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# Strategic diagnosis of a property specialized in breeding, rearing and finishing beef cattle in the southern region of Piauí

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**ABSTRACT.** This study aimed to perform a strategic diagnosis on a property specialized in breeding, rearing and finishing beef cattle in the southern region of Piauí. It was conducted at Agropecuária Alvorada, located in the countryside, municipality of Bom Jesus, PI, Brazil. The farm develops the full cycle of beef cattle production, which is divided into breeding, rearing and finishing. A SWOT analysis (which stands for Strengths, Weaknesses, Opportunities and Threats) was carried out, consisting of an assessment of the property's internal and external environments. To evaluate the internal environment, an interview was held for data collection by means of questionnaires. The evaluation included: breeding management, sanitary management, nutritional management, infrastructure, workforce, technologies used in pasture formation, conservation and recovery, pasture management and zootechnical indices. To analyze the external environment, a group of people (experts) with deep knowledge of the subject addressed during the study was used as source of information. A matrix was generated with all the information from the SWOT analysis, strengths, weaknesses, opportunities and threats, culminating with the establishment of strategies to increase the productive efficiency of the cattle raising activity.

**Keywords:** SWOT analysis; beef cattle breeding; strategic planning.

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## Introduction

Brazil has been standing out in meat production and export, and its relations with the foreign market are becoming increasingly competitive, which thus increases the need to adopt measures towards improving our products and, this way, reaching new market niches. Being among the largest beef producers and exporters, however, is not synonymous with productive efficiency, since most of the Brazilian production is based on extensive systems, characterized by a low technological level in cattle raising properties (Associação Brasileira das Indústrias Exportadoras de Carnes [ABIEC], 2020).

The profitability of this activity is directly related to zootechnical and economic indicators, as they have a direct influence on production and, consequently, on profits (Lopes, Cardoso, & Demeu, 2009). To increase profitability and organization, one must be attentive to the zootechnical indices that are having a greater effect on the performance of the activity, identifying them in order to improve production results (Aguilar, Lopes, & Cardoso, 2018). To this end, it is necessary to monitor herds technically using appropriate zootechnical bookkeeping, in order to collect data that measure the efficiency of the system and, mainly, point out the errors that are being made so that, in this way, one can analyze the points that must be changed and establish strategies aimed at raising efficiency within the production system (Santos & Lopes, 2014).

In order to guarantee competitiveness in the internal and external markets, it is necessary to increase the organization and qualification of the production chain by making use of techniques aimed at improving management aspects and zootechnical indices. The SWOT analysis, developed by Kenneth Andrewes and Roland Christensen, two professors at Harvard Business School, is applied to several fields (Scheidegger, Gaudêncio, Favaretto, & Silva Lima, 2015; Dzonzi-Undi & Li, 2015; Sousa et al., 2019; Guedes et al., 2019; 2019; Aquino, Silva, Neto, Oliveira, & Soares, 2020); it stands for Strengths, Weaknesses, Opportunities and Threats and has the following meanings: Strengths are all the positive characteristics that stand out in the institution and that help it fulfill its purpose; Weaknesses are all the negative characteristics in the institution

that make it harder for it to fulfill its purpose; Opportunities are all predictable external factors for the future that, if they occur, will positively affect the company's activities; and Threats are predictable external factors for the future that, if they occur, will negatively affect the organization (Aquino et al., 2020).

Strategic planning is an administrative process that provides methodological support to define the best direction to be taken by the company, aiming at an optimized degree of interaction with non-controllable external factors, and acting in an innovative and distinguishing manner (Oliveira, 2010). The role of strategic planning for the company is to enable a vision of the future, increasing the likelihood of the company taking advantage of opportunities, making better use of its resources and exploring its potential (Terence & Escrivão Filho, 2007). With this in mind, it can be said that it is necessary to use management tools that contribute to decision making on the part of rural producers.

The objective of this study was to diagnose the current situation of a beef cattle property through the SWOT analysis, and to assess zootechnical indices in order to determine strategies towards improving the efficiency of the production system.

## Material and methods

The research was conducted at Agropecuária Alvorada, located in the countryside (Corrente dos Matões), municipality of Bom Jesus, Piauí, Brazil, with the following geographic coordinates: 9°09'47.9" South latitude and 44°34'06.8" West longitude; it is characterized by a hot and semi-humid climate and has average temperatures of 18ºC for the minimum and 36ºC for the maximum. The property has a total area of 6,405 ha, 4,405 ha of which is used for cattle raising, and 2000 ha is an environmental reserve. The farm develops the full cycle of beef cattle production, having as main objectives the selling of animals for slaughter, bulls for breeding, as well as the selling of semen of excelling bulls in partnership with a breeding technology company.

