and seeds of the cyprus tree are fed to animals for induction of estrus in anestrus animals. The farmers are well aware of the 21 days inter-estrous interval, estrus symptoms and 10 to 11 month gestation period. Rectal palpation for pregnancy diagnosis is usually refused and thought to be interference in the natural processes. Farmers rely upon their self-defined signs of pregnancy, viz, enlargement of belly, softening and darkening of skin, relaxation of vulva and appearance of a groove between muscles of the two sides below vulva. Pregnant animals are not fed concentrates after reduction in their milk production until parturition. If dystokia occurs during parturition, it is handled by men at the farm and is reported to veterinarian after it has become complicated.

## 6. Infections

At unhygienic farms with poor ventilation the incidence of infection is high. Bacterial, viral, protozoal and parasitic infections are common. Among parasitic infestations studied in Peshawar, the capital of NWFP, *Eimeria* spp. was present in 62.93%, fascioliasis in 9.84% and mixed infection in 56.31% of buffalo calves (Marwat et al., 1988). The number of outbreaks of infectious diseases in the buffalo and cattle population of the province during 1965-1984 was 744 of hemorrhagic septicaemia, six of rinderpest, and one of mucosal disease. Black quarter was reported from all over the province throughout the year with the highest incidence during July to October and in the stressed areas of the province. Foot and mouth disease had the highest incidence during 1965 and afterwards there was a slight rise and fall in the incidence (Khan et al., 1989).

There is no regular vaccination against preva-

lent diseases, screening of animals for brucellosis, or deworming against ecto- and endoparasites. However some interested farmers arrange for regular vaccination and deworming of their animals.

At some of the farms with poor management there is a high incidence of mastitis frequently spreading from the infected to the surrounding healthy animals through contact of the milker's hands with the contaminated premises or utensils. Trauma to the teats during the milking process by the milkman through improper handling, non-evacuation of teats during milking, injury by crushing with the foot or other hard objects are factors causing mastitis. Early detection and treatment can correct the problem, but the farmers pay no attention until the problem is aggravated. Mastitis results in loss of milk and culling of the animal.

Generally, local cures are used for treatment of diseases. For example, foot and mouth disease is treated by washing the premises with water containing rotten fish and feeding the animals with kabab full of chillies.

## 7. Veterinary services

A network of Veterinary Hospitals and Artificial Insemination Centers is available at various locations in the cities, towns and villages of the province. They are administered by the Extension Wing of the Provincial Livestock Department. The Veterinary Research Institute (VRI) has been established to provide research support to the Extension Wing in controlling infectious, contagious, and parasitic diseases. The establishment of Herd Health Program by the Center of Animal Biotechnology of VRI has provided an appropriate base for an on-farm research. It works by registering interested farmers for the program and extends door services for managing health, fertility and production, applying the latest ideas and technologies. Actual data of the farms are recorded on special forms and individual cards are kept for animals. The economic importance of improved hygienic, reproductive and managemental parameters are discussed with the farmers. The Animal Husbandry In-service Training Institute, a Dutch-assisted project, is responsible for training of veterinary administrators, graduates, assistants and farmers in improving their knowledge and practice in their respective fields. The Animal Husbandry Faculty

of the NWFP Agricultural University and the Livestock Research and Development Department of the province provide additional research support in the areas of education, animal production and health.

#### 8. Milk marketing

Milk is sold at gate of the farm or at farm-owned shops in a nearby town, or supplied to the consumers at their houses. In other situations, it is sold to middlemen at the farm. There is no system of milk processing, preservation and packing. Adulteration of milk is practiced at some farms while others avoid it due to religious restrictions. Buffalo milk is preferred due to its high fat content (6-8%) as compared to cattle milk. Most of the milk is used in tea making at homes, offices and hotels. Babies and school children are also fed diluted milk. Yoghurt, butter, butter oil, whey, cheese and sweets are products of buffalo milk. Money generated through milk sale is the major current income of buffalo farms.

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continued from page 48

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