



Galo (Cock, 1978)
Acrylic on canvas
by prize-winning
Brazilian artist
Aldemir Martins
(1922-2006), whose
work was much
inspired by this
fowl and its long-
standing presence
in Brazilian culture.

**BRAZILIAN CHICKEN: QUALITY,
SUSTAINABILITY AND LEADERSHIP**

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Cover:
Acrylic on canvas
33.5 cm x 22.5 cm
Galo (Cock) – 1978
By: Aldemir Martins
Reproduced from the book
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A MESSAGE FROM THE PRESIDENT

BEYOND LEADERSHIP



Francisco Turra, Executive President of the Brazilian Chicken Producers and Exporters Association

Brazil became the world's biggest exporter of chicken meat in 2004, and today no less than 40% of international trade in this important source of animal protein comes from Brazilian aviaries and meatpackers. This year the country will produce 11 million tonnes of chicken meat, one third of it for export.

Brazilian chicken meat is now present in over 150 markets and important new customers like China are about to join the list, so adding over a billion potential new consumers.

A combination of important factors has led Brazilian chicken to become the most traded in the world. The country enjoys what might be called ideal conditions for poultry production: a climate without great variations in temperature, massive fresh-water resources and an abundant supply of maize and soy, the two grains that form the basis of chicken feed in Brazil.

The natural environment is extremely favorable for Brazilian poultry farming, and in return the sector makes sure that it is properly protected. Expansion of poultry in Brazil has not in any way jeopardized the Amazon Forest or any other of the country's natural riches.

Brazil's global leadership is also based on its production system, which integrates producers and meatpackers. Poultry breeders receive full support and guidance from the major producing companies with respect to aviary installations and equipments, bird handling and veterinary accompaniment.

Animal welfare is also a priority for the sector. In addition to following recommendations laid down by the Farm Animal Welfare Council, the Brazilian Chicken Producers and Exporters Association (ABEF) also has a cooperation agreement with the World Society for Protection of Animals (WSPA).

Besides ensuring the quality of chicken production throughout the country, this system guarantees high sanitary standards. Brazil is the only country among all major world producers and exporters that has never had a single case of avian influenza.

Aviaries and meatpackers adopt rigid biosecurity access procedures, while the Brazilian government – in addition to all the traditional poultry controls – in 2003 adopted the National Plan for Prevention of Avian Influenza and the Control and Prevention of Newcastle Disease, which included measures such as the modernization of laboratories.

Integration between Brazilian producers and meatpackers also includes adoption of all international quality processes and certifications.

However, there's much more to Brazil's chicken export industry than just a combination of high quality, excellent sanitary control and leadership of the world market. The sector invests heavily in sustainable development, with Best Practices for the environment and the communities where it operates.

All this gives us complete confidence that Brazil will continue to supply the world's most demanding and rigorous markets with sustainably produced chicken meat.



2008

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THE ROOTS OF SUCCESS

QUALITY, SANITARY CONTROL AND A COMPETITIVE PRODUCT EXPLAIN WHY BRAZIL IS THE WORLD'S LARGEST CHICKEN MEAT EXPORTER

BY JOÃO CARLOS RODRIGUES

Brazilian chicken meat has found favor with consumers the world over. Today, Brazil is the world's largest exporter of chicken meat, supplying roughly 40% of the global market. Brazilian chicken is eaten in over 150 countries and on all continents. The Brazilian Chicken Producers and Exporters Association (ABEF) estimates that chicken meat will close out 2008 with exports of no less than US\$7 billion, up by an impressive 40% over the 2007 level.

It's not by chance that Brazil is now sitting atop the world rankings for poultry exports. In addition to a modern, sophisticated and efficient productive sector, with excellent sanitary control over bird flocks, the country enjoys a series of comparative advantages that make it unbeatable in the dispute for world markets: a huge amount of available land; abundant water; the high incidence of sunshine and a ready supply of maize and soy, the two basic grains from which chicken feed is made. All this adds up to making Brazilian chicken meat an excellent quality product that has won international recognition.

Brazil's poultry presence in the international market has shown extraordinary growth since the second half of the 1990s. Between 1997 and 2007, according to data from ABEF, the country's chicken meat exports grew by more than 400% in terms of value and volume. In 1997, for example, the country's chicken meat exports totaled US\$884 million, for 651,000 tonnes shipped. Last year they earned the country US\$5 billion on a volume of 3.3 million tonnes.

ABEF expects that Brazil's chicken shipments will grow a further 40% in 2008, compared with 2007. This expect-

ation is based in part on the results of the first half. From January through June, the country exported 1.8 million tonnes of chicken meat, earning US\$3.3 billion. There was growth of 19% in the volume shipped and 57% in the dollar value compared with the same period of 2007. The association further expects that new markets will become available, in particular China and Chile, and this could contribute to efforts to increase the foreign sales of chicken meat to US\$7 billion.

Brazilian chicken meat shipments are destined to virtually the four corners of the world, showing just how widely the product has gained acceptance in different markets.

The excellent results obtained by the chicken exporters – further reinforced by the growing demand from emerging countries and the opening of new markets – suggest that Brazilian poultry faces a promising scenario that will extend beyond just the short term. Projections by various international institutions suggest that chicken meat will be one of the fastest growing global markets in the coming years. This means that the country must make an additional marketing effort to promote the "Brazilian Chicken" brand in places that are not yet customers.

"Brazil faces a challenge to prize open markets such as Mexico, India, Malaysia and Indonesia and to consolidate others such as China, which has now approved 22 Brazilian meatpackers to export to them," said ABEF president Francisco Turra, a former minister of agriculture and supply. Currently shipments to China go only to Honk Kong, but the Brazilian poultry industry has plans to expand sales to the entire country. Turra said he believes this will be possible because Brazilian chick-



Aviary in Santa Catarina, in the South of Brazil: ample space ensures birds' health and welfare

en has become "fashionable around the world."

Célio Porto, the secretary for international agribusiness relations at the Ministry of Agriculture, Livestock and Supply, said the government and the private sector are negotiating to open the Malaysian market and to consolidate access for Brazilian chicken meat to the Chinese market. "China wants something in return. With the Malaysians we are hopeful of making significant progress by the end of this year," Porto said, referring to the ongoing negotiations.

As the world's third largest produc-

er of chicken meat, Brazil appears to be on track to end 2008 with production at a new record of 11 million tonnes. Estimates for the sector's growth range between 6% and 8% through 2009. In addition to the growth of demand in the international market, there has also been growing domestic consumption, which now exceeds 37 kilos per inhabitant per year. Brazil consumes roughly 70% of all the chicken meat it produces.

The great success of Brazil's poultry sector, reflected by the solid numbers of its performance in the external market, is based on the excellent

conditions that the country offers for this kind of activity. With a surface area of more than 8.5 million km², one third of the world's available fresh water and a tropical climate, Brazil enjoys all the conditions required for a cutting-edge poultry sector. "We have land, water, sun, maize and soy," said Christian Lohbauer, the executive director of the ABEF.

The growth of the market has also been based on another important factor: the development of an integrated production process. Under this system the producers are responsible for rearing the birds, which go to the

processing companies only at the right moment for slaughter and for their meat to be processed. In exchange, the companies provide the poultry farmers with day-old chicks and complete technical assistance – from chicken feed to medicines.

“Integration is a kind of improved cooperative system, representing a union between the capital of the companies and the labor power of the producers,” said Turra. Thanks to the integrated production system, the producer enjoys a guaranteed market for his birds. The integrated system, explained Lohbauer, allows for large-scale poultry production. This in turn makes it possible for Brazil to fully supply its domestic market and produce an increasing surplus for export.

This model proved to be so successful in the poultry sector that it was also adopted by hog farmers, and then later by producers of tobacco, tomatoes and grapes. “Under the integrated model, the farmer who works better earns more. If he doesn’t, he ends up losing money,” Lohbauer said. Today, Brazil has thousands of integrated producers, in particular in the states of the South and Center-West, focusing mainly on the commercial production of poultry. They are part of a contingent of four million people who work in the poultry sector in the country.

The growth of Brazilian poultry exports has also been spurred by the demonstrable sanitary excellence of the bird flocks. The good health of birds reared in Brazil is to a large extent due to the National Poultry Health Program and the National Plan for Prevention of Avian Influenza and the Control and Prevention of Newcastle Disease. Given the vast size of the country, it’s important to have rigid control over the movement of birds, so that measures can be taken rapidly for isolation should any situation of risk arise.

The Brazilian poultry sector works in partnership with the Ministry of

Agriculture to maintain the high sanitary levels of chicken flocks. The ministry acts energetically in programs to monitor epidemics and sanitary standards to prevent the main avian diseases. Any abnormal situation is notified immediately to the World Organization for Animal Health (OIE).

According to Regina D’Arce, coordinator of avian health at the Ministry of Agriculture, the National Poultry Health Program provides for various activities in the area of sanitary vigilance. Among them are: the control and monitoring of the transportation of susceptible animals; carrying out on-the-spot epidemiological investigations in cases of disease outbreaks; inspections at ports, airports and frontier posts; sanitary inspection of breeding stock for certification of breeding centers and poultry farms as free from Salmonellosis and Mycoplasma infection; and monitoring of migratory birds.

