

crop protection monthly

international news, comments, features and conference reports

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LEAD ARTICLES

TOP COMPANIES REPORT SALES GAINS IN 2011

Syngenta, Bayer and BASF have all posted significant sales gains in 2011. Syngenta reported that its sales revenue for 2011 increased by 14% to \$13.3 billion, up 12% at constant exchange rates (CER). Sales volume increased by 1%, prices were up 1% and currency added a further 2%. EBITDA increased by 18% (CER); the EBITDA margin at 21.9% was higher than in 2010 (21.5%). At constant exchange rates the margin was 22.8% reflecting good volume growth and higher prices in both Crop Protection and Seeds.

Syngenta says that investments it has made in growing the business, notably in emerging markets, has continued. Total cost savings including efficiency gains from the integrated business model (*CPM February 2011*) were \$132 million. Syngenta's CEO, Mike Mack, commented: "At the beginning of 2011 we announced our new strategy of bringing together our Crop Protection and Seeds businesses to develop fully integrated offers on a global crop basis. I am pleased to report that we were able to deliver strong growth in sales and earnings for the year while implementing the strategy at a pace which has surpassed our initial expectations. The integration of our commercial teams is already yielding opportunities for increased sales. Our confidence has been reinforced by a positive response from our customers who recognise the role integrated offers can play in managing an increasingly complex agricultural environment".

At constant exchange rates, sales increased by more than \$1 billion in 2011. Europe, Africa and the Middle East registered strong growth across the region and notably in the emerging markets, with sales in the CIS up by more than 50%. Developed markets, notably France and northern Europe, also delivered a robust performance reflecting the success of new product introductions. North America saw a significantly improved performance in the second half, with volumes up by more than 20% and a significant increase in price. Syngenta says herbicide sales expanded owing to the company's strength in the management of resistant weeds, while fungicides reflected a higher rate of adoption in corn and soybean. Latin America maintained strong volume growth and positive pricing throughout the year, driven by strong farm economics and the company's broad product offering. In Asia Pacific Syngenta says it remains at the forefront of the modernisation of crop protection usage, with double digit growth in China, India and South East Asia.

Sales of thiamethoxam products exceeded \$1 billion for the first time, driven by the success of *Cruiser* seed treatment and *Actara* for soil and foliar application. Sales of *Amistar* (azoxystrobin) were \$1.3 billion. Syngenta says that sales of new products, launched since 2006, increased by 50% to reach \$619 million. Since 2006 the company has launched six new and important products *Avicta*, *Axial*, *Durivo*, *Revus*, *Seguris* and *Vibrance*.

In seeds volume growth was driven by corn and soybean and by the company's diverse field crops. Growth has been accompanied by a further substantial improvement in profitability as portfolio enhancement, notably in corn, has led to gross margin expansion. EBITDA margin at 17.1% (or 17.7% at constant exchange rates) has grown from an EBITDA margin in 2007 that was below 5%. Corn and soybean sales registered double digit growth in all regions except Asia Pacific, where sales were lower owing to over-supply in South East Asia. In North America, where corn acres expanded, the company was able to increase corn market share to around 11% reflecting the success of new technology. Total sales of corn and soybean seed in Latin America increased by 38%.

Mr Mack said the Syngenta business is structured into 19 territories grouped under the four geographic regions against which the company reports. "In 2011 we launched integrated commercial organisations in 16 territories and commercial integration will be complete in all territories by mid-2012, ahead of schedule. Global crop teams are working alongside territory and regional management to develop and maximise an integrated offer by crop. We realised efficiency gains from the integrated business model of \$112 million in 2011. The progress on commercial integration is accelerating the pace at which we can integrate our portfolio, with our sales teams offering customers a combination of seeds, seed care and crop protection. At the same time our R&D organisations have been combined to enable the development of new integrated solutions, and we are building common platforms for production and supply.

Mr Mack said that to reflect the emergence of a combined business, the company will, starting with the first half year sales in 2012, adopt new segment reporting of sales and profitability based on four geographic regions. Lawn & Garden will be reported as a separate segment on a global basis "We have set sales targets for each crop with a combined total of over \$22 billion post-2015. These targets comprise growth in the existing portfolio and the launch of new products, with an increasing emphasis on integrated offers reflecting the new R&D and crop team structure. Our aim is to gain an average 0.5% market share annually across the combined business over the next five years. We are targeting a group EBITDA margin in the range of 22-24% by 2015.

BASF has reported that its agricultural solutions division sales dropped 2.7% to €822 million in the fourth quarter of 2011. However, sales for the full year rose by 3.3% to €4,165 million and EBIT was up 8.1% at €808 million. Volumes were up by 6% and prices were flat compared with the previous year. This sales growth was primarily attributable to the positive market environment, the increased agricultural commodity prices and the resulting high liquidity in the agriculture sector, and a greater demand for innovative products.

At €1,659 million, full year sales in Europe were €93 million higher than in 2010. This increase was driven in particular by strong demand from the growth markets of Eastern Europe as well as by the company's successful autumn business. In addition, there was a significant increase in herbicide sales for sunflowers and corn. The extreme drought, however, in key markets in Western Europe during the first half of the year reduced demand for fungicides. In North America, sales declined by €34 million to €965 million, due mainly to the depreciation of the US dollar. In Asia, sales improved considerably due to higher sales volumes, rising by €49 million to €487 million. This growth was attributable to successful herbicide business in India as well as to strong demand for products based on F 500 (pyraclostrobin) in the growth markets of India and China.

BASF pointed out it benefited from the Samruddhi business model in India, which focuses on training farmers in the proper use of crop protection products and fertilisers in order to increase yields. As a result of higher prices and growing volumes, sales in South America grew by €24 million to €1,054 million, despite negative currency effects.

Fungicides were the largest category of BASF's sales in 2011 and accounted for 46% of the total. Herbicides accounted for a further 33%, and insecticides and others 21%. BASF expects slight growth in the market for agricultural chemicals in 2012. It anticipates that prices for agricultural commodities will continue to be highly volatile and remain above the historical average. In addition to agricultural commodity prices and weather conditions, the exchange rates of important currencies will play an important role in business development. In the light of the company's recently launched products and the expansion of business in growth markets, BASF wants to grow faster than the market in 2012.