An interview was held to collect data on the operation of the farm, through questionnaires containing specific questions for each cattle raising area on the property, in order to characterize the sectors in accordance with the current state of operation. This questionnaire addressed questions related to the property's soil (correction and management), the types of existing forage crops and their management, the activities developed with cattle raising, technologies, and the workforce on the property.

Then, the SWOT analysis was performed, which stands for: Strengths, Weaknesses, Opportunities and Threats (Sousa et al., 2019). It was run in accordance with the internal and external environments (Figure 1).

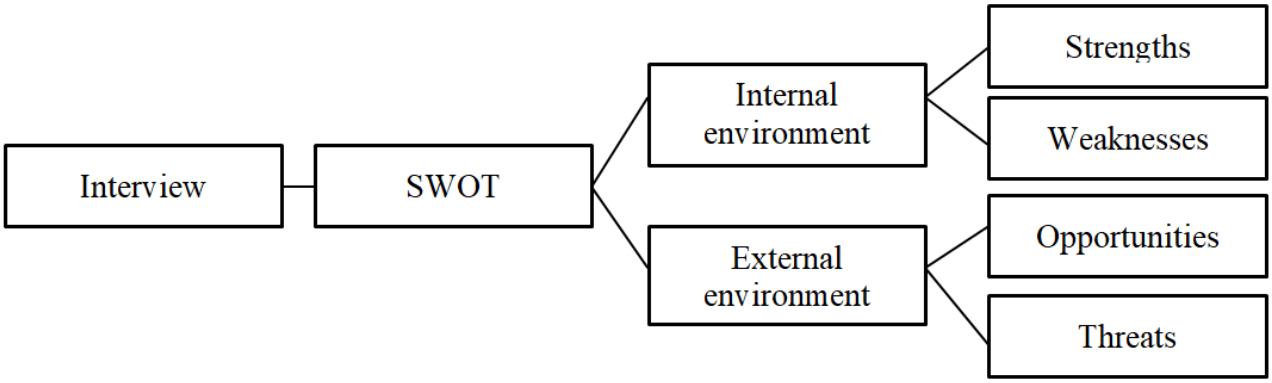


**Figure 1**. Steps of the data analysis of the property under study.

To analyze the internal environment, the activities were classified as strengths and weaknesses, through evaluations in the form of scores between the lowest and highest relative levels, on a scale from 1 to 5. The latter refers to: 1 (very bad), 2 (bad), 3 (average), 4 (good) and 5 (very good). To facilitate the understanding, groups were divided for each evaluation and analyzed by means of the information obtained during the interview. The evaluated groups were: breeding management, sanitary management, nutritional management, infrastructure, workforce, technologies used in pasture formation, conservation and recovery, pasture management, and zootechnical indices. The practices performed in each group were evaluated as subgroups. To identify the strengths and weaknesses, the scoring criteria was used, by which the groups that scored from 1 to 3 points were considered Weaknesses, and those with scores of 4 and 5 points were evaluated as Strengths.

To analyze the external environment, a group of people (experts) with deep knowledge of the subject to be addressed was used as source of information. The experts had access to the characterization and assessment of the internal environment; with the strengths and weaknesses found inside the property, and with the aid of the material, they identified the opportunities and threats, explaining how they could positively or negatively influence the property's strengths and weaknesses. To evaluate the zootechnical indices, data on the farm's productive and breeding management throughout 2016 and 2017 were collected. The calculated indices are shown in Table 1.

**Table 1.** Zootechnical indicators calculated on the property under study.

| Zootechnical indices | Formulas |
|---|---|
| Heifer and cow pregnancy rate (%) | No. of animals in the pregnant category / No. of animals in the mating category x 100. |
| Age at first calving (months) | Age at which the heifer calved for the first time. |
| Herd's mortality (%) | No of dead animals / Total size of the herd x 100. |
| Average capacity (A.U. $ha^{-1}$) | Animal unit / pasture area |

# Result and discussion

## Characterization of the internal environment

### Production systems

The farm develops the full cycle of beef cattle production and, during the study period, had a herd with 4,335 head of cattle, divided into breeding, rearing and finishing (Figure 2). The herd is split into lots in accordance with the animal category: breeders, heifers suitable for breeding, empty heifers and cows, pregnant heifers and cows, heifers and cows in the maternity pen, calved cows with calves at foot, weaned calves and heifers, smaller calves and heifers, larger calves and heifers, growing calves, fattening oxen.

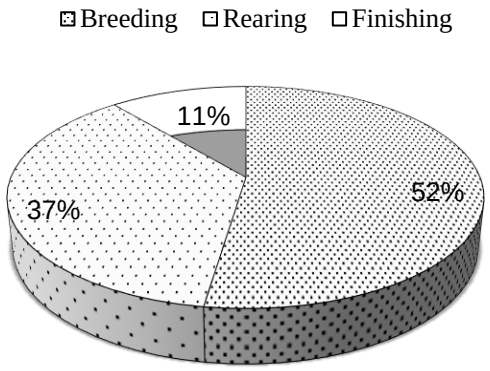


**Figure 2.** Distribution of the herd on the property under study by raising stage.

### Mission

To produce meat of the highest quality with economic and social sustainability, promoting the continuous improvement of the lives of all employees and ensuring the development of a more humane society and opportunities for future generations.

