

Physiological performance and grazing behaviour

of Senepol, Brahman and Holstein
heifers in Puerto Rico

A.I. Hernandez, D. Cianzio and T.
Olson

Objectives of the study were:

- To evaluate the physiological response of Brahman, Charbray and Senepol to the hot climate conditions of the island, and
- To study their grazing behavior as it relates to changes in diurnal temperatures.

The study was conducted:

- Isabela Substation, north coast of Puerto Rico
- Months of July – November
- In three years, 1992, 93, and 94
- Three breeds, Charbray, Brahman and Senepol

15-17 yearling heifers per breed

- Heifers grazed together in rotational grazing paddocks with Guinea grass as the predominant species and a rate of 1.3 acres/heifer
- Data was collected every 15 days, done from 10 am to 2 pm

Variables recorded

■ Animal

- Live weight
- Respiratory rhythm
- Rectal temperature
- Grazing behavior

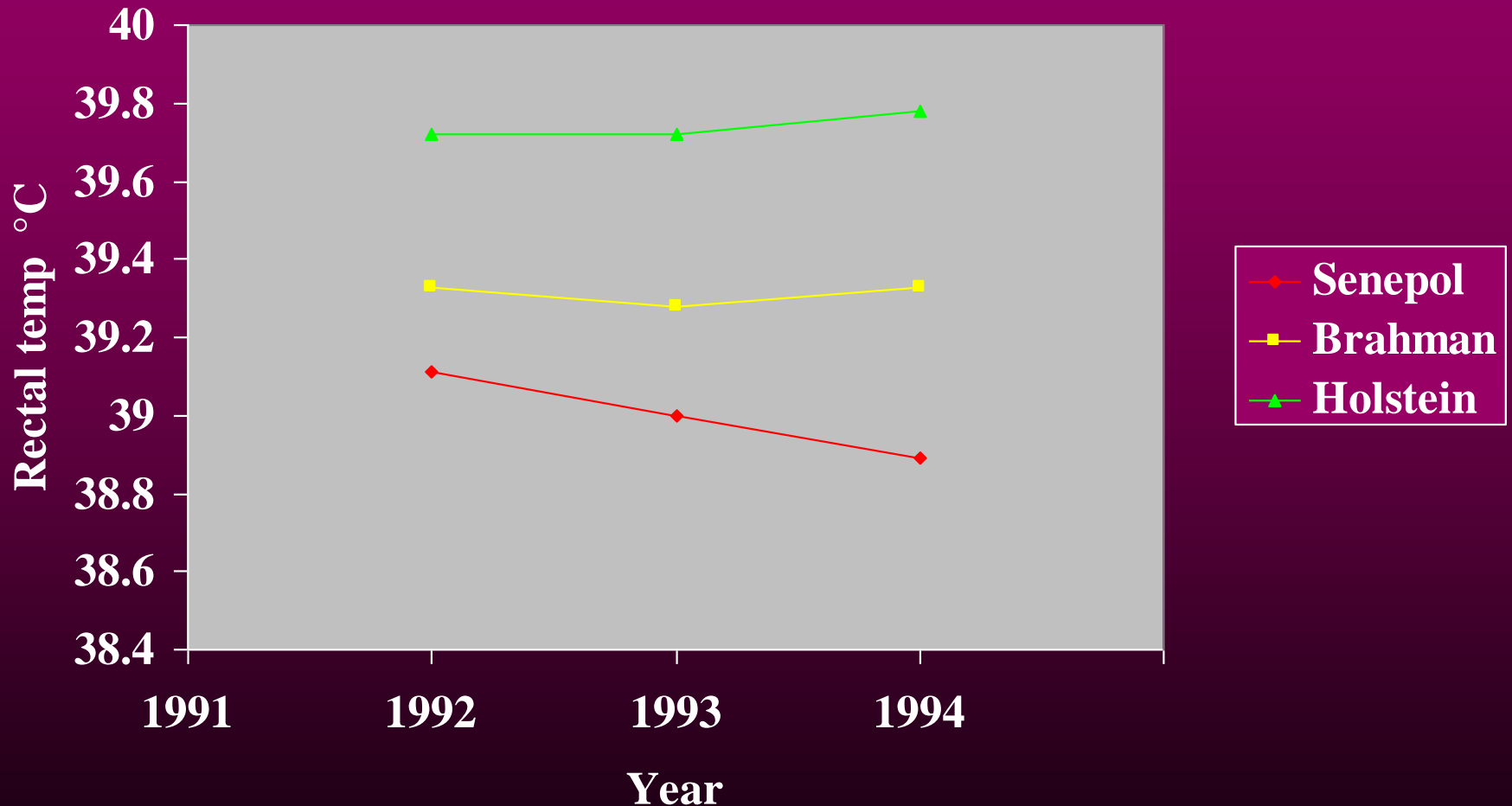
■ Environment

- Temperature under the sun and under the shade, dry and black bulbs
- Index temperature-humidity was calculated

