



Rabobank

Beefing up in Brazil

Feedlots to Drive Industry Growth

Rabobank International

Food & Agribusiness Research and Advisory

Renato Rasmussen
renato.rasmussen@rabobank.com
+551155037485

Adolfo Fontes
adolfo.fontes@rabobank.com
+551155036943

Bill Cordingley
bill.cordingley@rabobank.com
+1 212 808 6838

www.rabotransact.com
www.rabobank.com/f&a

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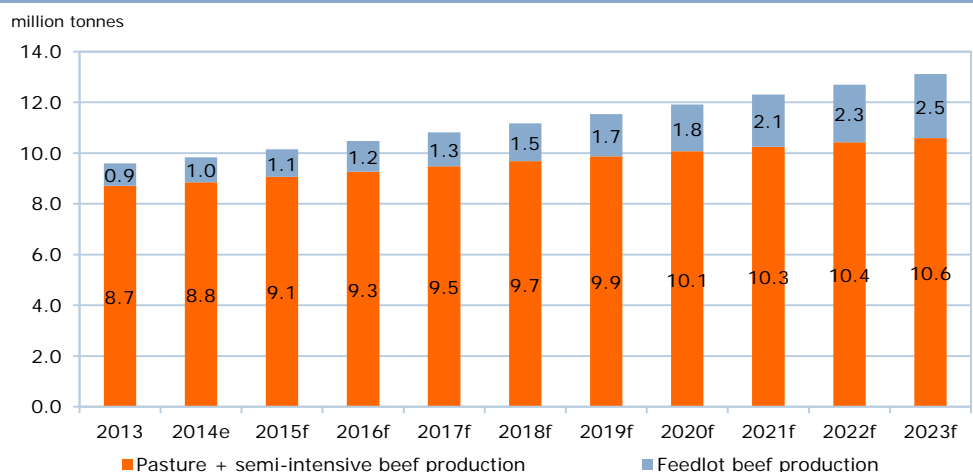
The world needs more beef, and Brazil is set to provide this beef by stepping up the rapid intensification of its production sector over the next ten years. We expect feedlot capacity to more than double to 4.5 million head, turning out over 9 million head of fed cattle annually, increasing fed beef production by approximately 2.5 million tonnes per annum by 2023. This growth will necessitate up to USD 500 million in new infrastructure investment in feedlots alone and will promote a transition in the genetic base of the Brazilian cattle herd towards more cross-bred genetics. The opportunities for Brazilian beef producers, feeders, processors and exporters appear very bright.

Introduction

Brazil is already the world's second-largest beef producer and the largest exporter. However, the industry remains relatively inefficient by global standards, with below-average sector productivity and yield parameters, suggesting significant opportunities exist for improvement. We believe Brazil's beef industry is on the verge of a transformational shift towards rapid intensification, which will help meet growing global demand and achieve more sustainable financial footing for the sector as a whole.

Strong global demand will be an important driver for the transformation of the Brazilian beef industry. However, we believe the increasing emergence and dominance of the Brazilian grains industry, which is expected to provide increasing quantities of relatively inexpensive feed grain for cattle, will be a critical factor in enabling such growth. Increased availability of feed grain will allow the beef industry to gradually improve both productivity and quality, thereby improving cost-efficiency and gradually achieving higher volumes, better quality, more consistent products delivered from Brazilian feedlots (see Figure 1).

Figure 1: Brazilian beef production to grow on the back of increased use of technology, 2013-2023f



Source: Rabobank, USDA, 2014

The world needs more Brazilian beef

The outlook for global beef demand in the next decade is promising, as economic and population growth in developing countries such as China and India—countries with populations of over 1 billion—leads to a dietary shift towards higher-protein content meals. The Organisation for Economic Co-operation and Development (OECD) and the Food and

Agriculture Organization of the United Nations (FAO) have projected global poultry, pork and beef consumption to increase by 17 percent over the course of the next decade, from 287 million tonnes cwe in 2013 to 337 million tonnes cwe by 2023.¹ While beef demand will only grow marginally in the next ten years due to competition from pork and poultry, the global market's ability to supply what is consumed today is already under pressure, and we expect the industry will continue to face pressure and supply constraints in some key regions. This will create a growing opportunity for Brazil to step up as a supplier of high-quality, safe beef products to the global marketplace.