### Vision

To be recognized regionally and nationally as one of the best meat producing companies integrated with a socially responsible agriculture.

### Values

- Ethics and honesty;
- Respect for the environment;
- Efficiency and simplicity;
- To exceed the expectations of employees, consumers and suppliers.

### Organizational structure and workforce (Group 1)

The farm is run by the owner, who has the assistance of a manager and technicians (zootechnicians, veterinarians and agronomists) working full and/or part time inside the company, operational staff to carry out field work, in addition to administrative staff, with an office located on the property, as well as in the city of Bom Jesus, PI. The company also counts on outsourced consulting services in strategic field. It is also supported by a team of qualified workers acting in the fields of agricultural and cattle raising exploration, composed of supervisor of agricultural and cattle raising exploration, multipurpose agricultural workers, machine operators, carpenters, cook, driver and secretary.

### Technologies used in pasture formation, recovery and conservation (Group 2)

The property has technologies used to form, recover and renew pastures, which consist of soil analysis, liming and phosphate fertilization in accordance with the needs of the soil, harrowing, leveling (contour line), sowing and seed incorporation. For pasture conservation, invasive species are controlled, and pests are fought. In addition to soil preparation for pasture formation, fertilization with urea and potassium chloride is applied as well, in accordance with the needs of the implanted forage. Afforestation is not done on the property to assist in the animals' thermal comfort; paddocks are formed by large areas cultivated with grasses for use as food.

### Pasture management (Group 3)

The feeding system is based on the exploration of grasses for grazing and for making silage and hay. During the dry period, deferred pastures, hay and silage are used for supplementation. Hay surplus is sold as well. The current average size of the paddocks is 90 ha, but they will be divided to have 45 ha; the division project has already started and is expected to end within two years (Figure 3).

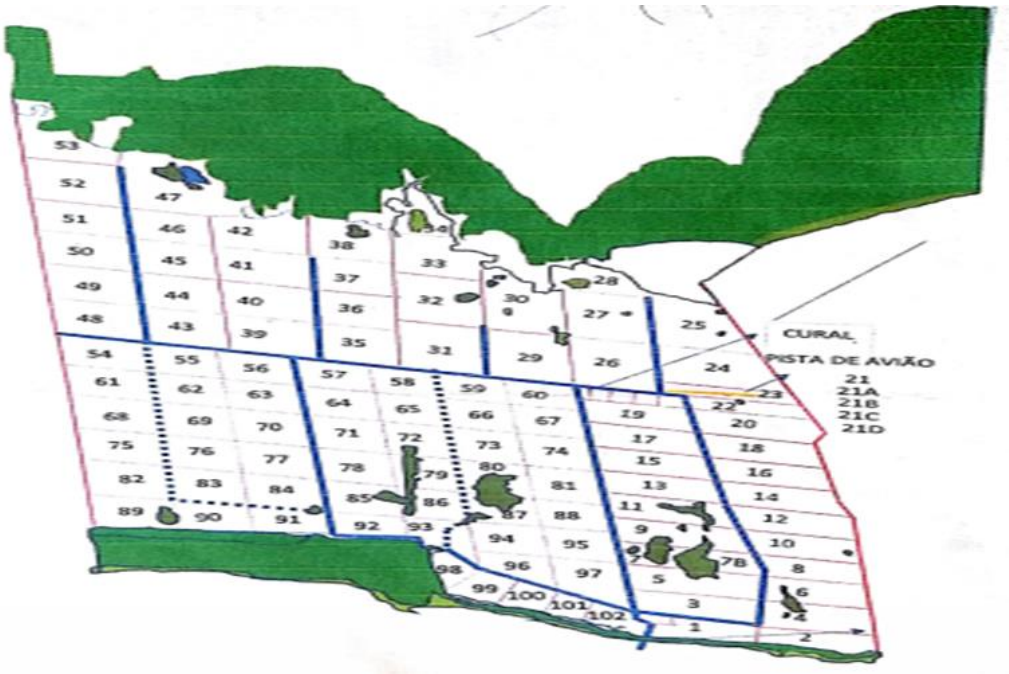


**Figure 3.** Division of paddocks to be established.

The cultivated pastures consist of grasses of the genus *Cynodon* spp. (Tifton 85), *Panicum maximum* (cv. Guinea grass and cv.BRS zuri) and *Pennisetum americanum* (L) (millet) + *Brachiaria* (Convert hd 364) (Table 2).

