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international news, comments, features and conference reports

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LEAD ARTICLE

HAS HISTORY PROVED RACHEL CARSON WRONG?

This year marks the 50th anniversary of Rachel Carson's *Silent Spring*, the book credited with launching the modern environmentalist movement. Ms Carson famously warned that man-made chemicals, particularly pesticides, were a significant threat to human health. In a new study Angela Logomasini argues that history has proved Ms Carson wrong. Agrochemicals have not caused the 'siniste' ills she predicted. In fact, it is her anti-chemical legacy that now poses a global risk both to food supply and the environment.

Ms Logomasini is a senior fellow at the US Competitive Enterprise Institute which conducts research and analysis on environmental regulatory issues. She reports in her paper that the incidence of pesticide-related health problems is low. She says that when the Centres for Disease Control (**www.cdc.gov**) investigated the health effects of widespread spraying to control mosquitoes carrying the West Nile virus in the US during the period 1999-2002, they found only two cases of definite health impacts and 25 probable cases.

Agrochemicals, she argues, help defend against the spread of disease. DDT, which many governments banned after the publication of *Silent Spring*, had been used to control the spread of malaria, which now kills more than one million people annually. In Burkina Faso, applications of pesticides to livestock now help prevent transmission of trypanosomiasis, a potentially fatal disease spread by tsetse flies.

Agrochemicals, along with other important technologies such as biotechnology, help produce a growing food supply to feed the world's expanding population. They also enable farmers to grow more crops per acre for longer periods, increasing the global food supply. Russian farmers, for example, have increased marketable yields on apple orchards by as much as 90% since beginning to use pesticides. In Zimbabwe, farmers were only able to grow tomatoes during rainy seasons if they used fungicides.

The use of pesticides has actually had environmental benefits, says Ms Logomasini. Because pesticides allow farmers to grow more per acre, less land is needed by the agricultural industry to supply the global market. The rate of deforestation is now declining, and reforestation has begun in several countries.

Despite the benefits of agrochemicals and the dearth of evidence to support their health claims, environmental activists continue Rachel Carson's legacy of anti-chemical misinformation. "As a result," Ms Logomasini writes, "regulatory trends around the world have supplanted wise management with heavy regulations and product bans."

The world population continues to grow. For a variety of reasons, including bad weather and changing trade policies, the rate of food production has declined. Now is the time to employ all the tools of modern farming to ensure a growing food supply. Unfortunately, Ms Logomasini says, policy trends are moving the opposite way: "The cost and risks associated with bureaucratic regulations alone dampens the market for innovative new products, diminishes the supply of pest control options for farmers, and reduces their efficiency. The result is lower food production, higher food prices and fewer environmental benefits."

While the crop protection industry does frequently point to the bureaucracy and politics that hamper its quest to feed the global population through new technology it is probable that without the motivation of *Silent Spring* there might not have been same incentive to develop safer and more targeted products, better formulations, lower dose rates, safer handling initiatives, better application systems, the protection of water courses and growth in the use of IPM and biologicals. For this we are all thankful.

EUROPEAN NEWS AND MARKETS

SYNGENTA GIVES NEONICOTINOID EVIDENCE

Experts from Syngenta have given evidence at a UK parliamentary hearing on the use and effects of neonicotinoids. The Parliament's Environmental Audit Committee started taking evidence at the beginning of November. The hearing was called to scrutinise Defra's (Department of Food, Environment and Rural Affairs) decision not to revise its pesticide regulation or follow other European countries and temporarily suspend the use of some insecticides. Campaigners argue there is evidence to suggest the chemicals have caused a 'significant' decline in bee numbers and other pollinators. Syngenta said laws surrounding agrochemicals were already 'very rigorous' and evidence of bee decline was not 'field based'. It added: "Any move to ban or limit the use of neonicotinoids could have 'serious implications' on UK farming."

The company says that neonicotinoid seed treatments have been used safely on millions of hectares of crops across Europe without harming bee populations. It said that said many governments including Germany, Spain, Switzerland and the UK, shared this view "along with reputable universities and experts across Europe." Syngenta's principal scientific adviser Dr Mike Bushell added: "They have not yet been swayed by individual alarmist laboratory studies, which deliberately expose bees to extremely high and unrealistic dose rates, and instead recognise that significant declines in bee health have been seen in places where neonicotinoid seed treatments are not used." Friends of the Earth's policy and campaigns director, Craig Bennett, has called for the chemicals to be withdrawn until "thorough safety tests have been completed."

