Latin America Special

Reaping a tropical harvest in Brazil 22-24
A land of Latin American opportunity 25-26
Booming GM crop adoption in key Latin American markets 27
Supporting pillars of Brazil’s booming agriculture 28-29
Reaping a tropical harvest in Brazil

Brazil has become the world’s largest agrochemical market. Last year the market rose to a new record level of almost $8,500 million. Leaders of the country’s agrochemical supplier associations tell Robert Birkett what is driving this.

The Agrow Latin America roundtable includes: Eduardo Daher, executive director at the association, Andef, which is an affiliate of CropLife Latin America, representing R&D companies in Brazil; Josef Da Ros, vice president at Sindag, associates of which include those of Andef and several generic suppliers; Ivan Sampaio, the Sindag’s market data chief; and Tulio Oliveira, executive director at Aenda, Brazil’s generic agrochemical industry association.

Why has Brazil recently become the world’s largest agrochemical market?

Eduardo Daher (ED): “By far the main cause of the booming Brazilian pesticide market has been commodity crop prices. But also, bear in mind that South America and Brazil in particular is a tropical region: We are not Canada or UK suffering snow in winter; we use the same land at least twice a year. The bonus of this tropical location is that the country produces more; the weak spot is that it suffers more diseases, insects and from more weeds.

“And don’t forget Asian soybean rust. More applications are required in Brazil than in some other countries, because they do not suffer from rust, or it barely touches their crops.”

Mr Daher reveals that last year alone, Brazilian farmers spent $1.300 million on treating soybeans against rust, accounting for some 56% of the fungicide market. The entire fungicide market in 2011 amounted to just over $2,300 million. Rust appeared on Brazilian crops some ten years ago, and led to a surge in product registrations for its control as the country implemented emergency measures.

Tulio Oliveira (TO): “The booming market is principally due to a combination of Brazilian agriculture’s continuing growth and farmers’ employing more technology in general.”

The Aenda executive notes that while planted area for major crops in Brazil, such as cotton, maize, soybeans, sorghum, barley, canola, wheat, rice and beans, had risen by 32% from 2000/01 until the last major planting season, pesticide sales had more than trebled (+265%) in US dollar terms.

TO: “Growth in fruit and vegetables has been relatively modest, following more the requirements of a slightly rising Brazilian population. Demand could yet rise in the sector as improving incomes lead to more healthy choices among Brazilians.”

Will such growth be maintained in the immediate coming years?

Mr Oliveira highlights Ministry of Agriculture research pointing to growth in produce of some 5-6% on a 2-3% increased planted area in Brazil in the coming 2012/13 agricultural year.

TO: “The only doubt is over sugar cane, with expectations of only a moderate rise in cultivation of the crop, as national fuel supplies may switch towards petroleum, which the country is investing in.”

Ivan Sampaio (IS): “The major sector to consider in the short term is that of soybeans. The crop has recently accounted for 44% of the pesticide market. And yet the planted area is set to increase by 3 million ha in the coming season [from September 2012].

“Why? This is due to two reasons, the ‘weather market’ – the current North American drought is creating an opportunity for Brazil to fill the gap left by lower soybean production in the US] – and the commodity futures prices. The closing price in the Chicago Exchange on Friday [July 20th] was $17.50 a bushel: this is unbelievable. Much of the land that we have available will be dedicated to soybeans. And that is despite very good maize prices, too. Maize planting will also likely rise as will investment in maize pesticides.”

“Our 3-5% expected rise in the agrochemical market for 2012 is a huge number when you consider that last year’s market surpassed $8.48 billion. The one reservation on these figures is likely to be a strengthening dollar. So our market will probably grow a bit, but it may not be reflected in the dollar sales figures.”

What could impact the agrochemical market in the short term?

TO: “The global financial crisis could put a brake on sales and part of the production that is aimed at exports; that is the major threat.”

IS: “Not all crops will be in such demand as others, while the ‘weather market’ is obviously unpredictable from year to year. Brazil is looking at the drought in the US, and sees an opportunity.”

The Sindag market data chief reveals that soybeans and maize accounted for 53-4% of the Brazilian pesticide market last year.

IS: “And if you add cotton [13% of pesticide market] and sugar cane [12%] you are looking at [almost] 80% of the market overall.”

