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Platform to acquire Arysta

The US specialty chemicals company, Platform Specialty Products (Miami, Florida), has entered into a definitive agreement to acquire Arysta LifeScience from parent company Permira Funds for some $3,510 million. Of that, $2,910 million would be paid in cash while $600 million would be in the form of some 22 million preferred convertible shares. The deal is subject to regulatory approval.

Once the deal is completed, Platform will combine Arysta with the two companies being acquired this year: Belgian agrochemical company Agriphar acquired on October 1st for some €300 million ($384 million at the current rate); and US company Chemtura AgroSolutions for some $1,000 million. The Chemtura acquisition still awaits governmental approvals but is expected to close on November 3rd. The combined entity will be run as a vertically integrated agricultural chemicals company with anticipated sales of approximately $2,100 million, the tenth largest in the industry, the company claims. The current chief executive officer of Arysta LifeScience, Wayne Hewett, will lead the new group.

“Bringing Arysta LifeScience under the Platform umbrella will create a broad agrochemicals offering that is uniquely positioned to provide farmers, globally, with a fulsome suite of products to address their product and geography specific needs,” says Platform chief executive officer Daniel Leever. Mr Hewett points out that the move will strengthen the new company’s global footprint in key geographic areas such as western Europe and North America. “We will be able to offer customers a full complement of biosolutions, crop protection, and seed treatment products,” he adds.

Following the completion of the three acquisitions, Platform will have an operating footprint in over 100 countries and benefit from a global supply chain. It will have over 250 active ingredients in its portfolio with over 6,500 registrations globally. Given the “complementary nature of the businesses”, Platform expects to realise over $65 million in synergies from the combination of Arysta, Chemtura and Agriphar over the next three years.

The company signals that other acquisitions might be in the offing. “As we work to accelerate the organic growth within these businesses, we remain opportunistic on the acquisition front and will look to strategically expand our portfolio across other attractive, niche verticals,” says Platform’s founder and chairman, Martin Franklin.

Arysta recorded growth of 20% in agrochemical sales to ¥146,500 million ($1,376 million at the current rate) in 2013.
Of that, Latin America accounted for some $624 million, Asia for $252 million, Africa and Middle East for $223 million, North America for $188 million and Europe for $166 million. Platform points out that “high-growth regions” such as Latin America, Africa, central and eastern Europe, China and southern Asia represented over 65% of Arysta’s 2013 sales. The proposed Arysta acquisition would have been more than 20% accretive to Platform’s 2014 adjusted earnings before synergies, the company says.

The transaction is expected to close in the first quarter of 2015, and be funded through a combination of cash on hand, convertible equity, debt and equity. The acquisition will not have any impact on Platform’s status as a US-domiciled company.

Arysta was acquired by Permira subsidiary Industrial Equity Investments from investment firm Olympus Capital Holdings in 2008 for around ¥50,000 million ($470). Olympus initially invested in Arysta in 2002 and subsequently acquired the company from the original owners, Toamen and Nichimen.

Arysta filed a registration statement with the US Securities and Exchange Commission (SEC) relating to a proposed initial public offering of its common stock last month. Net proceeds from the offering would have been used to repay existing debt and for general corporate purposes.

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**Adama to acquire ChemChina’s Chinese subsidiaries**

ChemChina subsidiary Adama Agricultural Solutions and ChemChina strategic business unit China National Agrochemical Corporation (CNAC) have signed a “definitive agreement” for Adama to acquire control of businesses in China. Adama will acquire 100% of each of Jiangsu Anpon, Jiangsu Maidao, Jiangsu Huaihe (collectively called the Huai’an Hub) and Jingzhou Sanonda Holdings (Sanonda Holdings), for a cash consideration of approximately $323 million, together with assumed net debt of approximately $300 million.

The Huai’an Hub is based in the vicinity of Huai’an City in Jiangsu Province, the heart of the agrochemical industry in China. Sanonda Holdings owns a 20% stake in Hubei Sanonda (Sanonda), a company publicly traded on the Shenzhen Stock Exchange. Its acquisition by Adama will increase Adama’s existing stake in Sanonda from 11% to 31%, with Adama thereby becoming the single largest shareholder in the company. Adama and Sanonda will enter into a framework agreement to commence a comprehensive, strategic collaboration. This will include the two companies viewing each other as leading partners for Adama distributing Sanonda products worldwide and working together to enhance their offering in the Chinese domestic market. The agreement also establishes the foundation for the two companies sharing knowhow and promoting product innovation.
Red Sun, as the largest agrochemical manufacturer in China, is committed to green sustainable development in agro-life science!
“This transaction marks the realisation of the vision set forth in our acquisition of a majority stake in Adama in 2011,” says Adama chairman Yang Xingqiang. “These businesses are key players in the Chinese agrochemical industry, and we believe they will provide Adama with a significant foundation for a leading commercial and operational platform in China,” he adds. Adama CEO and president Chen Lichtenstein calls it “the most significant milestone in the evolution of Adama’s six-decade history”, and the company’s partnership with ChemChina.

The Chinese businesses have collective sales of approximately $850 million and earnings before interest, tax, depreciation and amortisation of around $140 million. Combined with Adama’s 2013 sales of $3,076 million, the company’s 2013 revenues would have approached $4,000 million, while also giving it a “major foothold” in the Chinese market. The geographical sales break up would alter in favour of the company’s Asia Pacific, Africa and Middle East region, whose share would increase from 22% of Adama’s standalone sales to 38% of combined sales. Sales in China would make up 14% of the total while exports of the Chinese businesses would account for 7% of revenues. Europe’s share would fall from 37% of standalone sales to 29% of combined sales.

Adama expects the domestic market in China to grow at a rate 2-3 times that of the global market. It estimates that the market will rise from around $4,800 million in 2013 to $7,600 million in 2019. Domestic sales of the companies being acquired were above $550 million. The company says that the market is fragmented with the top five companies accounting for some 23%, the next five for some 9%, and the remaining 68% being accounted for by a host of smaller companies. The fragmented Chinese market structure underpins combined Adama-China business leadership potential, the company says. It also points towards the government’s efforts at consolidating and restructuring the crop protection industry to create internationally competitive market leaders. It expects the market to become over time one of its key growth engines.