While the country is free from avian influenza and Newcastle disease, Brazil nevertheless undertakes

permanent monitoring and control measures in poultry breeding and marketing establishments. Companies must for example be registered with the local veterinary control units at the state service of animal sanitary protection. Additionally, companies must follow hygiene, sanitary and biosecurity recommendations laid down by the ministry.

The country’s competitiveness in the international market is also sustained by the respect achieved by the national poultry industry. Today, according to the executive director of the ABEF, Brazil has more than 33 companies exporting chicken meat, and 25 of these are members of the association.

Despite having an extremely competitive, organized and professional poultry sector, Brazil still faces difficulties in seeking to expand its presence in the international market. This occurs because of protectionism in some markets, where there are still high import tariffs and other instruments of commercial protection.

FOCUS ON SUSTAINABILITY

The Brazilian poultry industry is modern and efficient, with a supply chain comprising companies that are concerned about the sustainability of their activities. Together with Best Practices for production, which range from hygiene norms to animal welfare, taking in nutrition and sanitary control, the sector has another area of concern: environmental preservation.

The ABEF is a member of the Institute for Responsible Agribusiness (ARES), an exclusive initiative of the Brazilian agribusiness sector which takes as its mission promoting sustainable development, respecting the environment, respecting the rights and wellbeing of people involved in the production process, and of course respecting the rights

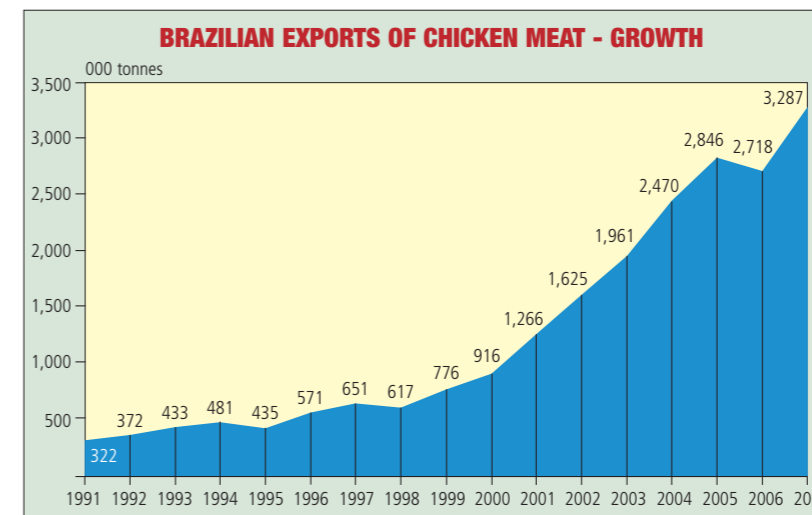
and wellbeing of consumers all around the world.

Sustainable poultry production also counts with support from the Ministry of Agriculture, Livestock and Supply. Ministry technicians have created sustainability solutions for the poultry sector. This year, for example, the ministry allocated R\$1 billion – over half a billion dollars – to financing projects of producers that adopt sustainability programs created by the ministry.

Among such actions, one highlight is the Program to Encourage Production of Food Safe for Human Consumption. The goal is to encourage adoption by integrated producers of practices and techniques that improve their use of land and water, at the same time reducing environmental impacts.



Maize: Brazil is one of the world’s leading producers of grains, the main ingredient in bird feed



“In the case of the European Union, for example, a free trade in chicken is hampered by import tariffs, quotas for specific products, sanitary restrictions and technical barriers,” said Lohbauer.

Porto, the secretary for international agribusiness relations at the Ministry of Agriculture, Livestock and Supply, recalled that “In 2003 European Union protectionism led Brazil to take action in the ambit of the

World Trade Organization (WTO) with respect to salted chicken breast.” Brazil, he said, won its dispute against the economic bloc, which had raised the import tariff on salted chicken from 15.4% to 75%.

“Losing that dispute led to application of GATT Article XVIII by the Europeans. This instrument required the European Union to compensate the main suppliers, Brazil and Thailand, with tariff quotas,” Porto said.

Brazil was granted quotas of 170,000 tonnes per year for salted chicken meat, 79,000 tonnes per year for cooked chicken and 92,000 tonnes per year for preparations of turkey meat.

Seeking to overcome resistance in the European Union, Brazil is working in trade negotiations with the goal of expanding its market for chicken meat. At the same time, Lohbauer said, the Brazilian poultry sector has developed an aggressive program of trade promotion at the world’s leading trade fairs and in countries that do not yet consume “Brazilian Chicken”.

The secretary for international agribusiness relations said he believes the country will be successful in expanding its markets for chicken meat. “We sell chicken that has added value and a low production cost,” he said. “That’s because with our integrated production system, the poultry farmer follows the instructions of the producer companies with respect to his flock, so maximizing the use of new technologies.”



Vast quantities of fresh water: one of Brazil's comparative advantages, vis-à-vis the competition

A WEALTH OF RESOURCES

THE FAVORABLE CLIMATE, ABUNDANT WATER SUPPLY AND HUGE AVAILABILITY OF ARABLE LAND MAKE BRAZIL AN EXTREMELY COMPETITIVE POULTRY PRODUCER

BY ALEX BRANCO

Various factors explain the outstanding position achieved by the Brazilian poultry sector. One is the singular production system, where small producers receive chicks from the large companies for fattening. This integration offers gains in synergy for the whole system.

The existence of a large industrial sector, where there are internationally recognized brands, is another plus factor for Brazilian poultry, as indeed is all the behind-the-scenes work focusing on sanitary control during production.

This is carried out by public laboratories, research and genetics companies and the poultry companies themselves, and ensures a reliable supply of products of the highest quality.

All these factors are made possible by a unique differential that Brazil enjoys over its competitors: the profusion of natural resources. Properly developed, these translate into an unbeatable competitive advantage.

No country in the world can rival the vast stock of land that Brazil has available for cultivation. It should be

noted that this potentially arable land is located either in savannah – cerrado – regions or areas of degraded pasture. In other words, increasing Brazil's grain production does not require deforestation in biomes like the Amazon Forest, the Pantanal Wetlands or other sensitive ecological systems.

If availability of land for planting grain is not a problem, the same can also be said for the availability of water. The starting point is to recognize that Brazil is blessed with the world's largest river networks. Also,

poultry production systems in Brazil rigorously adhere to norms and limits for emission of effluents and production residues, thus avoiding contamination of springs, streams and rivers.

What's more, in Brazil's main poultry producing regions – basically the South, Southeast and Center-West of the country – the dominant climate is essentially subtropical, meaning that temperature variations are less extreme.

Additionally, Brazil enjoys one of the world's highest incidences of natural year-round luminosity. This

makes it possible to dispense with artificial illumination in the aviaries, at the same time stimulating photosynthesis of the annual crops and producing the grains that are used as feed for the birds.

The result of this happy combination of factors is that Brazil produces maize and soy – the main items used for poultry feed – in an extremely competitive manner. And the country has just announced a record grains

harvest. According to data from the National Supply Company (Conab), an agency which is subordinated to the Ministry of Agriculture, Brazil collected 143.87 million tonnes of grains in the 2007/08 harvest year.

Topping Brazil's record harvest were maize at 58.59 million tonnes and soy at 60.07 million tonnes. These crops grew 14% and 2.8% respectively over their 2006/08 harvest year volumes.

SUBTERRANEAN SUPPLIES

Location of the Guarani Aquifer: the world's greatest reserves of underground water



WATER IN ABUNDANCE

Brazil is home to the world's largest river system, the Amazon, covering 5.54 million km² and containing 12% of the world's fresh water.

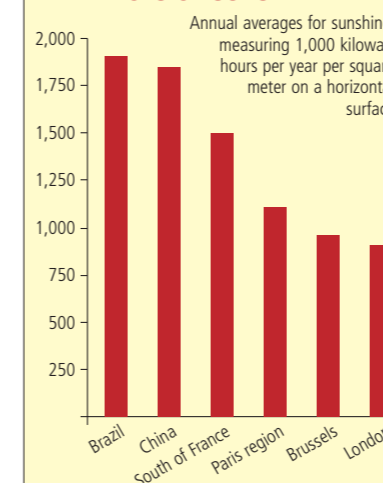
In addition to having the lion's share of the world's greatest river, which stretches 7,062 km from source to mouth (391 km more than the Nile, according to measurements by the Lima Geographical Society in May of this year), Brazil also contains the world's greatest hydrographic basin, the Amazon Basin which covers 3.88 million km² just inside Brazil.

Brazil also has four other major hydrographic basins. They are the

Prata (shared with neighbors Argentina, Paraguay and Uruguay and covering 1.39 million km²), the Tocantins (0.81 million km²) and the São Francisco (0.65 million km²).