“We are highly positive with our prospects in soybeans and maize, but are not comfortable with the prices of cotton and cane. The cotton prices are at average levels but last year they were at their highest in a century. Other crops that may suffer due to depressed prices or demand include orange juice, of which Brazil is a major exporter, and rice for which previous large-scale rice-consuming populations such as those in Asia are largely self-sufficient. We try to sell to Uruguay, but they want to sell to us”.

Adoption of biotechnology has grown strongly in the past 4-5 years in Brazil, and GM crops have come to dominate the broad acre crops.
What has been the impact of GM crops on the pesticide market?

TO: “To be honest, the impact has so far been positive. Sales of glyphosate herbicide have shot up in the last couple of decades.”

Monsanto’s GM Roundup Ready soybeans were planted in the late 1990s, before other products became available in Brazil. “But more recently, sales of insecticides, have dipped following the introduction of Bt seeds.”

Josef Da Ros (JdR): Brazil cultivates some 33.5 million ha through no-tillage. That means the farmers have to use high technology products. That goes for GM crops as well as pesticides, and especially herbicide use, which is key for no tillage farming.”

Is there a preference among growers of certain crops for generic or non-generic or newer molecule pesticides?

JdR: “The split between generic and non-generic pesticides is largely determined by the price of crops. The rising price of soybeans, the country’s specialisation in the crop, and the emergence of rust over the past decade has been a boon for newer molecules.”

Aenda’s Tulio Oliveira

TO: “Especially with the emergence of rust, farmers seek the newer ais to use on the crop, while generics are more sought after for use on sugar cane with its lower [produce] prices, and between the extremes, employing more of a mix, you find most fruit and vegetables, which, not including citrus fruits, account for 3.7% of pesticide sales.”

“Fruit and vegetables are considered minor crops, for which there are fewer registered pesticides due to the overbearing cost of gaining approvals. On the other hand, some supermarkets are starting to have some impact on farmers’ options with fruit and vegetables, as they seek the use of newer products. This sector is more unpredictable, and we will have to wait and see what happens.”

ED: “Brazilian growers are sensitive to world markets and will take more care with their crops when prices are strong, and invest in all types of technology; better seed, more fertiliser, better pesticides. I know this, having worked for many years in the fertiliser business.”

What have been the major trends in competition among companies in Brazil?

TO: “The outstanding move in the Brazilian agrochemical industry has been the rise of FMC. The company was the tenth-largest supplier in the country, but it had risen to become the fourth largest by the end of last year [according to the Aenda’s research].”

“Another significant move has been the drop in general prices of pesticide products in the past five years. This has been driven by a combination of supplies from China, and the increased competition from products registered through the equivalence registration system that came into force 5-6 years’ ago, boosting competition in supply and leading to cheaper products for growers.

“The China effect dominated initially as without it traditional suppliers from Europe, the US and Brazil with their higher costs would have continued to control supplies. But equally, Chinese products would probably not have been able to reach the Brazilian market without equivalence, as registration costs were too great for those companies. So it is a combined effect.”

JdR: “Development costs for active ingredients are very high, and companies set aside a portion of their sales to R&D. So only a few can cope with development costs, meaning large companies dominate. This is resulting in merger booms. For example, UPL [United Phosphorus] acquired stakes in companies last year, including the Isagro Sipcam joint venture, [now Sipcam/UPL Brasil]. So competition remains strong as new companies are entering the Brazilian market.”

ED: “MAI subsidiary Milenia has been acquired by ChemChina [ChemChina acquired a majority stake in Milenia’s parent company, Makhteshim-Agan Industries (MAI), last year]. The Chinese government is involved in that, and as well as newcomers, one can see the strength of competition in Brazil by the number of registrant companies. To see the strength of competition, consider that there are over 130 companies registering generic pesticides, and in excess of 95 agrochemical plants in the country. China is very important in Brazilian agriculture. It accounts for 17% of our agri-business: a huge customer, bigger than the US. We import everything from them, but they also buy from us.”

Brazil imports much of its pesticide raw materials from China, and sells agricultural produce back to it.

TO: “Barring any shock such as a currency crisis or large movements in exchange rates, no serious transformation appears on the horizon. China will eventually have higher labour and environmental costs to rival the West, but that is for the long term.”

What have been the major products by active ingredient in the past 2-3 years, and what do you expect to become the major products in a couple of years?

TO: Brazil’s major ais in volume terms include: glyphosate, 2,4-D and atrazine herbicides, acephate, and until its recent phase-out, methamidophos insecticides, and carbendazim fungicide. The notable emerging pesticide in the last few years has been the insecticide, fipronil.”

