

INTRODUCTION

Water buffalo (*Bubalus bubalis*) are an uncommon sight in Wales, but in other parts of Europe, particularly Italy and Romania, there are a large number of farms producing milk, meat and hides from these animals. Genuine Mozzarella cheese is produced using only buffalo milk and Mozzarella production is an important factor in the success of Italian buffalo producers.

The first commercial herd of buffalo in the UK was formed in the 1980s. Since that time a few more farmers have ventured into buffalo production, but the numbers involved remain very small. A huge boost to the industry came in 2003 when a major UK supermarket started stocking buffalo milk. Although the market for buffalo products is still small there is potential for expansion. This would be facilitated if there were a central dairy for processing buffalo milk.

BREEDS

Water buffalo have not yet been subject to sufficient specific breeding strategies to create genuine 'breeds', but there are distinctive differences between different bloodlines. Most animals in the UK originate from either Romanian or Italian bloodlines. Italian stock are generally considered to be of better quality, in terms of both milk and meat production, than Romanian stock. And the potential production benefits from using the genetically superior Italian stock outweigh the higher initial cost of the animals. Buffalo producers in the UK have found that the second and third generation of home

bred animals are more settled and manageable than the original imported stock

Water buffalo are of a different genus than cow (buffalo are *Bubalus* whereas cows are *Bos*) and cows and buffalo cannot, therefore, interbreed. Some farms keep both buffalo and cattle and the buffalo rarely show any interest in or aggression towards the cattle.

HEALTH

To date, European herds of buffalo have proved to be very healthy and generally disease resistant. The most widely reported health problem is vaginal or uterine prolapse. The cause of this is not known, but it may be correlated with easy calving. So far, unlike dairy cows, buffaloes are not prone to either mastitis or foot problems. This makes them of particular interest to those farmers interested in lower input or organic farming methods. Because they are robust, buffalo are long-lived and it is common for cows to continue milking well into their late teens. In addition, buffalo, being genetically distinct from cattle, are BSE free and no other spongiforms have been found in buffalo.

Water buffalo have fewer sweat glands than most cattle – this is why, in their natural habitat, they will wallow in mud to keep cool. The mud also has the benefit of providing some degree of protection from ticks and flies. Under Welsh conditions, provided that buffalo are given adequate access to shade during the summer, they can manage without wallowing. The horns of buffalo have a very good blood supply and they are another adaptation to help keep the animals cool. De-horning is not usual in Europe, nor is it recommended. However, some abattoirs may be unwilling to take buffalo with horns.

BREEDING

Buffalo females can be bred from around two years of age; males at three years.



Fig 1: North Wales Buffalo herd



Fig 2. Buffalo cow and calf

Most buffalo producers use natural insemination on their herds, keeping their own bulls and running them with the herd. The symptoms of oestrus in buffalo are quite hard to detect and if AI is to be practiced it is important to synchronise oestrus. Conception rates vary hugely, dependent upon management practices.

The gestation period of buffalo is longer than that of cows and is also quite variable, ranging from around 310 to 333 days. Calving problems are almost unheard of for buffalo cows, primarily because the calf is relatively small (c. 40kg at birth).

FEED

Professional advice should always be sought when formulating a ration to ensure that the animals' needs are being met. This is of particular importance if animals are being used for the metabolically demanding process of milk production: the ration needs to be formulated to provide the energy and nutrients to meet both the animal's maintenance and its production requirements. Buffalo are more efficient at converting low quality forage than cattle, indeed they thrive best on high roughage diets. It is important to ensure that their ration includes a good proportion of fibrous material and is not too rich.

BUFFALO MILK

Buffalo milk is whiter in colour and smoother in texture than cows' milk. It is also lower in cholesterol and higher in protein, iron, calcium and phosphorous than cows' milk. Average nutritional compositions of buffalo and cows' milk produced under UK conditions are shown in Table 1.

Buffalo can be milked using standard dairy cattle equipment. Most owners claim that, once they have been trained, buffalo are more easy to handle and cleaner whilst in the parlour than dairy cows. The yield per lactation of buffalo is significantly lower than dairy cattle. In the UK buffalo average around 1850kg – 2500kg per lactation, with the lower yields being more common in first lactations and increasing in subsequent years. However, against this lower yield the premium price commanded by buffalo milk (c. 70p/litre in 2004) and the potential for further yield improvements through selective breeding programmes should be considered.

Tables 1: Compositional analysis – average UK values per 100g milk

	Buffalo	Cow
Fat (g)	8.0	3.9
Protein (g)	4.5	3.2
Carbohydrate (g)	4.9	4.8
Energy (kcal)	66	110
Cholesterol (mg)	8	14
Calcium (iu)	195	120

Source: Buffalo Milk Cooperative

MARKETS

The market for buffalo milk and milk products in the UK has seen slow, but steady growth over the last decade. However, the market is far less developed than that for cows' milk and the onus is very much on the producer to find a purchaser for their product, whether it is raw milk or processed dairy products such as cheese, yoghurt and ice cream. Health benefit claims are often used as promotional tools for buffalo products and tapping into the health food market is an opportunity for buffalo producers. Some of the health claims are scientifically proven, for example the lower cholesterol content of buffalo milk, whereas others are based more on anecdotal evidence, for example there are claims that switching from drinking cows' milk to buffalo milk alleviates the symptoms of eczema. There is also some evidence that buffalo milk and milk products are suitable for those with certain types of intolerances to cows' milk. Buffalo milk is not subjected to the CAP Quota system – there are no restrictions on production.

Currently, the bulk of buffalo meat is usually sold direct to the consumer through farmers' markets, farm gate sales or via mail order. There are also opportunities to sell into the hotel and catering industry. Buffalo meat is lower in fat and cholesterol than beef and these characteristics are often featured in its marketing

LEGISLATION

By and large, buffalo are treated as cattle for legislative purposes. All holdings keeping buffalo must be registered with the local Animal Health Office. All buffalo need to be uniquely identified, they must be registered with BCMS and have a passport. All legislation pertaining to record keeping and the movement of cattle apply equally to buffalo.

Holdings which are going to produce dairy products from buffalo need to be registered with the Dairy Hygiene Inspectorate as a production holding and comply with the Dairy Products (Hygiene) Regulations.