Bayer has reported that its CropScience subgroup increased sales by 6.2% Foreign exchange & portfolio adjusted (Fx & portfolio adj) 8.9% in 2011 to €7,255 million. The company says that all regions contributed to this performance, with sales increasing by double-digit percentages (Fx adj) in North America and Latin America/Africa/Middle East. Growth was driven mainly by new crop protection products and positive developments at BioScience, while sales at Environmental Science moved slightly lower.

Crop Protection benefited from increased business with new products, with sales growing by 8.9% (Fx & portfolio adj) overall. Sales of fungicides improved by 12.0%, while seed treatment products were up by 23.6% and herbicides 9.0% (all Fx & portfolio adj). Business with insecticides was similar to 2010 despite the fact that Bayer had dropped a number of older products. BioScience, which specialises in seeds and plant traits, increased sales by 19.1% (Fx & portfolio adj) with double-digit growth in the core crops - oilseed rape/canola, cotton, rice and vegetables. Sales in Environmental Science showed a slight decline of 1.5% (Fx & portfolio adj).

EBITDA before special items improved by 27.9% to €1,654 million. The EBITDA margin grew by 3.8 percentage points. Earnings growth was driven by significant volume increases and the resulting marked improvement in capacity utilisation. The efficiency-improvement measures also helped to raise earnings. Bayer CEO Dr Marijn Dekkers said that in crop protection and seed technology the company has development pipelines that are well stocked with promising projects. "We expect crop protection products that we aim to launch between 2011 and 2015 to have a peak annual sales potential totaling around €2 billion."

EUROPEAN NEWS AND MARKETS

TEAGASC TO CARRY OUT TRIALS ON GM POTATOES

Teagasc, the agriculture and food development authority in Ireland (www.teagasc.ie), is applying for a licence to undertake a series of field studies using GM potatoes resistant to potato late blight to determine the potential impact this technology could have on ecosystems. As part of the 22 partner 'AMIGA' (Assessing and Monitoring the Impacts of Genetically Modified Plants on Agro-ecosystems) consortium that represents 15 EU countries and is funded through the EU's Framework 7 research programme, Teagasc proposes to carry out the research over the next four years. Pending license approval, the work will take place at the Teagasc Crops Research Centre in Oak Park, Carlow. Research confirms that GM blight resistant potatoes have the potential to significantly reduce the fungicide load on the environment and hence provide an economic advantage to farmers.

Teagasc researcher Dr Ewen Mullins said: "It is not enough to simply look at the benefits without also considering the potential costs. We need to investigate whether there are long term impacts associated with this specific GM crop and critically we need to gauge how the late blight disease itself responds. This is not just a question being asked in Ireland. The same issues are arising across Europe. As new, more aggressive strains of the pathogen have arrived in Ireland over the last four years, farmers have had to adapt by increasing the amount of fungicides applied but this is not sustainable; especially in light of new EU laws designed to reduce the amount of chemicals that are applied on our crops. While the agronomic and economic benefits of using GM to deliver novel control strategies for late blight disease are clear, the ongoing debate between the proponents and opponents of GM, continues to highlight the public's wish for further, impartial information on the potential impact of GM crops in Ireland. In response Teagasc will also conduct an outreach programme with stakeholders and the public through focus groups and open days, to facilitate an inclusive and impartial discussion on the issues that most concern people."

Head of crops research at Teagasc John Spink said: "The field study will be isolated from the on-going conventional potato breeding programme that has been successfully running at Oak Park for over 40 years. Teagasc is clear that its work is not about testing the commercial viability of GM potatoes. The GM study is about gauging the environmental impact of growing GM potatoes in Ireland and monitoring how the pathogen, which causes blight, and the ecosystem reacts to GM varieties in the field over several seasons."

UK RESEARCH STUDIES LINKS BETWEEN DISEASE AND CLIMATE CHANGE

Researchers from the University of Hertfordshire, UK (www.herts.ac.uk) have been investigating links between crop disease and climate change which impact on food growth and production. The team of researchers led by Professor Bruce Fitt, in collaboration with Professor Jon West at Rothamsted Research and Dr Rob Carlton of Carlton Consultancy, describe their investigations in two papers to be published in a special edition of *European Journal of Plant Pathology*. "Currently, there is considerable debate about climate change adaptation and mitigation in relation to controlling crop disease, while also maintaining sufficient food production," said Professor Fitt. "Government policy and the agricultural industry need to prepare for the impacts of climate change particularly where food production is likely to be adversely affected. Strategies for adaptation to climate change are needed to maintain good disease control and crop yields while at the same time decreasing greenhouse gas emissions."

The research team used a novel approach of comparing pathogen biology to review environmental factors that influence the severity of crop disease epidemics. This assessed the effects of climate change on crop diseases and, ultimately, the crop yield. The team also found that good crop disease control contributed to climate change mitigation by decreasing agricultural greenhouse gas emissions. In further research on crop disease control, the team compared greenhouse gas emissions and crop production associated with selected arable systems. Results showed that conventional crop production, combined with reduced tillage cultivation, is generally the best for producing high crop yields. This contributes best to global food security and minimising greenhouse gas emissions.

CERTIS AND NICHINO DEVELOP PYRAFLUFEN IN ITALY

Cooperation between Certis Europe and Nichino Europe has seen the development of a 2.5% EC formulation of pyraflufen-ethyl for the control of grapevine shoots and fruit tree suckers, as a total herbicide for grapes and fruit trees and as a potato desiccant. Pyraflufen-ethyl, from the

phenylpyrazole family (already listed in the EU's Annex 1), is a contact herbicide and desiccant. The product acts by inhibiting the enzyme PPO (protoporphyrinogen oxidase), which is essential in the biosynthesis of chlorophyll. It has low solubility and no volatility, thus making it non-residual in soil, with good selectivity towards cultivated plants.