Sindag’s Ivan Sampaio

IS: Products for use against [Asian soybean] rust will be the major winners in the next couple of years. That includes new mixtures for use against the disease.
continued from page 23 . . .

TO: “Currently, there is quite some interest in developing products for the control of soybean rust, whiteflies and stink bugs on soybeans”.

What is happening with the registration of pesticide products in Brazil, in relation to generic products, formulations or new aiz?

TO: The slowness in pesticide registrations is absurd. Generic products only require a chemical comparison via five-batch analysis, followed by a small toxicology dossier for the formulated product. But our bureaucracy takes six years to process these, and for new aiz the delays are even worse.

JdR: “The system is very slow, taking 3.8 years to approve a product that in some European countries may take months. The situation for approving new molecules is a misery.

“We look to be a major global food supplier, and yet last year Brazil only gained one new ai approval [Isagro’s orthosulfamuron rice herbicide], while our competitor, Argentina gained three. Bear in mind that Brazilian agriculture is a major supplier of food, fibre, and domestic fuel, with sugar-based ethanol providing around 10% of the country’s energy needs.”

ED: “We have run our cars on ethanol for over 30 years.”

JdR: “In fact we are more afraid that we will lose aiz in the coming years due to the reassessment programme at the Anvisa.”

The agency is carrying out a reassessment of 14 aiz, and has already concluded that five be removed from the market and another have restrictions imposed upon its use. Half of the programme has yet to be completed.

Have there been improvements in the regulatory landscape? Has it worsened? What improvements do you seek?

TO: “Equivalence technical products are analysed by a group composed of the Ministry of Agriculture [for agronomic issues], the Anvisa [toxicology], and the Ibama [on environmental fate], so the slowest of them dictates the length of the process. That is usually the Anvisa. These should be merged into one body.”

ED: “We have to get to three desks to get a product approved, it is deeply bureaucratic. We need a system such as that in the US with its EPA: all the specialists in one place, less bureaucratic, more practical. We do not demand this, but we do strongly advocate it. We respect the regulatory work; importers have to be confident of the quality of our food.”

TO: “Argentina has one body, the Senasa. Equivalence was adopted in Argentina before Brazil, and the Senasa evaluates rigorously, but only takes a few months [to complete registration process]. The Brazilian government created the CTA [the multi-Ministry composed pesticide assessment technical committee] in 2002 to harmonise the work of the competent bodies, but that harmonisation has yet to materialise.”

ED: “The CTA has no chief, no-one in charge. So it is not the start of the solution as yet, just the end of the same problem. No one can take an ultimate decision, so the split bureaucracy endures.”

TO: “We want more technical assessments that are based on risk rather than hazard criteria. We believe that the Ibama has evolved such a policy in the past few years, but we cannot say the same of the Anvisa.”

Brazil established a new regime for the approval of use extensions for pesticides to new and minor crops. What are your hopes and expectations of the new regime?

TO: “We are sceptical. The rules allow the extension of residue tests from one major crop to a minor crop under some conditions. In an example, the maximum residue level (MRL) for apples could be extended temporarily for peaches. In two years, industry must present residue tests for peaches. These results would also be valid for nectarines. Efficacy could be ‘proven’ by a document signed by a researcher, with no tests required. But it is hard to find a researcher that will sign a document without conducting a test and it is hard for an industry to assume the legal consequences of attesting an efficacy in a crop without conducting a test.”

JdR: “Until 1980, registrations were covered by crop group, such as tubers, but perhaps to boost government coffers, registrations were switched to approving by single crop. The aim of the new regime is to ape the US system of splitting costs among farmers, government and the industry, but there does not seem to be any rush.”

TO: “Aenda’s associates want government to assume responsibility for carrying out tests and the recommendations for minor crop use extensions rather than the companies.”

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TO: “Aenda’s associates want government to assume responsibility for carrying out tests and the recommendations for minor crop use extensions rather than the companies.”

ED: “We are optimistic that the system will improve, but it will likely move slowly, as it so far has. The system was inaugurated early last year and little has yet advanced, and only four meetings with regulators have taken place. So, we are optimistic but at this rate it will be another two years before the system is running well. And consider this: there are some 3,000 products queuing in the approval process, many of them for minor crops.”