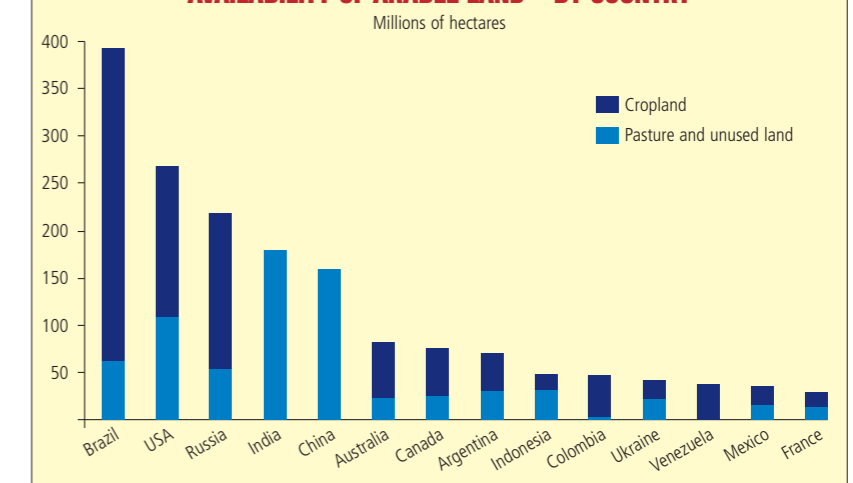
This profusion of fresh-water wealth is not limited to surface deposits. Some 70% of the Guarani Aquifer, the world's largest underground reservoir of fresh water, covering some 1.2 million km², is located in the Center and Southeast of the country. The remainder of the Guarani is spread under the North of Argentina (225,000 km²), the Northwest of Uruguay (58,500 km²) and the Southeast of Paraguay (71,700 km²).

LOTS OF SUNSHINE



Sources: Brazil's National Institute for Space Research and the University of São Paulo

AVAILABILITY OF ARABLE LAND – BY COUNTRY



Note: Area harvested in 2004. Arable land in potential equivalent. Source: FAO, Land Resource Potential and Constraints at Regional and Country Level (2000); FAO (2007). Preparation: ICONE.

A BENCHMARK IN ANIMAL HEALTH

BRAZILIAN POULTRY IS SUBJECT TO STRICT SANITARY CONTROLS, AND THE ABSENCE OF BIRD FLU HIGHLIGHTS THE EXCELLENT LEVEL OF AVIAN HEALTH

BY ANTÔNIO VILLA

Brazilian poultry farming has an important trump card in the battle to win a greater share of the world poultry market – the high standard of animal health. It's not just a question of health defined as an absence of diseases, for example in the case of the much feared bird flu, but also in the wider context which includes the correct handling of breeding stock. Bird feed cannot include hormones, medicines can be used only under veterinary prescription and practices to promote the welfare of the flock are becoming more and more widespread.

Chicken produced by the Brazilian poultry industry are resultant of commercial strains that have been selected throughout the years to produce a higher quality species. Chicken production in Brazil does not involve use of hormones. These are banned in Brazil. Their use is unjustified for two reasons, the first of which is scientific. The majority of information available suggests that the results of hormone use on bird development are still quite controversial. The second factor is economic. Applying hormones raises the cost of production and makes the Brazilian product non-competitive.

Growth promoters are not used for products destined for the EU and all other markets that share the same requirements. Compliance with this policy is guaranteed by the companies' traceability and quality control processes, the Brazilian Official

Residues and Contaminants Control Program and by the official and international audit missions that regularly come to Brazil.

Brazilian chicken feed is based on maize and soy, and is produced on a large scale. It represents roughly 70% of the cost of chicken production. According to estimates from Conab, the National Supply Company which is subordinated to the Ministry of Agriculture, Brazil's 2007/08 harvest exceeded 60 million tonnes of soy and was close to 58.5 million tonnes of maize. However, Brazil's agricultural potential is far from reaching its limit. According to Conab in the most recent harvest year the country farmed 47.3 million hectares of annual crops. The sector estimates that a further 50 million hectares is appropriate for planting in areas currently classified as low-productivity pastureland, which could be brought into production. This excludes land within the Amazon Forest and Pantanal Wetland biomes.

In order to be recognized abroad as a product free from genetically modified organisms, or "transgenic" products, companies conduct tests for genetically modified (GM) products in the raw materials they use in the poultry feed if demanded.

The quality of the Brazilian product is enhanced by practices adopted by the poultry feed industry. The Brazilian Feed Industry Association (Sindirações) represents the companies operating in the sector, and is re-

sponsible for implementing Feed & Food Safety certification. This is done on three levels: GMP, or Good Manufacturing Practices; Hazard Analysis and Critical Control Point (HACCP); and Advanced GMP GlobalGAP, which meets the standards necessary to access the European market.

Welfare

Practices that promote poultry welfare are also widely implemented throughout the country. Careful procedures start with the proper location of the poultry houses, taking into account the environmental and sanitary conditions in the proposed area. The Federal Inspection Service (SIF), an agency of the Ministry of Agriculture, Livestock and Supply, requires that all such establishments demonstrate that they comply with environmental regulations. In some states the larger poultry installations must receive environmental licensing before starting operation.

One noteworthy characteristic of Brazilian poultry farms is their architecture, which is mainly open, with screens along the side. Given that the country's climate presents little thermal variation throughout the year there is no need for the closed structures with ambient control that exist in regions that have severe winters. When temperatures are higher, Brazilian poultry farms use ventilators and sprinklers.

Thanks to these characteristics, there is no need for full-time artificial



Brazilian chicken meat has won international recognition for producing healthy and tasty dishes

illumination and the air in the aviaries is constantly refreshed, so reducing the level of ammonia in the environment. The average density in Brazilian poultry meat farms is 34 kilos per m², well within the European Union's stringent maximum tolerated density of 39 kilos per m².

"Concern for the welfare of the birds is an article of faith for the sector," said Sullivan Alves, a technical assistant at the Brazilian Chicken Producers and Exporters Association (ABEF). The association participated in drawing up the operating guidelines for poultry producers of the Brazilian Poultry Union (UBA). The ABEF also signed a technical cooperation agreement with the World Society for the Protection of Animals (WSPA) to encourage implementation

by members of the Program for Humane Slaughter.

Integration

Production quality is constantly improving thanks to the substantial investments that producers make in genetic research. R&D programs seek to provide multipurpose products that meet most of the needs of poultry agribusiness, making them appropriate for different market segments in various regions of the world. R&D investment is a constant process and involves inter-disciplinary collaboration between veterinarians, biotechnologists, geneticists and microbiologists to produce breeding lines that are appropriate to Brazilian conditions of climate, feed type, market and sanitary environment. The goal is

to obtain the best possible yield from the carcass, in particular for the prime cuts.

Sanitary control has been enhanced by the system of integrated production, whereby breeders raise and fatten the chicks they receive from the poultry companies. This system ensures rigorous procedures for acquisition of chicks. Feed gives priority to maize and soy. Breeders receive guidance about handling during the production period, placing emphasis on hygiene control and including procedures to be taken in the interval between flocks. After removing one group for slaughter, the aviaries should remain empty for at least 12 days and washed and disinfected.

Supply contracts stipulate vaccination against principal diseases, ac-

ording to endemic regional conditions, and are in line with recommendations from official institutions. Important aspects such as the microbiological and chemical quality of the water and feed are covered, as is the proper disposal of carcasses.

Brazil uses two systems to recycle poultry residues, including the bedding that covers the aviary floor to provide the birds with comfort and improve hygiene: composting and anaerobic biodigestion. The first involves use of the material as crop fertilizer, representing a saving on organic fertilizers and reducing environmental impact. Anaerobic biodigestion provides biogas to generate energy that can be used for illumination, heating and powering machinery and equipment.

Care continues during industrial processing. Companies apply rigorous controls over waste and contaminated matter, conducting detailed microbiological and chemical analysis of the water and feed provided for the birds. Controls are enforced by the Ministry of Agriculture acting through the National Program for Control of Biological Waste in Meat (PNCRBC).



Vaccination of eggs: care in the production process starts right at the beginning

Quality in first place

"Brazil is a benchmark for production of safe food," said José Maurício França, a veterinarian at Tirectiva Consultoria Industrial, pointing out that control of poultry products is the responsibility of Dipoa, the Department of Inspection of Products of Animal Origin which is part of the Ministry of Agriculture, Livestock and Supply. Dipoa exercises this responsibility

via SIF, the Federal Inspection Service. "There is a great deal of interaction between the government, the technical staff and the private sector," said Guilherme Castro, director of the Advanced Center for Technological Research in Poultry Agribusiness at the São Paulo Biological Institute.

Control procedures obey Brazilian legislation and, in the case of compa-



Healthy birds (above) are the result of constant research, which also includes improving the grains destined for bird feed (left)

covers general security and hygiene of the product "from farm to fork". It sets legal limits for contamination and lays down requirements for adoption of appropriate controls. In addition to the rigorous legislation, the sector applies significant self-regulation in the various stages of the production process, seeking to ensure production quality.

Finally, Brazilian food production is covered by certification under a series of standards: the International Standards Organization (ISO); Hazard Analysis and Critical Control Points (HACCP); Global Good Agricultural Practices (GlobalGAP); Standard Procedures for Operational Hygiene (SPOH); and Standard Operating Procedures (SOP). The Integrated Chicken Production protocols are an initiative of the sector itself, supported by the Brazilian Chicken Producers and Exporters Association (ABEF) and the Brazilian Poultry Union (UBA).

No bird flu

Avian influenza (H5N1) has spread around much of the world, but so far has not come close to Brazil. It hasn't

even reached South America. Potentially lethal to humans, avian flu spreads very quickly. The World Organization for Animal Health (OIE) registered 6,239 outbreaks in 61 countries from the end of 2003 through July 25th this year. The H5N1 virus strain first appeared in Asia, jumped to Africa, headed for Europe and has even reached North America.