Certis say that the results of the 2008-2010 trials, in a joint development programme with Sipcam, proved the efficacy of pyraflufen-ethyl in controlling grapevine shoots and fruit tree suckers successfully, demonstrating both speed of action and duration of effect. The data collected have shown better performance than the market standard, glufosinate ammonium, and both rapid action and flexibility of application timing. In addition, pyraflufen-ethyl has proved to have good efficacy against broad-leaved weeds present in vineyards and fruit orchards. The data on grape and fruit were presented at the *Giornate Fitopatologiche 2010* and a new update on its use as a potato desiccant will be presented during *Giornate Fitopatologiche 2012*. The product will be launched by Certis in spring 2012 as *Piramax*.

PLANT IMPACT APPOINTS GOWAN AS DISTRIBUTOR FOR INCA IN FRANCE

UK research-based company Plant Impact has entered into an exclusive agreement with Gowan for the distribution of Plant Impact's leading crop enhancement product *InCa Prim* in France. Gowan will market the product for potatoes in 2012 and plans to extend onto other crops in the following years. John Brubaker, CEO of Plant Impact, said: "Gowan make a good partner. It has the geographical coverage and technical expertise that is needed to maximise results." The *InCa* calcium delivery system allows plants to absorb calcium and distribute it to tissues that might otherwise become deficient. It has been shown to improve the marketable yield and produce quality of high value crops including potatoes and fruit. Olivier Deneufbourg, general manager of Gowan France, says: "We have been very impressed by the results in trials that we conducted on potatoes and are delighted to be the exclusive distributor of the technology in France."

FRENCH COURT RULES MONSANTO GUILTY OF POISONING

In what is the first ruling of its type in France a judge in a Lyon court has ruled that Monsanto the suppliers of *Lasso* (alachlor), did not provide adequate warnings on the product label. This ruling came about from a claim made by maize grower Paul Francois that he suffered neurological problems including memory loss, headaches and stammering after inhaling *Lasso* in 2004. Mr Francois' lawyer, François Lafforgue, was reported as saying: "It is a historic decision in so far as it is the first time that a (pesticide) manufacturer has been found guilty of such a poisoning." The court ordered an expert opinion to determine the extent of the farmer's losses in order to establish the amount of damages. After the ruling Monsanto's lawyer, Jean-Philippe Delsart, was quoted as saying: "Monsanto always considered that there were not sufficient elements to establish a causal relationship between Mr Francois' symptoms and a potential poisoning." The company is understood to be examining the evidence before deciding whether to appeal against the judgment.

Lasso was banned in the EU in 2006 and in France by 2007. In the US the product is still registered for use. The EPA classifies the herbicide as toxicity class III - slightly toxic. The ruling potentially sets a precedent in France. Previous health claims from farmers have failed because of the difficulty of establishing clear links between illnesses and exposure to pesticides. However, it is reported that the Francois claim may be easier to argue than others because he can pinpoint a specific incident - inhaling the *Lasso* when cleaning the tank of his crop sprayer - whereas other farmers have tried to show accumulated effects from various products. Mr Francois and other farmers suffering from illness are understood to have set up an association in 2011 to make a case that their health problems should be linked to their use of crop protection products. France's health and environment safety agency (ANSES) is currently conducting a study on farmers' health. The results of this study are expected in 2013.

FRENCH SEEK AN EU SUSPENSION OF MONSANTO'S GM MAIZE

Following the decision taken by the French Government in January to uphold the banning of MON810 maize (*January CPM*), France's environment and agricultural ministers are reported to have urged the European Commission to impose an EU wide ban based on "significant risks for the environment" shown in recent scientific studies. The studies referred to are from a joint programme involving the Munich based research company Testbiotech and the University of Caen in France. Christoph Then, chief executive of Testbiotech, said there is evidence that MON810 produces a toxin that can be harmful to humans through soil, water or animal feed contamination.

The results are not, however, conclusive and are based on a review of high concentrations of toxins. The German and French researchers are reported to have stated that the finding was a “surprising outcome and this risk was somehow overlooked” in past assessments of biotech crops. Monsanto has not sold nor tested MON810 in France since 2008. In January it stated that as the political climate remained unfavourable it would limit its offer to non-GM seeds. A company statement announced: “Monsanto considers that favourable conditions for the sale of the MON810 in France in 2012 and beyond are not in place.”

The potential impact on farm profitability and the environment from the loss of MON810 has been stressed by the French maize grower’s group, AGPM. The deputy director of AGPM, Cédric Poeydomenge, reported some results recorded from 22,000 hectares of MON810 grown in 2007, the year before France imposed its moratorium. The crop prevented an average loss in yields from insect attacks of 0.5 tonnes hectare, giving a financial benefit of about €100 per hectare. This benefit took into account the additional cost of €35 to €40 per hectare for GM seeds over conventional ones. The AGPM data also showed a reduction of 8,800 litres of insecticide and 30,000 litres of fuel.

AMERICAN NEWS AND MARKETS

FMC TO DISTRIBUTE BIOFUNGICIDE IN US AND CANADA

FMC has signed an exclusive distribution and development agreement with Consumo em Verde (CEV), Biotecnologia das Plantas, of Portugal for the patented fungicidal active ingredient blad. The agreement gives FMC the rights to develop and market the fungicide as *Problad Plus* for all crop and non-crop uses in the US and Canada. The product has been developed over the past 10 years by researchers at the Instituto Superior de Agronomia (ISA) at Lisbon University. It is effective on a broad spectrum of difficult-to-control plant diseases affecting tomatoes, strawberries, grapes and nut crops. FMC began additional testing with *Problad Plus* on key crops in California and Florida in 2011 and plans an extensive field trial programme throughout North America for 2012. Registration for the fungicide has been submitted to the US Environmental Protection Agency (EPA) and approval as a biopesticide is anticipated in early 2013. FMC plans to expand the registration to additional crops in the near future.