As a parting note of optimism, the Aenda chief reports that the first minor crops maximum residue limit extensions have been set under the new system. They came in May, for the herbicide fluazifop-P, on broccoli, cauliflower, cassava, and cabbages, and for the fungicide, mandipropamid, for use on pumpkins, courgettes, broccoli, chives, cauliflower and papaya.

◆ The interviews were conducted in July 2012.
A land of Latin American opportunity

Growers rush to adopt technology in Latin America with or without the help of regulators, Robert Birkett reports

Agriculture and the pesticides that protect it are booming in Latin America. The combined agrochemical markets of South and Central America saw a huge rise of some 30% last year. The regional market approached $11,000 million on preliminary figures compiled in November last year. Strong commodity prices, rising demand for cotton and sugar cane, and the need to combat virulent soybean diseases propelled the general market.

The rise was led by the dominant national markets of Argentina and Brazil. National surveys reported that the Argentine market was up by over 20% to top $2,000 million for the first time, while the Brazilian market set a new record for any national pesticide market of almost $8,500 million, some 16% up on 2010. That makes the Brazilian market account for around three-quarters of the region’s pesticide business.

But it has not ended there, with yet further growth reported in Brazil in early 2012. National market analysts reported that revenues were up by more than a quarter in national currency terms in the first three months of 2012, while on a like-for-like basis, growth in 2011 was some 11% up on 2010. That makes the Brazilian market account for almost three-quarters of the region’s pesticide business.

The major industry concern in Brazil centres on the availability of new products and active ingredients. Only one new active ingredient, Isagro’s herbicide, orthosulfamuron, was approved in the country last year as the authorities switched their priorities towards biological products. The Ministry of Agriculture granted registrations to several biopesticides last year, and already a few more this year.

Mexico’s Agriculture Ministry has also indicated that it would encourage the development and registration of “low-risk” pesticides. It wants to transfer efficacy studies towards minor-crop uses, and intensify training in the safe use and handling of pesticides.

Brazil’s authorities are edging towards a more proactive system of product registrations for minor crop uses. Applications for use extensions on minor crops started in November last year, and the first two active ingredients have recently gained extra uses on such crops. The need for such registrations was emphasised by the repeated findings by the toxicology authorities of residues of pesticides that are not approved for use on the crops on which they were found.

One in four samples of such cases of analysed food tested negative last year. The country introduced a regulation two years ago that simplified the approval of use extensions. Dissatisfaction remains within the industry over the new regime’s implementation. The Argentine authorities carried out trials last year on minor crops of aís that were already approved on major crops.

Registration of generic products has become more successful, if so far falling short of the promises made at the time of the country adopting the new system. Brazil passed a law in 2006 implementing an equivalence pesticide registration system based on the UN FAO’s recommendations. It has been in operation for almost five years.

Brazil approved a record number of generic aís through its equivalence registration system in 2011 on a much heavier caseload. Technical product (ai) registrations rose by almost two-thirds to 57, beating the previous record of 41 in 2008. Formulated product approvals based on ai registrations rose by half to 42, below the previous peak of 49 in 2009. An industry study revealed that prices of such products had fallen steeply from 2006 until mid-2011. Those published so far this year show similarly rising volumes on last year.

Meanwhile, an ongoing reassessment programme continues to pose a threat to the supply of pesticide aís in Brazil. National health surveillance agency the Anvisa has recently admitted that the fulfilment of its programme reassessing continued on page 26...
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14 ais has been delayed and that it is further extending undefined deadlines.

Nevertheless, the programme has led to the ban or phase-out of the insecticides: methamidophos, the phase-out of which ended last month, trichlorfon, cyhexatin, endosulfan, parathion-methyl and phorate; as well as use restrictions on the acaricide, phosmet. Acephate insecticide is being re-evaluated, following a public consultation, after the Anvisa called for an immediate use ban on the insecticide on 15 of the 17 crops for which it is authorised. More recently, the ecotoxicology authority in Brazil, the Ibama, has initiated its own reassessment programme on four neonicotinoid insecticides that have been linked to deaths in bees. Industry has highlighted these programmes as among its key near-term concerns.

Several Latin American countries have called time on certain pesticides over the past year. Argentina set a phase-out for the insecticide, endosulfan, last year, while Peru this year confirmed bans on the insecticides, aldicarb and endosulfan, and ordered the removal of all insecticides/plant growth regulators based on lead arsenate. But it has lifted the suspensions on methamidophos, and the herbicide, parquat, which were imposed last year. Peru also issued a ban late in 2011 on the use the herbicide, alachlor, the fungicide, thiram, and the fumigant, methyl bromide, while adding use restrictions to the insecticide, carbofuran, and the fungicide, benomyl.

