THE CANCHIM BEEF CATTLE BREED

M. M. de Alencar
Brazilian Agricultural Research Corporation – Embrapa
Southeast – Cattle Research Center São Carlos, SP, Brazil
mauricio@cppse.embrapa.br

Key words: Canchim breed, breeding system, breed formation, bovine

Introduction

Despite the contribution of Zebu cattle (*Bos indicus*) to the Brazilian beef cattle industry, since its introduction in the country in the last century and its wide utilization in crossbreeding with earlier introduced cattle, the possibility of additional gains with introduction of genes of the European breeds (*Bos taurus*), highly productive in their native regions but not adapted to regions of tropical climate, was glimpsed. Since it was not possible just to introduce purebred European breeds in the production systems of the central region of Brazil, a new breed of beef cattle with genes of some European breed which would grant it high productivity, and genes of Zebu breeds which would give it ability to live in the tropics, was sought and pursued. So, it was with the objective to unite the qualities the Zebu cattle with those of European cattle, that the veterinarian Antônio Teixeira Vianna, on the São Carlos Breeding Farm, State of São Paulo, began the crossbreeding program to form the Canchim beef cattle breed.

Formation of the Canchim breed

The European breed used in the crossbreeding program to form the Canchim breed was the Charolais. According to Vianna et al. (1978), the Charolais breed was chosen since it shows high productivity and it was, at that time, the only European beef cattle breed with some adaptation to the environmental conditions of the central region of Brazil.

In 1922, the Brazilian Ministry of Agriculture imported some Charolais animals that were brought to the Urutaí Breeding Farm, State of Goiás, where they stayed until 1936, when they were transferred to the São Carlos Breeding Farm, today Embrapa Southeast Cattle. Research farm from that herd came the Charolais bulls used in the crossbreeding programs performed in São Carlos.

The alternate crossbreeding programs, initiated in 1940 by Dr. Vianna, aimed at the production of 5/8 Charolais + 3/8 Zebu and 3/8 Charolais + 5/8 Zebu animals, to evaluate which was better option to form the new breed. These two genetic groups were evaluated with respect to traits related to growth, reproduction, conformation, temperament, hair, etc., and the 5/8 Charolais + 3/8 Zebu group, as a result of its better performance (productivity and uniformity of its product) (Vianna et al., 1978), was chosen to form the Canchim breed, obtained by the mating scheme shown in Table 1. According to Barbosa (2000), at that time, the comparison of these two genetic groups could be considered as an important point in the formation of a new breed, since this way of developing a new breed, by comparing genetic groups, had no precedent in the world.

TABLE 1 - Mating scheme used to form the Canchim cattle

Males	x	Females
Charolais (C)		Zebu (Z)
		↓
Zebu		1/2 C + 1/2 Z
		↓
Charolais		1/4 C + 3/4 Z
		↓
5/8 C + 3/8 Z		5/8 C + 3/8 Z
		↓
		5/8 C + 3/8 Z (Canchim)

The first animals of the *inter se* matings of 5/8 Charolais + 3/8 Zebu animals were born in 1953. So, a new breed of cattle for the central region of Brazil was formed, and was named Canchim after a tree common in the region where the development of the breed took place.

According to Alencar et al. (1981), the Canchim herd of the São Carlos Breeding Farm came from 53 Charolais bulls, eight Indubrazil bulls, four Guzerat bulls, 127 Indubrazil cows, nine Guzerat cows and nine Nellore cows.

Development of the Canchim breed

From 1955 onwards, as development activities , validation and transfer of the breed type in formation, Canchim and 5/8 Charolais + 3/8 Zebu animals, from the São Carlos Breeding Farm, participated in Feedlot Trials carried out in several locations in the State of São Paulo (Barretos, Bauru and Sertãozinho) and, from the seventies onwards, the formation of breeding nuclei of Canchim were stimulated in several regions of Brazil, with the donation of animals by the São Carlos Breeding Farm (Barbosa, 2000).

As soon as the first results on Canchim cattle were obtained, some private breeders begun the formation of their own herds, and today there are several herds with different genetic bases, contributing to the breed diversity.