Through the acquisitions, Adama hopes to become the partner of choice for western companies seeking access to China and for Chinese companies looking to expand globally. It also plans to pursue strategic joint ventures and acquisitions to bolster its China platform. The company seeks operational optimisation by creating a global production, formulation, packaging and logistics centre in China. Adama is building an advanced formulation hub and R&D centre in Nanjing, which will be operational next year. The R&D centre will also benefit from other R&D resources within ChemChina. Adama has also broken ground on a new formulation centre in Hua’ian City, Jiangsu Province. It will increase the company’s global formulation capacity and is planned to commence operations “as early as” 2016.

Adama expects to close the transaction during the first half of 2015 following Adama’s intended US initial public offering, and is subject to certain customary closing conditions, including receipt of all required regulatory approvals.

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**EU Commission defends delay in setting ED criteria**

The European Commission has cited the need to take account of a “multiplicity” of opinions from industry and scientists in its defence of the delays in developing criteria for identifying and regulating potential endocrine disruptors (EDs). The Commission had to assess the merits of claims that its work would cause significant economic damage and was scientifically flawed. Bjorn Hansen of the European Chemicals Agency (ECHA) told the European Parliament’s Environment Committee this month. He denied that the delay was solely due to lobbying from large chemical multinationals.

The Commission missed the December 2013 deadline for establishing ED criteria for agrochemicals and biocides. Instead, it decided to embark on an impact assessment and has only recently opened a public consultation as part of that work. Members of the Environment Committee, exasperated at the slow progress, had requested an explanation for the ongoing delays. MEPs argued that the Commission had known about the need for ED criteria since 2008, when new agrochemical and biocide rules were being discussed. Some claimed that the Commission had developed proposals in 2013 but then changed tack due to pressure from certain companies.

Mr Hansen admitted that, by mid-2013, the Commission believed that it was “on target” in the development of ED criteria. However, it could not ignore two “decisive issues” that then occurred, he said. One was the warning from a broad range of industry groups that the Commission’s approach would affect the availability of active ingredients and have significant economic consequences. Individual company input was only one of many similar submissions received, he stressed. The other factor was “harsh criticism” of the Commission’s work from a large group of scientists, including editors of many international scientific journals. Faced with this, the Commission had to reassess its approach, Mr Hansen said.

A third factor was the finalisation in 2013 of the EU’s 7th Environment Action Programme, which encouraged the development of uniform and harmonised ED criteria. Prior to this, the Commission had been developing ED criteria for individual sectors, but decided to aim for criteria that could apply across all relevant legislation such as pesticides, chemicals, cosmetics and medical devices. The Commission has already acknowledged that this adds further complexity.

Some issues have been largely resolved, in that scientists have agreed on the scientific uncertainties that exist, Mr Hansen said. The impact assessment aims to address the economic issues, he added.
### Herbicides

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Active Ingredient</th>
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<tbody>
<tr>
<td>Glufosinate</td>
<td>Glyphosate</td>
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<tr>
<td>Dicamba</td>
<td>Picloram</td>
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<tr>
<td>Diclosulam</td>
<td>Cloransulam</td>
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<tr>
<td>Flumetsulam</td>
<td>Flurasulam</td>
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<tr>
<td>Sulfentrazone</td>
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<tr>
<td>Mesotrione</td>
<td>Isoxafluotole</td>
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<td>Clethodim</td>
<td>Fomesafen</td>
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<td>Bispyribac</td>
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<tr>
<td>Pendimethalin</td>
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### Fungicides

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<thead>
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</thead>
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<tr>
<td>Cyprodinil</td>
<td>Fludioxonil</td>
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<tr>
<td>Pyrimethanil</td>
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<td>Isoprothiolane</td>
<td>Triadimefon</td>
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<tr>
<td>Azoxystrobin</td>
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<tr>
<td>Kresoxim-methyl</td>
<td>Tebuconazole</td>
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<td>Captan</td>
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<td>Benomyl</td>
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<td>Mancozeb</td>
<td>Propeb</td>
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### Insecticides

<table>
<thead>
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</thead>
<tbody>
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<td>Clothianidin</td>
<td>Chlorfenapyr</td>
</tr>
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<td>Thiamethoxan</td>
<td>Lambda-cyhalothrin</td>
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<td>Dinoterfen</td>
<td>Indoxacarb</td>
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<td>Abamectin</td>
<td>Emamectin</td>
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<td>Methomyl</td>
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<td>Eproum</td>
<td>Lufenuron</td>
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<tr>
<td>Dimethoate</td>
<td>Prolenfox</td>
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</tbody>
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Synthesizing and globally supplying Pyridine-based agrochemicals.

**Main Products:**

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Insecticide</th>
<th>Pyridine Compound</th>
<th>Chloropyridine</th>
</tr>
</thead>
<tbody>
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<td>Chlorpyrifos</td>
<td>Pure Pyridine</td>
<td>2,3,5,6-Tetramethylpyridine</td>
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<tr>
<td>Diquat</td>
<td>Malathion</td>
<td>α -Picoline</td>
<td>2,3,4,5,6-Pentachloropyridine</td>
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<tr>
<td>Fluroxypyr</td>
<td>Diflubenzuron</td>
<td>β -Picoline</td>
<td>2-Chloro-5-Chloromethyl pyridine</td>
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<tr>
<td>Haloxypyr - Methyl</td>
<td>Hexafluron</td>
<td>3,5-Lutidine</td>
<td>2-Chloro-5-Chloromethyl pyridine</td>
</tr>
<tr>
<td>Fluazifop</td>
<td></td>
<td>2,3-Lutidine</td>
<td>2,3-Dichloro-5-Chloromethyl pyridine</td>
</tr>
<tr>
<td>Cyhalofop</td>
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Calls resonate for amending EU Regulation 1107/2009

An inability to achieve harmonisation through zonal registration and frustrations with the complexity introduced by Article 43 have led to resonating calls for amending Regulation 1107/2009. Sanjiv Rana reports on Informa’s AgChem Forum conference in Barcelona.

