

2010-2013

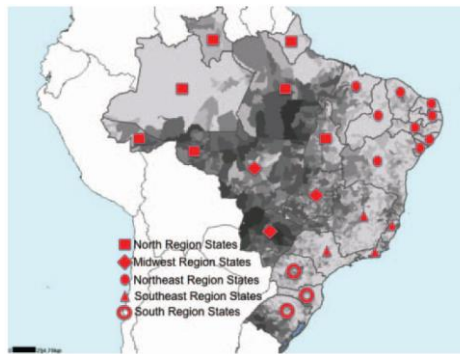


Area: Wanderley and Formosa do Rio Preto
in western Bahia

Number of producers: 40

Number of employees: 20

Brazil has the world's second-largest cattle herd with 232 million head and it is the world's largest beef exporter. Beef is the second agricultural product in terms of contribution in the Brazilian Gross Domestic Product (GPD) (the first is soybean).



Source: Millen et al. (2011, <https://academic.oup.com/af/article/1/2/46/4638615>)

Embodied technology advancements, lower labor costs, and a large domestic market have encouraged the development of large beef processing operations. However, Brazil's livestock sector has gone through a process of selective modernization. Major differences exist between the modern and the traditional segments of the beef-cattle sub-sector.

The main Brazilian husbandry is extensive, which characterizes a system without the use of technologies, where animals usually gain weight during wet season and loss weight at dry season caused by seasonality of tropical pastures. This irregular nutrition influences negatively reproduction, growth performance and productivity indexes.

The Brazilian beef production:

- Uses 140 million hectares of land (all other crops, together, use 75 million hectares)
- 1.8 million farms
- Is based on grass (predominantly *Brachiaria spp.*) with only 5% finished in feedlots
- Stocking rate is low, close 1.3 AU/ha (AU is animal unit, equal 450 kg body weight - BW)
- Productivity is low, about 4.0 @/ha/year
- Long time from birth to slaughter (4 years)
- Reproductive efficiency is low, with long parturition intervals (22 months), low natality rate (60%) and old first parturition age (4 years)
- 80% of the Brazilian herd has *Bos indicus* contribution. Crossbreeding is used in all regions of the country, but the higher the percentage of *Bos taurus* contribution, the poorer the adaptability to tropical environment, especially to ecto parasites (flies and ticks)
- Between 5% and 7% of beef cows are inseminated. Brazil is the first one market for semen and estrus synchronization products
- The foot-mouth disease issue is still a sanitary problem when the aim is to increase Brazilian beef exports. Moreover, out of 27 Brazilian states, only 16 are considered foot-mouth disease-free areas, and 15 of them are only free with vaccination, including Bahia. Only the Santa Catarina state is considered free of foot-mouth disease without vaccination.
- Another factor that does not contribute to increased Brazilian beef exports is the lack of a carcass grading system similar to the one performed in the US by the USDA
- Brazilian packing plants regulate the use of antibiotics, especially ionophores used as growth promoters, on farms certified to export beef to European countries. In addition, the use of any implant or beta-agonist for cattle is forbidden in Brazil
- Generates 6.8 million direct or indirect employees
- With increased awareness of global warming and degradation of natural resources, serious attention has been given to animal agriculture production methods with sustainability perspectives. First concern is about land change with deforestation. Second is about the use of fire in pasture management or to clean the area for sowing pastures. The third concern is about methane emission.

In this context, the work performed by the Animal Science Research and Extension Center of Bahia State University has contributed to generate technological advances, mainly in pasture management and nutrition fields, as well as trainings and consultations.

Research

- Carcasses evaluation in Western Bahia;
- Technical and economic evaluation of beef cattle protein and energy supplementation on pastures in the dry season;
- Native and African dung beetles studies;
- Long-term effects of fetal nutrition.



- Residues and byproducts in beef cattle nutrition
- Integrated crop-livestock system



Our experience in beef cattle production and strong background in delivering research-based information to the industry, the Brazilian National Agricultural Learning Service through Bahia Agriculture Federation hired our services to assist producers in two subsequent programs.

Both of them were statewide programs subsidizing technical assistance to beef cattle producers in order to elevate the zootechnic and economic indexes. We were in charge of western Bahia groups: Moderpec in Wanderley and Beef Cattle Entrepreneurship Program in Formosa do Rio Preto.