BASF BEGINS TO EXPAND GLOBAL R&D

BASF is to make a \$33 million investment to expand its facilities in Research Triangle Park (RTP), North Carolina. Nearly 80,000 square feet (7,500 sq.m) of office, laboratory and greenhouse facilities will support the company's plant biotechnology and insect control research. This is the first in a series of investments that the Agricultural Solutions segment will make in 2012 to strengthen its global R&D platforms. BASF plans to start work in March, and construction is expected to be completed by mid-2013. The expansion will include a climate-controlled greenhouse and laboratories for plant biotechnology research and a custom environmentally-controlled insect production facility.

A significant share of insecticide research is already conducted in Research Triangle Park. The company says the larger, modernised facilities will ensure comprehensive and faster evaluation of the company's promising insecticide candidates, thus expanding its development capabilities. The investment follows the decision in January to establish BASF Plant Science's global headquarters at RTP which is in line with the division's focus on its main markets in North and South America. The site, which BASF established in 1986, currently employs approximately 780 people and occupies 400,000 square feet. RTP also serves as headquarters for the North American activities of BASF's Crop Protection division. The last major investment there took place in 2006.

BAYER AND TEXAS AGRILIFE TO DEVELOP IMPROVED WHEAT VARIETIES

Bayer CropScience and Texas AgriLife Research, US have signed a multi-year agreement to develop and commercialise improved wheat varieties. Utilising Texas AgriLife Research's extensive collection of wheat cultivars and germplasm and Bayer's expertise in classical and molecular plant breeding, the collaboration aims to bolster current development efforts and expedite the delivery of higher yielding wheat varieties to market. Researchers and breeders at both institutions will focus on developing wheat lines that offer improved yields, as well as regionally important characteristics such as drought resistance, disease resistance and improved quality. Texas AgriLife Research is a leading provider of Hard Red Winter Wheat germplasm for the Southern Great Plains region of the US, and its collection will serve as a strong basis for developing these new lines.

The collaboration will also focus on the development of molecular breeding tools to facilitate the rapid genetic improvement of wheat. Combining classical and modern breeding techniques is expected to increase the rate of wheat yield improvement and allow wheat to thrive in areas with conditions which are unfavourable currently for wheat production. "Wheat productivity has not kept pace with the advancement in other crops like corn, but Bayer is determined to see that trend reversed," said Dr Mathias Kremer, head of the BioScience business unit at Bayer CropScience. "By working together with the many wheat experts in the Texas A&M University System to harness the tools of modern plant breeding and biotechnology, we are convinced we can help make wheat farmers in Texas and beyond more productive and sustainable by delivering new high-yielding varieties that are more resilient against pests, disease and environmental stresses like drought."

Bayer says the collaboration is an example of its strategy to work with leading global institutions that share its vision of improving wheat productivity in all the major wheat growing regions of the world. This agreement complements the many other collaborations that Bayer has with wheat organisations including South Dakota State University (USA), University of Nebraska-Lincoln (USA), NARDI (Romania), RAGT (France), Evogene (Israel), and CSIRO (Australia).

BAYER CROPSCIENCE TO INTEGRATE R&D

Bayer CropScience has decided to integrate the R&D activities of its three business units Crop Protection, BioScience and Environmental Science. The new unit will be led by Dr C David Nicholson, who will join Bayer CropScience as a member of the Executive Committee in March 2012. The new R&D function will bring together about 4,300 scientists from the company's key research centres and development sites across the globe. With an annual budget of more than €720 million, Bayer CropScience says it ranks among the most research-intensive companies in the industry.

The company goes on to say that scientists in the fields of agricultural chemistry and seed technology are increasingly collaborating to pool the knowledge acquired through chemical, biological and genetic research, and field development and are aligning this expertise to the company's long-term research objectives and business strategies for the various crops in its portfolio. Bayer CropScience CEO Sandra Peterson said: "By bringing our R&D capabilities together in one global organisation, we aim at delivering superior solutions that draw on the entire spectrum of agricultural innovation from genetics and molecular biology through chemical research and trait discovery to global product development and regulatory affairs. With his excellent background in the lifescience industry and his strong leadership skills, David Nicholson is highly qualified to lead this integrated effort."

SYNGENTA REFORMULATES FUNGICIDE FOR ORNAMENTALS

Syngenta has reformulated its fungicide *Hurricane WP* (mefenoxam+ fludioxonil) from a wettable powder in a water soluble bag to a new water dispersible granule formulation known as *Hurricane WDG*. "The new WDG formulation provides ornamental growers with the same broad-spectrum protection, but now it's easier to mix and measure," said Scott Lawson, marketing manager for Syngenta. "The improved formulation controls the major stem and root diseases affecting ornamentals caused by *Pythium*, *Phytophthora*, *Rhizoctonia*, *Fusarium*, *Thielaviopsis*, *Sclerotium* and *Cylindrocladium* spp." Nancy Rechcigl, field technical manager for Syngenta, said: "With multiple modes of action, it works effectively through both contact and systemic activity to protect against diseases that impact on the growth and quality of the crop." *Hurricane WDG* also works well in a preventive disease management programme and can be used in rotation with other fungicides to complement different modes of action."

EPA APPROVE NEW FORMULATION OF CHLORPYRIFOS

A new chlorpyrifos formulation, *Vulcan*, developed and manufactured by MANA Crop Protection, has received approval from the US EPA. The insecticide is labeled for use on corn, soybeans, wheat, pome fruit, tree nuts, grapes, citrus, vegetables and other crops. "The new and highly-advanced formulation supports the industry's need to place less reliance on older emulsifiable concentrate (EC) products due to the volatile organic compound (VOC) emissions resulting from their use," says Keith Miller, product manager with MANA Crop Protection. "While various ECs are effective in delivering insect control, use of these products is on the decline due to new and pending pesticide regulations. As one of the first advanced chlorpyrifos products of its kind, *Vulcan* minimises environmental concerns by reducing impact on air quality, which is an important characteristic for the agrochemical community as a whole."