The view that EU agrochemical Regulation 1107/2009 has not delivered in its aim of streamlining the regulatory process in the EU has been regularly put forward at various forums. Informa’s AgChem Forum held in Barcelona on September 9th-10th was no different. The common refrain was that the zonal system was unable to work effectively due to resource constraints and an inability of national regulators to get past their national requirements in a bid to achieve harmonisation. The entire new regulatory system was compared to a Greek tragedy and many speakers made calls to amend the Regulation, especially Article 43 dealing with product renewals.

Mike Carroll from Dow AgroSciences sounded a cautionary note on the looming delays in product authorisation renewals under Article 43. The spiralling effect of delays in the renewal of ai authorisations under Annex I Renewal (AIR)-2 and AIR-3 will result in huge delays in product approvals and consequent problems for companies, “something I have been trying to impress upon the regulators at Informa’s conferences for many years now”, he said. Mr Carroll likened himself to the Greek mythological figure of Cassandra, who had the power of prophecy but was cursed with never being believed.

Comparing the three phases of Annex I renewal of ai authorisations, Mr Carroll emphasised that the steep increase in the number of ais involved in each phase meant that delays in AIR-2, which is underway, and AIR-3, which is still in its initial stages, are inevitable.

AIR-1 comprised seven ais involving 14 member states in the review and took three years to complete. AIR-2 consists of 31 ais, involves 21 member states and would take 3-5 years to complete. AIR-3 is a much more ambitious project comprising 150 ais and involving 28 member states. Under the timelines set out in EU Regulation 844/2012, a renewal under AIR-3 should take 29.5 months. But going by previous experience in AIR-1 and AIR-2, these timelines are never met and “we can only imagine how long the completion of AIR-3 would take”; Mr Carroll said. AIR-3 is to be followed by another set of 200-plus ais, he added.

The guidance document on renewals under AIR-3 is expected to be voted on by the standing committee on plants, animals, food and feed in October. The ais under AIR-3 have been divided into four groups: the first group consists of 40 ais that had original expiry dates before June 14th 2014, but which have been extended until January 31st 2017; the approval of the second group of 27 ais was to have expired between July 2014 and November 2015, and have been extended to July 31st 2017; the third group of 55 ais had approval expiry dates between February 2016 and November 2017, and have been extended until July 2018; and the approvals of the fourth group of 28 ais are to expire by July 31st 2018, and for which there will be no extension in principle. But based on previous experience, “what do we really expect”, questioned Mr Carroll.

The workload upon regulators and delays in ai approvals would have a knock on effect on product renewals under Article 43, which anyway is beset with complications, Mr Carroll continued. Applicants are required to submit the product application comprising the draft reregistration report (dRR) within three months of the ai’s reapproval. That leaves too short a window for applicants to prepare the dRR. Furthermore, mixture products would trigger multiple Article 43 submissions and reviews. For instance, a mixture containing three ais would trigger three separate submissions and reviews unless all the ais in the product have been reapproved on the same date.

In order to overcome the obstacle posed by the requirement to submit the dRR within three months of the ai approval, the industry presented a proposal to the European Commission suggesting that the entry into force of an Annex I renewal occur one or two years after the approval was voted through. That would provide applicants 15 or 27 months to prepare dRRs including longer term studies and confirmatory data. Mr Carroll said that the Commission’s legal services were checking the proposal although it appeared that the proposal had been rejected.

Data requirements for mixture products are likely to result in further problems for applicants because old or new data requirements would apply to ais depending on whether they had yet been reapproved or not under the AIR programmes. A third issue is that of decreased data protection under Regulation 1107/2009, which has been reduced to 30 months from the five years’ protection under Directive 91/414.

Mr Carroll was the delegate who likened the whole process involving renewals under AIR and Article 43 to a Greek tragedy, which includes four components: hamartia (a fatal flaw); hubris (pride); nemesis (destruction); and catharsis (renewal). He called upon the Commission to overcome pride and examine the flaws in the new regulations, resolve to fix the “fatal flaws” in Article 43, rewrite it and provide catharsis to the approval process.

Amendments

Euros Jones from the European Crop Protection Association (ECPA) reiterated the group’s call made earlier this year to amend Regulation 1107/2009 and Regulation 396/2005. He began by pointing out the impending dates for review of both
Regulations: Article 82 specifies a report on the functioning of mutual recognition, the division of the community into three zones and the application of the criteria for the approval of ais by December 14th 2014; Article 47 required a report on the implementation of Regulation 396/2005 by April 5th 2015; and Article 62(5) stipulates that a report on the effects of Regulation 1107/2009 on data protection of tests and studies involving vertebrate animals by December 14th 2016.

The ECPA stresses the need for one review of both Regulations to improve efficiency and co-ordination. It suggests that: a proposal to amend Article 43 be made in 2014; an external review by consultants be initiated to provide input for a future review; and a report and proposal to amend both pieces of legislation be put forward in 2015.

The Association suggests changes in four phases. Phase one would include implementing the current framework in the area of zonal authorisation by removing national requirements including efficacy data needs, increasing inter-zonal co-operation and creating a zonal helpdesk. The first phase would also involve making changes to Article 43 in the requirement for a “full submission” three months after ai reapproval and the need for a full review after the approval of each ai in a formulation.

In phase two, the ECPA asks for: the removal of the zonal concept; replacing hazard-based cut-off criteria by risk assessment in ai evaluation; an unlimited approval period for ais; and an improvement in the maximum residue limit review process after ai reapproval through a central online evaluation system.

Phase three asks for a considerable change to data protection provisions. The ECPA proposes a data call-in system, similar to that operating in the US. A full review would only be triggered when justified, and would initiate a data call-in. It also suggests compulsory data sharing for all new data in the submission, with the compensation level set by commercial negotiation between parties. Finally, any new study necessary for a regulatory decision should be protected for ten years, regardless of whether it is an initial application, extension or renewal.

In the long-term under phase four, the ECPA proposes that ai evaluations be carried out once, but managed centrally.

