



BRAZILIAN BEEF INDUSTRY AND THE ECONOMY OF NATURAL RESOURCES

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There is a common misperception that the path of growth of Brazilian beef production has been primarily based on the expansion of extensive pastures.

- From 1950 to 2006 productivity gains accounted for 79% of the growth in beef production in Brazil.
- Such productivity gains in beef production provided for a land-saving effect of 525 million hectares in Brazil.
- A significant share of the positive results of the modernization in the beef industry occurred between 1996 and 2006, a period during which productivity increased at an annual rate of 6.6%.

Findings based on official statistics from the Brazilian Government (IBGE) have indicated that the increase in beef production in Brazil has been primarily due to productivity gains.

Firstly it is important to explain how animal production in pastures, the basis of beef production in Brazil, is determined.

Production is obtained by multiplying pasture area with productivity. Productivity, in turn, is the result of stocking rate (head per hectare) times animal performance (animal liveweight gain, kg of carcass equivalent (CE) per head). As an example, consider a situation in which there is 1.08 head/hectare and an average liveweight gain of 40 kg CE/head. If one is multiplied by the other, productivity is 43 kg CE/hectare, which was the value estimated for 2006 using IBGE statistics. Upon multiplying this productivity by pasture area, which in 2006 was 159 million hectares, we find the value for beef production. The result was a significant production of 6.89 million tons of CE. This value is significantly higher than the one recorded in 1970, 1.85 million tons of CE.

What would be the implications of such increase in the supply of beef? A very important one is observed when we analyse historical data on food basket prices from DIEESE, concerning the city of São Paulo, Brazil. The price of meat in June 2010 represented, in real terms, around 30% of the price paid by consumers in November 1973. In forty years this steep decline in prices has made a food item with high biological value available to the poor. In addition, it has attenuated inflationary pressure and, in view of the income effect of demand, especially for people at lower income levels, it has generated positive multiplying effects on other sectors of the economy.

And what were the factors that made this expansion of beef supply possible? The style of development of beef production in Brazil has changed profoundly in the past decades (Figure 1, Table 1). Productivity gains accounted for 79% of the growth in Brazilian beef production between 1950 and 2006; the increased pasture area accounted for less than 21% of this growth. This productivity gain provided for a land-saving effect of 525 million hectares. Therefore, without this land-saving effect an additional pasture area that is 25% larger than the Amazon biome in Brazil would be needed to meet the current levels of Brazilian beef production.

A significant share of this positive result of the modernization in the beef industry took place between 1996 and 2006. In this period, productivity increased at an annual rate of 6.6%, while pasture area was decreased by 19 million hectares. Regarding the specific contribution of the components of productivity, animal performance (kg of CE/head) accounted for 65%, while stocking rate (head/hectare) was responsible for 35% of the gains.

In the Brazilian South, Southeast, Mid-West and Northeast regions pasture area decreased. The factor that sustained beef production growth in the period was the increase in productivity. Even in the North, where pasture area increased, this factor (pasture area increase) accounted for less than 6% of the production growth in the 1996 – 2006 period. The associated land-saving effect in the Northern region exceeded 70 million hectares.

This analysis indicates that the expansion of the Brazilian beef industry was fundamentally based on productivity gains and not on an increase in pasture area. This effort towards modernizing the sector has generated significant socio-economic and environmental benefits to society and it has reflected an important set of factors. The development and adoption of technologies based on science were of overwhelming importance. ■

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Figure 1. Relative growth index (1975 = 100) of Brazilian beef production, pasture area and productivity.

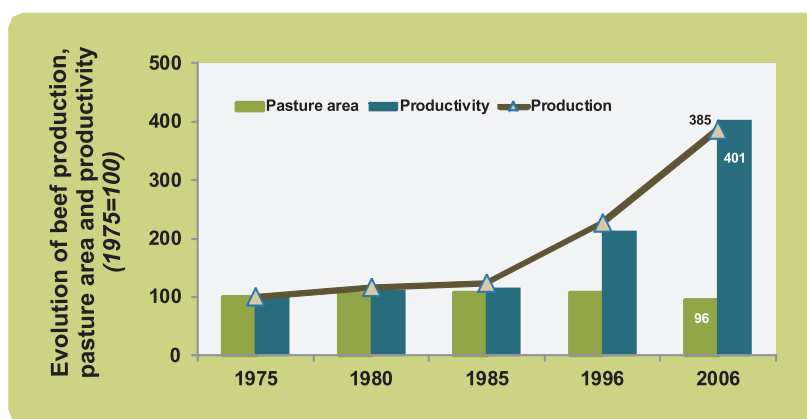


Table 1. Brazilian beef production, productivity and pasture area, 1950 and 2006.

Variable	Unit	1950	2006	Variation
Production	1,000 t carcass equivalent	1,084	6,887	535%
Pasture area	Million ha	107.6	158.8	47%
Stocking rate	head/ha	0.44	1.08	145%
Productivity	kg carcass equivalent/ha	10.1	43.4	331%

Data from IBGE, authors' elaboration.