ISOPYRAZAM RECEIVES EU APPROVAL

Syngenta has received EU approval for its succinate dehydrogenase inhibitor (SDHI) fungicide isopyrazam. The company says that under the EU's provisional approval system, British and Irish cereal farmers have for the past two growing seasons experienced the benefits of isopyrazam, which is marketed as *Seguris* (isopyrazam + epoxiconazole) in wheat and *Bontima* (isopyrazam +cyprodinil*)* in barley. Syngenta says that these growers have consistently achieved better disease control, which has helped deliver higher crop yields. The company adds that isopyrazam's advanced 'double-binding' technology ensures strong adhesion to fungus and to leaf wax, which provides long-lasting and durable protection against a wide spectrum of damaging fungal diseases, including Yellow Rust.

John Atkin, COO, said: "Breakthrough chemical innovation is an enduring part of our integrated strategy. Isopyrazam sets the highest standards for disease control and yield response and this approval means growers throughout the EU can now benefit from this important addition to our portfolio." Syngenta intends to register a range of products containing isopyrazam in major EU markets for use on cereals and others crops such as oilseed rape, vegetables and pome fruits.

CPA APPOINTS NEW CHIEF EXECUTIVE

The UK Crop Protection Association (CPA) has announced the appointment of a new chief executive, Nick von Westenholz, who is currently National Farmers Union (NFU) head of government affairs. He will take up the role towards the end of January 2013. "I am very excited to be joining the CPA at such an important time for the crop protection industry," said Mr von Westenholz. "The CPA plays a crucial role in communicating clearly with the public, media and policy makers about the importance of plant science and crop protection. I look forward to leading it in its work in the years ahead, drawing on the wealth of experience and expertise within the industry to promote the vital contribution it makes in providing a safe and reliable supply of food in the UK, as well as the wider benefits of plant protection products."

Mr von Westenholz has previously worked for a London-based public affairs agency, advising companies and organisations across a wide range of sectors on media and political relations. He also trained as a lawyer, being called to the Bar in 2007, and managed a family-owned arable farming business in East Hertfordshire before joining the NFU in 2009. Commenting on the appointment, the Association's chairman, BASF's Stephen Henning, said: "I am delighted that we have been able to appoint such a strong candidate to take over as chief executive. Nick brings a wealth of relevant experience to this role and we look forward to him leading the Association."

EU REJECTS FRENCH REPORT LINKING GM CORN TO CANCER

The EU's food safety agency, EFSA, has definitively rejected the report from the University of Caen linking genetically modified corn to cancer. The study is related to Monsanto's GM maize, NK603. A statement issued on 28 November stated: "Serious defects in the design and methodology of a paper by Seralini et al mean it does not meet acceptable scientific standards…Consequently it is not possible to draw valid conclusions about the occurrence of tumours in the rats tested."

In a first response to the report, which was published in September, EFSA had described the data as inadequate and called on Seralini to provide additional information before a second, final review was completed. However, he responded that he would not give EFSA additional information until it first detailed the basis of its own assessment (*September CPM*). EFSA now considers that there is no need to re-examine its previous safety evaluations of NK603. The agency also reported that the same conclusion had been reached in separate and independent assessments carried out in six EU nations - Belgium, Denmark, France, Germany, Italy and the Netherlands.

Seralini's report concluded that rats fed on NK603 corn or exposed to glyphosate developed tumours. The report caused worldwide alarm. But many experts quickly questioned its methodology, results and relevance to humans. Faced with this criticism Seralini's research group, Criigen, had, during November, issued a list of almost 200 scientists from more than 30 countries who backed the study.

EC GRANTS IMPORT APPROVAL FOR AGRISURE VIPTERA TRAIT

Syngenta has announced that the European Commission (EC) has granted import approval for the *Agrisure Viptera* trait (Event MIR162). This regulatory approval allows the importation of US corn grown with this trait for food or feed use within the 27 countries of the EU. "This regulatory approval provides growers broader access for marketing grain from hybrids containing the *Agrisure Viptera* trait," said Jill Wenzel, Syngenta product lead, commercial traits. "*Agrisure Viptera* trait technology offers growers greater protection against the broadest spectrum of above-ground corn pests, allowing them to grow more corn and helping them achieve maximum quality."