The testing and development of new formulation discoveries has become a priority within MANA Crop Protection's research group. "With new formulations like *Vulcan* performing as well as or in some cases better than competitive EC based formulations, we are determined to answer grower and retailer requests for continued use of highly-effective actives like chlorpyrifos," said Mr Miller. "We plan to launch eight new formulations of proven products currently in our portfolio by 2013."

Chlorpyrifos is one of the most widely-used agricultural insect control solutions worldwide. First registered in the US in 1965, it has been on the market for more than 40 years. Today, chlorpyrifos is registered in about 100 countries worldwide. It is one of the most extensively-researched crop protection products on the market and has more than 5,000 studies supporting its continued use worldwide. In 2006, the compound underwent a rigorous re-registration process with the EPA that included a stringent evaluation for potential human health and environmental impacts.

OTHER NEWS AND MARKETS

ARYSTA ACQUIRES 100% OF DEVIDAYAL

Arysta LifeScience has acquired 100% of the shares of Devidayal Sales Limited (DSL) in India. Arysta first acquired a majority interest in DSL in March 2011. The combined efforts of the two companies have resulted in the recent launch of the insecticide *Orthene* (acephate) in India. Other proprietary products are expected to follow. Soo Keong Tan, Arysta LifeScience business unit head, South Asia & China, said: "With DSL's professional skills and its extensive distribution network we are able to accelerate the registration and introduction of our proprietary products and technologies in India. Other proprietary products, such as our plant nutrients and herbicides *Select*, *Everest*, and *Dinamic*, are in various stages of registration, development and evaluation." Devidayal Sales Limited, headquartered in Mumbai, is amongst the top 10 privately owned agrochemical companies in India. It has 26 branch offices across India as well as a formulation and packaging plant in Kalol, Gujarat, India. The company has developed an extensive distribution network and has access to over 7,000 channel partners. DSL also exports products to more than 35 countries in Europe, South America, the Far East, Asia-Pacific, Africa and the Middle East.

ARYSTA APPOINTS NEW MARKETING MANAGER

Arysta LifeScience has appointed Arturo Redes as global marketing manager. In his new role Mr Redes is responsible for developing a growth strategy for the company's global insecticide and fungicide products. "Arysta LifeScience continues to strengthen its global product portfolio through inorganic and organic initiatives," said Paula Pinto, head of global marketing. "Arturo's role is pivotal in our efforts to deliver sustainable and profitable growth for our company." Prior to joining Arysta LifeScience, Mr Redes had multiple leadership roles with Chemtura AgroSolutions. His most recent position was business vice president for North America. Prior to that he worked as the marketing director for North America, global product manager for acaricides, and global technical manager for plant growth regulators and herbicides. He also held a number of marketing and technical roles in Latin America. He has a degree in agronomy with a marketing focus and a MBA, both from the University of São Paulo, Brazil

FMC MAKE SALES GAINS IN LATIN AMERICA

FMC's agrochemical sales rose by 22% to \$409.2 million in the fourth quarter of 2011. The sales gains made in Latin America were driven by strong demand for productivity enhancing inputs in Brazil, as well as new product introductions and sales from the new distribution joint venture Ruralco Soluciones set up in Argentina last July. In the Europe, Middle East and Africa (EMEA) region, sales increased significantly based on the strength of insecticide and herbicide sales in Europe. In North America, sales were lower than a year ago due to a shift in the timing of sales. In Asia, sales were essentially the same as for the previous year. Higher insecticide volumes in China, Indonesia and Korea were offset by lower herbicide volumes, the result of less favourable weather conditions impacting on the region's wheat crops. Earnings increased 17% compared to the previous year driven by the higher sales, partially offset by higher raw material and manufacturing costs, as well as increased spending on organic and external growth initiatives. Full year sales rose by 17.9% to \$1,464.5 million, with income from continuing operations before income taxes increasing by 12.5% to \$348.3 million. The company commented that its agrochemical business achieved its eighth consecutive year of record earnings.

FMC HAS EXCLUSIVE RIGHTS TO CHINESE INSECTICIDE

FMC has entered into exclusive technology license and commercialisation agreements with East China University of Science and Technology (ECUST) and Shanghai Shengnong Pesticide Co (SSPC). The three organisations will develop and commercialise a new insecticide active ingredient. It was invented at ECUST and licensed by manufacturer SSPC. FMC will have exclusive global development and commercialisation rights outside of China. The agreement also provides for additional new pesticide research collaboration.

"We are excited to be working together with ECUST and SSPC to develop promising new solutions to farmers seeking alternatives to existing pest-resistant chemistries," said Milton Steele, president, FMC Agricultural Products Group. "Combining the research strength of ECUST, the China manufacturing leadership of SSPC, and FMC's product development and marketing expertise is an incredibly strong formula for success." Dr Xuhong Qian, president of ECUST, said: "The East China University of Science and Technology is pleased to enter into these agreements with FMC and SSPC. We are

proud of the innovative work that Dr Zhong Li and his colleagues have carried out in our Institute of Pesticides and Pharmaceuticals.”

CERTIS USA AND KUMIAI TO LAUNCH BACTERIAL BIOFUNGICIDES

Certis USA and Kumiai Chemical Industry have launched a new generation of bacterial biofungicides based on *Bacillus amyloliquefaciens* strain D747 (*Ba* D747). Kumiai scientists discovered and patented this strain, used in Kumiai's *Ecoshot* in Japan, and in 2010 it was licensed to Certis USA for global development.

The US EPA approved registrations of several *Ba* D747-based products in December 2011. The first will be launched in the US in April 2012 under the name of *Double Nickel 55* for control of powdery mildew, Botrytis and bacterial diseases of fruiting and leafy vegetables, grapes, strawberries and tree fruit. An application for an EU Annex-I registration was submitted in October 2010 and this has led to a provisional national registration in Italy. The product, *Amylo-X*, will be launched in Italy by Intrachem Bio Italia SpA for control of Botrytis and other fungal diseases of grapes, strawberries and vegetables, and bacterial diseases such as fire blight in pome fruit and PSA in kiwi fruit. In New Zealand, Etec Crop Solutions is launching a *Ba* D747 product this season under the name of *Bacstar* for control of Botrytis in grapes, and fungal and bacterial diseases of berries and onions. Registration activities are also underway in a number of other countries.

