

Buruti project boosts Perdigão

Brazilian integrator Perdigão exported 165% more pork last year than in the year 2000 and 20% more chicken. Their large new integrated Buruti project at the town of Rio Verde in the state of Goiás in Brazil's Centre West contributed largely to this impressive increase.

By Patrick Knight

Brazil's second largest producer of poultry, pork, and processed meats, Perdigão, made record profits of US\$73 million last year, more than double those of 2000. This was mainly because it was able to export 280,000 tonnes of chicken and pork, as well as more processed foods containing meat.

Farmers raising chickens and pigs are supplied with meal from a 60,000 tonnes per month capacity feed mill, one of the largest in the world. Chickens and swine began to be slaughtered at the end of 2000, and the Rio Verde plant was able to increase production steadily during last year, as the growing number of farms entering production began to send livestock to be processed as the year progressed.

It had not originally been anticipated that much would be exported from Buriti, in the initial stages at least. It was envisaged that the plant, much nearer to the fast growing markets in the northeast and the centre west than the traditional chicken and pig farming



Perdigão's complete feed plant with a capacity of 120 t/h is part of a food complex with a total investment of US\$ 250 million. Located in the background is the cereal intake with drying facility and storage in large silos. On the right hand side the boiler house can be seen and behind it the flat storage facility for soy extraction meals. In the centre is the feed production plant with bulk load-out tower. On the left a premix plant is incorporated with a capacity of 5 t/h. (Photos: Bühler)

and exporting states of the south, would mainly supply the domestic market.

By early this year, almost 200,000 chickens, and 2,300 pigs were being slaughtered each day at the Buriti plant. They arrived from 350 barns, grouped in modules of four, each one housing 24,000 birds, and from about 150 pig fattening units, where four barns in the standard module each house 1,000 animals.

By the end of this year, when the Buriti plant will have attained full capacity, 280,000 birds and 3,500 pigs will be being slaughtered each day. Some 85% of the chicken now being produced at Buriti is exported.

Because such a high proportion of pork is converted into processed products sold on the domestic market and only half carcasses and cuts are exported, the proportion of the pork produced for export is much lower than that of chickens.

Massive feedmill

By the end of this year too, the 60,000 tonnes a month capacity feed mill, a turnkey project built by the Swiss Bühler company, will also be operating at close to full capacity. By then, the two lines at the mill will each be producing about 2,000 tonnes of up to 15 different mixes each day.



Pelleting: Four of these pelletmills are installed with a capacity of 30 t/h each, equipped with double conditioners including the surface heating system to reduce contamination and lower the bacteria count.



o's performance



Grinding: Six vertical rotor mills, each equipped with a heavy particle separator and feeder, are divided into two groups to feed into the mixing lines. The set-up allows maintenance of each individual rotormill while all the others remain in operation.

At the moment, about 30,000 tonnes per month of a range of meals are now made at the mill, which supplies exclusively farmers under contract to raise animals for Perdigão.

Feed is also delivered to the specialised units where broiler breeders (to supply 1.5 million day old chicks weekly), sows (25,000 expanding to 35,000) and boars (100) are housed, although the owners of such units are not obliged to buy their meal from the company.

The new mill at Rio Verde will soon be producing almost 30% of Perdigão's total output of meal products, which exceeded two millions tonnes last year, 300,000 tonnes more than in 2000.

Crop growing area

One of the main reasons for Perdigão locating its new plant in the Centre West, is that although Goiás state is one of Brazil's leading producers of soybeans and maize, there is no local market for these grains. Virtually all of the grains grown there are taken by truck either 1,000 km or more to ports such as Santos or Paranagua, or in the case of most of the maize, to other parts of the country where demand for the grain is greater than supply. This is increasingly the case in the three states of the south, until now responsible for virtually all Brazil's exports of chicken and pork.



Micro proportioning unit: The micro-dosing unit has incorporated a scale of 50kg and is equipped with 20 silos (each 0.8 m³) for the automatic addition of premixes to the main mixers.