Comparative assessments
Janet Williams from Bayer CropScience talked about Article 50 of Regulation 1107/2009, which deals with the comparative assessment of crop protection products containing candidates for substitution. Under the transitional measure outlined in Article 80 of the Regulation, the Commission was to establish a list of candidates for substitution by December 2013. That was
to be followed by the application of comparative assessment and substitution by the member states under Article 50.

Ms Williams highlighted that comparative assessment under Regulation 1107/2009 had added a fourth layer to the product approval system in the EU. The first layer was that of aia being evaluated against hazard-based cut-off criteria, followed by the second layer of the aia passing the first step to be evaluated against risk criteria. The third layer was of products containing aia passing the second step to be evaluated against risk criteria. The final layer comprises products containing a candidate for substitution being subjected to comparative assessment under which their uses might be substituted.

Christian Prohaska from the Austrian agency for health and food safety, the Ages, explained that for existing products already approved in a market, the comparative assessment would occur at the time of the renewal of the product. But in the case of a “new” use requiring an amendment of a current approval incorporating new crops, only the new uses would be considered for comparative assessment. The existing uses in such a case would only be analysed at the time of renewal.

The first draft list of aia to be considered for comparative assessment comprises 78 aia. This list is based on aia approved until January 2013. The issue of the second list of aia that have been approved from January 2013 onwards is still to be addressed, he added.

The question of when comparative assessments will start being performed by member states is still somewhat unclear. If the draft list of 78 aia were to be voted through by the end of the year, transitional measures could possibly be applied to product applications from January 2016, Mr Prohaska explained.

While presenting the industry perspective on the issue, Ms Williams began by pointing out the increase in workload for the already stretched resources in member states. She said that many of the criteria for picking aia are vague and that the industry continue to challenge some inclusions on the draft list. Ms Williams added that there were too many aia on the draft list and cited research in Germany showing that around a quarter of all products and half of all uses would be subject to comparative assessment.

A further drawback of the large list was the strong potential for complexity and diverging interpretations among member states. Ms Williams also pointed out the questionable legality of industry players conducting comparative assessment with competitor products.

She stressed the need to properly communicate the purpose of the list. The aia on the draft list being blacklisted by supermarkets and NGOs in a negative campaign has been a major concern for the industry.

Under the rules, withdrawal of a product if it were found to require substitution would become effective three years after the member state decision or at the end of the approval period of the aia. But products containing candidates for substitution would not be excluded from zonal authorisation and mutual recognition.

Ms Williams stated that interactions of the ECPA with member states revealed that member states were in favour of a minimised workload involving sharing of evaluations, where possible. The expectations of member states were that there would not be a major negative impact from comparative assessment on product availability and few uses or products would eventually be substituted.

In his final analysis, Mr Prohaska concluded that the need for at least four different chemical modes of action in order to reduce the risk of resistance as one of the steps in comparative assessment would essentially ensure that fungicides and insecticides would not be substituted. He ended his presentation with the pertinent observation that copper compounds are considered as candidates for substitution but at the same time are allowed to be used in organic crop farming. It is a funny situation, he chuckled. Greek tragedy had turned to farce.

* Informa’s AgChem Forum conference was held in Barcelona, Spain on September 9th-10th.*
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Propyzamide
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Isoaflutole
Hexoxypryn
Bipyridyl acidophiles

INSECTICIDE
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This report profiles 100 generic pesticide active ingredients (ais). When an ai is first patented, it has a period of protection with intellectual property rights. When its patents expire, the ai may then be produced by a generic manufacturer, as a generic product. Of course, the original patent holder may also continue to manufacture the ai, and develop further patents based on new formulation technology, synergistic effects between ais, etc. In addition, the generic manufacturer may also gain its own patents relating to aspects of manufacturing, for example. These strategies will be discussed in the third volume of the three-volume series on generic pesticides.

The criteria for choosing generic ais for this report include the number of generic companies manufacturing each one. Some ais, although off patent for many years, are still predominantly produced by the original manufacturer. Other criteria include annual sales and usage. Some ais, while globally not so significant, are important on a local level. For example, herbicide phenmedipham has limited global sales, but is important in the EU sugar beet market.

The ais vary from older pesticides that are increasingly facing restrictions, to ais whose patents are only just expiring, like mesotrione.

The organophosphorous insecticide, ethion, for example, has been banned in many markets, although it is still sold in some countries like India. Its sales have already fallen sharply. Other older pesticides still have substantial sales, despite being restricted or banned in many countries. One example is the organochlorine insecticide, endosulfan, first reported in 1956. It was originally sold by Hoechst, whose agrochemical business now forms part of Bayer CropScience. Bayer ended the sale of endosulfan-based products in 2010, following concerns.

Endosulfan is still widely used, as it provides cheap pest control. In 2011, the ai was still the world’s third-largest selling generic insecticide, according to the Pesticides Manufacturers and Formulators Association of India (PFMAI). However, two regulatory changes led to further restrictions on endosulfan worldwide; parties to the Stockholm Convention on persistent organic pollutants (POPs) listed the ai on Annex A to the Convention, while endosulfan was added to the prior informed consent (PIC) list. As a result, India, traditionally a major source of the ai, has imposed a complete ban on manufacture and domestic sales, with only pre-existing stocks allowed to be exported. These restrictions mean its sales are likely to fall markedly in future years.

Some older ais are still widely used. The herbicide, glyphosate, for example, was first reported in 1971 and has gone on to be the global bestselling pesticide. Its use has been expanded with the development of crops genetically modified to be tolerant to the herbicide. However, this widespread use has led to the development of resistant weeds.

The report also includes more recent blockbusters, like the insecticide, imidacloprid. Even with newer ais, restrictions have been enforced. Imidacloprid has been implicated in declines in honey bee populations.

The report is split into sections, and covers 23 fungicides, 41 herbicides and 36 insecticides. Each ai profile is split into sections:

a) Background information

Each profile begins with a summary of the active ingredient, including the type of product and the developing company. It summarizes the main uses of the pesticide, such as which crops it is used on and which pests it controls. The section continues with a table listing some significant companies that produce the technical ai or market it. The main source for this table is the list of companies from Volume 1 of the series. In addition, other companies have been included, including the original patent holder, where they still manufacture the ai.