**Table 2.** Grass species and distribution per hectare.

| Species | Area (ha) | % |
|---|---|---|
| Tifton85 | 360 | 12.7 |
| Guinea grass | 1.350 | 47.6 |
| Cv.BRS zuri | 315 | 11.1 |
| Millet+Converthd 364 | 810 | 28.6 |

### Breeding management and genetic enhancement (Group 4)

The property uses the mating season, which starts in November and lasts until June of the following year. The breeding technique employed is fixed-time artificial insemination (FTAI), which is performed three times; those matrices that do not become pregnant are sent to a lot with breeders for a period of 30 days and, if they do not become pregnant, can be discarded. Pregnancy is diagnosed up to 30 days after insemination, using ultrasonography. Pregnant matrices are sent to specific lots, while empty ones after the mating season are later discarded and sent to the slaughterhouse. FTAI is performed through two protocols, one for heifers and another one specific for cows. The procedures are carried out by a team of veterinarians, as well as trained inseminators. The criteria for assigning heifers for reproduction consist of a minimum age of 12 months and weight of at least 280 kg for pubertal induction; after the procedure, the heifers have their reproductive system examined through ultrasound or rectal palpation by qualified professionals. Those evaluated as suitable for breeding proceed to the breeding phase, and the FTAI protocol starts for heifers. Those that are not suitable await a new heat induction, which will happen after 30 days.

### Genetic enhancement

The predominant breed in the herd is Nellore, with purebred, crossbred and mixed animals, as well as with animals from crosses with Aberdeen Angus and Braford bulls, through artificial insemination.

### Directed mating

Mating is directed by technicians from the Brazilian Association of Zebu Breeders [*Associacião Brasileira de Criadores de Zebu*] – ABCZ. For the directed mating of purebred (PB) Nellore females, registered with the ABCZ, bulls with desirable characteristics as to herd enhancement are chosen. Animals born from this process are evaluated by an ABCZ registry inspector and are certified as purebred, in accordance with the evaluation. Purebred Nellore males are raised for bulls to be sold for breeding, which is one of the company's main businesses. Upon reaching puberty, these animals are evaluated again by an ABCZ technician and classified by order of genetic quality as reserve, elite or superior.

Animals classified as elite and superior are intended for sale, with elite animals being better evaluated, which is reflected on the sale price. Those classified as reserve are managed to be used as bulls on the farm itself. All these animals undergo andrological examination, spermogram, and tuberculosis and brucellosis tests. Nellore males that do not receive the certificate are sent to the slaughterhouse, with slaughter being another product of the company. As for Nellore females that are not certified by the ABCZ as purebred, directed mating is performed in the best matrices using continued crossing, which aims to genetically improve animals born from this process to be used as future matrices. Born females will be used for breeding, and males, for slaughter.

### Crosses

Nellore matrices that were not selected for mating are used for two- and three-breed crosses; it is when Nellore females receive semen from Angus males, giving rise to mixed animals (½ Nellore x ½ Angus). Males born from this process are intended for slaughter.

The females (F1) resulting from this cross, upon reaching a predetermined age and weight, are intended for breeding, being inseminated with semen from Braford bulls. The products of this cross are three-breed animals (¼ Nellore x ¼ Angus x ½ Braford), all intended for slaughter, both males and females.

### Sanitary management (Group 5)

The farm uses prophylactic measures such as vaccination against foot-and-mouth disease, brucellosis, clostridial diseases, measures to control endo/ectoparasitic infestation such as horn flies and ticks, and tuberculosis examination (Table 3). Newborns are observed for one to check if they are healthy and feeding on their mother's colostrum. They also receive the necessary care, such as having their navel cut and sterilized with 10% iodine, weighed and identified; these measures are related to the prevention of diseases that might affect these animals in the future.

**Table 3.** Sanitary calendar of the property under study.

| | Application months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Measures taken | J | F | M | A | M | J | J | A | S | O | N | D |
| Foot-and-mouth disease | | | | | x | | | | | | x | |
| Brucellosis | x | x | | | x | x | x | x | x | x | x | x |
| Rabies vaccine | | | | | x | | | | | | x | |
| Vermifuge | | | | | x | | | | | | x | |
| Leptospirosis | | | | | x | | | | | | | |
| Navel healing | x | x | x | x | x | | | x | x | x | x | x |
| Clostridial diseases | | | | | x | | | | | | x | |
| Endo/ectoparasitic infestation control | | | | | x | | | | | | x | |

## Nutritional management (Group 6)

In the breeding phase, during the rainy season, breeding females (heifers and cows suitable for breeding, pregnant heifers and cows, and calved cows) are managed on pasture, supplemented with protein salt. For nursing calves and heifers, creep feeding is used until weaning. Growing calves are managed on pasture with protein salt as well. Depending on the demand for slaughter, when males reach 13 to 14[@], they can be subjected to three types of management: Semi-confinement, in which the animals stay on the pasture and receive concentrated supplementation; Confinement, in which they receive a diet containing 50% roughage (guinea grass hay or silage, depending on the availability) and 50% concentrate; High-grain diet, in which the animals receive a diet containing 85% corn grain and 15% commercial concentrate. During the dry period, with the exception of the finishing lots, the animals are managed on a pasture sealed with protein salt.