Grain production growth will drive opportunities for domestic feedlot beef

Brazil is uniquely placed to fulfil the global market's growing need for beef. This is largely due to the country's unmatched position when considering the potential for expanding corn and soybean production—the two most universally-used ingredients for animal rations.² The country has dramatically increased its total grain output over the past decade, with combined corn and soybean production increasing from 88 million tonnes in 2004 to about 160 million tonnes in 2014.

However, the dramatic growth in Brazilian grain production has not been matched with like-for-like investments in infrastructure. In fact, as a result of historically scarce investments, Brazil's structural deficiency is not only limited by an overdependence on high-cost transport (plagued by precarious roads and underutilised railways and waterways), but also by shortfalls across nearly every aspect of the logistics chain—from on-farm storage capacity to limited ports for exports—all of which ultimately result in lower profitability for producers.³ While much of the extra grain will inevitably be exported, Brazil's significant infrastructure deficiencies are likely to make export prohibitive for many inland farmers for the foreseeable future.⁴

To put it into perspective: according to the USDA, as a consequence of high internal freight costs in Brazil, transportation costs for moving grains from Mato Grosso—Brazil's most important production state—to Shanghai are about 40 percent higher (USD 180/tonne) than shipments to China originating from the US state of Minnesota (USD 120/tonne). According to the National Association of Cereal Exporters (ANEC), Brazil's average soybean shipping cost has averaged USD 98/tonne over the past three years, which is five-times higher than in the US and considered to be 'the most expensive in the world'.

The situation is further complicated by the fact that most of the grain expansion in Brazil is taking place in more remote areas, especially in the northeast and Centre/West regions. For example, over the past five years, the Centre/West state of Mato Grosso has increased its soybean area by nearly 40 percent to 7.9 million hectares, or an additional 24 million tonnes. However, while the distance to port averages 650 kilometres in traditional production regions in the southeast, most of the new grain areas in Brazil's north and Centre/West are 2,000 kilometres away from coastal shipping points.

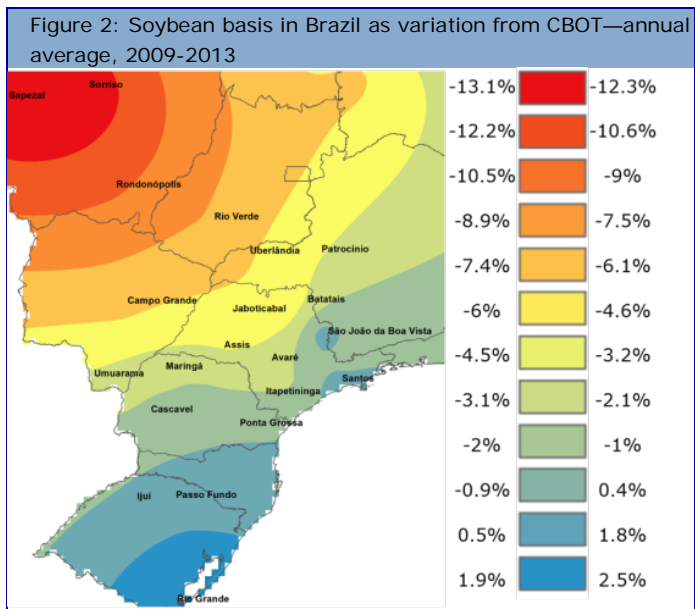
This logistics deficiency has created a tremendous negative spread in basis across the main Brazilian grain producing regions (*see Figure 2*). For example, in Mato Grosso, soybean exports incur average freight costs equivalent to 32 percent, or USD 98/tonne, of total production costs: USD 70/tonne for transportation, USD 18/tonne for port tariffs and USD 10/tonne for demurrage.

¹ The OECD and FAO projections for 2023 were based on linear regression of their projections to 2022.

