Water buffaloes in Venezuela

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ABSTRACT: Water buffalo was introduced into Venezuela 85 years ago, but real growth and development started in the 70’s. ASOBUFALO, the Venezuelan buffalo breeder’s society, was formed in 1985, at the start buffalo were bred for beef, very soon their milking potential was realized and most farmers opted for a dual purpose milk/meat operation. Milk production and milk processing have become the principal operation of buffalo breeders. There are over 669 buffalo farmers in the country.

Our prime objective is to focus on the buffalo as a domesticated species of animal which can complement the traditional forms of animal production in order to address the chronic deficiency that exists in the country in terms of milk and meat, particularly in light of the difficulty in recent years to make up the short fall in the international marketplace.

The priorities are: Production registers in order to identify superior genetic material for dissemination throughout the national herd. There is a need for registers by breed and for production since some of the imported animals have been managed indiscriminately. Back up research in the relevant institutions. Stimulate the proper functioning of education and extension services in buffalo management. Copy those successful initiatives for buffalo development already existing.

The major limitation, however, to a big increase in buffalo production is the limited size of the national herd and therefore its inability to supply the needs of new and prospective producers with breeding animals.

Key words: Water, Buffalo, Venezuela

History

Buffaloes were introduced into Venezuela in three waves: firstly as a biological curiosity, secondly as a governmental attempt to start a national herd and that which finally consolidated the species as viable agricultural resource in the country: private importation.

Juan Vicente Gomez, the Venezuelan dictator, brought the first lot of buffalo, 26 females and 2 bulls, to Venezuela in 1922; the animals were kept at El Limon in the state of Aragua. The animals were kept on grass and gave average daily milk yields of 6 litres whilst the males were fattened for meat.

However, by 1935 the herd had gone wild and the majority were shot by hunters, the last being shot in 1948. There were reports subsequently, however, of 3 or 4 animals in the area around the Lake of Valencia.

In the sixties a small group of 6 male and 6 females were brought to the state of Guárico from Trinidad of which, ultimately, only 1 male and 1 female ended up near Valencia and 6 females in the state of Cojedes and some reports of 12 animals in the hill region of Guárico.
Between 1964 and 1965 2 males and 2 females, imported from Trinidad, were shown at the Feria de Ciudad Bolivar and were subsequently taken to the state of Monagas. In 1968 50 buffalo cows and 3 bulls arrived on the Isla de Guara in the Orinoco delta to form the first experimental herd of buffalo in Venezuela. At the same time a similar project was authorized for the state of Apure. (private communication Aberlado Ferrer 1969, 1972) Two subsequent importations of 100 head and 96 head (1970 and 1971 respectively) left Port of Spain for Tucupita, in the Orinoco delta. (Steve Bennett, personal communication 1972). Dr. Aberlado Ferrer Domingo was the first big exponent for the introduction of buffalo to Venezuela. His idea was to create a large national herd of around 10,000 head in order to supply animals for small and medium sized exploitations. Unfortunately the programme was not the success that it might have been because, although animals were imported, there was little or no knowledge of buffalo husbandry. During this period some farmers, independently, bought small groups of buffalo and started to perceive their potential and with this experience started to import buffalo, a process which was to continue for the next 30 years.

| COUNTRY  | TYPE     | BREED               |
|----------|----------|---------------------|
| Trinidad | Water Buffalo | Varied Indian       |
| Brazil   | Water Buffalo | Murrah              |
| Australia| Water Buffalo | Carabao             |
| Italia   | Water Buffalo | Mediterranean       |
| Bulgaria | Water Buffalo | Murrah / Mediterranean |

The Trinidadian buffalo were animals of purely Indian blood, an ad mixture of the following Indian Breeds.

|           | Breed | Type      |
|-----------|-------|-----------|
| Jaffarabadi|       | Murrah    |
| Surti     |       | Nili Ravi |

In Bulgaria the original Mediterranean (European) type buffalo were absorbed by cross breeding to Murrah forming the Bulgarian Murrah. There were also influences of the following breeds:

|       | Breed | Type      |
|-------|-------|-----------|
| Murrah|       | Nili Ravi |
| Surti |       | Jaffarabadi |

The buffalo from Italy were pure bred Mediterranean whilst those from Australia were Carabao i.e. Pure bred swamp buffalo.
ASOBUFALO, the Venezuelan buffalo breeder’s society, was formed in 1985.

Figure 1.  Buffalo herd distribution in Venezuela.

*Evaluation Of The Present Situation, Looking At Deficiencies And Problems.*

Buffalo breeding has now been carried out in Venezuela since the beginning of the sixties and a number of producers are now working exclusively with buffalo due to their undeniable economic advantages. However with nearly 4 decades of experience the growth of the herd nationally, its study and evaluation has been notably slow.