The list is not exhaustive, but gives a good indication of the spread of companies involved in the manufacture or marketing of the ai. In most cases, companies from India and China predominate, reflecting the importance of those companies as a source of pesticide manufacturing. Both countries have focused on improving their environmental records in recent years, and these reforms mean that the industry is in a period of change.

b) Registration status

This section considers the registration status of the ai in four major markets around the world – the EU, US, Japan and Brazil – and finally in additional markets where recent actions have been taken relevant to the ai. While Japan is a major market in Asia, generics have traditionally not played such a significant part in the market as in other regional markets, such as India and China. Both the US and EU have an active pesticide review programme, which has resulted in increasing restrictions on ais, old and new. In the past, registrants have complained about the lack of generic registrations in Brazil. However, recently more generics have come to market. However, in many cases, a pesticide may be registered there but not actually sold on the market.

c) Market profile

This section includes information regarding sales of the ai worldwide. The amount of information available varies according to what has been published. Sources include news stories in Agrow, company websites, government figures etc.
### Generics Supplement 2014

#### Shenzhen Baocheng Chemical Industry Co., Ltd.

**Insecticide**

- Abamectin
- Acephate
- Acetamiprid
- Chlorpyrifos
- Diazinon
- Difenethion
- Dimethoate
- Fenazaquin
- Imidacloprid
- Methomyl
- Lufenuron
- Teflubenzuron

**Fungicide**

- Carbendazim
- Chlorothalonil
- Cyprodinil
- Difenconazole
- Epoxiconazole
- Flutriafol
- Mancozeb
- Penconazole
- Propiconazole
- Pyrimethanil
- Tebuconazole
- Tetraconazole
- Triflufenazon

**Herbicide**

- Acetochlor
- Atrazine
- Bispyrimate-Sodium
- Bromacil
- Mesotrione
- Cethodim
- Clodinafop-Propargyl
- Clopyralid
- Cyhalofop-Butyl
- Fluorochloridone
- Glyfosate
- Methribuzin
- Oxasulfuron
- Oxyfluorfen
- Paraquat
- Pyrithiobac-Sodium
- Quinclozofop-P-ethyl
- Florasulam
- Propazolate
- Pyridate
- Sulcotrilazine
- Thiamoxazin

**Website:** www.baochengagro.com

---

#### Sinostar

**Herbicides**

- 2,4-D 96% TC
- Fenoxaprop-P-ethyl 97% TC
- Glyphosate 96% TC
- Glyphosate-ammonium 98% TC
- Glufosinate-ammonium 95% TC
- Haloxypophenyl 95% TC
- MCPA 95% TC
- MCPA-2-ethylhexyl 93% TC
- Nicosulfuron 97% TC
- Quizalofop-P-ethyl 97% TC
- Tribenuron-methyl 97% TC

**Insecticides**

- Abamectin 95% TC
- Acetamiprid 95% TC
- Cartap 96% TC
- Chlorpyrifos 97% TC
- Dichlorvos 94% TC
- Fipronil 95% TC, 97% TC
- Imidacloprid 95% TC, 97% TC
- Lambda-cyhalothrin 97% TC
- Methomyl 98% TC
- Phosalone 95% TC
- Pirimicarb 95% TC

**Fungicides**

- Carbendazim 98% TC
- Flusilazole 95% TC
- Kresoxim-methyl 96% TC
- Thiophanate-methyl 97% TC

*We can provide I.A, FMIDA, the intermediates of Imidacloprid, Fipronil and Quizalofop-P-ethyl.*

We produce the formulations: WP, WDG, SP, SC, SL, FS, EC, EW. We package for solid formulations from 1g to 25Kg, for liquid formulations from 10ML to 1KL IBC.

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**ANHUI HUAXING CHEMICAL INDUSTRY CO., LTD**

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Factory: Wujiang Town, Hexian County, Anhui Province, P.R. China P.C.: 238261

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E-mail: trade@huaxingchem.com  http://www.huaxingchem.com

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EXECUTIVE SUMMARY

1.1 Market share

Research based companies identify and develop agrochemical ais, which they protect with patents. This means they have a period when they can produce the pesticide with no competition, to recoup the substantial research and development costs. Subsequently, the patent protection will expire, enabling competitors to enter the market with their generic versions. Many companies manufacture ais for which the patents have expired, and for which they do not hold the original patent. However, very often the original patent holder will continue to dominate the market.

The agrochemical market can therefore be divided into proprietary ais (which still have patent protection and so are sold only by the developing company or approved licensees) and off-patent ais (which have lost their patent protection). These off-patent ais can be divided into two classes: proprietary off-patent ais, which are produced and sold by the original developing company; and generic ais, produced and sold by companies other than the original developer.

In addition, companies other than the original ais developer may develop their own proprietary technology using the generic ais – perhaps a patented formulation or mixture. These are also sometimes defined as proprietary off-patent pesticides.

Proprietary ais are taking a smaller share of sales than ever before – estimates suggest around 20-30% of the global agrochemical market. This leaves 70% to 80% of the global agrochemical market based on ais that are off-patent.

Rotam estimates that proprietary off-patent pesticides took 45% of the market in 2009, and this will rise to 55% in 2014. This includes generic ais with some patented element to them. Other sources put the original developer as accounting for perhaps half of this. Rotam estimates that pure generics will remain a constant 25% between 2009 and 2014.

1.2 Patents

The global intellectual property system, including patents, is overseen by the World Intellectual Property Organization (WIPO). Its objectives are to promote the protection of intellectual property worldwide, and to ensure administrative cooperation. To gain a patent, an application must be filed. There are no world patents. Instead, an applicant must apply to a: a national patent office; regional office, where an applicant requests protection in one or more countries; or under the Patent Cooperation Treaty (PCT), administered by WIPO. PCT provides for the filing of a single international patent application, and the applicant can request protection in as many signatory states as needed.