The Dominican Republic followed with bans on the insecticides, acephate, aldicarb, methamidophos, monocrotophos and omethoate, and imposed its own restrictions on the use of a further 22 ais. In contrast, a Brazilian court overturned the ban on the herbicide, 2,4-D, in the state of Parana, last year.

Nevertheless, the industry is in rude health in Latin America. And a similar story has been evolving with the adoption and increasing commercial approval of genetically modified crops.

GM crops . . .

Four out of the ten major GM crop-growing countries were located in South America last year. Brazil led growth in global plantings of GM crops for the third consecutive year. Farmers in the country planted an extra 4.9 million ha with the technology. Brazil’s GM crop planting totalled over 30 million ha, accounting for over three-quarters of the combined cotton, maize and soybean areas, while that of Argentina reached 23.7 million ha.

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<td>Others</td>
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South and Central American agrochemical sales ($ million)\(^1\)

\(^1\) provisional figures; \(^2\) includes Paraguay, Uruguay, Guyana, Surinam, but does not include Mexico.

Source: Phillips McDougall via CropLife Latin America.

Commercial approvals of GM crops have gained pace over the past five years in Brazil. The country had only one approved crop by 2004, but it has since set new regulations, empowering its biosafety commission, the CTNBio, to carry out technical evaluations and recommend government to approve product applications. The government has consistently followed its advice, approving over 30 products for commercial planting, including last year, the country’s first five-stack GM insect-resistant and herbicide-tolerant product, Dow AgroSciences’ PowerCore maize, and its only GM kidney bean. A 2012 report showed that registration process times for GM maize product applications had fallen from around 100 months in 1999 to just ten.

An echo of this success is increasingly evident in Argentina. The country was in the vanguard of GM crop adoption in the 1990s, but had fallen behind Brazil not only with its far larger agricultural area, but also in the number of product registrations. Argentina had also become embroiled in conflict with the major supplier, Monsanto, over payments for use of its technology. There was no patent recognition in the country. However, relations have improved between the company and authorities as well as farmers.

That has culminated in this month’s commercial approval of Monsanto’s second-generation GM Roundup Ready soybean, Intacta Roundup Ready 2.

A second wind of product approvals commenced some two years’ ago. The first triple- and four-stacked GM products have recently been approved, the latter for Syngenta’s Vipera 4 maize, while the country’s product range extends to 24 variously for maize, soybeans and cotton.

Uruguay approved five GM maize lines for commercial use in the middle of last year, the first following an 18-month national moratorium, which ended in 2008, while Mexico has granted several authorisations in the past year for pilot-stage planting of GM maize. That is an intermediate phase between trials and full commercial rights. Mexico also approved a GM soybean line earlier this year. By contrast, Peru banned the import and production of GM crops last year, while Bolivia also turned against the technology, passing a law that prohibits the use and import of GM seed.

But the general Latin American scenario is increasingly among farmers, variably among regulators, to seize the perceived opportunity of becoming a world leading agricultural produce supplier, through the mass adoption of crop protection technology.
Latin America is leading the way in the rising adoption of agricultural biotechnology, and especially Brazil with its huge land potential, Robert Birkett reports.

Brazil led growth in the adoption of genetically modified crop technology in 2011. It was the second major adopter globally, and recently became the largest in Latin America, supplanting long time leader Argentina. Brazil planted over 80% of its soybean area with GM lines, and around two-thirds of its maize area with transgenic lines. The cotton area is far smaller, but GM lines accounted for around a third of the crop’s acreage.

Likewise, Argentina’s soybean area has reached saturation point with GM crops, which have accounted for around 99% of its cotton and 86% of its maize area in recent years. A 2011 study by the country’s biotechnology information council, the Argenbio, claimed that Argentina’s economy had been boosted by GM crops to the tune of over $70,000 million over the previous 15 years.

The three main GM crops in Brazil have each shown double-digit growth between 2010/11 and 2011/12, according to Brazilian agricultural market research firm, Celeres.

Brazil’s authorities have approved, or in a few cases provisionally approved, 36 GM crops, and Argentina 27. The number of authorisations has accelerated slightly in Brazil in the past two years, and especially so in Argentina. Seven of its 20 GM maize approvals have been delivered in the past 18 months. In the past two years, the countries have approved their first stacked event crops.