In 11/11/1971 the Brazilian Canchim Breeders Association (ABCBCAN, today ABCCAN) was created and is, since then, located in São Paulo City. After some studies by a commission designated by the Ministry of Agriculture, the Canchim was recognized as Canchim Type in June 1972, and in 09/25/1972 the Ministry of Agriculture gave to ABCBCAN the right to carry out genealogical registration of the Canchim Type all over the country. In 05/18/1983 the Ministry of Agriculture recognized the Canchim Type as a breed, and from then on started to be referred to as the Canchim Breed.

With the purpose of discussing and promoting the breed, besides the transfer of new concepts and techniques among the breeders, the Breeders Association promotes annually the National Canchim Fair, and periodically the National Canchim Convention.

To broaden the genetic base of the breed and to capitalize the genetic progress obtained by the two breeds from which Canchim is originated, ABCCAN allows the formation of new lines of Canchim through four mating schemes (Table 2). All four schemes show advantages and disadvantages. Some (schemes I and IV) will produce Canchim with higher proportion of really new lines of Charolais and Zebu, some (schemes III and IV) will take only three generations to obtain the Canchim, and some (schemes II and III) will require fewer different types (genetic groups) of bulls for the matings. Today, the breeders prefer schemes II and IV, and the Nellore is normally used as the Zebu breed.

Today, ABCCAN has about 140 members with herds localized from North to South of the country. Until 1994, the State of São Paulo had 70% of the Canchim herd. Today, São Paulo still has the greatest number of animals, followed by the States of Mato Grosso do Sul, Paraná, Goiás, Minas Gerais and Rio Grande do Sul. There are also expressive herds in the States of Tocantins, Mato Grosso, Bahia and Rio de Janeiro. Today, the number of registered Canchim animals, which are alive, is about 38,000, and there are about 50,000 registered animals of the other genetic groups.

TABLE 2 – Mating schemes to obtain Canchim

I - Alternate			**II – Grading up**		
Bull	X	Cow	Bull	X	Cow
Charolais (C)		Zebu (Z)	Canchim		Z or C
		↓			↓
Zebu		1/2 C + 1/2 Z	Canchim		"Ä"
		↓			↓
Charolais		1/4 C + 3/4 Z	Canchim		"T1"
		↓			↓
5/8 C + 3/8 Z		5/8 C + 3/8 Z	Canchim		"V"
		↓			↓
		Canchim			Canchim
III – Alternate and Grading up			**IV - UEPAE**		
Bull	X	Cow	Bull	X	Cow
Charolais		Zebu	Canchim		Zebu
or		or			
Zebu		Charolais			
		↓			↓
Canchim		"T2"	Charolais		"A"
		↓			↓
Canchim		"V"	"MA"		"MA"
		↓			↓
		Canchim			Canchim

Performance of the Canchim breed

The Canchim breed has been studied with the purpose of investigating its potential with respect to reproductive, maternal ability, growth and parasite resistance traits, and obtaining for selection criteria to improve its productivity. Alencar (1997a) did an extensive literature review about the Canchim productivity, and observed that: 1) the Canchim cattle has good reproductive efficiency (age at puberty of males and females, age at first calving, pregnancy rate, scrotal circumference, libido and serving capacity) when managed adequately; 2) its maternal ability is good and the cow produces enough milk to wean a heavy calf; 3) its growth rate in feedlot and on pasture are very good; 4) its resistance to cattle tick is considered as good; and 5) the Canchim cows are not too heavy at maturity.

Utilization of the Canchim

The Canchim breed was formed to produce beef. As a "pure breed", despite its good productive potential, the Canchim will not contribute significantly to increase beef cattle productivity in our country, at least in the short term; the breed is growing and the number of animals is still small to promote any significant improvement. However, in commercial crossbreeding systems the breed is able to and will give substantial contribution.

With 62.5% of Charolais in its constitution, the Canchim bull passes to its crossbred progeny, characteristics of that breed. The 37.5% of Zebu give the Canchim bull great versatility with respect to adaptation to different environments. Besides that, it produces considerable heterosis when mated to cows of different genetic constitution.