While bird flu has never been detected in Brazil, the country has nevertheless adopted a series of stringent precautionary measures. The National Plan for Prevention of Avian Influenza and the Control and Prevention of Newcastle Disease has modernized two specialized laboratories, the National Farming Laboratory (Lanagro) unit at Campinas (SP) and the Diagnostic Center for Animal Health (Cedisa) in Concordia (SC). The plan has also established sanitary barriers and conducted technical training sessions. Foreigners from countries that have a record of avian flu outbreaks must complete a seven-day period without contact with birds in their home country and an equal period in Brazil before visiting an aviary.

A SOLID STRUCTURE

In September of 1994, the Ministry of Agriculture consolidated and restructured the National Poultry Program for Sanitary Control (PNSA). This is responsible for setting norms and standards for sanitary control activities and for overseeing the establishment of cooperation programs between public and private institutions. With respect to the principal diseases that must be notified to the World Organization for Animal Health (OIE), the PNSA has developed specific programs for control of Newcastle Disease, salmonella and mycoplasma infection. Bird flu, seen as an exotic disease in Brazil, became the subject of a national prevention plan in

April of 2006, run by the Secretariat of Farming Defense within the Ministry of Agriculture, Livestock and Supply.

PNSA activities are wide-ranging and include registration and periodic inspection of poultry establishments. Action is initiated by communication of suspicion of poultry illness, with manifestation of one or more of the following symptoms: severe listlessness; lack of appetite; drop in water or feed consumption; facial bruising with swollen, violet crest and wattle; breathing difficulties with nasal discharge; severe reduction in laying and increased mortality.

Acting in collaboration with state governments, the ministry seeks to standardize measures for biosecurity

and elimination of infection, in addition to conducting local epidemiological inquiries as necessary. When cases occur of illnesses subject to official control, the animal is sacrificed.

The PNSA also places importance on the control and inspection of transportation of high-risk animals. The International Farming Vigilance System (Vigiagro) is designed to closely monitor the entry of genetic material at ports, airports and frontier crossing points. There is constant sanitary control of breeding stocks to certify that breeding centers and poultry farms are free of salmonella in all 26 Brazilian states and the Federal District.

R&D: THE SECRET STRENGTH BEHIND BRAZILIAN AGRIBUSINESS

BRAZILIAN POULTRY FARMING IS BACKED UP BY A LARGE RESEARCH AND DEVELOPMENT NETWORK, INVOLVING PUBLIC AND PRIVATE INSTITUTIONS

BY JOÃO CARLOS RODRIGUES

As the world's largest chicken meat exporter, shipping 3.3 million tonnes of the product in 2007, Brazil is one of the countries that most invest in research projects designed to develop technologies that will ensure the sanitary quality of poultry production, perfecting breeding processes and seeking genetic improvement. The over-riding goal is to offer a completely safe product of the highest quality to the more than 150 countries that currently consume Brazilian chicken.

The work of developing new technologies for poultry farmers is spearheaded by Embrapa, the federal farming research agency, a body that enjoys international recognition as one of the world's most modern agricultural research institutions. The agency has a research laboratory at Concordia in Santa Catarina, the state that is today Brazil's biggest chicken exporter. This lab, whose full name is 'Embrapa Hogs and Poultry', coordinates poultry research in Brazil and is a center of excellence for science and technology in the area of poultry.

However, Embrapa does not work alone in the area of poultry research. It has partnerships with other public-sector institutions such as the Campinas Agronomy Institute (IAC), the Minas Gerais Company for Poultry Agribusiness (EPAMIG) and the Advanced Center for Technological Re-

search in Poultry Agribusiness (CEPTA). It also cooperates with private companies and with universities, amongst them the São Paulo State University in Campinas (UNICAMP), the Federal University of Vicosa in Minas Gerais, the Rio Grande do Sul Federal University (UFRGS) in the state of the same name, and the University of São Paulo (USP).

Today the country has hundreds of specialists working to develop new technologies for the poultry supply chain. They include agronomists, zootechnicians, veterinarians, economists, business administrators, statisticians. Embrapa alone has 50 researchers at its Concordia lab, and the agency's other R&D centers also have researchers who contribute scientific studies related to poultry production. The other researchers are spread throughout universities and private research companies.

Since it was created 33 years ago, Embrapa Hogs and Poultry has developed more than 450 new technologies. Just this year, the agency is working on 40 research projects,

some of them in partnership with the private sector. Embrapa also participates in the Poultry Genome Research Network which involves universities and other state research institutions. Today, one of the main research projects is being carried out in partnership with Scotland, in the same area.

One group of Embrapa researchers is currently working in partnership with the Ministry of Agriculture, Live-



Clinical examination by a technician from the Biosecurity Laboratory for Avian Disease Diagnosis, part of the National Farming Laboratory (Lanagro): scientific support for poultry production

stock and Supply to develop techniques for molecular diagnosis of the avian influenza virus. Although Brazil has never had a single case of avian flu, Embrapa participates actively in activities aimed at reducing the risk of the disease entering the country. One such project is the development of a system for monitoring and controlling the flow of migratory birds, seeking to avoid any risk of contami-



Inoculating fertilized eggs to isolate a virus at Lanagro: cutting edge poultry research

nation of Brazilian poultry flocks.

Last year Embrapa Hogs and Poultry, working in partnership with the National Farming Laboratory (Lanagro) at Campinas (SP), developed exceptionally fast and precise laboratory techniques for diagnosing the disease, based on detection of the bird flu virus using mass spectrometry. Part of this research is also looking at diagnosis of Newcastle disease, although this also is not present in Brazil.

Additionally, Embrapa laboratories are on track to produce in the medium term a way to substitute synthetic growth promotion agents for enzymes extracted from plants. This work reflects the concern of the producing companies to offer the market increasingly pure chicken meat, without the use of synthetic products.

Embrapa's partners are also heavily involved in a series of studies. For example the Advanced Center for Technological Research in Poultry

Agribusiness is authorized by the Ministry of Agriculture to control diseases such as Salmonellosis and Mycoplasma infection. CEPTA is also playing a fundamental role in serological and bacterial monitoring. "By using Elisa serology, we have implemented various programs for monitoring flocks to evaluate vaccination programs and the challenges presented by diseases such as infectious bronchitis," said Antônio Guilherme Castro, head of research at CEPTA.

Another line of research developed by the center involves preventing diseases caused by mycotoxins, in particular the aflatoxins that occur as a result of climatic problems. Castro explained that mycotoxins provoke hepatic and carcass lesions. "The prevention program is also a factor that contributes to increasing productivity," the researcher said.

According to Castro, CEPTA is also working to determine the importance, from a bacteriological point of

view, of the quality of the water consumed by the birds. "The birds consume twice as much water as they do food, so it is important to evaluate the quality of the water," he said.

Elsio Figueiredo, a zootechnician who is in overall charge of Embrapa Hogs and Poultry, explained that Brazilian poultry research is also concerned with environmental protection. To this end, Embrapa has developed various alternatives for the supply chain to invest in sustainable operations which respect the environment, in particular in terms of using water resources.

Another concern for Brazilian researchers is with development of breeding systems that respect the welfare of the birds. To this end the country's industrial poultry producers today have climate controlled environments, with temperature measurement and humidifiers, amongst other items designed to promote the welfare of the birds.

KEEPING THE CUSTOMER(S) SATISFIED

THE BRAZILIAN CHICKEN MEAT INDUSTRY PROVIDES A RANGE OF PRODUCTS AND SPECIAL CUTS THAT ARE TAILOR-MADE FOR A WIDE VARIETY OF INTERNATIONAL MARKETS

BY ANTÔNIO VILLA

The Brazilian poultry sector is a perfect example of excellence in meeting the most varied and demanding requirements of the international market. Shrugging off traditional handling processes and adapting to the specific requirements of each client, the sector is one of the few in the world capable of properly supplying over 150 different markets. The entire productive chain has geared up and is prepared to offer tailor-made products.

Brazil's industrialized poultry production system has become vastly more sophisticated. It now processes a large variety of cuts to serve consumer markets spread across five continents. Brazilian companies are now able to detect and adapt to specific demands, including the sanitary norms of each individual country, and to produce chicken cuts that have different specifications of size, weight, thickness and shape (see page 18).

The industry must match each market's expectations in terms of color, smell, flavor and softness of the meat. There are also differing requirements about how the product is described on the packaging, for example how it is divided up, how it has been prepared, nutritional values and so on.

Companies have built up their capacity to meet the diverse demands of the global marketplace by investing in training for their workers, de-

veloping equipment to make the special cuts required and in vacuum packaging for the meat, amongst other things. The entire operation is audited by independent certification companies. Until the start of this decade, these auditors looked only at processing, packaging and distribution systems. But now, they also look more closely at other steps in the supply chain, meaning that checks are made all along the way, taking in-

cubation, breeding, nutrition, sanitary handling, adoption of Best Practices in slaughter, and transportation.

Individual tastes

José Maurício França, a veterinarian with Tirectiva Consultoria Industrial, described what he sees as a "new wave" in the international poultry products trade since 2005. "Brazilian companies have gone beyond simply meeting the legal requirements that



Sophisticated cuts: the Brazilian poultry sector has geared up to meet the most varied demands of the international consumer market



Brazil exports a wide variety of cuts and processed meat to over 150 countries

are laid down by individual countries and governed by the World Trade Organization," he said.