Stacked GM crop approvals in Brazil since the start of 2011 include: Dow AgroSciences’/Monsanto’s herbicide-tolerant and insect-resistant PowerCore (MON89034xNK603xTC1507) maize, DuPont’s (MON810xNK603xTC1507) maize, Monsanto’s Genuity VT Triple Pro (MON88017xMON89034) maize, and this year Bayer CropScience’s Glytol LibertyLink (GH614xLL25) cotton, and its Glytol TwinLink (GH614xT304xGHB119) cotton.

Argentina approved Syngenta’s Agrisure Viptera 3110 (Bt11xGA21xMIR162) maize last year, and has this year approved a four-stacked GM crop. That is Syngenta’s Viptera 4 maize, including the same events as its Agrisure Viptera 3110, plus MIR604. It controls above- and below-ground pests, and is tolerant to glyphosate and glufosinate herbicides.

The country followed those up with another game-changing move. It has this month authorised the sale and use of Monsanto’s herbicide-tolerant and insect-resistant Intacta Roundup Ready 2 (MON89788xMON87701) soybeans. It is only the fourth national approval for a GM soybean and the first for a Monsanto soybean since 1996, and followed a long and bitter dispute between the country and Monsanto over Argentina’s failure to recognise its intellectual property. The company had ceased any further introductions of its GM products, but the latest approval marks an improving relationship and Monsanto’s return to the potentially lucrative Argentine GM soybean market.
Supporting pillars of Brazil’s booming agriculture

Three Brazilian agrochemical industry associations share some of their key work in improving the Brazilian agrochemical and agricultural market and their responsibilities to sustainability.

Andef (Brazilian agrochemical industry association)
"Your country needs you!" The iconic Uncle Sam poster – with a doff of the cap to Lord Kitchener – was the inspiration for one of Andef’s stewardship campaigns, executive director Eduardo Daher says. The association created a model farmer toy and cartoon called Andefino, pointing at readers and video viewers explaining the general misuses of pesticides, such as: don’t spray against the wind; don’t smoke while applying products.

The Andef has run extensive training programmes promoting GAP and safe use of pesticides in the world’s largest agrochemical market.

The association had trained almost 8 million people in GAP, and correct use of products in the five years to 2010. Its programme started in 2005. It managed to reach over 460,000 growers in the first year, rising to over 870,000 the following year. Its outreach programme grew steadily to reach 1.1 million in 2009, before a major drive resulted in the training of over 3.4 million people in 2010 alone. “We seek to train the small- and medium-holders; the larger holders do not tend to present the biggest threats,” Mr Daher notes.

The association’s annual awards programme is in its 15th year. It celebrates and awards professionals among distributors, co-operatives, container recycling stations, and grower and farmer trainers, and encompasses several industry associations within the product chain. The awards are recognised and promoted by the country’s major agricultural science school and research institution, the Luiz de Queiroz Superior School of Agriculture.

The Andef-supported programme, Sou Agro, has been particularly successful. It unites pesticide companies, distributors, logistics companies and growers, and with the help of government, promotes the benefits of the agrochemical business to the Brazilian economy, and to the sustainable development of its agriculture. “The programme make what you eat to the farmers, who produced it,” Mr Daher says. “People in the city do not know a cow, and we have made a huge effort to make these connections, and have been so successful that we are exporting our work to other countries: we are showing people that farmers are the good guys, not the polluters portrayed in the media.”

The association highlights the success of the industry in training farmers, but especially in halving the price of the Brazilian basic diet since the mid-1970s. The general trend in the price of foodstuffs in Brazil has been consistently downward since 1975. There have been periodic short-lived rises in the cost of the “typical basket of basic foods”, but in a downward long-term trend.

From an index of R$100 in 1975, the typical basket fell to R$80 in the mid-1980s to R$60 in the mid 1990s to hitting a low of R$45.41 in 2006. It stood at R$51.27 in 2010.

Mr Daher reflects on the desire to win the public’s affection for farmers as good guys. “The Americans understand this: there, the cinema hero is the cowboy; agriculture and the countryside are appreciated and that is how we need to portray it in Brazil.”

Aenda (national generic pesticide industry association)

The Aenda’s major campaign of the past few years was its successful drive towards Brazil’s adoption of the UN FAO-recognised equivalence generic pesticide registration system.

