

ECONOMICAL EVALUATION THROUGH GROSS PROFIT AND CASH FLOW IN DIFFERENT BEEF CATTLE SYSTEMS IN RIO GRANDE DO SUL

Vicente Celestino Pires Silveira¹
João Garibaldi Viana²
Carolina Balbé de Oliveira²
Adriana Ferreira da Costa Vargas³

SUMMARY

Beef cattle production is suffering numerous difficulties in productive and economical terms in the state of Rio Grande do Sul. Expanding new markets, competition with other meats, external competition through imported Mercosul beef, new growth and slaughter processes bring new challenges to the Brazilian livestock production. In the case of Rio Grande do Sul, another factor to be considered is the competition with Central States in the internal market. Meat prices received by farmers in the last years stayed constant, but prices of the main production inputs are still rising. This scenery brought continuous income decrease to the beef cattle farmers. As a result, many farmers are selling part of their lands or leaving beef cattle production. This paper aims to compare gross income and cash flows in three farms with different beef cattle systems during the years of 2003 and 2004, as well as analysing the cost percentage of different inputs necessary to the production systems. The farms are located in different regions: Campanha, Depressão Central and Fronteira Oeste, representing important agricultural production regions in the in Rio Grande do Sul state. The results show that without technological modernisation in beef cattle production systems and integration with agriculture, it becomes difficult to remunerate all the production factors. Planning allows a better income distribution, reducing the months of negative cash flow. However, the low profit per area demonstrates the gravity of the economical situation of beef cattle farmers in Rio Grande do Sul.

KeyWords: beef cattle systems, gross profit, cash flow

INTRODUCTION

Beef cattle production is suffering numerous difficulties in productive and economical terms in the state of Rio Grande do Sul. Expanding new markets, competition with other meats, external competition through imported Mercosul beef, new growth and slaughter processes bring new challenges to the Brazilian livestock production. In the case of Rio Grande do Sul, another factor to be considered is the competition with Central States in the internal market.

Meat prices received by farmers in the last years stayed constant, but prices of the main production inputs are still rising (RIO GRANDE DO SUL, 2003). This scenery brought continuous income decrease to the beef cattle farmers. As a result, many farmers are selling part of their lands or leaving beef cattle production.

Technological components are important, but increasing efficiency only becomes financially profitable if the administration of the productive processes is effective. Although intuition can help farmers with a lot of experience, this it is only valid to identify great effects, given the complexity of the production systems (CÉZAR et al., 2004).

One of the most used tools for the verification of farm economical profitability is cost analysis. Correct elaboration of the input costs allows to verify the reality of the productive activity

¹Professor Adjunto, NEPEA/DEAER - Universidade Federal de Santa Maria (e-mail: vicentesilveira@smail.ufsm.br)

²Acadêmicos NEPEA, Universidade Federal de Santa Maria

³Engenheira Agrônoma, Fundação Maronna (email: adrivargas@via-rs.net)



and makes it possible to diagnose the real situation of the farm considering the activities developed and crop production (ARBAGE, 2000). However, cattle farmers usually have data referring only to payments (variable or direct cost) and incomes of production system. Thus, the monthly cash flow becomes a feasible tool to evaluate the economical situation of the farm.

Season, climate and market are some factors that difficult the income forecast by beef cattle farmers, turning production unstable and consequently making income unpredictable along the years. This instability leads to lack of available money along the year, representing a negative cash flow in most months. Therefore, obtaining a regular positive cash flow is a challenge to most farmers. Production planning becomes indispensable to maintain a stable cash flow, as well as a more precise cost analysis, helping reach system production profitability.

This paper aims to compare gross income and cash flows in three farms with different beef cattle systems during the years of 2003 and 2004, as well as analysing the cost percentage of different inputs necessary to the production systems.

METHODOLOGY

Gross income, cash flow and input cost components of three beef cattle farms in the state of Rio Grande do Sul were analysed during the years of 2003 and 2004. The input cost for each farm was collected and classified by group, being the sum of these costs the total month payment. The product sales of each farm composes income. The final account for every month was obtained by the subtraction of the income by total month payment, therefore some months had positive and others negative results along the year.