According to França Brazilian poultry producers have invested in technical competence to adapt their productive systems to a huge variety of consumption traditions around the world. This consideration for the preference of the customer has led to companies signing long-term contracts for significant volumes of chicken meat, and these in turn justify the investments needed to adapt the production processes.

This is how Brazil won a share of the European market. "Europe is a market with high consumption potential, paying very attractive prices, where there are specific conditions for product specification. And Brazil meets those conditions with excep-

tional competence," França said.

While the European Union is also a major producer and exporter of chicken meat, it is at the same time a key market by virtue of the influence that it exercises over other chicken meat importing countries. EU standards for sanitary control and the prevailing market price make it reference for other countries.

Brazilian companies have learned to sell this demanding market principally boneless breast cuts. Europe consumes mainly chilled chicken breast for processing.

Brazilian chicken has also carved out a significant presence in Russia, which is the world's largest poultry meat importer. The Russian consumer prefers a wider range of items, from whole chickens and varied cuts to processed products.

Japan is another major importing market for Brazilian chicken. The Japanese mainly import special cuts of legs and thighs, but also are eager consumers of wings and feet. Brazilian exporters are extremely proud of their partnership with Japanese consumers, because 90% of the chilled chicken meat imported into Japan comes from Brazil. The Brazilian poultry industry exports specially prepared cuts to meet the tastes of the Japanese consumer. These include the boneless chicken leg, with skin, or kakugiri; the paw; and the knee cartilage, or hizanankot-su, among others. See the list of chicken cuts on page 18.

Saudi Arabia is another important long-term customer and takes a significant percentage of the whole chickens exported by Brazil after Halal slaughter – the procedure required by Islamic consumers.

A wide choice

"The sector is facing a rather special moment, commercially speaking, given the large number of requirements laid down by clients, including technical specifications and nutritional parameters," said França.

Companies, and above all those that operate in segments with greater added value, have learned to live with auditing processes of a very high standard.

In this scenario, winning new markets ends up being more and more a consequence of planning and of the capacity of the Brazilian companies to interpret all the numerous regulations and make their respective products compatible. França stresses that all this activity has a cost. "The necessary zootechnical and industrial performance can impact on profitability in the medium term," he said.

However, there is light at the end of the tunnel: "This increase in cost can be compensated by the premiums paid by the importers and by gaining loyal markets."

França explained that, when evalu-▶

BRAZILIAN CHICKEN SPECIAL CUTS

THE HIGH QUALITY AND GREAT VARIETY OF CUTS ASSURE THE SALES SUCCESS OF BRAZILIAN CHICKEN IN A WIDE RANGE OF COUNTRIES. FOLLOWING ARE THE MAIN CUTS AVAILABLE:

BONELESS CUTS



Whole Chicken Breast Skin-on



Whole Chicken Breast Skinless



Half Chicken Breast Boneless Skinless



Innerfillet / Chicken Tender



Whole Chicken Leg Boneless Skin-on



Chicken Leg (Kirim) Boneless Skin-on



Chicken Leg (Kakugiri) Boneless Skin-on



Boneless Leg



Mechanically Deboned Meat (MDM)

GIBLETS



Chicken Heart



Gizzard



Liver



Foot



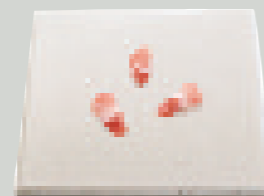
Paw



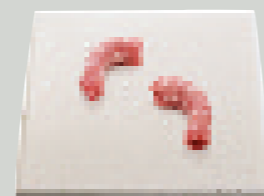
Skin



Chicken Breast Cartilage (Yagen)

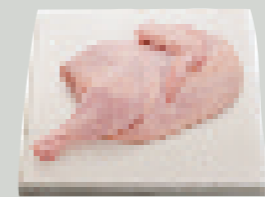


Chicken Knee Cartilage (Hizanankotsu)



Neck

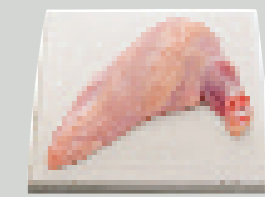
BONE-IN CUTS



Half Chicken



Chicken Breast Bone-in Skin-On



Skin-on Breast Meat with Wing Stick



Whole Wing



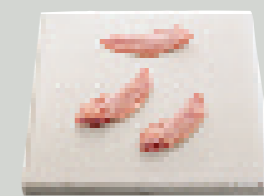
Wingstick (Drumettes)



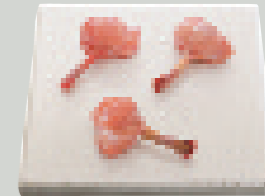
Chicken Middle Joint Wing



Middle Joint Wing Half Cut



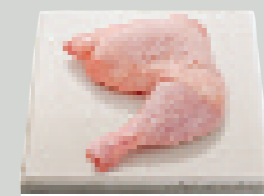
Chicken Wing Tip



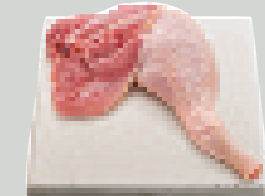
Tulip



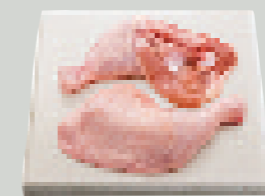
Two Joint Wings



Chicken Leg Quarter



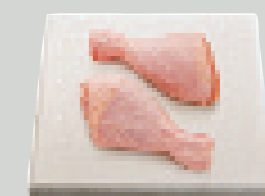
Chicken Whole Leg Cut Skin-on



Whole Leg

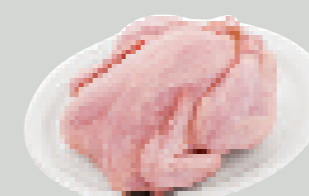


Chicken Thigh Bone-in Skin-in



Chicken Drumstick

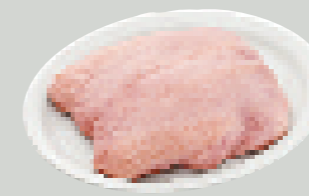
WHOLE CHICKEN



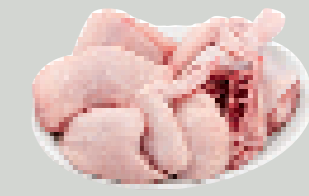
Whole Chicken Griller



Whole Chicken Broiler



Whole Bonelles Chicken



Whole Chicken Griller in 9 Pieces



Production line: industrial flexibility to meet the most varied consumer requirements

ating the marketing of products that are generally seen as commodities, the potential gains from the expertise acquired can be more important than the gross margins. These gains can come in the form of developing product specifications, incorporating technology and the ability to plan production with greater precision. All this reinforces a culture of innovation, which is essential to making progress in such a highly competitive sector of the market.

New frontiers

"The Brazilian poultry industry stands out exactly for its ability to respond and to adapt to requests from importers," said José Luís Kieling Franco, a veterinarian who works in the area of quality management at Doux Frangosul, the local subsidiary of one of the world's largest chicken producers. He said that the sector is changing very fast: "Maybe some ten years ago, virtually all cuts were prepared manually, but nowadays production lines are all automated.

However, this doesn't mean that the work is carried out with a standardization that hampers flexibility."

He explained that the Brazilian chicken producers order equipment from makers who are located or represented in the country, and these companies produce customized machines that are individually matched to the requirements of the final customer.

The projects are not limited to the industrial installations. "The poultry production chain is not limited just to the processors. A new market demand will require planning the incubators and the handling procedures in the aviaries," Franco said.

Poultry is more or less the opposite of the automobile industry, Franco explained. In the latter, the car makers bring together parts from various suppliers and make one vehicle, but in poultry the producer takes the bird to pieces. "An order from Japan for thighs of a certain specification will lead to production of a chicken that has the breast sent to Europe and the

wings to Africa," he said.

Brazilian companies are extremely flexible, organizing specific lines or working in pre-determined periods just to meet each one of the specific demands.

Another high point is the development of labor in the poultry industry. "Each new request implies new training. This can take some hours, if the request is simple, or it could last for up to a week," he said.

Franco noted that Brazil still has much development work to do in the area of industrialized products, ones that are virtually ready for the final consumer to use. This will allow the Brazilian poultry industry to add the greatest possible value to the raw material. In this segment vacuum packaging has become commonplace through the last decade. The challenge now is to make modified atmosphere packaging (MAP) available in an economically viable manner. MAP uses the conservation power of carbonic gas and has shown extremely promising results in testing.

ECOLOGICALLY HEALTHY CHICKEN

BRAZILIAN CHICKEN PRODUCTION TAKES PLACE FAR FROM THE AMAZON, AND IS RIGOROUSLY CONTROLLED BY DOMESTIC AND INTERNATIONAL ENVIRONMENTAL AGENCIES

BY LUIZ GONZAGA

No chicken production industry can completely avoid impacting a country's natural resources, but Brazil's has evolved into a system that minimizes the effects. This is particularly important in a country with huge and sensitive biomes, rich in natural diversity, such as the Amazon in the North and the Pantanal wetlands in the Center-West. Brazil's poultry production is concentrated in the South and Southeast, with some recent expansion into the Center-West, and is devoting significant resources to treatment and re-use of

water, preservation of forests and rivers and treatment of waste and effluents.

