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### **Brief history of the Senepol cattle in Puerto Rico: a collaborative report**

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The Senepol cattle was first introduced to the archipelago of Puerto Rico in 1983. Two yearling bulls and four heifers were imported from Mint Springs Farms at Kentucky owned by Cecil Horne and D. L. Applegate.

#### **Why the Senepol?**

A visit paid by Dean Alejandro Ayala of the College of Agriculture at Mayagüez to the University of the Virgin Islands in 1982 resulted in a short memo to the author about the cattle he saw there with a closing remark that was more a request than a question: “Why don’t you investigate about that cattle to see its possibilities for the industry in Puerto Rico? I would like to bring it here“. The wheel started to move and the Senepol (the name came later to me) began to generate attention. Interesting aspects of the breed such as its tropical origin, taxonomic classification as a *Bos taurus*, docility, polledness, together with its medium mature size and maternal characteristics were reasons enough to initiate the paper work to import a few heads. The Senepol was seeing as another interesting alternative to the Brahman and Charbray breeds in Puerto Rico.

#### **Why from Kentucky?**

At the time, federal sanitary restrictions to import cattle from Saint Croix forced to look at mainland United States as a possible source. In the first production sale of the Mint Springs Farms at Versailles, Kentucky, on May 16, 1983, two bulls and four heifers were bought. The bulls (their pedigrees are shown in **Table 1**) arrived at Puerto Rico at the end of May 1983. Department Head, Prof. Francisco Suarez was an enthusiastic and key factor in all this matter. A year later, in August 1984, the College of Agriculture became the member 55 of the Virgin Islands Senepol Association of Saint Croix.

Table 1. Pedigrees of the two Senepol bulls first imported to Puerto Rico

Bull ID	Sire	Dam	Sire's Sire	Sire's Dam	Dam's Sire	Dam's Dam
20 KP	702 JM	20 K	WC 479	CN 702 J	CN 4209	CN 434
42 KN	WC 853	42 K	Not on file	WC 1678	WC 479	CN 433

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**Second introduction.** In May 1988, once the USDA sanitary restrictions were removed, 16 heifers, some of them pregnant, were imported from Granard Estates at Saint Croix. The Senepol herd was moved from the Lajas Experiment Substation in southwest Puerto Rico to Montaña Farm in the northwestern region. In December 1990, there were 56 heads of Senepol cattle in that Farm, 19 of them as breeding cows. The herd has been maintained at 30 breeding cows, approximately, since 1995.

**Achievements with the Senepol breed.**

**At farm level.** Senepol bulls were lent to private farms to generate first crosses with Charbray and Brahman cows to obtain some data on their performance. Simultaneously, interest in the Senepol as a new breed was being stimulated among cattlemen. As an example of these "on farm" trails, **Tables 2 and 3** show preweaning and postweaning growth results of progenies of Senepol and Brahman bulls mated to Charbray cows grazing native pastures in the southeast of Puerto Rico.

Table 2. Preweaning growth of calves grazing native pastures, sired by Senepol and Brahman bulls on Charbray cows (Yabucoa, 1986)

Characteristics	Breed of Sire	
	Senepol	Brahman
Number of calves	10	10
Birth wt, lbs	63	62
Weight at 205 days, lbs	413	387
Weaning weight, lbs	493	455
Age at weaning, days	265	267
Preweaning daily gain, lbs/day	1.62	1.47

Table 3. Postweaning growth of bulls grazing native pastures, sired by Senepol and Brahman bulls on Charbray cows (Patillas, 1987)

Characteristics	Breed of Sire		
	Senepol	Brahman	Difference
Number of bulls	10	10	
Yearling wt, lbs	593	560	33
Weight at 24 mo., lbs	910	883	27
Age at 1000 lbs, mo.	26.9	28.4	1.5
Daily gain <sup>1</sup> , lbs/day	0.92	0.94	0.02

<sup>1</sup> Based on liveweight at 24 mo.

In spite of the small number of animals on test, the Senepol progeny performed better during preweaning and similar to Brahman's during postweaning growth, reaching a 1000 lb liveweight 1.5 months earlier. Similarly, Senepol x Charbray females weighed 26 lb more at 205 days than Brahman's (413 vs. 387 lb). At 24 mo. of age, the difference was 30 lb in favor of the Senepol crossbred females (695 vs. 665 lb). All cattle, males and females were raised on native pasture with salt in blocks with some microelements as mineral supplement. The results suggested that Senepol could have a niche in the local beef industry.

In another trial, carcass characteristics were recorded from male progenies of Senepol and Brahman sires on Charbray cows. Bulls were grown on native pasture without feed supplementation, only mineral one. Related data is shown in **Table 4**.

Table 4. Carcass characteristics of bulls, progenies of Senepol and Brahman sires on Charbray cows, raised on native pastures (Sugar Mill field, Yabucoa, 1988)

Characteristics	Breed of Sires	
	Senepol	Brahman
Number of bulls	12	12
Final weight, lbs	1157	1143
Hot carcass weight, lbs	678	670
Dressing percent	58.6	58.6
Left hindquarter wt, lbs	136	137
Hindquarter/half carcass wt., %	41.0	42.0
Total muscle in hindquarter, lbs	108	109
Total muscle/hindquarter wt., %	79.3	79.3
Total bone/hindquarter wt., %	16.5	16.4
Number of permanent incisors	4.5	5.1

No differences were observed in carcass characteristics of crossbred bulls Senepol x Charbray and Brahman x Charbray. Meat quality in terms of Warner-Braztler tenderness and organoleptic attributes by test panel, were also very similar between progenies (data not shown). Other related data may be found in the Proceedings of the International Senepol Research Symposium held at Saint Croix in October 1987.