Patent law is very complex, and varies from country to country. Where a patent is granted, the owner gains protection for the invention for a limited period, typically 20 years. During this time, the invention cannot be commercially made, used, distributed or sold without the owner’s consent. The owner may permit or license others to use the invention on mutually agreed terms, or sell the rights to someone else, who becomes the new owner. After this time, the invention enters the public domain and can be commercially exploited by others. Where a patent owner believes the patent has been infringed, the owner can generally go to court to stop the infringement. Third parties can also ask the court to declare the patent invalid.

The granting of new patents for agrochemicals is unsurprisingly dominated by just a few companies. This is illustrated by those granted by the European Patent Office (EPO) and USPTO (US Patent and Trademark Office) in 2012 – when 135 patents were granted to just 19 different assignees. Of these, Bayer and Syngenta led the way.
»WHEN IT GETS DIFFICULT, YOU GO TO SCC«

WE ARE THE EXPERTS FOR EFFICACY CHALLENGES.

Integrated Solutions For Growers

Work as One, to be No. 1

Global marketing strategy enhances overseas opportunities

59 U.S. EPA approved labels

The largest producer of safeners in the world, OEM service available

Comprehensive portfolio is expanding to include more new products

Metsulfuron-Methyl
Picoxystrobin
Acephate
Paclobutrazol
Rimsulfuron
Iprobenfos
Abamectin
Indolebutyric acid
Clethodim
Bacillus Subtilis
Spiromesifen
Cyanamide Hydrogen

Learn more about Tide Group?
Welcome to Booth 1E17-1F43 at AgroChemEx 2014
www.tide-china.com
A patent has only a limited lifespan, so the inventor has a balance to strike. On one hand, a company may want to delay filing a patent application, to prolong the product’s commercial life. On the other, a company wants to patent its invention early to ensure it gains protection successfully. Any delay means there is a risk of a competitor either discovering the secret or independently coming up with the same invention and patenting it first. This is all the more likely, as companies often target research towards those areas of pesticide chemistry where products have already been successful. In extreme cases, the timing can be down to days.

Some countries require an invention to be exploited within a given time of the patent being granted. This is called working the patent. If this is not carried out, the patent holder may be required to grant a licence to another organisation to “work the invention”.

A patent covering a new ai is generally referred to as a primary patent. Where a company then gains patents for products containing this ai, or patents for new production processes, this is often called a secondary patent. Intermediate patents, process patents, formulation patents, use patents and mixture patents can all be filed after, or instead of, the initial primary patent either by the primary patent holder or by a competitor company. This can result in stalemates, with one company having the right to stop others selling a compound or combination product while another company can prevent others from using or producing the compound in the most effective way. These situations are usually resolved through licensing agreements – either one company agrees to forfeit its rights or both companies gain rights in different commercial or geographical sectors.

1.3 Registration
To gain registration for a pesticide, a company must usually submit a comprehensive data package to the registration authorities to back up its claims of safety and efficacy. This data will have been time consuming and expensive to generate, and this investment is protected by a period of data exclusivity. During this time, no other companies are allowed to use the data to obtain registration, unless agreed by the originator. Data exclusivity is an entirely separate and additional protection from that afforded by a patent.

The period of data exclusivity is typically ten years. During this time (and assuming the patent has expired), the generic company must provide its own data to obtain registration. This is an expensive step, and often outside the capability of smaller generics companies. The exact provisions of data exclusivity vary between countries, and this complexity adds a further barrier to a generic company wishing to enter the market.

Data compensation – after the period of data exclusivity has expired, the generic company may want to use data generated by the original registrant. In many countries, the generic company can do this provided it pays compensation to the data holder. The legislation varies worldwide, and the situation is complex.

In the EU, the agrochemical registration Regulation (1107/2009) introduced a new hurdle to register pesticides – comparative assessments. In effect, an ai will be evaluated at EU level against hazard-based cut-off criteria. Those that are not considered too hazardous will be considered for risk assessment. The European Commission is then due to establish, by 14 December 2013, a list of ais that are to be candidates for substitution, because it considers there are comparable ais that are safer for the same use.

1.4 Factors favouring generic production
Many generic manufacturers are gearing up to produce an ai long before its patents expire. The largest generic companies invest in developing their own generic products, including formulation technologies, and so look for ais that will maximise their returns. There are certain factors that make an ai popular for generic manufacturers. These are summarised in Table 1, with the market potential being the overriding consideration for many generics companies.

1.5 Generic companies
Generic companies have various origins.

What are we focusing on producing?

- Sulonil 立达宁
  - Chlороhalin Tech 98% min.
  - Chlороhalin 75% WP
  - Chlороhalin 500,720 g/L SC
  - Chlороhalin 75%,82.5%,90% WDG

- Flyee 宝洛施
  - Fludioxonil Tech 98% min.
  - Fludioxonil 500 g/L SC
  - Fludioxonil 50% WDG

Jiangyin Sulite Chemical Co., Ltd.
Taizhou Bally Chemical Co., Ltd.
Add: No.7, Runfu Rd., Liang, Jiangyin, Jiangsu, 214441 P.R. China
Tel: 0086-510-86636219 Fax: 0086-510-86646219
Contact: Mr. Sun Hefeng Ms. Chenghui Email: junkchem@xilu.com, sulite@xilu.com
• Established as a private generic pesticide producer

• Established as a public generic pesticide producer

• Generic business developed as part of a larger chemical company

• Others, such as agricultural suppliers, cooperative groups, third-party suppliers and parallel importers

The success of the largest generics companies can be seen in Agrow’s annual ranking of the global top 20 agrochemical companies. In 2012, ChemChina subsidiary Makhteshim-Agan Industries was the world’s largest generics producer, and maintained its position as the seventh-largest agrochemical company in the Agrow rankings, with sales up by nearly 6%. Australian company Nufarm ranked eighth, posting a more modest gain of around 3%. Indian company United Phosphorus was ranked eleventh in 2012, slipping back one place on 2011. In 2006, the company became the first Indian company to enter Agrow’s top 20.