According to data from the Brazilian Chicken Producers and Exporters Association (ABEF), 78% of Brazilian chicken meat exports in 2007 came from three southern states: Santa Catarina (28%), Paraná (28%) and Rio Grande do Sul (22%). Other important players were São Paulo (7%) and Minas Gerais (4%) in the Southeast, and Mato Grosso and Goiás in the Center-West with 4% each.

Controlling the environmental im-

act of Brazilian poultry farms is a basic requirement for the good operation of the entire chicken meat production chain, both because of federal and state government requirements and because of the position of foreign countries that import the Brazilian product. "The Brazilian poultry producer is required by law to obtain environmental licensing from the competent agency for all stages of his production, from planning and installation of the farm through to effective operation," said Júlio Cesar Pascale Palhares, a zootecnician and specialist in impact evaluation and environmental management at the Hogs and Poultry unit of Embrapa, the federal farming research agency subordinated to the Ministry of Agriculture, Livestock and Supply (MAPA).

Last year, Brazil exported 3.3 million tonnes of chicken meat worth roughly US\$5 billion to more than 150 countries. Leading customers were Saudi Arabia, Hong Kong, Japan and the European Union, the latter of which being one of the most demanding markets in terms of environmental practices. As a major global exporter, the Brazilian chicken industry undergoes periodic auditing by national and international certification agencies. In addition to its own environmental legislation, which is generally recognized as advanced, Brazil is a signatory to leading global agreements for environmental protection, such as the Kyoto Protocol.

Exports account for roughly 30% of Brazil's chicken meat production, which totaled 10.25 million tonnes in 2007.

BIOSECURITY ENSURES SANITARY SAFETY

Biosecurity is a question that is closely linked to the environment. It deals with maintaining avian sanitary control during the production process. The Ministry of Agriculture exercises a constant presence in this area, as do the Agriculture Secretariats in states that produce chicken. The private sector is also heavily involved. In this way, Brazil maintains an excellent sanitary level among its chicken flocks.

The country has never registered a single case of avian influenza, popularly known as bird flu. The National Poultry Health Program was established in 1994 and maintains a constant watch for various types of bird sickness, amongst them Newcastle disease and Salmonellosis. In 2006 the Animal Health Department of the Secretariat for Defense of Farming at the Ministry of Agriculture set up the National Plan

for Prevention of Avian Influenza and the Control and Prevention of Newcastle Disease, which covers the entire country. This requires that all flocks are subject to the sanitary inspection program.

In 2008 the country started implementing the Plan for Sanitary Regionalization of Brazilian Poultry. This involves auditing and classifying the sanitary structures of the various states, seeking to better control and protect national production. "Brazil is a major chicken meat exporter, and the mechanisms to prevent the introduction of illnesses into the production system and more and more rigorous, in particular with the implementation of biosecurity programs," said Fátima Regina Ferreira Jaenisch, a veterinary doctor and researcher at Embrapa Hogs and Poultry.



BRAZILIAN CHICKEN: MAIN PRODUCING CENTERS

Roughly 80% of chicken production in Brazil is concentrated in the South and Southeast regions. Manaus, the capital of Amazonas State at the heart of the Amazon Biome is 3,000 km from Florianópolis, the capital of Santa Catarina State in the South of Brazil which is the country's largest chicken producer and exporter. The few chicken producers located in the North and Northeast of the country adhere to rigid environmental standards.

Production is concentrated in the South of the country, with 58.3% of the total. Next comes the Southeast with 19.6% and the Center-West with 9.3%. All this production is subject to scrutiny by the Ministry of Agriculture's Federal Inspection Service (SIF). Additionally, poultry industry associations and all

major producers have goals and missions that clearly state environmental preservation to be a priority.

"This vigilance and environmental awareness can be seen above all in the agribusinesses companies involved in exports," said Palhares. "There is no doubt that the greater part of the chicken supply chain in Brazil incorporates environmentally correct handling procedures, and we will see further progress in this area."

With the majority of poultry farms located almost 3,000 km from the Amazon, the main Brazilian biomes are safe, albeit not totally immune, from the environmental effects that poultry

farming can produce. "The environmental impacts of the Brazilian poultry sector have been small and controlled, because the major producing states have extremely rigid environmental legislation," said Ariel Antonio Mendes, a veterinary doctor, professor and president of the Brazilian Poultry Union (UBA).

It's not just a question of distance, but also of environmental protection practices that have already become standard in the sector. In 2007 Sadia, the largest Brazilian company in the sector which is responsible for some 25% of the country's chicken meat exports, assumed voluntary commitments

in the area of sustainability. One is to adhere to the United Nations Global Pact which amongst other things lays down preventative practices to avoid environmental impacts, encouraging the promotion of environmental responsibility and the use of technologies that do not harm the environment.

The company has developed projects at all its production plants to reduce energy consumption, re-use water, treat waste matters, reforest degraded areas and replant woodlands around water sources. One important Sadia initiative involved re-using steam at its processing plant in Dois Vizinhos in Paraná State. The heat generated by



Agribusiness effluents treatment station in the west of Santa Catarina State. Left, Palhares of Embrapa: "Environmental legislation is very tough"

equipment used for poultry processing is no longer vented into the atmosphere, it's now channeled to a heat exchange unit where it heats up water for use in the processing plant. In this way the plant has managed to reduce its demand for steam by using a byproduct generated in its own production process.

Last year, Sadia started building a new industrial unit at Lucas do Rio Verde in Mato Grosso State in the Brazilian Center-West. The project involves constructing two processing units, one for poultry and one for hogs, all built to innovative new technological standards designed to maximize sustainable development. All stages of the project will be subject to rigid treatment of waste, with sampling of soil, water and air in the areas of influence of the processing plant. "Our goal at Lucas do Rio Verde is to build a new concept of agribusiness in Brazil," said Gilberto Tomazoni, director-president of Sadia.

Perdigão, Brazil's second-largest producer and exporter of chicken meat, has instituted a Renewable Forests Project. This involves planting and harvest-

ing trees that are used as a source of energy in its industrial units, thus avoiding the destruction of native forests and the consumption of fossil fuels. The company currently has 6,000 hectares of renewable forest that could be entitled to receive carbon credits under the UN's Kyoto Protocol regulations. The Perdigão Sustainability Institute is seeking to further expand the cultivation of renewable forests.

The Program for Water Re-Use promotes the development of new technologies that can increase the quality of the water. The program has already been implemented at all Perdigão production units and is saving enough water to supply a city of 60,000 people. Recycled water now accounts for 30% of all water consumed in the company's factories, and is made possible by first separating effluents according to their quality. They are then treated and destined for specific industrial processes, washing truck, cages and pens, washing down external patios and irrigation.

Looking to the wider picture, Brazil has an environmental security policy which amongst other things covers waste matter from aviaries, and also addresses organic agriculture. "There are various initiatives and companies in the country that transform effluents into fertilizers (basically organic compounds) and sell these products for gardening and other uses," Palhares said.

AN INTEGRATED AND PROSPEROUS LIFE IN THE COUNTRY

BRAZIL'S SYSTEM OF INTEGRATED CHICKEN PRODUCTION BRINGS ECONOMIC OPPORTUNITY TO RURAL AREAS, DISTRIBUTING INCOME AND IMPROVING LIVING STANDARDS

BY LUIZ GONZAGA

Thirty four years ago, Nivaldo Santi started working with integrated poultry breeding on a 24-hectare property in Videira in the center-west of Santa Catarina State in the South of Brazil. With most of his income coming from chickens, Santi was able to step up production, expand his property to 80 hectares, raise two children and put them through college – his daughter is now a dentist, while his son is studying to be a veterinarian. Now 50 years old, Santi is producing 1.3 million birds a year under the integrated system. This gives him an income of R\$400,000 a year – some US\$220,000.

The integrated system of chicken production started in Brazil in the 1960s, in Santa Catarina, and has become a model for success. It was later adopted by hog farmers and then spread to other sectors of Brazilian agribusiness such as grapes, tomatoes, heart of palm, fruits, tobacco and others.

Essentially it's a system where the agribusiness company that processes the meat transfers to the rural producer not only a regular supply of day-old chicks and chicken feed but also the best available technologies as well as veterinary and technical support. The rural producer is responsible for his own installations, equipment, labor and bird care. Such a partnership ensures sanitary control, efficiency, productivity and sustainability for

the Brazilian chicken supply chain.

Integrated production accounts for an estimated 85% of the 10.2 million tonnes of chicken meat produced in Brazil in 2007. It's a proven success and has made the country the third largest chicken producer in the world,



Small-scale integrated poultry producer in Santa Catarina State: care to avoid environmental impact

after the United States and China. "Brazilian chicken has come a long way in terms of quality, today we're equal to anybody," said Santi, who has been an integrated producer since 1974 for the Perdigão company, the country's second largest chicken processor.

In addition to leveraging production, integrated poultry production plays an important social role within Brazilian farming. It helps keep around one million people on the land, counting the owners of small and medium-sized rural properties and the workers directly involved in

the production chain. "The advantage of integrated production is that makes small farms viable; otherwise they would certainly lose money," said Professor Dr. Ariel Antônio Mendes, president of the Brazilian Poultry Union (UBA).