## Infrastructure (Group 7)

The farm has accommodation and a dining hall for employees, two management centers, in addition to machinery, equipment, vehicles used in livestock production and a slaughterhouse for internal consumption (Table 4).

**Table 4.** Machinery, equipment and improvements on the property under study.

| Item | Quantity | Item | Quantity |
|---|---|---|---|
| Main house | 1 | Bus | 1 |
| Staff house | 3 | Tractors | 11 |
| Management corral | 2 | Sprinkler | 1 |
| Shed | 3 | Grids | 5 |
| Slaughterhouse | 1 | Baler | 2 |
| Artesian aquifers | 3 | Harvester | 2 |
| Hilux | 1 | Rake | 1 |
| F 4000 | 1 | Forager machine | 1 |
| Motorcycle | 1 | Tow (Bucket) | 2 |
| Quadricycle | 1 | Water truck | 1 |
| Lawn mower | 1 | | |

## Zootechnical control and indicators (Group 8)

The herd is controlled through zootechnical bookkeeping, which consists of noting the events that occur within the activity developed, such as weighing, identification of purchased animals and animals born on the property. Weighing is done periodically for purchased and sold animals, females suitable for breeding, and animals born on the property. In addition to the aforementioned monitoring, the property weighs the entire herd twice a year during the period of vaccination against foot-and-mouth disease; during the vaccination management, weighing is done, and the identification of the entire herd is checked (Table 5).

The calves are identified right after birth with earrings or tattoos, depending on genetics. For purebred Nellore animals to receive the ABCZ's Genealogical Birth Certificate, the property reports the mating, performs an artificial insemination with fractionated semen (AI-FRA), and when the animal is born, it reports its birth to the association. At birth, the animals are identified, with their dates of birth clearly noted in the zootechnical bookkeeping, and duly tattooed on the left ear, with a unique series and their identification number. Afterwards, the animal is examined by the technician and, if no disqualifying defects are found, it is eligible to receive the Definitive Genealogical Certificate.

**Table 5.** Zootechnical indices of the property under study.

| Average weight of weaned calves at seven months of age (Kg) | |
|---|---|
| Mixed | 203.75 |
| Nellore (PB) | 223.00 |
| Crossbred | 223.33 |
| Average weight of weaned heifers at seven months of age (Kg) | |
| Mixed | 188.75 |
| Nellore (PB) | 208.5 |
| Crossbred | 216.33 |
| Average weight of heifers exposed to breeding (Kg) | |
| Nellore (PB) | 325.00 |
| Mixed | 314.00 |
| | % |
| Herd's mortality rate | 1.33 |
| Average rate of pregnancy in the herd | 51.64 |
| Average rate of heifer pregnancy | 46.81 |
| Average rate of cow pregnancy | 53.85 |
| Average capacity AU/ha | 0.73 |

Said certificate consists of a definitive confirmation of an animal as being in the breeding or matrix state, when it becomes part of the breeding herd, which happens when the animal reaches 18 months of age, and its breed, functional and reproductive aspects are already well defined. The animals are inspected by the ABCZ technician and undergo a visual type assessment that checks their breed profile and functional aspects within breed standards. Animals that do not have disqualifying defects receive the certificate. At this moment, the unique identification series and the numerical series are marked with fire on the animal's right leg.

Crossbred animals are registered at birth with earrings and, after weaning, the definitive marking is done with fire. All field notes are tabulated into computer programs for greater data control and so that data are not lost. For breeding management, monitoring is done through notes that include the animal's category, breed, the synchronization protocol to be used, birth order, body condition score, semen identification (bull and semen lot), the date and time of each FTAI process, the inseminator's name, and the pregnancy diagnosis.

## Analysis of the external environment

### Opportunities

- Being a reference in the supply of breeders

Serving as an incentive to regional and/or national selectors, meeting a growing demand, defining a new profile for livestock in the south of the state. It is estimated that 95% of the herd of female beef cattle in Brazil reproduce by natural breeding (Santos et al., 2014). Because this type of mating occurs in lots, without specific identification, it is recommended replacing all breeders every two years, or three years at most, depending on the heifers' age at first mating. These considerations show the importance of marketing breeders in beef cattle production with the aim of avoiding inbreeding and ensuring genetic enhancement (Reverter et al., 2017). The choice of a breeder will have an influence on carcass quality, feed efficiency, weight gain, among other characteristics, thus having a direct impact on the yielding and profitability results of the activity.