In those regions where the utilization of "purebred" bulls of European breeds is not recommended, and in those systems where artificial insemination is not utilized, the utilization of Canchim bulls is a good option, since they present good reproductive efficiency and their crossbred products show good growth rate and good carcass quality.

According to Alencar (1997b), in a review of the existing literature, crossbred Canchim x Nellore animals, on average, weigh about 3.6%, 10.0% and 10.4% more then purebred Nellore at birth, weaning and 18 months of age, respectively, when raised on pasture; the daily growth rate of the crossbred Canchim x Nellore animals in feedlot is, on average, about 1.3 kg, with feed conversion of 7.0 kg/kg; and the carcass cutability of the crossbred Canchim x Nellore animals next to feedlot is, on average, 58.8%, with backfat tickness of 3.2 mm.

Genetic improvement of the Canchim breed

Several studies were carried out to estimate genetic parameters and to define selection criteria for the Canchim breed. These studies elected scrotal circumference at 12 months of age and

body weights at weaning and at 12 and 18 months of age as good selection criteria for the breed. However, adult body weight should be kept track of, since selection for 12-month body weight can result in larger cows.

In 1999, ABCCAN and Embrapa Beef Cattle signed a contract to realize the Canchim breeding program, to evaluate bulls, cows and young animals. The program is composed of two modules. One is designed to obtain EPDs (expected progeny differences) for birth, weaning and yearling weights, and yearling scrotal circumference. Other traits, such as age at first calving, cow body weight and condition score, calving assistance, presence of defects and sheath score, can also be considered in the program. The second module is designed to test young bulls, and in this case, carcass traits are also evaluated. More information about the program can be obtained in Silva (2000).

Besides this breeding program, ABCCAN's technicians, when registering animals, take into account the Canchim Breed Standard, which contains morphological traits that identify the animals as Canchim, and productive traits like growth traits, reproductive traits, size, beef type, structure, etc.

Conclusions

Observing the Canchim productive data, one can conclude that the objectives sought at the time the breed was formed, to obtain a highly productive cattle adapted to the central region of Brazil, were reached. The breed will be used more and more in commercial crossbreeding programs in natural breeding systems. The breeders society has a breeding program based on important traits that will keep improving the breed. The breed is constantly under studies, mainly by Embrapa Southeast Cattle, to be characterized and to find alternative selection criteria to the ones in use today.

Literature Cited

ALENCAR, M.M. Pesquisa na Raça Canchim. In: CONVENÇÃO NACIONAL DA RAÇA CANCHIM, 3.; 1997a, São Carlos, SP Anais... São Carlos: EMBRAPA-CPPSE/São Paulo: ABCCAN. p. 77-91.

ALENCAR, M.M. Utilização do touro Canchim em cruzamento comercial. In: CONVENÇÃO NACIONAL DA RAÇA CANCHIM, 3.; 1997b, São Carlos, SP Anais... São Carlos: EMBRAPA-CPPSE/São Paulo: ABCCAN. p. 19-33.

ALENCAR, M.M., SILVA, A.H.G., BARBOSA, P.F. 1981. Efeitos da consangüinidade sobre os pesos ao nascimento e à desmama de bezerros da raça Canchim. R. Soc. Bras. Zootec., Viçosa, MG, v.10, n.1, p.156-172.

BARBOSA, P.F. O Canchim na Embrapa Pecuária Sudeste. In: CONVENÇÃO NACIONAL DA RAÇA CANCHIM, 4., 2000, São Carlos, SP Anais... São Carlos: EMBRAPA-CPPSE/São Paulo: ABCCAN. p. 55-68.

SILVA, L.O.C. Programa de melhoramento genético da raça canchim. In: CONVENÇÃO NACIONAL DA RAÇA CANCHIM, 4., 2000, São Carlos, SP Anais... São Carlos: EMBRAPA-CPPSE/São Paulo: ABCCAN. p. 70-79.

VIANNA, A.T.; GOMES, F.P.; SANTIAGO, M. 1978. **Formação do Gado Canchim pelo Cruzamento Charolês-Zebu:** trabalho realizado na Fazenda de Criação de São Carlos, SP. 2.ed. São Paulo: Nobel, 193p.