The initial commercial introduction of buffalo to Venezuela was made by the Ministry of Agriculture for its various breeding centres; subsequent importations from Bulgaria, Trinidad, Australia and Italy were made by private producers. Upon this initial base buffalo farming begins in medium to large scale operations with good technical expertise. Although at the start buffalo were bred for beef, very soon their milking potential was realized and most farmers opted for a dual purpose milk/meat operation. Milk production and milk processing have become the principal operation of buffalo breeders.

The states of Apure, Barinas, Delta Amacuro, Guárico, Cojedes and Portuguesa have seen the biggest growth in buffalo breeding given their obvious advantages, over other species, to adapt and thrive in the climatic and geographical conditions.

*Feed Resources Available To Buffalo:*

According to Marín (1990) the amount of land available to cattle production of all types in Venezuela is 27.2 million hectares, distributed as shown in table 2. Much of the land thus designated has serious drainage and flooding problems making it particularly attractive to buffalo farming.
There are a number of feed sources of particular use to buffalo including crop remains, leftovers from industry other human activities, animal excreta, and forages which were inventoried by Parra et al. 1985.

**Buffalo Situation Today**

According to Piedrahita (1992) the majority of buffalo farmers are Venezuelan (81%) with an average age of 52 (old) and with 76.9% having higher education; 57.7% of all buffalo farms have other forms of cattle farming as well, whilst 60% of all buffalo farms are dual purpose. Natural species of grasses make up 68.9% of buffalo diet. The majority of buffalo are found in the Llanos region (Orinoco flood-plain) in the status of Barinas, Apure, Portuguesa, Guárico, Cojedes) followed by the north-east region (Monagas, Delta Amacuro and Sucre). The average milk production per buffalo cow per day varies from 3-6 litres which in many cases is processed into cheese giving an industrial conversion rate of 5 litres of milk per kilo of cheese. The predominant breed in the Venezuelan mixture is Murrah (average 26.7%).

Herd sizes vary from 50-200 head.

In savannah grass based systems young buffalo steers are producing excellent carcasses with better finish and fat colour than contemporary zebu steers, which means that costly fattening programmes merely to enhance carcass appearance are unnecessary. In tests, the sirloin of buffalo is comparable to cattle in flavour and juiciness; and when the ani-

| Production system          | Land area (has.) | %  |
|----------------------------|------------------|----|
| Extensive Cattle Ranching  | 14.212.217       | 52.1|
| Semi-intensive cattle farming | 11.777.214     | 43.2|
| Intensive cattle farming   | 1.269.766        | 4.7 |
| Total                      | 27.259.197       | 100.0|

Adapted from Marín (1990)

Table 2. National Availability Of Land For Animal Production.

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Table 3. Milk Production Figures For Cattle And Buffalo In Equatorial America And Venezuela.

|                  | Cattle | Buffalo |
|------------------|--------|---------|
|                 | America Equatorial | Venezuela | Venezuela | Venezuela |
| I: MILK PRODUCTION (L./lactation) | 820-1,860 | 1,271-1,996 | 1,463 | 1,054 |
| Lactation, days | ---    | 244     | 247 | 244 |
| Fat (%)         | 4.2-4.6 | ---     | 6.7-9.6 | --- |
| II. Reproduction (CI/months) | 11.7-14.6 | 13.5-15 | 13.8 | 13.2 |

Various Authors, cited by Carrero, 2.000
mals are killed and compared at a younger (8 months) age the buffalo meat shows greater palatability, an attribute that will see it do well in the future in the MERCOSUR market place and answers positively the repeated and unsubstantiated criticisms of buffalo meat (Huerta-Leindez, Arenas de M. y Vidal 1999). All these parameters: a high added value product achieved from low input exploitations result in good profit margins.

The goals set by Dr. Dieter Plasse for the Venezuelan beef herd (Bos Indicus/Taurus) are already easily surpassed by the actual levels of production being achieved by the Venezuelan buffalo herd in that 1) the inter annual growth rate of the buffalo herd is 12%, 2) calving rate is at 80%; 3) age at first calving is 36 months, 4) steers reaching slaughter weight directly off savannah grass at between 24-30 months. 5) Lactations over equivalent 2000 litres of cow's milk. In other words the future for Venezuelan cattle production is the present buffalo production.

**Table 4. Actual and Projected Levels of Production for Venezuelan Cattle Industry.**

|                          | Actual Production | Goals |
|--------------------------|-------------------|-------|
| 1. Calving, %            | 45                | 65    |
| 2. Age at first calving  | 4                 | 3     |
| 3. Age at Slaughter Steers | 4         | 2,5   |
| 4. Slaughter weight Kg.  | 450               | 450   |
| 5. Annual milk production Kg./Cow | 1,200 | 2,000 |

Plasse, 1992

**Problems**

There have been many reasons for the show development of buffalo farming in Venezuela, the majority being linked to poor management. Also there exists the misconceived and erroneous idea that the buffalo is unmanageable, aggressive, disrespectful of fences, destroyer of soils and fields.