The farms are located in different regions: Campanha, Depressão Central and Fronteira Oeste, representing important agricultural production regions in the in Rio Grande do Sul state.

Farm 1 is located in the Campanha region and has a complete beef cattle production system (breeding, growing and fattening). The 1.300 hectares area has a predominantly natural pasture, 60 hectares being cultivated with annual ryegrass in winter. Also, the farm has a complete sheep production system.

The beef cattle system has productive rates similar to the average Rio Grande do Sul State farm. The breed is constituted by Polled Hereford. Commercial cows are naturally bred, while selected cows and heifers use artificial insemination. An average of 65% born rate is obtained. During lactation the cows are maintained in natural pasture and weaning occurs when the calf has about 6 months of age.

During growing and fattening, the animals are maintained in natural pasture and receive medication against internal and external parasites. Steers (sold at the average of 4 years) and discarded/rejected cows are the main income. The annual return rate of the farm is around 20%.

Sheep production is also developed in the farm with a flock of around 1000 animals (Corriedale breed). They are maintained in extensive natural pasture, with good parasite control. Wool, lambs, discarded ewe and rams are the mains output in sheep production.

Farm 2 is located in the Depressão Central region with an area of 930 hectares, where 267 hectares are rented. Productive activity is based on the partnership between agriculture and livestock. The owner rents part of the land to the specialised soybean farmer that produces from October to April, after that, the land is left to the owner with annual ryegrass and oat.

Beef cattle system is based in the growing and fattening process. Steers are bought and after the growing/fattening processes are slaughtered with age 2 to 2,5 years. Sometimes discarded cows are bought and after fattening are sold to slaughter. The animals are fed with natural pasture, improved pasture (oat and ryegrass) and concentrate.

Farm 3 is located in Fronteira Oeste region and is a property of the Maronna Foundation, occupying an area of 2.381 hectares. Beef cattle is the main activity of farm and, like Farm 1, has a complete production system (breeding, growing and fattening). Natural pasture is used as the main food source for the herd. Soil and relief are highly variable and implicate on different quality and quantities of natural pasture during the year (Silveira et al., 2005). Native bushes and rock blooming reduce grazing area to 1.870 hectares. The land that can be used to rice crop is of 60 hectares. It has been divided in three patches, allowing the rotation between rice and improved pasture. Thus, it increases meat production per area through improved pasture. In 2002, rice was not cultivated, due to flooding, affecting the cash flow the following year.

Calf production was always considered important in the production system and determines the direction of the decisions for production management. Nowadays, this decision allows the fattening process of most steers and discarded heifers and cows. The sale of animals to slaughter is the main source of farm income. Bull production assists the needs of the farm and contributes with additional income to the productive system.

Some management procedures used in the system production are: artificial insemination of heifers at 2 years of age; early weaning in cows of first calving; general weaning in April/May; good parasite control. These facts allowed the following indexes in livestock production in 2003/2004: 70% pregnancy rate; 0.89% of mortality; 32.6% of return rate measured in kg and a production of 129.2 liveweight/ha.

Therefore, Farms 1 and 3 have complete beef cattle production system, but only Farm 3 accomplishes the integration of the beef cattle and rice crop. Farm 2 has as main activity the growing/fattening processes, and integration with crop production occurs through improved pasture (ryegrass and oat), after the cultivation of soybean.

RESULTS

The results will be presented considering gross profit, cash flow and input costs.

Gross profit

The three farms presented an economically positive result at the end of each year. Table 1 displays the values of gross profit obtained in each system, considering gross income minus payments made by farmers.

Table 1 – Gross profit obtained by the three farms.

	Farm 1		Farm 2		Farm 3	
	2003	2004	2003	2004	2003	2004
Annual gross profit (R\$)	15.265,41	14.039,63	173.059,07	116.555,52	88.297,41	137.721,32
Monthly gross profit (R\$)	1.272,11	1.169,9	14.421,5	9.712,9	7.358,11	11.476,77
Monthly gross profit /ha (R\$)	0,98	0,90	15,30	10,44	3,93	6,14

The low value of the monthly gross profit on Farm 1 can be justified by the low modernisation of farm management and extensive herd management. Also, the farm executes a process of reforming fixed assets. Consequently presenting little monthly profit, enough only to finance the variable cost, a small amount of money remaining for farmer personal expenses. Further



observing, that should reflect loss of fixed assets of the farm, as the activity is certainly not covering this cost.