NEW GRANT FOR ALLIANCE FOR A GREEN REVOLUTION IN AFRICA

The Alliance for a Green Revolution in Africa (AGRA) (www.agra-alliance.org) has received \$56 million in funding from the Bill & Melinda Gates Foundation to help more smallholder farmers in sub-Saharan Africa increase productivity and address poverty and hunger. AGRA's Programme for Africa's Seed Systems (PASS) began five years ago to produce disease resistant and higher yielding seeds for important food crops. The programme has already achieved significant success with the majority of farmers who accessed the new seed reporting dramatic increases in their harvests. "In Africa, farmers have generally not benefited from improved seeds due to a lack of localised crop breeding and efficient, dependable seed delivery systems. As a result crop yields in most of Africa have remained at one-third of those produced by farmers in other developing regions of the worlds," said Dr Joe DeVries, PASS Programme Director.

By 2017, PASS will add 40 new private, independent seed companies to the 60 already established under the first phase of the programme. The programme's aim is to achieve yearly production of 200,000 metric tons of improved seed for food crops such as maize, cassava, and legumes to support 10 million smallholder farmers. The programme will continue to support the education of local crop scientists ensuring that every major crop in 13 countries has at least one fully-qualified crop breeder. PASS will also fund the training of an additional 5,000 agro-dealers to set up individually-owned and operated seed and fertilizer shops in remote areas. These efforts will build structures to get improved seed in the hands of smallholder farmers to increase production and decrease dependence on aid. The grant to AGRA brings the foundation's total commitment to agriculture to more than \$2 billion since the programme began in 2006.

"If you care about the poorest, you care about agriculture," said Bill Gates, co-chair of the Bill & Melinda Gates Foundation. "Investments in agriculture are the best weapons against hunger and poverty, and they have made life better for billions of people. The international agriculture community needs to be more innovative, coordinated and focused to really be effective in helping poor farmers grow more. If we can do that, we can dramatically reduce suffering, and build self-sufficiency."

CLARIANT'S NEW FOCUS ON CROP PROTECTION PRODUCTS

Clariant, the Swiss based manufacturer of adjuvants and other specialty chemicals, has announced a repositioning of its crop protection business with the aim of introducing new products and services, and stepping up investment in R&D. The company has been created over the last 17 years out of the specialty chemical activities derived from Sandoz, Hoechst, Ciba and others European and US companies. In 2011 it acquired the German group Süd-Chemie. Peter Baur, who previously led the bioavailability optimisation group at Bayer CropScience, has joined Clariant to head its Competence Centre Crop Protection in Frankfurt. Mr Baur reported: "Clariant already offers high performing 'green' products including adjuvants, solvents and dispersing agents, and we are looking to expand this aspect of our portfolio. We will build up a unique portfolio of guide formulations and profiling services geared to enhancing the efficiency of our customers and their products. We will also help them to reduce their water and energy consumption, and comply with regulatory requirements in their markets."

The company said it will increase its R&D investment when it opens its new Innovation Centre in Frankfurt and aims to have the additional service offerings in place by mid-2012. Clariant Crop Protection also intends to strengthen its operational team. The Competence Centre in Frankfurt will support the company's regional teams. Clariant who recently opened a new crop protection laboratory in Mumbai, India (*January CPM*) says its customers include top producers of finished crop protection formulations, as well as many smaller suppliers, including manufacturers of generic agrochemicals.

EU AND US REACH AGREEMENT ON ORGANIC FOOD STANDARDS

The EU Agriculture and Rural Development agency has signed an equivalency agreement with the US Department of Agriculture to jointly promote strong organic programmes, protect organic standards, enhance cooperation, and facilitate trade in organic products. The arrangement will expand market access for organic producers and companies by reducing duplicate requirements and certification costs on both sides of the ocean while continuing to protect organic integrity. Christine Bushway, executive director and CEO of the US-based Organic Trade Association, said that: "This monumental agreement will further create organic jobs in the growing and healthy US organic sector, spark additional market growth, and be mutually beneficial to farmers both in the US and EU as well as to consumers who choose organic products." She added: "Equivalence with the EU will be an historic game changer."

The agreement will mean that, as of June 1, certified organic products can move freely between the US and EU. The EU will recognise the USDA National Organic Programme (NOP) as equivalent to the EU Organic Programme and allow products produced and certified as meeting USDA NOP standards to be marketed as organic in the EU. Likewise, the US will allow European products produced and certified under the EU Organic Programme to be marketed as organic in the US. The agreement is limited to organic products of US or EU origin produced, processed or packaged within these jurisdictions. General country labelling requirements must still be met. Organic farming is practiced in 160 countries, with organic agricultural land totaling 37m hectares in 2011. Most production in Asia, Latin America and Africa is exported to the EU and the US. Although they are the largest consumers of organic food, Europe and North America are not the main producers with the two regions together having just a 30% share of global organic agricultural land.

BAYER SETS UP BEE CARE PROGRAMME

Bayer has set up a global 'Bee Care Programme' to further promote bee health and will establish two dedicated 'Bayer Bee Care Centres.' One centre is scheduled to open in Monheim, Germany, in mid-summer. A second centre, which will focus on North America, is planned for later in the year in North Carolina, US. "As a company with long-standing expertise in both animal health and crop protection, we are committed to environmental stewardship and sustainable agricultural practices, including protection of beneficial insects such as honey bees," said Professor Dr Wolfgang Plischke, member of the Bayer AG Board of Management responsible for Innovation, Technology and Environment. The new centres will serve as a scientific and communication platform to consolidate existing and future bee health projects from Bayer companies in cooperation with external partners. They will also foster information sharing and will provide a platform for discussion and new ideas. Bayer believes that this collaboration is essential in order to find sustainable solutions that will improve honey bee health. "The Bee Care Programme and the establishment of the Bee Care Centres will bring Bayer's extensive experience and knowledge in bee health under one roof and will ensure that dedicated resources for bee health are available," added Professor Plischke.