Its executive director, Tulio Oliveira, says: “The problem of falling market share for generic products has been resolved with the introduction of the equivalence system through Decree 4074.” The Aenda chief boasts of the association’s role in breaking a “deadlock” over the implementation of equivalence in the country.

The Aenda had lobbied hard for the system’s introduction, but found that a backlog of applications ensued. Equivalence was adopted in 2002, but the first active ingredient to be registered, Atanor’s version of the herbicide, glyphosate, was not approved until 2005. The association’s response was to conduct a study of the industry, exposing the concentration of market share among companies and the lack of available products. “The dissemination of the study was very important in breaking the deadlock and allowing faster approvals,” Mr Oliveira notes.

The issue of Decree 5981 in December 2006 sought the acceleration of the equivalence approval process from 3-4 years to 4-5 months. Following the passing of the Decree, the President’s Ministry, the Casa Civil, oversaw the work of the registration authorities. The application process has sped up since, despite falling short of the stated objective.

Nevertheless, the legislation boosted the generics industry. “The system has accelerated the approval of a formulated
product after 6-8 months, in practice,” Mr Oliveira notes. Prices have fallen, and competition increased. “The generic pesticide industry has been boosted as it is able to obtain a registration at 5-10% of the previous costs and the evaluation process is much quicker.”

Other key Aenda achievements include managing to get toxicological assessment process fees reduced for small companies by presenting an innovative proposal “to pay in accordance with the enterprise size”. The Ministry of Health’s national health surveillance agency, the Anvisa, established the process in 1999, and the fees were very expensive for small companies, the Aenda says.

The association claims to have encouraged research and development. It has helped universities to develop environmental protocol tests for domestic companies following the introduction in the early 1990s of “strict” pesticide registration laws. They required applicants to submit environmental impact dossiers. “Brazilian pesticide companies saw their domestic market share fall as product portfolios were not renewed.”

**inpEV (empty pesticide container recycling organisation)**

The inpEV is a key Brazilian association winning plaudits, including the 2010 Agrow Award for best stewardship programme. That came when the organisation was hitting recycling rates of almost two out of three containers. That has since risen to nine out of ten. The results put Brazil at the vanguard for empty pesticide container collections and recycling. It set a new record last year, collecting and either disposing of, or recycling, over 34,000 tonnes of used containers. That accounted for 90% of “primary” (those that come into direct contact with the product) empty containers, and it most recently claimed it was on target for 94% this year. The proportion of all “sold containers” to be collected was 80%. And that was in response to serious demands in a country that also claims the record for national pesticide sales.

The inpEV’s leaders initiated another recycling operation, Campo Limpo, in 2009. It recycles and turns used containers into new pesticide containers. One award-winning container that it has produced is the 20 litre tirex, produced from recycled resin from used containers. It is composed of three layers. The recycled element comprises 70-80% of the new container and is sandwiched between two virgin layers.

So why has Brazil become by far the world’s leading nation in the disposal and/or recycling of old containers? The inpEV’s Joao Cesar Rando says: “Brazil has been working on the collection and recycling of containers since the early 1990s.” It started as a voluntary scheme but led to legislation. The inpEV started its own operations in 2002, involving the entire chain: its associates include farmer groups, as well as distributors, manufacturers and the three major agrochemical industry associations.

Mr Dafer confirms this. “There is a law governing the disposal and recycling of empty pesticide containers in Brazil. It codifies shared responsibility. If one person or organisation in the product chain disposes of containers in the wrong manner, everyone in the chain is guilty, and can be penalised.”

And why such conformity? In Brazil, either everyone supports a law or they are against it, Mr Dafer says. “And it is incredible; everyone seems to be for this law.”

Companies come to Brazil to learn from the inpEV: “We have Canadians coming here,” the Sindag’s Josef Da Ros says. The Sindag and the Andef work from the same Sao Paulo building as the inpEV. The inpEV managed the collection of less than 4,000 tonnes in its first year of operations. That has consistently increased year-on-year, resulting in over 200,000 tonnes of accumulated collections by the end of last year.

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**Empty pesticide container collections since 2002 (tonnes)**

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3,768</td>
<td>7,855</td>
<td>13,933</td>
<td>17,881</td>
<td>19,634</td>
<td>21,129</td>
<td>24,415</td>
<td>28,771</td>
<td>31,266</td>
<td>34,202</td>
</tr>
</tbody>
</table>

Source: inpEV.