Rectal temperature and respiratory rhythm

Breeds	# Heifers	Rectal tem. °C	Resp./rhyth. Insp./min.
Senepol	49	39.1 ¹	53.8 ²
Brahman	47	39.4 ²	39.5 ¹
Holstein	49	39.9 ³	81.3 ³

Mean of rectal temperature - heifers by breed and year



Ambient and rectal temp in heifers

Ambient temp °C	No. of observation	Rectal temperature (°C)		
		Senepol	Brahman	Holstein
29	4	38.9	39.2	39.4
30	11	39.1	39.3	39.7
31	9	39.1	39.4	40.0

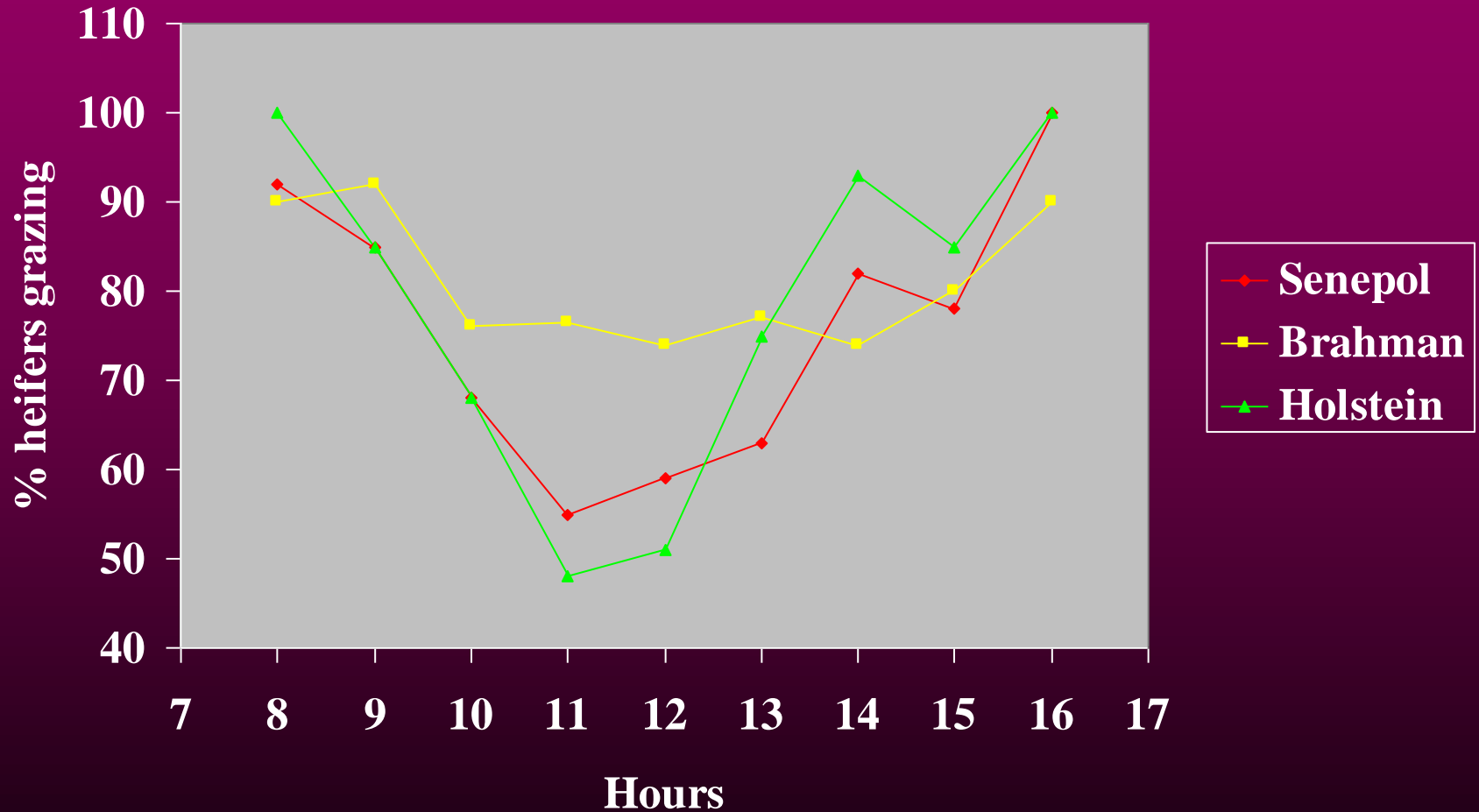
Ambient temp and respiratory rythm in heifers