² In Brazil, cattle feed is typically composed of 35 percent corn and 6 percent soymeal, in addition to concentrate.

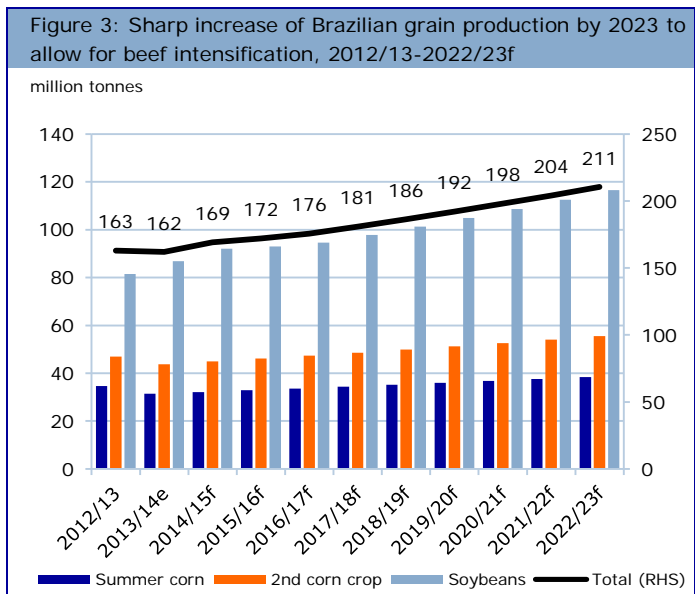
³ Such higher costs are typically referred to as "the Brazilian Cost".

⁴ For more information, see Rabobank's report *The Road To Ruin*



Source: Rabobank, 2014

However, despite this, Brazilian grain production is expected to continue to expand in the coming years (see Figure 3). As a consequence of higher logistical costs (or higher basis), scale and increased returns from land turnover are becoming increasingly important for the survival of Brazilian grain producers, especially on the agricultural frontiers. This condition can be perceived in consolidation trends, especially on agricultural frontiers in Brazil, as producers acquire land in order to increase scale.



Source: Rabobank, 2014

Thus, revenue-enhancing strategies such as double cropping (i.e. two crops in a single marketing year) have become increasingly more relevant for farmers' profitability. It is no wonder that, according to data from the Brazilian National Food Supply Agency (CONAB), since 2003, the amount of grain land in double-cropping has increased sixfold, to 21.7 million acres, or 43.2 million tonnes.

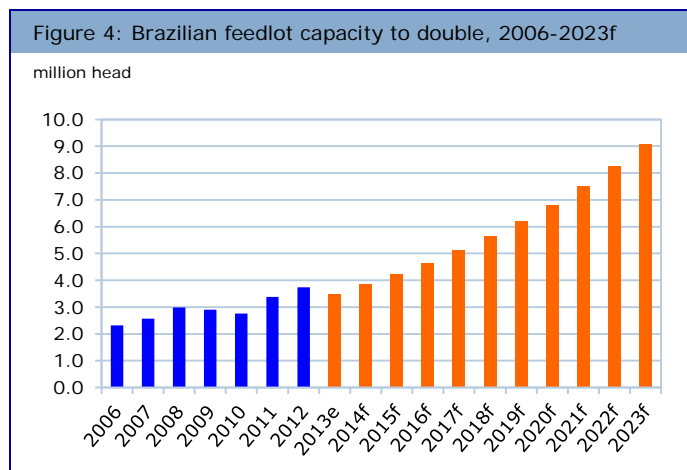
To put it into perspective, the double-crop harvest now out produces first-corn volumes (estimated at 34.8 million tonnes), which are largely used by the domestic market. The growth of the 'safrinha', which is largely targeted at exports, has made Brazil a corn exporter equivalent to the size of the US in the November-to-December window. However, given corn's lower value per tonne compared to soybeans, it is much less cost-effective to transport long-distances by road to export ports in Brazil. As such, it is more-effectively used in domestic feed rations—with the resulting beef, pork and chicken being much more cost-effective to export than corn. Given the dominance of corn in feed rations, there is a compelling driver for this 'trapped' corn to be directed into domestic intensive beef production, in order to create added-value in Brazil.