In 2010, Syngenta trials showed that hybrids with the trait delivered an average yield advantage of 7.3 bushels/acre (0.46 tonnes/ha) under ear-feeding insect pressure versus hybrids without the trait. *Agrisure Viptera* trait technology features Vip3A, a mode of action that has demonstrated breakthrough control of multiple pests. Syngenta received deregulation from the USDA for the trait in April 2010. The *Agrisure Viptera* trait has also received approval in those markets recommended by both the National Corn Growers Association and the Biotech Industry Organisation. In total, the technology is now approved for cultivation in Argentina, Brazil, Canada and the US and for import in Australia, Belarus, the EU, Indonesia, Japan, Kazakhstan, Korea, Mexico, New Zealand, the Philippines, Russia and Taiwan.

AMERICAN NEWS AND MARKETS

CERES AND SYNGENTA TO STIMULATE SWEET SORGHUM ADOPTION

Ceres (**www.ceres.net**), a US-based energy crop company, and Syngenta have signed a major deal to stimulate sweet sorghum adoption. The companies will work together to support the introduction of sweet sorghum as a source of fermentable sugars at Brazil's 400 or more ethanol mills. Under the agreement, Syngenta and Ceres intend to collaborate on small-scale trials as well as larger demonstration-scale field evaluations with mills this season. Syngenta will provide its agronomy resources to evaluate its portfolio of crop protection products alongside Ceres hybrids, and Ceres will provide both seed and research support. Sweet sorghum can extend the ethanol production season by up to 60 days in Brazil. It can be grown on fallow sugar cane land and processed using the same equipment, and requires less water and other inputs than sugar cane. Brazil's government announced in its annual agricultural plan for 2012-2013 that sweet sorghum would be considered a strategic crop.

SYNGENTA STRENGTHENS ITS SUNFLOWER STRATEGY

Syngenta will acquire Sunfield Seeds (**www.sunfieldseeds.com**), a US-based provider of sunflower seeds production and processing services to more than 30 countries. The acquisition represents an important step in the implementation of Syngenta's sunflower strategy by strengthening supply chain capabilities to enable future growth.

Sunflower produces high value oil that is low in saturated fats. They are grown on around 25 million hectares globally. The sunflower seeds market is currently valued at around $1 billion of which more than 75% comes from emerging markets, where the transition towards high-value hybrid sunflower seed continues. Davor Pisk, chief operating officer, said: "Sunfield is already one of our strategic suppliers and we are pleased that its people and operations will now become part of Syngenta. Sunfield's grower network in the key Sacramento Valley region as well as its modern processing facilities and experienced management team will complement our product range and global market strength. Above all, the acquisition will enhance our ability to meet growing demand for our high quality sunflower seeds." The transaction is expected to close by the end of 2012.

SYNGENTA SELLS ITS HORTICULTURAL SERVICES BUSINESS

Griffin Greenhouse Supplies, a leading US-based supplier of greenhouse and nursery materials, has signed an agreement to acquire the Syngenta Horticultural Services (SHS) distribution and brokerage business. The transaction will include the transfer of SHS assets and employees as well as distribution and brokerage capabilities located in the US. SHS had sales of $96 million in 2011. Griffin has also signed a long-term agreement to distribute and broker Syngenta Flowers genetics throughout the US. Robert Berendes, head of Business Development, said: "This transaction allows Syngenta to strengthen focus on our core genetics and plant protection capabilities. We look forward to working closely with Griffin to deliver the breakthrough solutions professional growers and retailers need to meet the increasingly high standards of consumers."

NOVOZYMES ACQUIRES NATURAL INDUSTRIES

Novozymes is to acquire Natural Industries (**www.naturalindustries.com**) based in Houston, US. Natural Industries has annual revenues of $5 million and is a bioagricultural company. "It will expand Novozymes' position in the important biocontrol segment and improves our capabilities to grow our business in key US markets on high-value crops like fruits and vegetables," said Thomas Videbæk, executive vice president of Novozymes and head of BioBusiness. He added: "Founded in 1992 and with 24 employees, Natural Industries brings a wealth of knowledge in the biocontrol area. The company has a proven portfolio of products, new pipeline opportunities and good market coverage for high-value crops in key regions of the US The acquisition is a good example of how we can grow and utilise our platform and leading position in this area as well as accelerate innovation," said Mr Videbæk.