- Reducing the reproduction cycle

Growth, reproduction and finishing precocities are important for reducing the cattle raising cycle, for greater capital turnover and, consequently, for greater efficiency in the activity. Precocity can be understood as the speed at which cattle reach puberty (Gurgel et al., 2020), when bone growth is completed and most of the muscles are formed. At puberty, the growth hormones responsible for growing bone and muscle tissue are replaced by sex hormones, when females enter estrus and males have an increase in their scrotal circumference. Puberty also intensifies the filling of adipocytes, causing the deposition of fat in the carcass. In this way, breeds or individuals within breeds that first reach puberty can be considered to be of greater sexual and finishing precocity (López-Paredes et al., 2018).

- Increasing profits

Animals of higher genetic value, consequently, are more valued in the market. Selection, in addition to being fundamental for enhancing pure breeds, has to be an essential component in a breeding program for the selection of existing cattle with a view to characteristics of economic value. This alternative is used in

Brazil. Although differences in performance between taurine and zebu cattle continue to exist, it is possible to observe, for several reasons, including the work of breeders isolatedly, of breeder associations, of teaching and research institutions, and of technicians in the field, a major genetic enhancement of beef cattle in Brazil, mainly zebu breeds.

- Being a reference in meat quality

Developing animals with better meat quality characteristics by using bulls of European breeds in crosses to raise animals for slaughter. As for texture, characteristics such as marbling and tenderness are appreciated by the best foreign markets, thus adding value to the meat product. This can be explained by the fact that the Nellore breed, despite presenting good carcass yield and precocity, still lacks improvements in terms of meat quality (Pereira et al., 2016).

- Conquering new markets

For the country to increase production and keep markets or conquer new ones, including those with better remuneration, it needs to be competitive, that is, the industry must perform well and be efficient in order to provide quality products at affordable prices. In this context, improvements in the genetic potential of animals and their adaptation to the environment and management continue to be important points for greater system efficiency.

- Increasing the extraction rate

A reduction in slaughter age and/or the beginning of reproductive life has as a direct consequence a decrease in the cattle raising cycle. Thus, the slaughter of male bovines aged 11 to 21 months, associated with age, with first calving at two years old, and weaning rates above 85% would bring important increases in the herd's zootechnical indices, leading to an increase in the herd's extraction rate to levels close to 40%. This would be the way to raise the profitability of each producer, as well as the efficiency and competitiveness of beef cattle production, from the perspective of having a product unit of known and superior quality, produced in increasingly shorter periods and at lower costs (Ramos, Oliveira, Freires, Neves Neto, & Braga, 2017).

- Less dependence on external inputs for animal feed

Feeding animals represents one of the biggest costs in cattle raising; it can reach up to 60% of the production cost, especially when food sources such as corn are used, which, despite their high nutritional qualities, are usually costly. Producing grains, such as soybeans and corn, the main components of cattle feed, on the property can lower production costs and consequently raise the profitability of the activity, in addition to providing agro-industrial residues. The use of agro-industrial residues in animal feed today, in addition to being seen as an economic option of great importance in reducing the environmental impact, allows the production of noble and quality food due to their nutritional characteristics.

## Threats

- Possibility of increasing the purchase of inputs for pasture renewal

The main effect caused by animals on pasture is defoliation, which reduces the leaf area, with consequences on reserve carbohydrates, tillering, growth of roots and of new leaves, thus compromising their development (Difante et al., 2009).

- Mitigating effects caused by monoculture

Pasture formation intercropped with long-cycle forest or fruit species and/or small crops. A large area available for green mass production, deep and flat soils that allow using agricultural implements, availability of groundwater and light are factors that can favor the formation of an integrated system comprehending animal production, plant production and forest production. Based on these aspects, a production system that seeks balance or is the closest to it is a positive point to serve the foreign market, which is increasingly demanding in terms of how the agents involved in a production system are integrated. These agents can be classified into three categories: social, economic and environmental. From the point of view of an integrated system, its advantages include the possibility of cycling elements such as carbon, nitrogen and water. The microclimatic conditions provided by a pasture x arboreal species intercropping favors a decrease in temperature, which enables a better animal performance under these conditions. It is worth mentioning that plant, animal and forest production diversifies the products within the farm, not leaving it to the mercy of oscillations in the meat market (Almeida et al., 2019).

- Vulnerability and instability of the meat market

In addition to compromising the environment. It is known that meat is a commodity; therefore, its sale price is determined by the external market, thus leaving cattle breeders vulnerable to this market, which is

risky due to the inherent dynamics of trading. Having a variety of products on the farm is also an alternative to mitigate the effects caused by monoculture on the environment.