Brazilian feedlot capacity will double in the coming decade

Historically—but especially throughout the past decade, in the wake of soaring domestic demand and growing exports—the Brazilian beef sector has benefited from abundant grazing land for calf and grass-fed beef production, which has enabled strong growth in Brazil’s output. However, we see increasing challenges for this position in the current context of growing pressures for environmental sustainability and fierce competition for agricultural land area from grain crops, along with, perhaps more importantly, the need for scale in order to compensate for high basis (and, thus, lower margins), especially for more remote farms. As a result, major changes are expected in beef cattle management and nutrition, with producers firmly gravitating towards more intensive production systems. Expansion in grain production areas will continue, forcing Brazilian cattle breeding and finishing into less-productive pasture zones. According to several studies, including those published by the Brazilian Agricultural Research Corporation (EMBRAPA, a research institute affiliated with the Brazilian Ministry of Agriculture, Livestock and Supply), at least half of Brazil’s pasturelands currently suffer from some level of degradation. As a result, we expect pasture-based beef production in Brazil to face significant efficiency and growth constraints, despite improving genetics and management efforts across the industry.

The answer to Brazil’s need to grow beef production is the intensification of the finishing stage through beef cattle feedlots. This intensification will see overall beef production grow at 3.2 percent CAGR over the next decade, despite the challenge to pasture-based production from increased grain acres. Given the likely conversion of large amounts of cattle pasturelands into grain production areas, the trend towards beef feedlotting is welcome, and needed. In addition, feedlots—as well as other higher-technology beef production systems—will allow cattle to be slaughtered younger and heavier, resulting in increased yields and productivity, as well as improved product consistency and quality.

Currently, less than 10 percent of Brazilian beef is raised in feedlots. It is clear that there is a lot of room to improve slaughtering and stocking rates through better technologies throughout the value chain.⁵ Thus, intensification is the name of the game for the future development of the Brazilian beef industry. As a consequence, while we have seen an average annual increase of approximately 7 percent in the confined herd in Brazil over the past nine years, Rabobank expects that by 2023 the average annual growth rate will reach 10 percent, amounting to 9 million confined head (see Figure 4).



Source: Rabobank, 2014

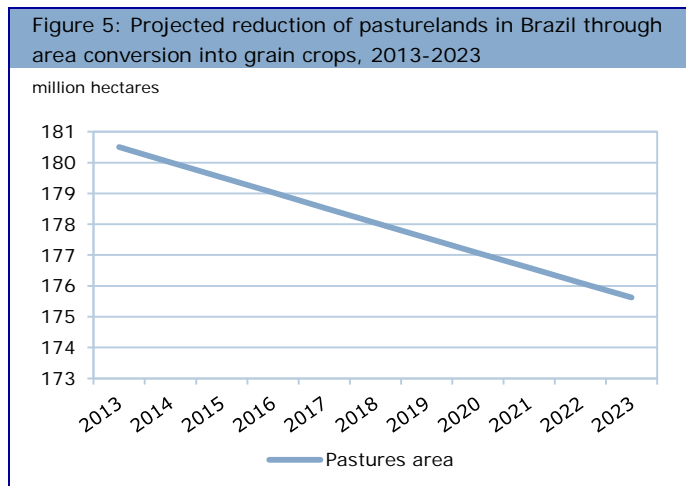
If we assume a cattle turn ratio of two turns per year on average, we can estimate that one-time feedlot capacity will reach 4.5 million head in Brazil by 2023, up from today’s one-time capacity of 2 million head. This would mean Brazil will slaughter approximately 9 million head of lot-fed cattle in 2023, with an average live steer weight of at least 500 kilogrammes, generating 2.5 million tonnes (carcass weight) of lot-fed beef, over double the amount produced today.⁶

This would result in about 4.8 million hectares of pasturelands being freed up for conversion into grain areas by 2023 (see Figure 5). Consequently—assuming that the corn daily intake in feedlots is around 4 kilogrammes per head and 0.5 kilogrammes per head for soymeal, along with a daily intake for semi-confined cattle of 2.5 kilogrammes per head for corn and

⁵ It is worth mentioning that, between the most intensified system and the traditional extensive system, beef producers have several other options, such as semi-confinement systems.