Poultry farming in the South and Southeast of Brazil comprises mainly farms of 10 to 15 hectares, typically using family labor. The farm will normally have at most four aviaries with 15,000 – 22,000 birds each. In many such properties, the owner may also raise hogs and dairy cattle and plant maize. In the Serra Gaucha region of Rio Grande do Sul State some properties also produce grapes. The gross income is around R\$48,000 – some US\$26,000 – per aviary per year, making around R\$200,000 – US\$110,000 with four aviaries. In the Center-West region the properties



Nivaldo Santi: a good living from poultry, enough to put both children through university

tend to be larger, with permanent crops such as maize, soy and cotton.

Santi now has seven aviaries covering a total of 9,000 meters, and each year he produces eight batches of chickens, 172,000 birds per batch. This generates 70% of his income. The balance comes from hogs, a few head of cattle and a stand of timber. Even farmers with smaller properties enjoy a decent standard of living. "These farmers today have a middle class lifestyle with a car, all normal household electrical appliances and their kids at college, if they haven't already graduated," Mendes said.

For Osório Dal Bello, farming technology director at Sadia, Brazil's largest poultry processor, the main advantages of integration are eco-

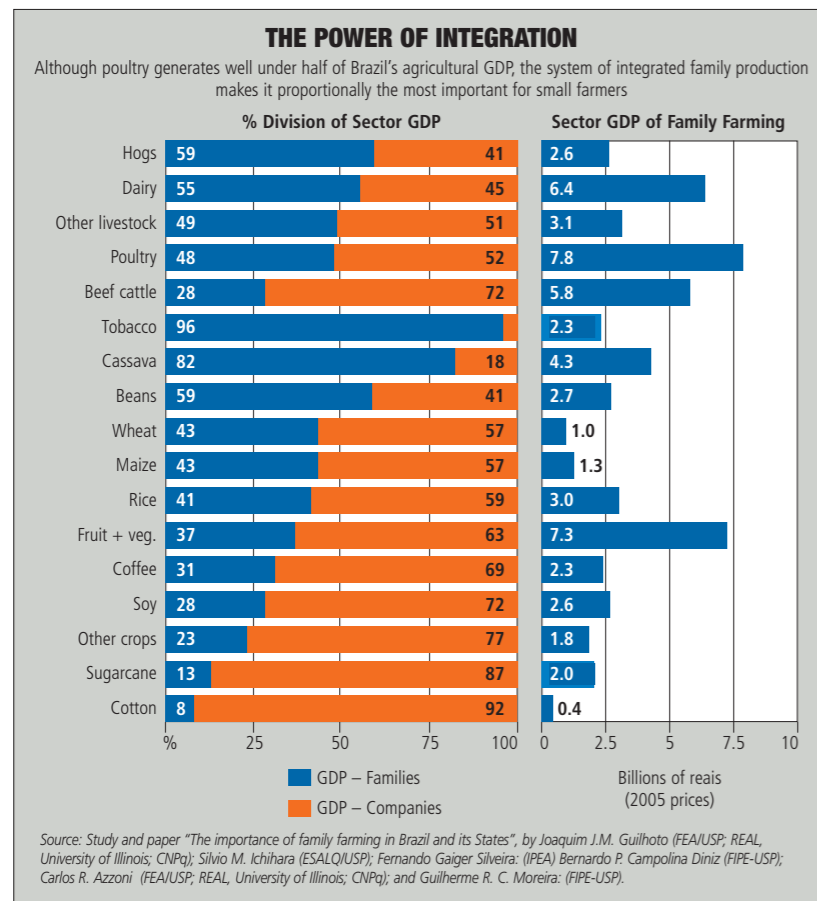
nomical development and the access that the small producers gain to state-of-the-art technical and management information. "This allows the families to develop their rural activities, boosting their income and improving their living standard," he said. Sadia currently works with more than 10,500 integrated producers, 6,000 of whom provide poultry and the rest hogs. They account for more than 90% of the company's output.

"Integration between producers and agribusiness companies has seen a long process of investments in quality and sanitary control and has been fundamental for Brazil to achieve its current position as the world's biggest chicken exporter," said Francisco Turra, president of the Brazilian Chicken Producers and Exporters Association (ABEF). The association sees world chicken consumption growing by 24% in 2008. "The demand for partners in the integrated production system has grown significantly: small and medium producers and even large agribusiness investors want to

get in on the action," said Santi.

In March of this year Perdigão announced investments of R\$1.1 billion – some US\$600 million – for its operations in Goiás State in the Center-West of Brazil, aiming to raise processing capacity from 70,000 to 280,000 birds per day. Of this total, R\$700 million was directed to expanding integrated production systems for poultry and hogs in the municipal districts of Mineiros, Jataí and Rio Verde to provide input for the company's processing units in those towns.

With integrated production, it is important to note the role played by the large agribusiness companies in helping small producers gain access to credit. This often makes the crucial difference for the producer to be able to start or expand his business. Funds destined for Perdigão's integrated producers in Goiás will be financed by the federal government's Constitutional Fund for Center-West Financing (FCO), operated via the Banco do Brasil. Some 150 new rural producers should receive funding. Through 2010 a total of 308 new poultry production centers will be es-



established in the three municipal districts. Perdigão works with 6,000 integrated producers: 4,400 for poultry and 1,600 for hogs.

In addition to the Banco do Brasil credit, agribusiness companies manage to enroll their small and medium producers in credit lines from the federal government's National Program for Strengthening Family Farming (Pronag) and the Brazilian Development Bank (BNDES), via the Program for Modernizing Farming and Conserving Natural Resources (Moderagro).

Late 2007 Brazil's number three poultry processor Seara Alimentos, a Cargill subsidiary, invested over US\$9.5 million in its Nuporanga plant in the State of São Paulo to boost chicken processing capacity by 75%. The money went to improving industrial processes and setting up a third shift. The company's integrated producers will invest US\$15 million via Moderagro to build 150 new aviaries and five centers for breeding and

BRAZIL

- 90 million hectares available for agriculture (excluding rain forest)
- Just 15% of available land is currently being used for crops
- 190 million people – almost 3% of world's population
- 12% of world's available fresh water
- Brazil will be responsible for more than 1/3 of poultry exports, consolidating its leadership position

Source: ABEF

production of day-old chicks.

Doux Frangosul, the local subsidiary of French group Doux, is Brazil's fourth largest producer of chicken meat with 3,500 integrated producers. In addition to helping them gain access to credit, the company invests in their constant training. This August the company participated with ABEF and UBA in a course for Best Practices in Chicken Production, held at its headquarters in Montenegro

(RS) with 100 integrated producers.

This kind of course is aimed at improving concepts and practices of efficient production with rigorous sanitary control and environmental respect. "Veterinarians from the processing companies monitor what we are doing very closely and make sure we maintain excellent sanitary standards with low environmental impact," Santi said.

Sadia's Dal Bello said Brazil's integrated production system is extremely efficient in terms of environmental control, adherence to animal welfare norms and biosecurity principles, traceability and implementation of technological models for food production and security, because the whole supply chain has access to the best technologies being used around the world.

"In this system, the processing company does not need to invest in buying land or building aviaries. It can spend this money on improving the feed factory, incubators and processing plants, and this means we can increase our slaughtering capacity and gain scale for efficient exporting," said Mendes of the UBA.

The system also brings several advantages to the small farmer. "Poultry farming is a rapid cycle. Every 40 days on average the producer is delivering birds and getting paid. If you grow crops, you have one harvest a year and you face the risk of drought, frost and hailstones. As an integrated producer I don't face these risks and even during times of crisis the company pays what's stipulated in the contract," Santi said.

Additionally, it is common in the South of Brazil to locate poultry farms in mountainous properties that are not appropriate for mechanized farming, or even for plantations. "Without integrated poultry and hog farming, much of this land would be sold and the former owners would be living in the city, often unemployed," said the UBA president.

CULTURE AND CUISINE

BRAZILIAN-STYLE CHICKEN

CHICKEN MEAT HAS BECOME A STAPLE IN BRAZILIAN KITCHENS AND RESTAURANTS, PUSHING BEEF INTO SECOND PLACE AS THE NATIONAL CHOICE

BY LUZ GONZAGA

Chicken has become the meat of choice for Brazilians in the last couple of decades, driven by the competitive cost in relation to other meats and also by the demand for lighter foods, appropriate for low-fat diets. The meat is now predominant in the day-to-day diet of Brazilians, for example served with the traditional national dish of rice and beans, perhaps with a side salad. But chicken is also used by top chefs in sophisticated and delicate light dishes, risottos and pastas. Restaurant chains that serve mainly chicken are spreading fast in Brazil, offering it grilled, roast, stewed and barbecued.

From 1988 to 2008, the annual per capita consumption of chicken in Brazil leapt from 11.8 kilos to an estimated 38 kilos. Two years ago chicken overtook beef for the first time in the Brazilian diet – the red meat has seen its consumption remain stable at around 36.5 kilos per capita per year over the last couple of years, according to data from the National Council for Beef Cattle (CNPQ) and the Brazilian Poultry Union (UBA).

The increase in chicken consumption is not just limited to Brazil, it's a global phenomenon. Speaking during last year's XX Latin American Poultry Congress, which brought together 43

countries in Porto Alegre in the South of Brazil, the president of the Federation of Industries of the State of Rio Grande do Sul (Fiergs), Paulo Tigre, noted that "the importance of industrialized poultry in the diet of the peoples of the world explains why so many nations are gathered here. We are witnessing a real example of globalization."