In 2012, Chinese chemical company Huapont-Nutrichem became the largest agrochemical company in China after Chongqing Huapont Pharma completed the acquisition of agrochemical exporter Nutrichem International. Huapont-Nutrichem entered Agrow’s top 20 listing at 16th place. Another Chinese company, Wynca, reappeared among the 20 leading players after a more than 30% hike in agrochemical sales, largely due to increased prices for its leading product, glyphosate. Wynca had become the first Chinese company to enter Agrow’s top 20 ranking, when it ranked 14 in 2008, on the back of high glyphosate prices. However, the fall in the price of glyphosate meant that its position was short lived.

Comparing the top generics companies in 2012 with those in 2002 (see Table 1), Makhteshim-Agan was the largest generics producer in both cases. It estimates its share of the global generic agrochemical market stands at 12%. It has around 50 subsidiaries and more than 3,000 employees. The rise of United Phosphorus, Huapoint-Nutrichem and Wynca reflects the successes of the Chinese and Indian generics industry.

1.6 Strategies adopted by generics companies

Generic companies tend to compete on price, and types of formulations and mixtures. Price competition is fiercest among companies that produce only technical aids, because once the aid has met quality standards, price is one of the main differentiating factors. In addition to price, companies that develop novel formulations and mixtures can compete on the basis of effectiveness. Companies that produce branded products can build up a reputation for that brand.

Many generic pesticide companies conduct some form of research. Initially, this tends to focus on developing production processes for specific generic aids, but as companies progress to producing branded products, they often also start to develop...
new ai mixtures and formulations. This allows them to start competing on factors such as effectiveness and reputation with the associated business benefits.

Generic pesticide companies generally adopt one of five broad strategies:

- Selling technical ais and competing mainly on price
- Selling technical ais and formulated products and competing mainly on price
- Selling technical ais and branded formulated products, but still competing mainly on price
- Selling mainly branded formulated products and developing novel mixtures and formulations, and competing on effectiveness, reputation and assistance to growers
- Selling both generic and proprietary pesticide products, and competing on effectiveness, reputation and assistance to growers

Many companies move through these strategies as they develop, although progressing from one strategy to the next usually requires that the company has reached a certain size to fund the next stage in development. Each successive step offers more scope for growth but is more expensive to implement, because of the costs of developing new mixtures and formulations, and setting up a distribution network for branded products. In China, the government is encouraging consolidation to fund this.

1.7 Strategies enabling an originator to maintain market share

R&D based companies sell branded products and compete on effectiveness, reputation and assistance to growers, rather than on price. Unlike generic companies, they develop novel ais, which gives them additional ways to market and differentiate their products. Typically, they market their novel ais as a more effective pesticide treatment than an existing ai, allowing this new ai to take market share from older products. Whole classes of pesticides can be replaced by newer versions. For example, organophosphates lost share to pyrethroids and then neonicotinoids. Legislation has encouraged the removal of older ais from the market.

The R&D companies have tended to focus on developed countries with more affluent agricultural industries, where farmers are willing to pay for pesticides that are more effective and can be applied at lower rates. R&D based companies with their own distribution and marketing networks are beginning to pay more attention to developing countries, especially those where the domestic pesticide market is growing. In recent years, they have begun to expand their sales networks into countries where they previously only had limited access, such as China.

As the rate of discovery of new ais has fallen, so R&D companies are under more pressure than ever to squeeze the most value out of their research, even after the product patent has expired. These originating companies therefore employ various strategies to protect sales of off-patent products from generic competitors. These strategies can be very effective, and often the originator is still the main supplier long after generics enter the market. Some of the strategies followed by the R&D industry to maintain sales are shown in Table .

Even where the originating company manages to maintain a high market share, the entry of generic producers is generally a precursor to falling prices, thereby reducing revenues and profits. Where fewer generic products enter the market, the R&D company may be able to maintain higher margins, which means that manufacturers can afford to invest more in product development.

Where the market becomes flooded with a generic pesticide, leading to oversupply, the manufacturers may be forced to sell the product at a small profit over the cost of manufacturing, or even at a loss, dumping on the market and eroding prices. Ultimately, the R&D company may decide to sell its interest in the generic ai where it thinks it no longer fits with its business model.
World Largest Agrochemical Trading Platform with most updated policies, products, technologies and market dynamics

- Connecting with 1,000 agrochemical suppliers from over 30 countries & regions
- Attended by 30,000 professional visitors from over 120 countries & regions
Syngenta agchem sales up 3% in Q3

Syngenta’s crop protection sales went up by 2.8% to $2,372 million in the third quarter of 2014 compared with the same period last year. The rise was a similar 3% at constant exchange rates (CER). Integrated sales including crop protection and seeds were up by 2.5% (+3%) to $2,829 million. Prices across all products moved up 3% while volumes were unchanged. Excluding sales of the herbicide, glyphosate, which is being deliberately reduced in order to improve profitability, integrated sales increased by 5%.

Nine-month crop protection revenues rose by 3.1% (+5%) at CER to $8,583 million. Integrated sales including crop protection and seeds were up by 1.7% (+4%) to $10,973 million. Prices rose 4% while volumes were unchanged.

Herbicides constituted the largest category during the third quarter, contributing 36.9% to crop protection sales. Revenues dipped by 4.2% to $876 million. Selective herbicides made up the bigger chunk of sales and grew by 1.6% to $493 million. Strong growth in Callisto (mesotrione) in North America “more than offset” lower herbicide use on sugar cane in Latin America.

Herbicides were the next largest category, making up 28.6% of sales. The category led growth, rising by 20% to $679 million. The advance was mainly driven by demand for Elatus (benzovindiflupyr - trade-marked as Solatenol) in Brazil. Nine-month orders exceeded $200 million worldwide. Recorded sales for the product for the first nine months were $75 million. It is on track for the company’s $300 million sales target for the year. Syngenta expects approvals for Solatenol in maize and specialty crops in the US in 2015 and in cereals in the EU in 2016.

Insecticides grew strongly as well, rising by 16.1% to $518 million. Sales expanded in North America and Brazil, where the Durivo (DuPont’s chlorantraniliprole + thiamethoxam) family of products was effective against caterpillar pressure in soybeans, maize and cotton.