**At Cattlemen level.** Producers became interested in the Senepol and were advised to visit Saint Croix, origin of the breed. A few followed the suggestion and imported cattle directly. Presently, there are at least five cattlemen that raise purebred Senepol and many more use bulls for crossbreeding purposes with Zebu cows. The herd from the College of Agriculture contributed to the expansion of the Senepol selling the best bulls from each contemporary group to local farmers. Unfortunately, no performance records are kept by producers and registration of purebred is doubtful. In 1993, Senepol cattle, pure and

crossbred first appeared in the bovine inventory by the Department of Agriculture of Puerto Rico.

**Research.** The Beef Cattle Group of the Animal Industry Department conducts research studies with pure and crossbred Senepol. One of them was related to the physiological responses of Brahman, Holstein and Senepol heifers to the hot and humid environment of the northwest region of Puerto Rico reported in this Symposium.

The one cross that brought forward the Group's attention was the F1 Senepol x Charbray. Since Charbray is the predominant beef cattle composite in Puerto Rico, a study was planned to evaluate the weaning performance of F1 cows compared to parental breeds Senepol and Charbray. The study included 5 calving seasons from 1997 to 2001 and corresponding weanings. Sires used were Senepol and Charbray on Senepol, Charbray cows and F1 crossbred cows Senepol x Charbray. Data is being analyzed, therefore results are presented in **Tables 5 and 6** are preliminary. Fifteen to 17 cows of each genotype were mated to Senepol and Charbray bulls, for a total of 99 cows per year. Before each breeding season, empty cows after rectal palpation were replaced with heifers. Breeding seasons lasted 105 days, in average. Bulls were rotated each year and replaced every two years.

Table 5. Weaning percentage of cows of three genotypes mated to Charbray and Senepol bulls (Averages of five weans)

Cow Genotypes	Breed of sires		Averages
	Charbray	Senepol	
Charbray (Ch)	73.75	84.00	78.87
Senepol (S)	82.05	88.06	85.01
S X Ch	88.46	96.47	87.46
Averages	81.42	86.18	83.78

Results have not been statistically analyzed yet. Averages show, however, that Senepol bulls performed better than Charbray. Among cows, the Senepol calf crop was superior to Charbray, although 2.4 % inferior to crossbred cows.

Table 6. Calf weight at 205 days from cows of three genotypes mated to Charbray and Senepol bulls (Average of five weans)

Cow Genotypes	Breed of sires		Averages (lbs)
	Charbray	Senepol	
Charbray (Ch)	448	470	459
Senepol (S)	413	413	413
S X Ch	448	462	455
Averages (lbs)	436	448	442

Even without adjustment by calf sex and cow age, Senepol weaned unexpectedly lighter calves than the other two cow genotypes. Senepol bulls performed better than Charbray at 205 day calf weight. When reproduction and growth are considered together, the index of calf weight weaned per cow in the herd favored the Senepol bull and the F1 crossbred cow genotype, while the Senepol improved its performance due to better weaning rate compared to the Charbray cows (**Table 7**).

Table 7. Weight of calf weaned/cow in herd at 205 days by cows of three genotypes mated to Charbray and Senepol bulls (Average of five weans)

Cow Genotypes	Breed of sires		Averages (lbs)
	Charbray	Senepol	
Charbray (Ch)	330	395	363
Senepol (S)	339	364	352
S X Ch	396	399	398
Averages (lbs)	355	386	371

Results are consistent in showing heterotic effects in productivity at weaning of the crossbred S x Ch cows. Additionally, the animals have good conformation, white to yellow hair-coat and gentle temperament. Also, they are generally polled or with short scurfs at the most and of medium size. In general, the Senepol bulls on Charbray cows performed better than the reciprocal mating. Senepol as a breed also overcame Charbray on productivity at weaning (364 vs 330 lb, **Table 7**) due to its superior weaning rate (88 vs 74%, **Table 5**).

**Beef teaching herd.** Holstein is an important component of the bovine inventory in Puerto Rico. Ninety thousand cows are the base of the dairy industry, which also contributes to the local beef industry once they are culled from the milking parlor. Estimates indicate that 35% of the beef produced in Puerto Rico comes from Holstein cows. The alternative to use culled Holstein cows to produce a F1 with Senepol bulls for a terminal crossbreeding approach with a third breed of sire will be explored by the Beef Cattle Group. Presently, the crossbred cow Senepol x Holstein is obtained using local dairies as collaborators. Weaning weight of these F1 cows in backcross with Senepol bulls are the highest in the beef teaching herd. In the 2001 crop, cows weaned calves weighing in average 557 lb at 240 days, followed by the Charbray cows (541 lb) and the 50% Senepol x Charbray (529 lb).

**In summary**, the research reported here confirms the Senepol cattle has a place in the beef industry of Puerto Rico. The breed arrived to Puerto Rico not for a short visit but instead, to stay forever. The initial presumption that the Senepol could be a good competitor and an alternative to the Zebu breeds like Brahman, has changed. The Senepol has a niche by itself and can coexist with Zebu breeds to enhance local beef production.