This means that grains, which are responsible for 70% of the cost of producing chicken and pork in Brazil, cost very much less in Goiás than in most other parts of the country. This is particularly true of maize, which because of its bulky nature, cannot be taken long distances economically by road.

Large storage capacity

Mill technician Jose Roberto says that 5,000 tonnes of soy meal can be held in a warehouse adjacent to the mill, equivalent to a weeks needs and 40,000 tonnes of maize, about a month's consumption, can be stored in eight vertical silos each with a 5,000 tonnes capacity.

Stocks of pre-mix and other additives, most of which have to be brought from manufacturers in Sao Paulo state, are also held on site. Soy meal cannot be stored for more than a maximum of 60 days before starting to deteriorate, says Roberto. "This obliges us to buy supplies of the product regularly right through the year, even at time when crushing mills shut down for maintenance and the price rises."

But it is able to store large quantities of maize. Apart from that held on site, more is kept in other warehouses within a radius of about 100 km of the mill, and brought to supplement what is held on site when it is needed.



Regional focus

Two crops per year

There are two maize crops annually in Brazil. The main one is planted in the spring months of September and October, so the grain ripens during the hot, rainy season and most is harvested in January and February. This main crop varies between 25 - 28 million tonnes, and is responsible for the most of the 24 million tonnes of maize which was used for making the 39 million tonnes of animal feed manufactured in Brazil last year.

Winter crop maize is planted as soon as possible after the soy is harvested on a much smaller area, in about February and March. The winter crop usually totals about six million tonnes, although drought can reduce that amount significantly.

This crop ripens during the dry season, so is less susceptible to fungus, which can affect main crop maize and cause problems with some animals. For this reason, the feed producers prefer winter crop maize, particularly, because of the risks to what are Roberto's most difficult customers, piglets and weaners.

Roberto says that although some sorghum can be used in place of a proportion of maize in the meal supplied to chickens, pigs do not like it.

Chickens are not in the least fussy, and will normal-

ly gobble up all they given, preferring the largest possible particles, he says. But persuading piglets to eat everything they are served with, particularly in the first few weeks of life, is a real art. Aromatics such as sugar, chocolate, soymilk and dried milk are amongst additives included in mixes, some of which have been developed by Perdigão.

Only pelleted products

The key to the financial success of farmers, who themselves have to put up the capital needed to build and equip the poultry and pig houses, is achieving the maximum conversion rate possible. Achieving above or below the target rate can result in farmers being paid 10% more or less for the animals they deliver to Perdigão. This means that farmers are at least as interested as the company in ensuring that animals like what they eat.

And in particular that they consume all of what is delivered to them, so that waste and consequently costs are kept to an absolute minimum. Mainly to keep waste to a minimum, the Buriti mill makes exclusively pelleted products, and extruders and expanders are not utilised there.

Roberto says because all ingredients are ground up

Lower production costs assist Brazilian companies

Brazil's three leading meat-processing companies Sadia, Perdigão and Seara are among the toughest competitors of US giants ConAgra, Tyson Foods and Smithfield on the international market. This is the result of the low production costs in Brazil. However, the multinationals enjoy broader gains from scale and lower operating and financial costs than their Brazilian rivals.

Land prices and lower costs of inputs give Brazilian companies the competitive edge. This attracts foreign companies to the country. Brazil's high interest rates on loans of nearly 28% for six months, is one of the main setbacks for local companies, say analysts.

In 2001, the depreciation of the local currency, the real, helped Brazilian meat processing companies to raise their exports. Shipments of poultry increased 38% from 2000 to 1.25 million tonnes. Brazil is the world's second ranking poultry exporter, behind the US, which shipped 2.6 million tonnes in 2001, an increase of just 2.7% from the previous year.