Also, buffalo that arrived in Venezuela free of diseases such as leptospirosis, brucellosis and tuberculosis and subsequently contracted one of these, created the impression that not only were buffalo susceptible to these diseases but also were actually carriers of them. There has been a lack of continuity in official programmes for the understanding and improvement of buffalo production and severe sanitary limitations to the importation of new genetic material. New generations of buffalo producers have been hampered by the apathy and disinterest shown by the teachers, investigators and extension workers in what appears to be an unglamorous field of work. This feeling engendered, as it is, by the concept that the buffalo should be kept in those areas of marginal, flooded savannah that is really unsuitable for anything else.

**Actual population and distribution**

Despite the above-mentioned drawbacks, buffalo farming is finally becoming mainstream, with an obvious snowballing effect on the farming population of Venezuela that has more to do with the buffalo's inherent superiority in terms of tropical animal production than any deliberate official planning.

From its initial roots in Apure and the delta region there are now buffalo registered in every state of Venezuela with the exception of Distrito Federal and Nueva Esparta. According to the latest report by ASOBUFALO and based on a 1992 (!) census the estimated population of buffalo is 180,000 head with biggest concentrations in the central Llanos region, the west of the country and the delta region with growing interest in the major dairying region of...
the Sur del Lago.
Demand for breeding buffalo if far in excess of those available for sale and new buffalo breeders are appearing daily; today we are talking of over 669 buffalo farmers in the country. In Table 4 the herd distribution. In Figure 2 the milk producing areas are shown

![Figure 2. Milk producing areas.](image)

**Types of production**

Cow/Calf: The majority of these large scale units are situated in the deeply flooded areas of the Orinoco flood plain. The aim of these herds is to use un- or under-utilized savannahs of poor quality grass to produce steers for slaughter very simply and at low cost.

Dual Purpose: These include enterprises of all sizes and complexities where the main product is milk; meat often in the form of stores for sale at weaning is secondary. These units use a varying scale of technology up to and including the most modern dairying techniques. Land use tends to be more intensive in these types of production.

Work: Although not much used in this area there are a number of African oil palm plantations using buffalo to collect the crop in carts, the large surface area of their hooves do much less damage to the roots than mules, oxen or tractors.

**Situation of the actual capacity and ways to solve it**

Ever since Aberlado Ferrer first suggested a grand national herd of buffalo there has been no officially sanctioned coordinated project for buffalo development in Venezuela. Only the CVG (Corporacion Vene-

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**Table 5.**

| Category                | Quantity |
|-------------------------|----------|
| Lactating Adult Buffalo Cow | 34,299   |
| Dry Adult Buffalo Cows   | 17,416   |
| Buffalo Bulls            | 4,135    |
| Buffalo Heifers          | 12,818   |
| Buffalo steers           | 14,771   |
| Yearling Female Buffaloes| 14,370   |
| Yearling Male Buffaloes  | 15,864   |
| Buffalo Female Calves    | 16,656   |
| Buffalo Male Calves      | 16,865   |

M.A.T. 2007
zolana de Guayana) still has a herd and has achieved a certain amount of development with it. Although, there are at the moment some governmental initiatives for buffalo development. The Universidad de Oriente has a herd of buffalo and has published some investigative works. The Universidad Experimental Romulo Gallegos has a chair dedicated to buffalo production and the Universidad de Zulia has done work in areas of production and meat quality. Relatively speaking this represents a significant deficiency in research and education and the future development of the buffalo industry will depend to some extent on the conscious decision by these institutions to increase education, research, development and finance in line with the economic importance of this species to the nation. There have been some private initiatives to this end (development funds, participative businesses) and these too need to be encouraged as a part of the herd expansion programme. The truth is that there exists in Venezuela a group of professionals with huge experience in the subject who could be the source of a new generation of producers and professionals. It is the job of government to create a policy of initiative towards small producers to make use of the abundant advantages of the buffalo as producer of milk, meat and work. In Asia and Europe much has been achieved with buffalos in cooperatives either in production or in processing and marketing and this is another area for future development in Venezuela, particularly when dealing with non-traditional products such as buffalo and their derivatives.

**National priorities**

Our prime objective is to focus on the buffalo as a domesticated species of animal which can complement the traditional forms of animal production in order to address the chronic deficiency that exists in the country in terms of milk and meat, particularly in light of the difficulty in recent years to make up the short fall in the international marketplace.

The priorities are:

1. Production registers in order to identify superior genetic material for dissemination throughout the national herd. There is a need for registers by breed and for production since some of the imported animals have been managed indiscriminately.
2. Incentivate research in the relevant institutions.
3. Stimulate the proper functioning of education and extension services in buffalo management.
4. Copy those successful initiatives for buffalo development already existing.

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