⁶ Considering 55 percent carcass yield

0.4 kilogrammes for soymeal—we estimate 4.4 million tonnes of corn and 0.6 million tonnes of soymeal to be needed in the coming ten years.

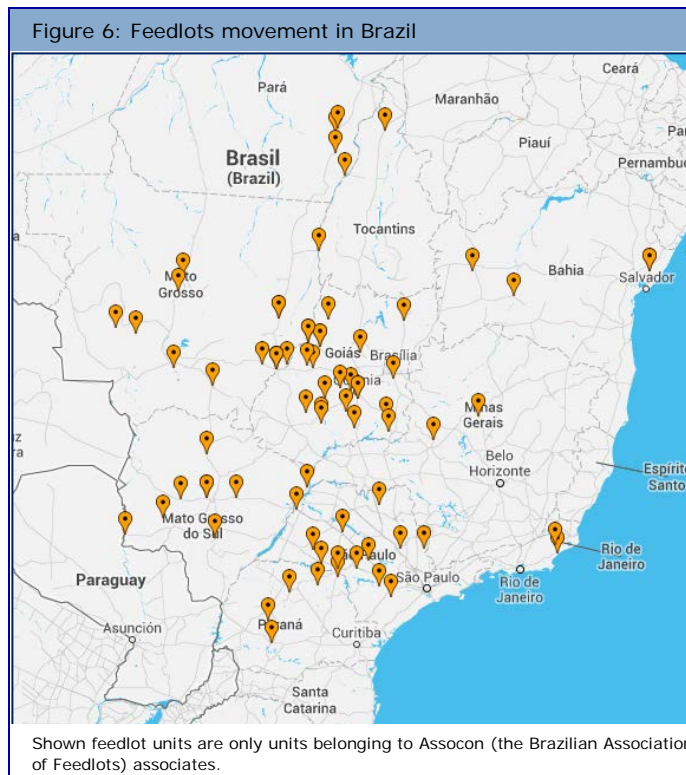


Source: Rabobank, 2014

Simultaneously with feedlot production systems, other types of systems with better rates of productivity, such as the integration between pasture and agriculture and semi-confinement, will also allow Brazil to increase beef production considerably in the coming ten years. Thus, throughout the next decade, Rabobank expects Brazil's yearly beef exports and domestic consumption to increase sharply, at a projected annual growth rate of 7 percent and 2 percent, respectively.

USD 250 million to USD 500 million will be invested in new feedlot capacity by 2023

Rabobank estimates the total investment needed to increase the current feedlot capacity by 2.5 million head to be near USD 250 million to USD 500 million. In addition, the demand for low-cost grain tends to trigger a movement of new confining units closer to major agricultural producing areas (see Figure 6).