Ambient temp °C	No. of observation	Respiratory rhythm (insp./min.)		
		Senepol	Brahman	Holstein
29	7	49.6	36.5	70.4
30	9	51.6	38.2	73.7
31	8	56.5	42.6	94.5

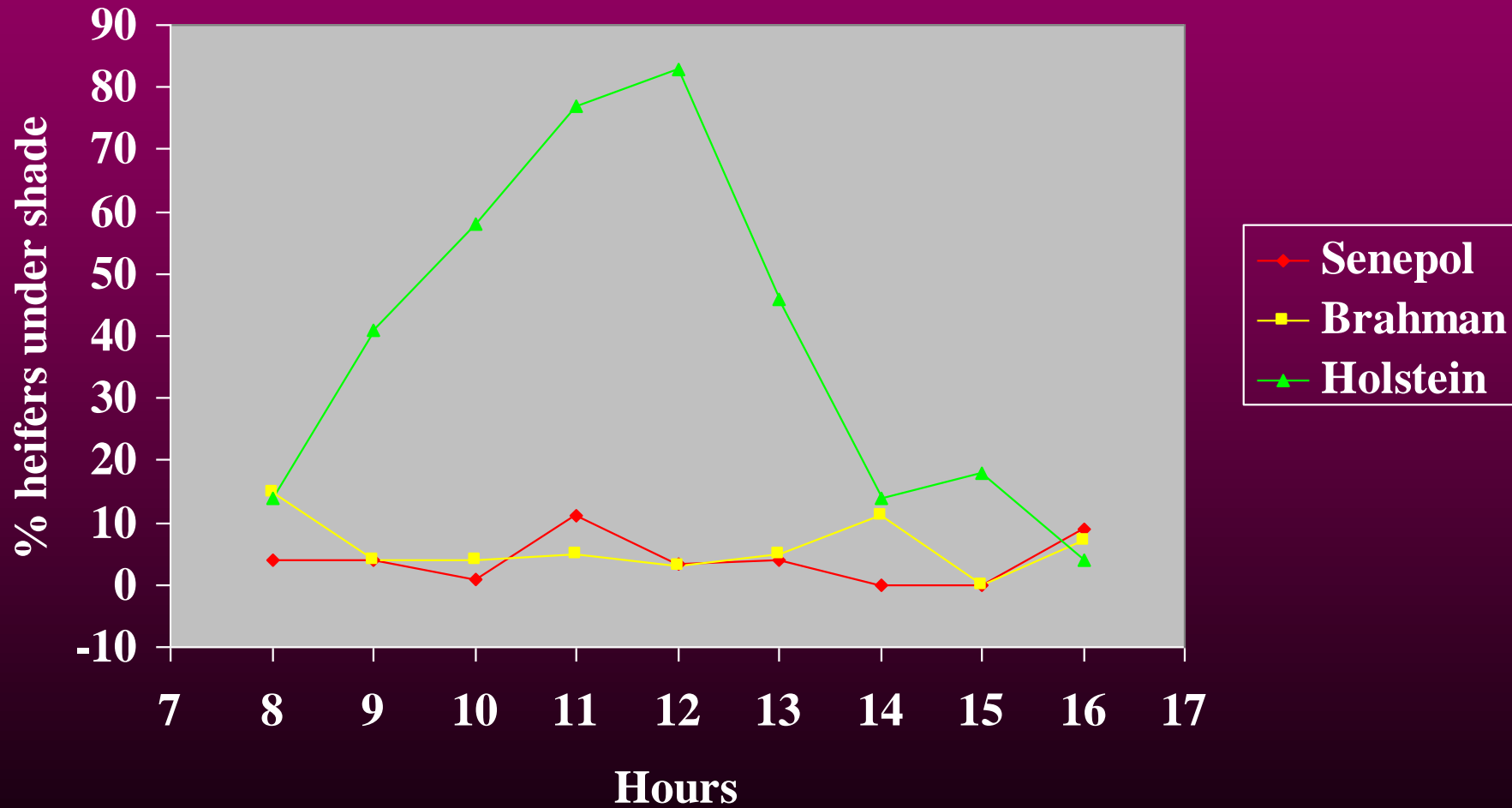
Liveweight changes in heifers by breed

Heifer breed	Initial weight	Final weight	Weight increase	Daily gain
	-----kg-----			
Senepol	261	308 ¹	47 ¹	0.46 ¹
Brahman	223	280 ¹	57 ¹	0.58 ¹
Holstein	230	258 ²	28	0.28 ²