Farm 2 obtained a larger gross profit compared to Farm 1 at the end of two years, in spite of a considerable decrease in 2004. This positive value can be explained by the fact that the farm explores the growing/fattening processes, which do not have the high costs of breeding. Also, the farmer can be efficient in trade (earning through commercialisation differences between buying and selling of steers or discarded cows). The income also receives a great portion of money originating from lease of land to soybean farmer. This also helps to explain the decrease of gross profit in 2004, since remuneration from leased land was smaller than in 2003. Values of monthly gross profit simulated by EMBRAPA (2003), for growing/fattening systems without crop integration are very similar to the ones found here. The simulated monthly value was R\$ 9.33 per hectare (R\$19039.00 / 85ha / 24 months).

Farm 3 also presented positive gross profit. This farm has a complete beef cattle system, but larger profits come from rice crop. The impact of rice crop can be perceived clearly by the difference of the gross profit between 2003 and 2004. As commented earlier in the methodology, 2003 did not have income from rice crop, since it was impossible to cultivate rice in 2002 due to flooding.

Silveira et al., 2002 alerted about small amount of money remaining for farmer personal expenses as a result as little profit per area in beef cattle production systems.

Cash flow

Monthly cash flow allows observation of farm situation throughout the year and not only at the end of the year. This fact is important because each production system has its own economic and biologic peculiarities along the year.

Cash flow for Farm 1 can be observed in Figure 1. The farm had a negative cash flow on 6 months, although these happened in different months each year. This as consequence of climate and market conditions. This situation can be explained by the small amount and range of products originated in the production system: selling of steers, discarded cows and sheep (discarded ewes and lambs) to slaughter. Consequently, the highest positive cash flow occurs in May or June depending on the year.

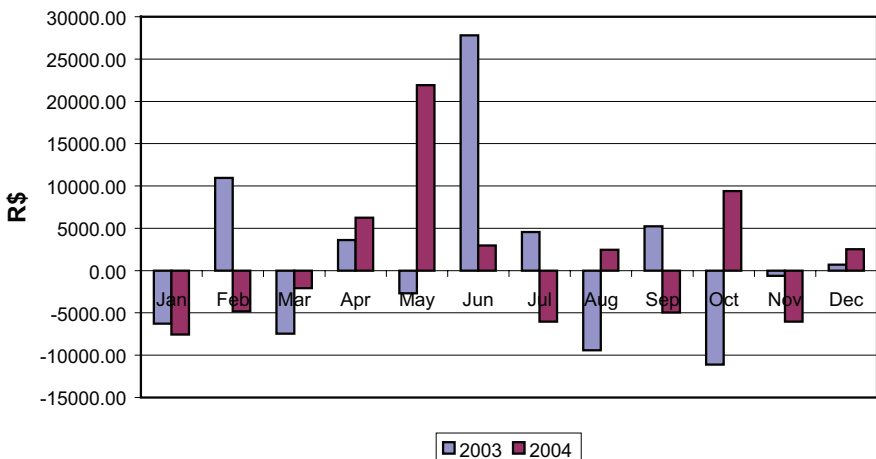


Figure 1 – Monthly cash flow for Farm 1 during the years of 2003 and 2004.

Farm 2 presented 5 months with the negative cash flow in 2003 and 6 months in 2004 (Figure 2). Farm 2 has positive cash flow mainly from August to November. This occurs as consequence of farmer strategy to buy animals mainly in May and June (low prices) and leaving animals in improved pasture and/or supplementation to sell to slaughter from August to November when the meat price is high. Another influence to this strategy is that the farmer needs to clear the land to lease for soybean farmer. Consequently, negative cash flow is presented between June and July and December to April.