DOW AND BIODURO AGREEMENT TO GENERATE NEW MOLECULES

Dow AgroSciences and BioDuro (www.bioduro.com), a PPD Company, have entered a three-year, multi-programme discovery research agreement to generate novel molecules that will be tested as fungicides, insecticides, and herbicides across a variety of crops. The collaboration will combine BioDuro's expertise in medicinal chemistry and biochemistry and Dow AgroSciences' agrochemical capabilities. "We are very pleased about this novel collaboration," said Daniel R Kittle, global leader for R&D at Dow AgroSciences. "This agreement is another example of our commitment to further enhance Dow AgroSciences' world-class discovery research capabilities by working with the best research teams around the globe to develop new solutions for our customers." Lee Babiss, executive vice president of global laboratory services for PPD, said, "This collaboration demonstrates BioDuro's commitment and flexibility in delivering discovery research services beyond the pharmaceutical industry."

CONFERENCE AND FEATURES

SENTRY CONFERENCE 2012

Sentry (www.sentry.co.uk) is a private company with a 39 year history of working in agricultural and rural business management, both in the UK and abroad. The annual Sentry conference held near Cambridge has gained the deserved reputation of being one of the most important UK farming industry events of the year. Bruce Knight reports on this year's conference titled The Necessity for Change.

Opening the conference the chairman David Richardson, a farmer and journalist, told the 420 delegates present that European farmers are in a very critical situation. The apparent reluctance of consumers, and politicians, to take advantage of new technologies is hampering the farmer's ability to make progress. He cited the fact that BASF has moved its biotechnology research activities away from Germany to North America, as an example of how the European farmer is missing out on a range of opportunities. His fear is that the EU could turn into a second or third rate player in agricultural development. Mr Richardson added that "the very same people that are holding back agricultural advancements are the first to complain when farmers seek financial support to allow them to compete internationally."

Seven threats to global progress

Joanne Denny-Finch, chief executive of the Institute of Grocery Distribution (IGD), the UK's leading food industry organisation, presented a paper on the changes impacting on and threatening global progress. She listed seven winds of change. The first is the 'great correction', brought about as western countries try to rebalance their economies having become mired in debt. The second wind of change is down to demographics with the indigenous birth rate in Europe dropping while life expectancy rises. So, fewer working people will be supporting more in retirement, unless the retirement age continues to rise. The third wind comes from the rise in the number of middle classes in the new superpowers, such as China and India. The hunger for better standards of living in these countries is creating the environment for greater investment, particularly in agriculture, turning them into agricultural superpowers.

The fourth wind comes from 'the global battle for resources' - oil, water and sustainable land use for agricultural production. All are under pressure. A fifth wind relates to the volatility of climate. More cars, more protein in the diet and development in general is leading to more carbon emissions and a direct impact on farming. All this leads to increased price volatility. In 2011 the global food price index rose by 40% over the previous year and the oil price had risen 50% in eight months. But now the price of some commodities, such as cotton, had fallen back by more than 40%. This volatility is a threat to small businesses, farmers in particular. The sixth wind of change, the pace of science and technology, was described as warmer but strong and destabilising. The availability of digital technology means that farming has become as much about managing information as tilling the soil. New crops through genomics, new fuels, new waste conversion systems all impact on farming methods at a breathtaking rate of change.

Ms Denny-Finch described the seventh wind of change as that led by the consumer. Based on data collected through IGD surveys in the UK a number of interesting recent trends have been observed. With food inflation at 4% more effort is going into searching for better prices but generally not at the expense of quality. Consumers search for superior ingredients, higher animal welfare and locally sourced food. Over a third of shoppers buy locally sourced food and more than 80% say that how food is produced is 'fairly important'. Four in ten would ideally like to buy traceable food. There is also confusion regarding the role of technology in food production. A quarter of the population is uncomfortable with 'the use of science in making food.' This is attributed to the nervousness about taking any risks with food. Despite the high profile of the GM debate only 7% of consumers, when asked for a definition of GM, gave an answer close to an accurate description. Furthermore only 17% held a strong opinion on GM food. The majority were either neutral or held only tentative views.

Ms Denny-Finch's closing remarks were positive. She drew on the fact that farming and the food chain have reinvented themselves several times over and can do so again. However, she said no person, company or country can meet the challenges alone. It has to be a collective approach.

Climate change – a new pragmatism

Professor Mike Hulme, University of East Anglia, offered a pragmatic approach to the challenges brought about by climate change. He elaborated on how climates change, how oceans rise and fall, and how humans do now affect the global climate. The risks are real but imprecise and based on long term modeling related to CO₂ emissions. With what he described as the messianic hopes of the COP15 at Copenhagen unfulfilled, he said the Kyoto protocol is now on “life support”.

Professor Hulme’s response is that we should be turning to more achievable shorter term targets while recognising that there are multiple goals. It is not just CO₂ emissions that matters. Furthermore whatever instruments are put in place there should be more attention given to the social consequences.

There is a case for attending to factors that affect climate in the shorter term such as black carbon and N₂O emissions. We should adapt to the risks that climate change will bring and invest in energy technology innovation, energy diversification and new forms of access to energy. He also quoted the recent statement made by President Barack Obama who said: “We are telling America's scientists and engineers that if they assemble teams of the best minds in their fields, and focus on the hardest problems regarding clean energy, we will fund the Apollo projects of our time”

Under Professor Hulme’s approach the long-term commitments to energy technology innovation will need to be financed by the implementation of a ‘low’ carbon tax with a price signal proposing the doubling of the carbon tax at regular intervals such as every 10 years. The tax revenue could be then disbursed through independent foundations or trusts, related to health, agriculture etc.

Practical application of new technologies

Bill Clark, formerly director of Brooms Barn Research and recently appointed technical commercial director of NIAB TAG (www.niab.com), outlined how improved cereal productivity in Europe can only be achieved through the application of the best technologies available.