The success of chicken would not be possible if the meat, in addition to offering an economic advantage, did not also have an extremely agreeable flavor. The Brazilian chicken industry, based on the system of integrated production, has over time built up a



The São Judas Tadeu Demarchi restaurant in Greater São Paulo: one of the three largest of its kind in the world

reliable capacity for large-scale production with excellent levels of quality and sanitary control. According to the UBA, this system is closed and well controlled. It uses natural feed based on maize and soy, thus allowing Brazil to produce high quality chicken meat that is more succulent and flavorsome.

Scale with quality has led to the creation and growth of various restaurant chains that are specialized

in chicken, and geared to different income groups. Galeto's, for example, is a chain positioned to attract a middle and upper-middle class clientele with refined tastes. It specializes in dishes based on chicken. "Among the various profiles of client, we attract women and mature executives in their forties who are seeking to avoid eating beef. They prefer barbecued chicken with salad, lightly seasoned, because as we would all agree

no one can eat a steak every day, it would be bad for the pocket and the health," said Antônio Epifânio de Melo, manager of the Galeto's restaurant in Shopping Iguatemi, the most sophisticated mall in São Paulo city.

The chain has 11 restaurants in the city and is pioneer in the art of deboning and preparing chicken. Each month, the Galeto's chain serves over 60,000 chickens. The Iguatemi restaurant also offers beef and fish,



Galeto's restaurant (right) in the Iguatemi Shopping Center (above), the country's most sophisticated mall: high-income customers for the flavor of Brazilian chicken



HIGHLY NUTRITIOUS MEAT

The popularity of chicken isn't based just on the excellent sanitary conditions of the meat, or its extremely efficient production process. The high consumption levels of chicken meat are also due to its exceptional nutritional qualities. Chicken meat is one of the leanest and healthiest meats available, a rich source of proteins, vitamins and minerals.

Every 100 grams of chicken breast, for example, adds around 30 grams of protein to the human diet, while the same quantity of leg or thigh adds slightly over 20 grams. These are high levels, particularly bearing in mind that our diets require on average some 45 to 55

grams of proteins per day, for women, and 55 to 65 grams per day for men.

Chicken meat is exceptionally lean, with around 5 grams of fat for every 100 grams of meat. It also offers a better profile of fats, with a low proportion of saturated fats (around 30%, compared with 40% to 50% in red meats) and a high proportion of the unsaturated fatty acids and poly-unsaturated fatty acids (known as omega-6) that our bodies require.

What's more, chicken meat offers a wealth of vitamins and minerals that are essential to a balanced diet. One serving of chicken gives us around 40% of the vitamin B3 – also called vitamin PP – that our bodies must have, and it is

equally rich in the vitamin B6 which plays an important role in metabolizing fats and amino acids.

Chicken meat also provides us with an important contribution to our daily requirements of iron, zinc, magnesium and phosphorous. Iron is responsible for the formation of hemoglobin and of numerous enzyme reactions that are essential to cellular respiration, and zinc is a well-known anti-oxidant.

Phosphorus, a mineral, is essential to almost all the chemical reactions within our cells. Combined with calcium, phosphorous forms the mineral basis for our bones and teeth, while magnesium is an element that contributes to the neuromuscular transmission of nervous impulses.



Over a thousand succulent chickens per day roast over the grill of the O Brazeiro restaurant in São Paulo city: customers waiting to buy take-out grilled chicken

but 70% of dishes ordered are based on chicken. That means around 300 chicken servings every day.

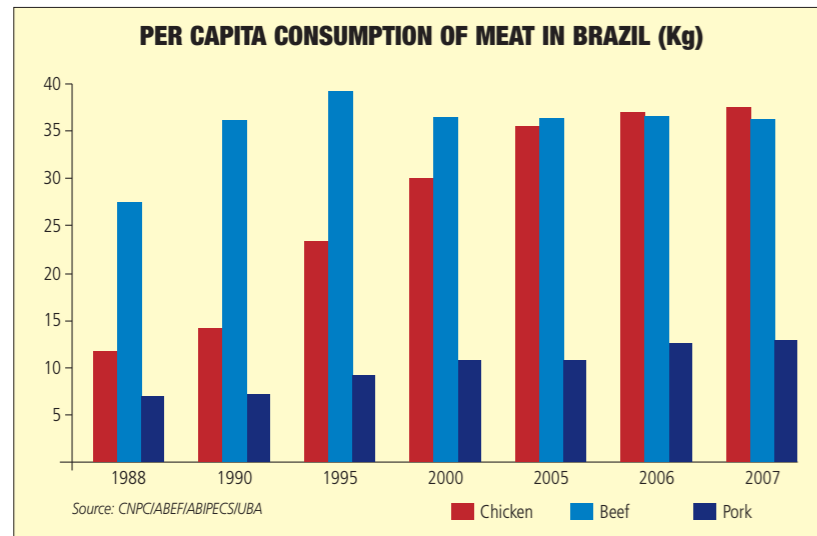
"Chicken is a light meat, one that can be eaten at any time, and it goes very nicely with pasta," said Melo, who has worked in the chain for 32 years. "We work only with what Brazilians call 'milk chicken' that has been slaughtered young, giving an exceptionally low-fat meat that is very

soft and has a delicate flavor."

The São Judas Tadeu Demarchi restaurant is at the other end of the market – popular, although without being too cheap. It's located in São Bernardo do Campo, an industrial suburb of the 20-million population São Paulo metropolitan region, and serves 33,000 customers a month, rising to 45,000 in December. The restaurant can draw 4,500 customers

per day at weekends, principally Saturday nights and for Sunday lunch. São Bernardo lies in the area known popularly as "chicken with polenta" because the traditional dish of chicken and thick maize paste is so popular in the affluent blue-collar region, home to much of Brazil's automobile industry. São Judas Tadeu Demarchi serves all kinds of meat, offering customers the choice of a self-service buffet or à la carte, but the dish that most people ask for is the chicken with polenta, a recipe copied by various other restaurants in the region.

Local people like to say that São Judas Tadeu Demarchi is one of the three largest restaurants in the world. Every month it serves 500 kilos of fried polenta, prepared in its own kitchens, and three tonnes of chicken. Manager José Carlos Machado explained that



he is very dependent on receiving a top-quality product: "Brazilian aviaries have made a great deal of progress, in terms of both quality and production capacity. The sanitary inspection services and the breeding methods have improved a lot and are now much more rigorous."

Founded in 1947, the restaurant can boast numbers that merit a

place in a book of world records: it has served 11,000 people in a single day; it set up a continuous table for 500 people; and at 6,500 m² its dining room is as large as a football



the commonest dishes on French and Brazilian tables. Over the years, chicken recipes have evolved and become more sophisticated. But what must never be forgotten is that it is the quality of the meat that will determine the success of the dish. In Brazil, there are excellent aviaries that are structured to handle the product with the seriousness that the consumers deserve.

Claude Troisgros

CHICKEN TROISGROS

Claude Troisgros is a third-generation member of the family of the same name, which traces its culinary tradition back to France in the 1930s. He's been in Brazil since 1979 and is chef at the Restaurant Olympe and the 66 Bistrô in Rio de Janeiro, and also at the Blue Door, the restaurant of the Delano Hotel in Miami (USA). Now internationally famous, Troisgros is widely seen as a creative chef and a father of the French-Brazilian culinary school. His menus blend French technique with exotic, tropical ingredients, making his Olympe restaurant a unique experience. The result of this mixture of bold inventiveness with good taste is known as "La Cuisine Creative Troisgros".

"Chicken is part of the world's gastronomic history, and is one of

field. Waiters can scurry up to 15 km per day.

Somewhere between these two extremes is the O Brazeiro, a 45-year-old restaurant in the southeast of São Paulo city. It serves around 30,000 chicken-based meals per month, an average of a thousand a day, using a seasoning recipe handed down from father to son and now carefully guarded in the vaults of a local bank. "The demand for chicken has gone up a lot in recent years. I believe it's because of the price and by virtue of being a lighter meat, which we serve without any fat, in particular the barbecued chicken," said owner Paulo Augusto Mangini.

Once again, the most popular dish is chicken with polenta. The restaurant also serves red meats, but around 90% of meals are chicken-based. During the week the customers are mainly executives and local businessmen, while at the weekend O Brazeiro draws clientele from all over the city and indeed the country.

POULET PANE AUX CHAMPIGNONS

Ingredients for four servings

4 chicken breasts
2 eggs
2 spoons wheat flour
4 slices white bread cut into cubes
200 gr melted butter
salt, pepper

SAUCE

1/2 L Paris mushroom sauce
300 gr Paris mushrooms
300 gr shiitake mushrooms
200 gr shimeji mushrooms
garlic, onion, parsley

CHICKEN

Remove the skin from the chicken breasts and season them
Spread one side only with the wheat flour, egg and bread cubes
Squeeze well with your hands
Fry in the melted butter, first on the breaded side, then turn and finish cooking

MUSHROOMS

Cook the mushrooms well in butter with garlic, onion and chopped parsley
Season with salt and fresh-ground pepper

FINAL TOUCH

Place the mushrooms in the center of the plate
Place the sauce around
Place the chicken on top
Decorate with bay leaf and rosemary