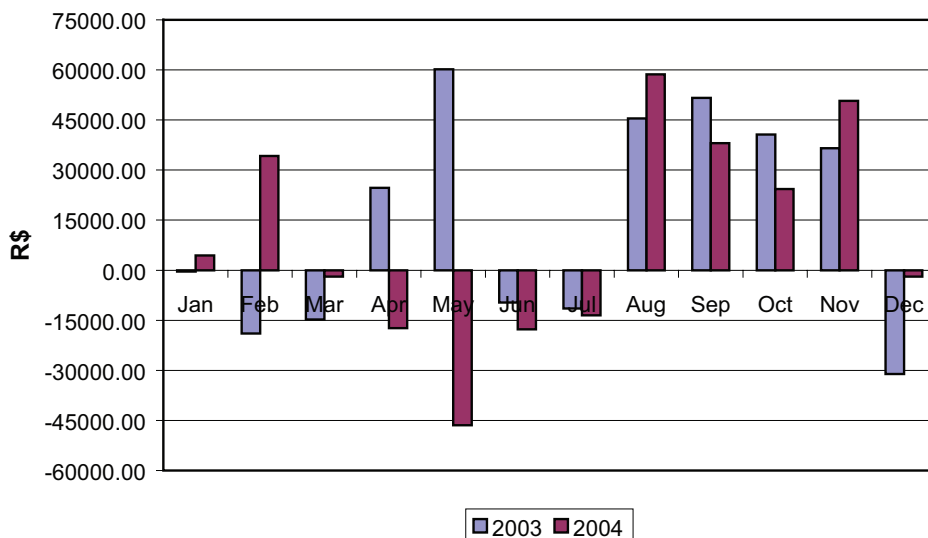


Figure 2 – Monthly cash flow for Farm 2 during the years of 2003 and 2004.

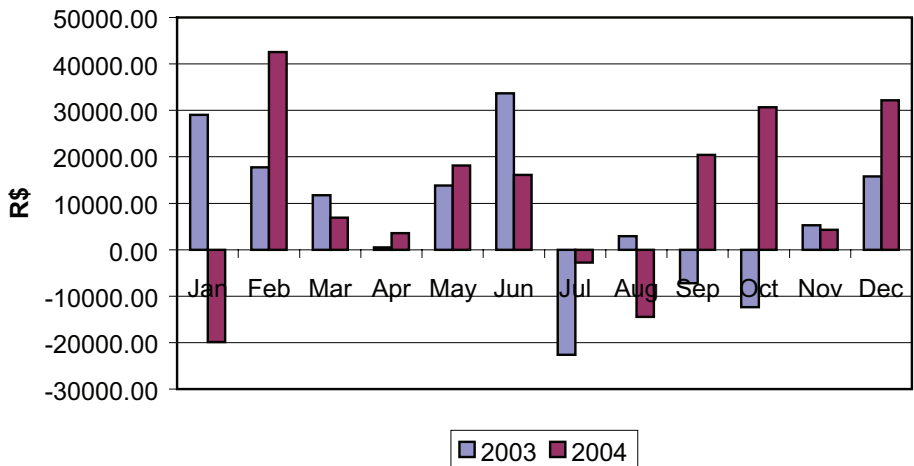
In Figure 3 the Farm 3 cash flow is shown and presents only 3 months of negative cash flow each year. This happens due to the strategy implanted in the farm, estimating the income and output scenarios for the year. This decision make farming less risk by achieving better control over the production processes (HARDAKER et al., 1997). Therefore, the result is a stabilization of the cash flow, distributing the profit along the year. This fact is enabled by the integration between livestock and crops, allowing income from sell of grains that the other properties do not have.