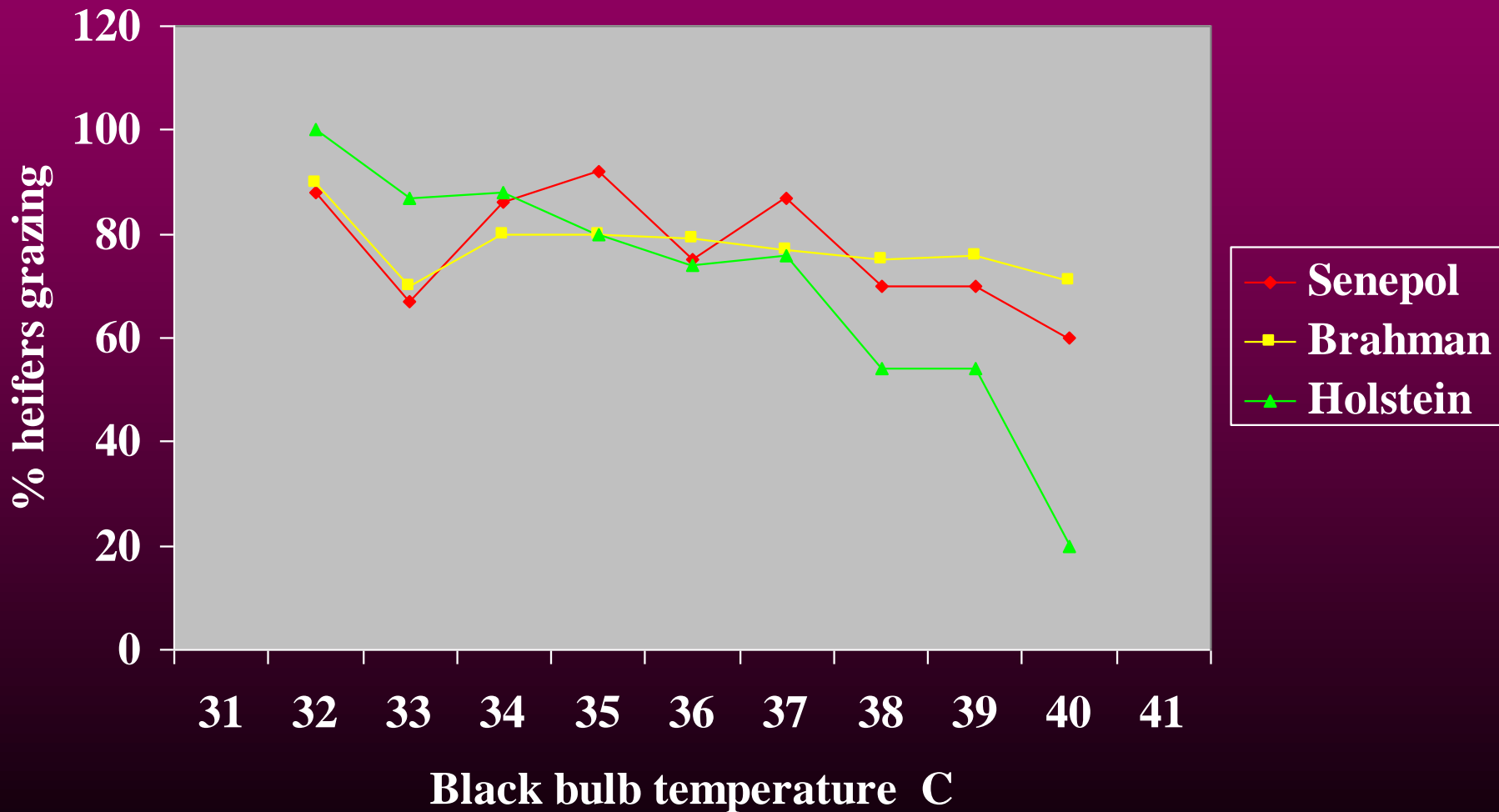
Hourly grazing of heifers by breed



Hourly %'s of heifers under shade by breed



Effect of black bulb temperature and breed on % of grazing heifers



Conclusions

- The study supports the capacity of the Senepol breed to tolerate and perform well under the hot-humid climate conditions of northern Puerto Rico.
- The Senepol cattle appears as an interesting alternative to be considered as purebred or in crossbreeding systems to improve beef production in the tropics.

Thank you all

Muchas gracias

Grazie mille