- Lower system sustainability

Sustainable development can be defined as a process that meets the needs of the present without compromising the ability of future generations to meet their own needs (Comissão Mundial Sobre Meio Ambiente e Desenvolvimento [CMMAD], 1987), or the capacity that a system has to handle disturbances while maintaining its functions and structure, that is, it is the ability to absorb and adapt to shocks, and even benefit from adaptation and reorganization (Veiga, 2008). The core of sustainability thinking must encompass the idea of three dimensions – environmental, social and economic –, and these three objectives need to be interconnected, with actions aimed at balancing them (Souza & Ghilardi, 2017). Therefore, for an animal production system to be considered sustainable, it must be socially responsible, to the point of guaranteeing human and animal wellbeing; present positive economic results, becoming economically viable; and be environmentally correct by aiming at the preservation and conservation of the environment (Lima & Pozzobon, 2005).

## SWOT analysis

It was possible to observe that all groups were characterized as Strengths in the SWOT analysis, reaching a satisfactory score; however, not all variables within the analyzed groups reached the maximum score, and these variables were classified as Weaknesses (Figure 4). Those variables that reached the maximum score should be valued for the continuity of the activity, and for the fulfillment of the objectives proposed by the producer, while the variables that did not reach the maximum score should be worked on with a view to raising their score and, consequently, reaching their maximum efficiency within the production system.

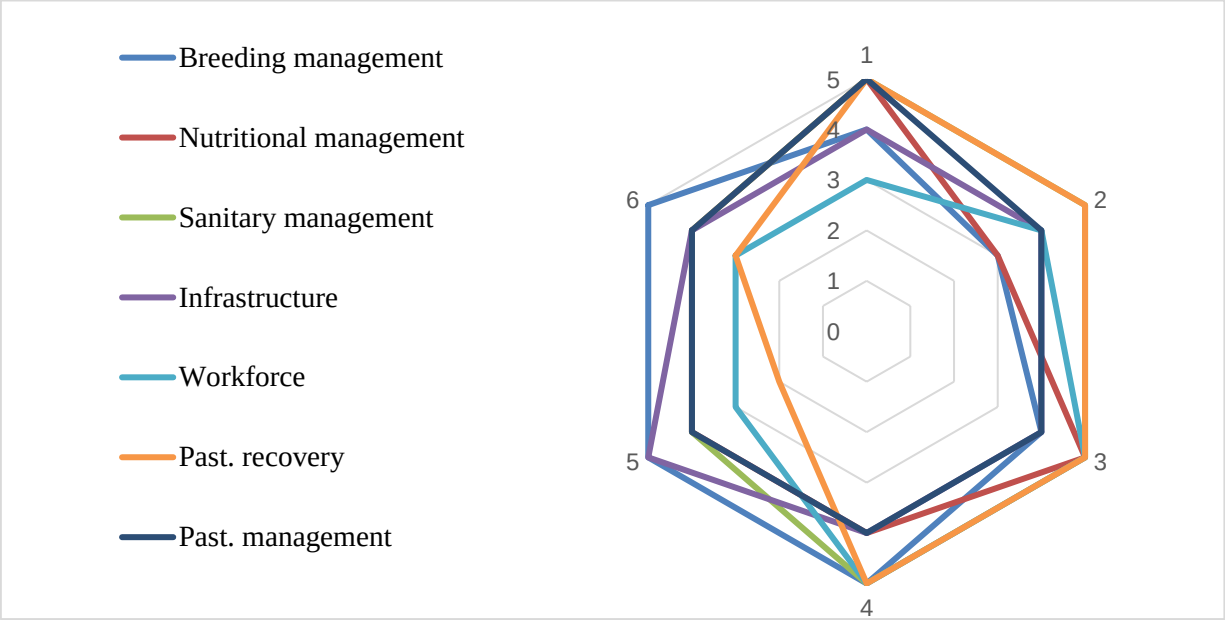


**Figure 4.** Assessment of the property's internal environment through scoring Past. recovery: pasture recovery; Past. management: Pasture management.

From the analysis of the property's internal environment and external environment, it was possible to determine the strengths and weaknesses, opportunities and threats, that is, all the information in a matrix that makes up the SWOT analysis (Figure 5). For the producer to achieve their goals, they must value their strengths, related to their management, and, at the same time, be concerned with resolving their weaknesses, related to some variables such as the rate of pregnant heifers and primiparous cows, paddocks with large areas, absence of integrated systems, and lack of afforestation. Regarding the external environment, although the producer does not have control over it, they must take advantage of opportunities, such as being a reference in the supply of breeders, increasing profits, conquering new markets, increasing the extraction rate, being less dependent on external inputs to renew the pasture, reducing the reproduction cycle, being a reference in meat quality.