Moderpec: Beef Cattle Modernization Program

20 producers were selected in a municipality where beef cattle activity is strong. They received periodic visits of a team of professionals (subsidized 90% of the costs). One to take care of general aspects of planning, administration, pastures, nutrition, and genetic improvement (could be an Agronomist/Animal Scientist or a Veterinarian), plus another one to take care specifically of reproduction and animal health (Veterinarian).

Beef Cattle Entrepreneurship Program

In that time, the role of the Brazilian National Agricultural Learning Service in technical assistance and how it is related with its mission were discussed exhaustively and they decided to change the format from Moderpec to Beef Cattle Entrepreneurship Program. In this new format, the group of 20 producers received the more frequent visitation of the technician with the support of an experienced consultant. We noticed when the recommendations were made to the owner, there was a gap to be executed by the employees. In order to close this gap, we formed a group of 20 employees. Both groups received monthly classes covering all aspects related to beef cattle production. After that, the validation phase, when the knowledge was put in practice.

Moderpec – National Ag Learning Service



Main areas of work in a property:

Pasture intensification: pastures in our condition are the cheapest source of forage. Pasture fertilization, renovation and managed under rotational stocking with electric fences were implemented.



Supplementation: Mixed mixtures with minerals, protein and energy were formulated to attend the different categories during the dry season to complement stockpiled pastures.



Implementation of semi-intensive systems with high supplementation on pastures to fatten steers in the dry season.



Cattle selection: Identification and register of data. Data analysis to support cattle selection.



Crossbred strategies: In some properties, crossbred was used to explore hybrid vigor. The results were positive, with extra 1@ in the weaning calves.



Reproductive management: breeding season was adopted in cow-calf operations, together with sire selection, estrus synchronization protocol, artificial insemination, and pregnancy identification. The employees were trained to facilitate the technology adoption in all areas.



Animal health: prophylactic practices, mandatory and optional vaccines, quarantine, isolation, hygiene, exams, and monitoring procedures were implemented in order to keep the herd health. The installations were adapted to be favorable to animal welfare and human safety.



Administration: First step was planning. After defining the objectives and the timeline, costs of each investment were discussed. Herd and cost control paper and computer spreadsheets were adopted. With the annotations, the producers could select the animals, control herd practices, plan new investments and calculate the economic benefits.

Descrição	Und	Qtd.	Valor	
			Unitário	Total
Terra Nova	Ha	347,00	1.000,00	347.000,00
Terra Nova	Ha	347,00	0,00	347.000,00
	Ha	-	-	-
	Ha	-	-	-
Cobertura Vegetal	Ha	170,00	0,00	-
Reserva Past	Ha	72,00	-	-
APDS	Ha	60,00	-	-
Capivara	Ha	40,00	-	-
VALOR TOTAL				347.000,00

Descrição	Und	Qtd.	Valor			Anos de Uso	Valor Depreciação
			Unitário	Total	Residual		
Pastagens	Ha	177	325,00	58.100,00	0	20	5.910,00
Brangarda (maranhão) predominante	Ha	30	400,00	12.000,00	0	10	1.500,00
Andaluzes predominante	Ha	135	200,00	27.000,00	0	10	3.450,00
	Ha	-	-	-	-	-	-
	Ha	-	-	-	-	-	-
Travessias	Ha	0	-	-	0	0	-
	Ha	-	-	-	-	-	-
	Ha	-	-	-	-	-	-
	Ha	-	-	-	-	-	-
	Ha	-	-	-	-	-	-
VALOR TOTAL		177		59.100,00			5.910,00

Descrição	Und	Qtd.	Valor				
			Unitário	Total	Residual	Anos de Uso	
Construções							
Casa 1 (m²)	Unf	1	10000	10.000,00	0,00	25	360,00
Casa 2 (m²)	Unf	1	10000	10.000,00	0,00	25	360,00
Casa 3 (m²)	Unf	1	5000	5.000,00	0,00	25	180,00
Galpão (m²)	Unf	1	25000	25.000,00	2.500,00	25	800,00
Curral (m²)	Unf	1	30000	30.000,00	0,00	25	1.080,00
Blo (630 m3)	Unf	1	10000	10.000,00	0,00	25	360,00
Chuva (unif) sistema tipo S. fino	Am	0	2500	20.000,00	2.000,00	25	720,00