One of the challenges is to transfer innovations into practice. For example although the average yields of UK wheat varieties in controlled trials have since 1995, steadily increased from 10 to 11 tonnes/hectare, yields on farms have remained constant at around eight tonnes/hectare. Part of the shortfall is attributed to the incorrect use of fungicides. High yielding varieties need high fungicide inputs to achieve their full potential. The timing and doses rate of fungicides applied are very important. By contrast lower yielding varieties can tolerate lower rates of fungicides or mis-timed applications.

In the UK the highest attainable wheat yield has been 12 tonnes/hectare. The world record in New Zealand and still with current genetic material is 15.6 tonnes/hectare. New Zealand offers better solar radiation during the critical grain filling period but with the correct usage of fungicides in the UK the grain filling can be extended. New fungicides can offer improvements in nitrogen use efficiency, resistance to drought and delayed senescence all resulting in improved yield.

There are many potential tools that need to be better exploited: optimisation of inputs, thresholds, decision support systems, precision farming, new chemistry. However in the UK and the EU these alone will not achieve the potential in the short term. There has to be an improvement in the genetic potential of wheat to make the step change necessary. This means the adoption of GM technology.

Bill Clark argued that a massive intervention in modern methods of breeding is called for to achieve: earlier stem extension, early canopy closure, better disease resistance, increased nutrient and water utilisation, delayed senescence and increased radiation use efficiency. Increased efficiency of photosynthesis is also called for and one way to achieve this could be to introduce a C₄ photosynthetic pathway into plants as an alternative to the normal C₃ pathway.

He also stressed the importance of retaining existing fungicides and bringing forward new fungicides. Some of the new chemistry now available mimics those naturally occurring chemicals present in the plant which activate natural disease resistance mechanisms. Most critically losses of effective fungicides, such as the triazoles, through the development of resistance or through legislation could be disastrous. It has been calculated that without triazoles the EU could lose 21 million tonnes of wheat a year, enough to feed 90 million people.

GLOBAL ADOPTION OF BIOTECH CROP TECHNOLOGY

Global adoption of biotech crop technology is continuing at unprecedented rates according to Clive James author of ISAAA's (International Service for the Acquisition of Agri-biotech Applications) (www.isaaa.org) annual biotech crop report. During 2011 an additional 12 million hectares were planted representing an annual growth rate of 8% over 2010. "This is testimony to the overwhelming trust and confidence in biotech crops shown by millions of farmers worldwide," said Mr James.

"Since biotech crop commercialisation in 1996, farmers in 29 countries worldwide have made more than 100 million decisions to plant and replant more than 1.25 billion hectares – an area of crop land 25% larger than the total land mass of the US or China." During 2011, 160 million hectares were planted (up from 148 million in 2010) by 16.7 million farmers in 29 countries, including 19 developing countries and 10 industrial countries. Such adoption represents a 94-fold increase in hectares planted since 1996, making biotech crops the fastest adopted crop technology in recent history.

Developing countries leading the biotech adoption are Brazil, Argentina, China, India and South Africa who together represent 40% of the global population. The growth rate for biotech crops in developing countries at 11% or 8.2 million hectares, during 2011, was twice as fast and twice as large as in industrial countries at 5% or 3.8 million hectares. In fact developing countries grew approximately 50% of global biotech crops in 2011 and are expected to represent a greater proportion in 2012.

The US continues to be the lead producer of biotech crops globally, at 69 million hectares, with an average adoption rate of approximately 90% across the principal biotech crops. Brazil ranks second only to the US in area with 30.3 million hectares planted. For the third consecutive year, Brazil had the largest increase in the world, 4.9 million hectares, representing an impressive year-on-year increase of 20%.

India has celebrated a decade of successful cultivation of biotech cotton, which has transformed the cotton crop into the most productive and profitable crop in the country, with 10.6 million hectares planted during 2011. China has grown biotech cotton on 71.5% of cotton area, 3.9 million hectares. This growth was driven by seven million small, resource-poor farmers, who on average farm only 0.5 hectare. The Philippines, the only country in Asia to grow maize, reported a 20% increase in biotech maize planted in 2011, more than 600,000 hectares. Africa planted 2.5 million hectares of biotech crops, and is making advancements with field trials in the regulatory process for additional countries and crops.

"Brazil has developed a fast-track approval system and has created three-streams of technology to support growth," said Mr James. "The model includes proprietary biotech crops from the private sector adopted on more than 30 million hectares, public/private sector partnerships which have already delivered an approved product, and the capacity to develop and deliver a 'home-grown' biotech crop – a virus resistant bean. These three streams of technology provide Brazil with a diversified pipeline of new biotech products. This approach is highly effective for Brazil and a key lesson for other countries across the world," said Mr James.

"There are three requirements needed for continued success in biotech crop commercialisation," said Mr James. "First, countries must secure political will and support, second, develop innovative game-changing trait technologies which will have high impact, and third, ensure science-based, time- and cost-effective deregulation, in order to provide farmers with new technologies that provide increased growth and productivity."

With regard to the future, there is considerable potential in the continued adoption of high hectareage biotech crops (maize, soybean, cotton, and canola). During 2011, 160 million hectares of these crops were planted, and currently, there are approximately 150 million hectares available for potential adoption. Thirty million of the potential hectares are in China, where they have assigned priority to biotech maize, and where demand for maize as a feed crop is growing fast as the country consumes more meat.

Support for biotech crops varies across Europe, where the area of *Bt* maize in 2011 was a record 114,490 hectares, up more than 25% in 2010. At the same time, BASF halted development and commercialisation of all its biotech crop products for cultivation in Europe in mid-January 2012. The company will, however, continue the EU regulation process for products already started such as *Fortuna*, its late blight disease resistant potato.

Commercialisation of biotech wheat in North America has recently been revisited. Similarly, many countries and companies worldwide are now also fast-tracking the development of a range of biotech traits in wheat to improve drought tolerance, disease resistance and grain quality. Biotech wheat is now expected to be commercialised before 2020.

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