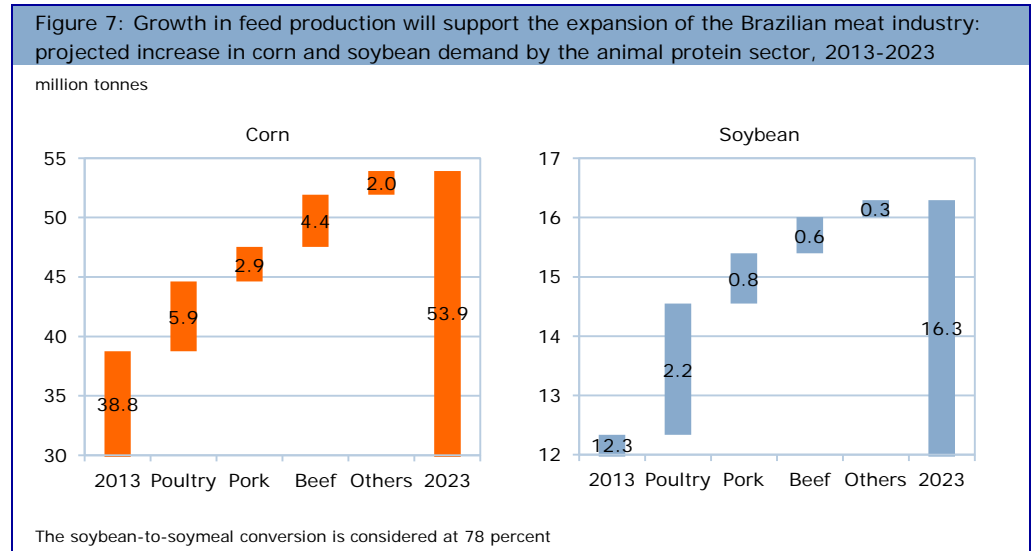


Source: Assocon, 2014.

Naturally, international prices and producers' margins will be key for the development of this outlook. However—given the outlook for global meat demand is indubitably promising for the next few years, and increasingly larger volumes of grains will be needed to attend

for rapidly-growing demand—we expect Brazil to continue playing an increasingly important role in supplying food and feedstuff to the international markets.

Given the aforementioned dynamics, additional annual grain demand coming exclusively from growth in feed production is projected to near 19.1 million tonnes in 2023. As a result, Brazil will need to increase its yearly corn and soybean production over the next decade by 15.1 million tonnes and 4 million tonnes, respectively. It is important to mention that this projection is not only about beef; poultry and pork production will also increase in the coming ten years, and will demand grain as well (see Figure 7).⁷



Source: Rabobank, 2014

Who will build the feedlots and produce the beef?

Given the scenario of better margins for beef producers in Brazil, feedlot activity will attract more investments—not only from current producers who plan to expand capacity, but also from producers who are now in other activities with lower profitability expectations. In that regard, in the next two years, we expect a large number of grain farmers to utilise animal feeding as a means of adding value to their grain. This is especially so given the expectation for international grain prices to remain under pressure due to increased production in regions such as the US and China.

While the competitiveness of a country as a producer and exporter of animal protein depends on its ability to source grains for animal feeding, Brazil has the clear potential to support the expansion of its meat sectors while continuing to increase exportable grain surpluses. These strengths, allied to the expected changes in productivity and quality in the Brazilian beef industry, will help Brazil to increase its presence in higher-value export markets such as Japan, Korea and Europe, which are currently dominated by the US, Australia, New Zealand and Uruguay.

Moreover, the need for producing higher-quality lot-fed beef to suit higher-value markets will obligate Brazilian producers to adapt the herd. Different genetics—in terms of a cross-bred dual-purpose animal that both performs well in tropical conditions, but possesses enhanced feedlot performance and eating quality traits—will be an important development. Indeed, this transition is already underway. The Brazilian Association of Artificial Insemination (ASBIA), has already shown this in its numbers for 2013. The latest data indicated that Angus (Black and Red) semen sales were already higher than Nellore's: 42.8 percent and 35.6 percent of the total, respectively.

The process will also be well-perceived by Brazilian domestic consumers, as it is set to result in higher quantities of high-quality and tasty meat. However, increased exposure to the international market—considering a big part of demand is expected to come from exports—can pose a problem. If some unexpected issue (such as an embargo against Brazilian beef) were to arise at some point in the future, producers may find themselves all too exposed. Going forward, diversification of consumer markets (i.e. increasing the number of destinations instead of relying on few large destinations) will be essential for a healthy

⁷ A report on these dynamics is expected for Q4 2014.

development of the Brazilian animal protein industry. Moreover, sanitary control will become increasingly important.

In addition, for the success of this development, the Brazilian beef production chain will need to mature in terms of its overall organisation. It is arguable that a lack of integration between the many segments comprising the production chain can limit the ability of the market to develop more quickly.

Still, the great prospects for the Brazilian beef feedlot market are certainly achievable; actually, the market is ready to take off. A lot of investment will be required, but the huge potential of the Brazilian beef industry will need to be used to meet future beef demand on a global scale.

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