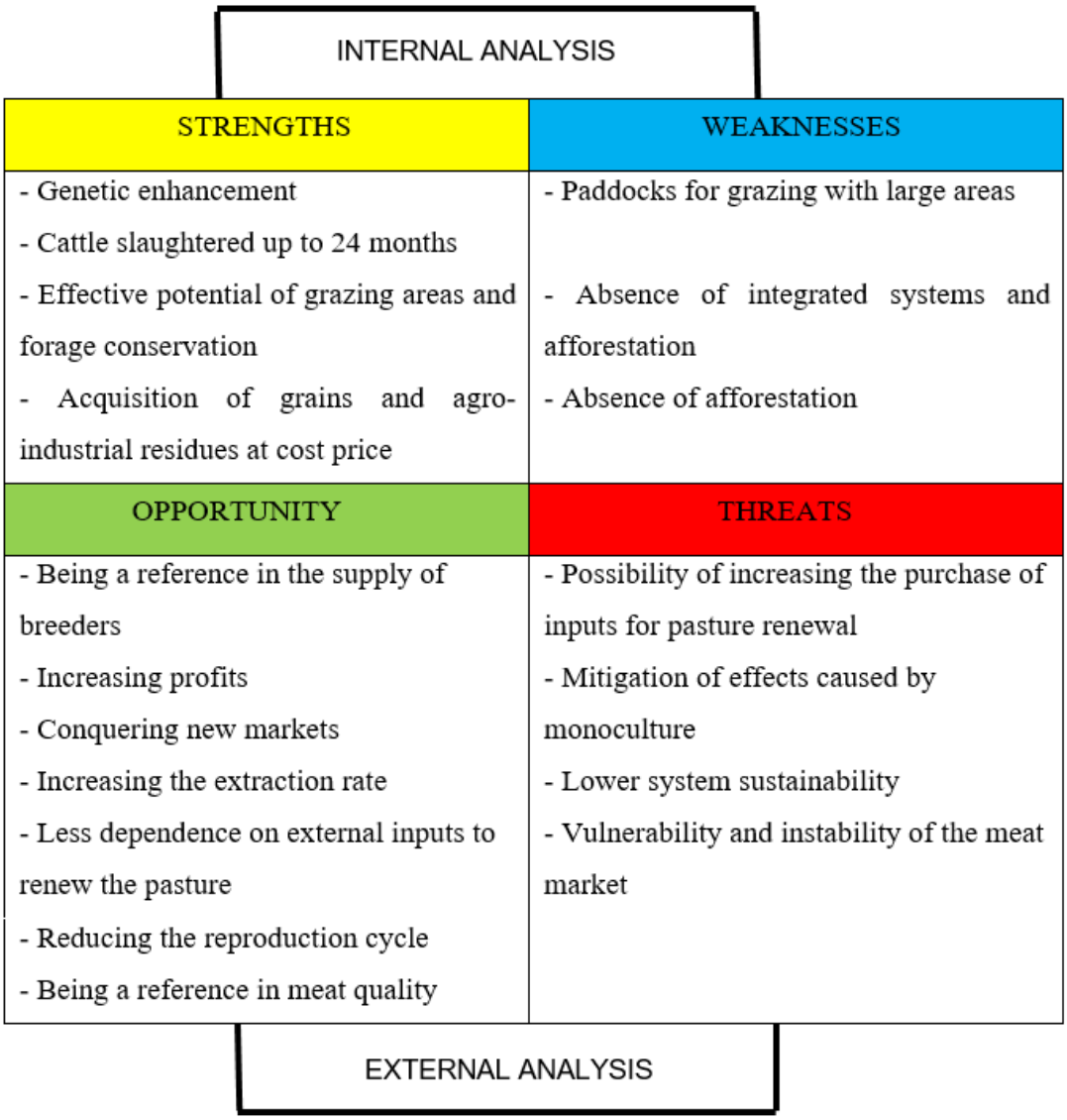


**Figure 5.** SWOT matrix generated from the assessment of the internal and external environments of the property under study.

### Establishment of strategies to increase the productive efficiency of the cattle raising activity

- Exhibiting animals to customers by participating in agricultural fairs, holding field days on the property and using the virtual environment as a means for exhibition, dissemination through social networks, creation of sales and auction websites.
- Dividing paddocks into smaller areas to increase Kg $ha^{-1}$ yielding.
- Assessment of entry and exit of animals into and from the paddock in accordance with the entrance height and the exit height.
- Improving the standardization of the animals by dividing them into homogeneous lots, to avoid hierarchy, facilitate management and, consequently, increase productivity.
- Strategic supplementation aimed at raising the score of heifers suitable for breeding
- Temporary weaning for first-calf cows.
- Increasing the service period for first-calf cows.
- Planning and prioritizing training programs to qualify employees.

## Conclusion

It can be concluded that, based on the interview and the observations made on the rural property, it was possible to perform a general diagnosis of the property as to its aspects referring to management, organization and the environment where it is located. The SWOT analysis method allowed understanding the management system and

indicated the performance of the activities in the internal environment through scoring, identifying the strengths and weaknesses, allowing, as well, one to verify gaps in the production systems by evaluating the external environment, adapting ways to formulate strategies with a view to opportunities and threats, reanalyzing technical procedures and increasing competitive advantage in the market.

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