Table 1 - Brazil: leading ingredients and total production, '000 tonnes

Ingredient	2002*	2001	2000	1999	1998	1997
Maize	25,685	23,948	21,698	20,304	19,005	17,952
Soy meal	8,326	7,772	6,794	6,378	5,938	5,611
Wheat meal	2,406	2,213	1,943	1,786	1,709	1,602
Meat meal	1,573	1,469	1,334	1,255	1,665	1,103
Pre-mix	93	87	77	63	69	65
Others	3,612	3,323	2,925	2,721	1,951	2,345
Total	41,695	38,812	34,771	32,507	30,337	28,676

*) 2002 figures estimates

Table 2 - Usage by main consumers, '000 tonnes

Type	2002	2001	2000	1999	1998	1997
Broiler chicken	19,100	18,046	16,866	15,180	14,713	13,889
Laying hens	13,090	12,050	10,085	9,425	9,400	8,950
Cattle	3,290	2,928	2,469	2,069	1,958	1,780
Pet food	1,300	1,172	1,000	950	640	550
Fish food	195	162	127	99	80	60

Source: National Association of Feed Manufacturers



together and mixed in a homogenous manner to form pellets, this ensures that the animals eat all what they are supplied with. If the ingredients are supplied separately, animals have a tendency to select only what they prefer. Often leaving those ingredients that are nutritionally most important on one side.

Weighing before grinding

Meal is produced in 40 tonne batches, and in contrast to the practice normal at the other five feed mills that Perdigão operates in the South of the country, the ingredients are all weighed before milling. They are then all ground up together, which ensures particle sizes are homogeneous.

In the earlier generation mills, ingredients are ground separately, then weighed and mixed. But milling after the ingredients have been weighed and mixed, avoids the need to keep intermediate stocks. Given the large amount of feed produced daily, this would cause storage problems at the Buriti plant.

Four computers, programmed to select the appropriate proportion of each major ingredient, as well as the premix, control all operations at the mill. "We can make up to eight different formulas at any one time and we can make 30 different formulas in total," Roberto adds.

Once blended, the meal is combined with water and is steam heated to a temperature of 80 - 85 degrees centigrade for between 5 - 6 seconds, before being cooled down again. This process does not cause any damage to any of the ingredients, says Roberto.

In contrast to conditions in most of the countries where Buhler mills operate, where animals, particularly pigs, prefer their meal to be on the dry side, the very high temperatures common in the centre west of Brazil mean that animals prefer meal to be delivered together with a much higher moisture content than is normal elsewhere. To accommodate this, modifications had to be made to delivery systems on farms, which are all controlled by computer.

26 tonnes delivery

Once mixed, feed is now being delivered in 26 tonnes loads to more than 100 separate farms, virtually all of them within a 100 km radius of the Buriti plant. Many of them are much closer than that, so transport costs can be kept to a minimum.

Orders are received from farms in the afternoon of



Main mixing: This is one of the main mixers with a usable volume of 8,000 litres and actual batch sizes of 5,000 kg, including liquid addition with swivel type spray bars and liquid scales for the preparation of the liquid mix.

one day, the feed is made and dispatched in one of a fleet of 90 trucks during the course of the following day.

Roberto says that all ingredients are tested for quality on arrival at the mill, and samples of product are also taken as it leaves. Great care is taken in ensuring that the trucks delivering the meal are kept clean, inside and out. This is part of the scrupulous attention paid to ensuring that levels of hygiene in all parts of the Buriti plant remain at the highest levels.

Further expansion

The number of properties on which animals are raised will have increased to 160 by early in 2003 where 90 of them will be raising chickens in a total of 480 houses, while 70 properties will be fattening pigs, housed in 280 barns by the time the project is operating at full capacity.

A second stage may be built at a later on at Buriti, which according to the factory manager, Mario Carnero, is meeting all the financial and other targets set for it. This would involve installing a third line at the feed mill, taking its monthly capacity to about 105,000 tonnes. If the plant will be expanded, and it is early days yet, several more silos for the storage of maize would also have to be built. ●