Latin America was Syngenta’s largest region during the quarter, accounting for 44.5% of crop protection sales. Revenues were up 3% to $1,055 million. Growth hit 8% excluding glyphosate. Drought affected sales in the northern parts of the Latin American region and in the Brazilian sugar cane market. There was “strong” demand for Elatus in Brazil.

North America led growth at 6.6%, with crop protection sales rising to $487 million. Sales were driven by “strong” selective pesticide sales in advance of the next US season. Insecticide sales also expanded with high pest pressure in southern US. Sales in Canada were affected by flooding and reduction in glyphosate sales. Seeds sales were lower primarily due to the divestment of the US fresh produce company, Dulcinea Farms, in December 2013.

In the Asia Pacific region, sales grew by 4.3% to $364 million. Fungicide and insecticide sales remained strong. Emerging markets continued to perform well despite the delayed monsoon in southern Asia. Sales were lower in Australasia owing to limited weed and disease pressure.

Sales in Europe, Africa and the Middle East (EAME), traditionally the company’s largest region, declined by 2.5% to $466 million. The region accounted for only 19.6% of quarterly crop protection sales, although it made up over a third of nine-month revenues, which rose by 7.3% to $2,878 million.

Syngenta’s crop protection sales by category ($ million)

<table>
<thead>
<tr>
<th>Category</th>
<th>3rd quarter ended Sept 30th</th>
<th>% change</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbicides</td>
<td>914</td>
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<tr>
<td>Selective</td>
<td>485</td>
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<tr>
<td>Non-selective</td>
<td>429</td>
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<tr>
<td>Fungicides</td>
<td>566</td>
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<td>Insecticides</td>
<td>446</td>
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<td>518</td>
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<tr>
<td>Seed care\</td>
<td>315</td>
<td>-21.0</td>
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</tr>
<tr>
<td>Others</td>
<td>67</td>
<td>-25.4</td>
<td>50</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>2,308</strong></td>
<td><strong>+2.8</strong></td>
<td><strong>2,372</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>9 months</th>
<th>% change</th>
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</tr>
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<tbody>
<tr>
<td>Herbicides</td>
<td>3,645</td>
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<tr>
<td>Selective</td>
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<td>Non-selective</td>
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<td>Insecticides</td>
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<tr>
<td>Others</td>
<td>117</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>8,325</strong></td>
<td><strong>+3.1</strong></td>
<td><strong>8,583</strong></td>
</tr>
</tbody>
</table>

\ seed treatment products
This report provides a comprehensive update on recent developments in insecticides and insect control.

In particular, new insecticide active ingredients recently commercialised and in development are profiled. Acaricides and nematicides are also covered.

This report also considers the global insecticide market, regulatory developments in Europe, repellents, semiochemicals, new active ingredients and progress in the area of bioinsecticides.

Companies involved in insecticide and bioinsecticide R&D are profiled, including lists of their new active ingredients, main established products and recent patents.

**THIS REPORT FROM AGROW WILL EXPLORE:**

- What are recent developments in insecticides and insect control?
- What new insecticide active ingredients are available?
- What are the regulatory developments affecting the insecticides market in Europe?
- What progress is being made in bioinsecticides?
- What companies are involved in insecticides and bioinsecticide R&D?

**THIS REPORT WILL HELP YOU UNDERSTAND:**

1. Recent developments in the insecticides market
2. New insecticide active ingredients available
3. Regulatory developments in the insecticides market in Europe
4. New product development in the insecticides market
5. Progress in bioinsecticides
6. Companies involved in insecticide and bioinsecticide R&D

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Email: reports@agra-net.com
Call: Rosie Crouch on +44 (0) 207 017 4475
Syngenta’s results by business segment ($ million)

<table>
<thead>
<tr>
<th>3rd quarter ended Sept 30</th>
<th>2013</th>
<th>% change</th>
<th>2014</th>
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<td>Crop protection</td>
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<td>2,372</td>
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<tr>
<td>Seeds</td>
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<td>-1.0</td>
<td>473</td>
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<tr>
<td>Lawn and garden</td>
<td>155</td>
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<tr>
<td>Total</td>
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Nine months

<table>
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<th>3rd quarter ended Sept 30</th>
<th>2013</th>
<th>% change</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop protection</td>
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<td>+3.1</td>
<td>8,583</td>
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<tr>
<td>Seeds</td>
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<tr>
<td>Lawn and garden</td>
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<tr>
<td>Total</td>
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<td>+1.6</td>
<td>11,483</td>
</tr>
</tbody>
</table>

Outlook

Syngenta expects a higher rate of sales growth in the fourth quarter and maintains its outlook of combined crop protection and seed sales to grow by 6% at CER for 2014. “Performance in the second half of the year is primarily driven by Brazil, where the season is just now under way and is still dependent on rainfall,” says chief executive officer Mike Mack.

Profitability during the first nine months of the year has been affected by adverse currency movements and sales mix. As a result, the company expects full year earnings before interest, tax, depreciation and amortisation (EBITDA) margin to be below last year’s level. “In a challenging market environment, our focus is on improving profitability and we are on track to realise the first benefits from the implementation of our operational leverage programme in 2015,” adds Mr Mack.

Juncker adjusts shakeup for EU Health directorate

Plans for the European Commission’s Health and Consumers Directorate General (DG) to lose its responsibility for medicinal products, leading to an increased emphasis on its pesticide work, have been dropped. Commission President-elect Jean-Claude Juncker had to make the change in order to secure a positive vote from the European Parliament for the new group of Commissioners, who will take up their posts in November. The completion of the Parliament’s vote confirms Vytenis Andriukaitis as the new EU Health Commissioner.

Mr Juncker originally outlined his restructuring plans in September. Other aspects will go ahead, including the DG’s change of name to Health and Food Safety, and its taking over responsibility for biocides, including non-crop pesticides, from the Environment DG. One of Mr Andriukaitis’ first tasks is a review of the decision-making process in approving genetically modified crops. The new Commission has now been appointed by EU Ministers for the next five years until October 31st 2019.
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