Variable costs

Payments made by each farm were classified per group represented in the Table 1. This classification was created to evaluate the proportion of each group of payment in the total cost and to compare the three different farms. The first group “Employees” includes all the costs of wages, vacations, extra wages, and taxes. “Temporary employee” represents payment to technical and eventual employees. “Veterinary inputs” include all materials destined to control animal disease. Payments made to buy minerals, supplements, and all the costs with improved pasture are considered as “Nutrition”. The costs animal acquisition, freights and sale commissions are included as “Buy and sell animals”. “Maintenance fixed assets” represents the cost of maintenance of fixed assets and “Several Expenses” includes payments with cleaning, human feed, electricity and other products. “Loan payment” considers borrowed money to use direct



Figure 3 – Monthly cash flow for Farm 3 during the years of 2003 and 2004.



or indirectly in the system production and “Lease” represents money spent to rent land. “Fuel” represents petrol and diesel oil. “Rice crop” embraces the total costs of rice production from seed to harvest and also the whole fuel spent in Farm 3.

Farm 1, which develops extensive livestock as complete beef cattle production system, concentrates costs on “Employees” and “Veterinary inputs”. Also, due to lack of appropriate planning, it has higher costs with commissions in the group “Buy and sell animals”, with an elevated percentage of payments. It also observed low expense with nutrition, what contemplates low productive levels (steers sent to slaughter with 4 years). This farm is the only system with a necessity for loans, destiny of about 9% of total payments.

The system production adopted by Farm 2 (growing/fattening) has as main cost “Buy and sell animals” which represents about three quarters of total payments. The low cost with “Employees” results from the fact that family members are responsible for looking after animals. “Nutrition” represents around 10% of cost, what could be explained by the fact that the farmer has to finish the fattening process in order to leave the land to the soybean farmer.

Due to system integration crop-livestock and annual planning, Farm 3 presented cost distributed evenly. The main payment group is the “Rice crop”, “Employees” and “Nutrition”. On comparing Farm 1 and Farm 2, both have a larger cost proportion with “Employees”. However, in Farm 3, a larger expense is observed with “Nutrition”, which allows higher production and consequently better economic results.

Despite system production, the percentage of each group in the total payment remains constant along the two years.

CONCLUSIONS

The results show that without technological modernisation in beef cattle production systems and integration with agriculture, it becomes difficult to remunerate all the production fac-

tors. Planning allows a better income distribution, reducing the months of negative cash flow. However, the low profit per area demonstrates the gravity of the economical situation of beef cattle farmers in Rio Grande do Sul.

BIBLIOGRAPHY

ARBAGE, A.P. Economia rural: conceitos básicos e aplicações. Chapecó: Universitária Grifos, 2000. 305p.

EMPRESA BRASILEIRA DE PESQUISA AGROPECUÁRIA – EMBRAPA. Sistemas de criação para a terminação de bovinos de corte na região Sudoeste do Rio Grande do Sul. Ed.: MORAES, J.C.F.; ALVES, S.R.S. Bagé: EMBRAPA CPPSul, 2003. 84p.

CÉZAR, I.M.; COSTA, F.P.; PEREIRA, M.A. Perspectivas da gestão em sistemas de produção animal: desafios a vencer diante de novos paradigmas. In: REUNIÃO ANUAL DA SOCIEDADE BRASILEIRA DE ZOOTECNIA, 41, 2004, Campo Grande. Anais... Campo Grande: Sociedade Brasileira de Zootecnia, 2004. (CD-ROOM)

HARDAKER, J.B.; HUIRNE, R.B.M.; ANDERSON, J.R. Coping with Risk. Wallingford: CAB International. 1997. 274p.

RIO GRANDE DO SUL. Assembléia Legislativa. CPI DAS CARNES Relatório Final. Porto Alegre, 2003. 764 p.

SILVEIRA, V.C.P.; VARGAS, A.F. da C.; OLIVEIRA, J.O. R.; GOMES, K.E.; MOTTA, A. F. Qualidade da pastagem nativa obtida por diferentes métodos de amostragem e em diferentes solos na Apa do Ibirapuitã, Brasil. Ciência Rural, v. 35, n. 3, p. 582-588. 2005.

SILVEIRA, V.C.P.; VARGAS, A.F. da C.; MARQUES, B. dos S.; MELLO, I. Nova visão para o manejo dos recursos humanos e naturais da APA do Ibirapuitã. In: REUNIÓN DE GRUPO TÉCNICO EN FORRAJERAS DEL CONO SUR, 2002, Mercedes. Anais ... FAO, 2002.