BASF LAUNCHES PRODUCT BASED ON TOTAL RELEASE TECHNOLOGY

BASF has two new products based on its total release technology (TR). The insecticide *Pylon TR* (chlorfenapyr) and the fungicide *TrinityTR* (triticonazole) are the first products to deliver BASF proprietary active ingredients using the TR technology since the company's acquisition of Whitmire Micro-Gen. According to BASF the total release product line enables growers to save on labour costs

and to benefit from flexible reentry times while controlling target pests. Commonly known as aerosol foggers, total release technology is packaged in small canisters. To use, a grower simply places the product in the greenhouse, closes all greenhouse vents, windows and doors, presses the release button, and leaves for a specified amount of time.

“Growers save time on treatments by utilising this technology,” said Brian Lish, business manager, BASF. “These ready-to-use products provide excellent control of plant diseases and insect pests while also reducing water usage, ensuring accurate product distribution, eliminating mixing, and avoiding the maintenance and operating costs of large scale fogging equipment.”

Pylon TR controls mites, thrips and adult fungus gnats. *Trinity TR* provides broad-spectrum control of several important plant diseases such as botrytis, cylindrocladium, powdery mildew, rhizoctonia and fusarium. Both products are labelled for use in commercial greenhouses on bedding plants, cut flowers, flowering hanging baskets, foliage, potted flowering plants and ornamentals. In addition, *Trinity TR* can be used on perennials and *Pylon TR* on fruiting vegetables grown in commercial greenhouses.

GOWAN TO DISTRIBUTE POLYVERSUM IN THE US

Biopreparáty, a Czech Republic based company, and Gowan Company have signed a commercial agreement for the exclusive distribution of *Polyversum*. Gowan will develop, register and market the biofungicide, containing the active ingredient *Pythium oligandrum*, in the NAFTA Region starting in the 2013 crop season. Gowan has also committed to evaluate *Polyversum* in Latin America. “We are very excited to have the product registered in the US as a new tool in our Gowan BioRational portfolio. *Polyversum* is a broad spectrum biofungicide that can be used by organic and conventional crop growers who are looking for integrated pest management (IPM) and sustainability production crop management”, said Sergio Comparini, business development manager for Gowan Company.

“*Pythium oligandrum* is an Annex I listed active substance and the formulated product *Polyversum* has been successfully marketed in Europe in several crops including canola, sunflower, wheat and barley since 1997. Biopreparáty is continuing to expand its business with *Pythium oligandrum* worldwide. We are very happy about having Gowan Company as our exclusive partner in the US, Mexico and Canadian markets”, said Jirí Uher, business development manager for Biopreparáty.

REJECTION OF GM LABELLING LEADS TO NEW CAMPAIGNS IN US

On 7 November California voted by a narrow majority, 53% to 47%, to reject labelling of genetically modified foods. The vote, in Proposition 37, followed a major publicity campaign funded by the food industry, biotechnology industry and a number of farming organisations (*October CPM*). The result was deemed to be satisfactory for the food industry. The Food Manufacturing Association put out a statement after the result was announced: “Proposition 37 was a deeply flawed measure that would have resulted in higher food costs, frivolous lawsuits and increased state bureaucracies…This is a big win for California consumers, taxpayers, business and farmers.”

However, there are strong indications that the closeness of the vote, even after a reported $46 million spend on advertising and PR, has given encouragement to those organisations who support GM labelling. The vote suggests that over 4.27 million Californians would have favoured labelling. A new national coalition, GMO Inside, has launched a campaign to take the issue of food labelling on to the national stage. John W Roulac, CEO and founder of Nutiva, described as the world's leading organic superfood brand, was reported to say: “We are disappointed but not deterred by this defeat…GMO Inside was created to catapult the energy from the fight for Prop 37 to the next level. Our goal is to bring greater awareness to consumers nationwide about the dangers of GMOs and educate on what they can do to make a change.”

Jay Vroom, president and CEO of CropLife America (CLA), welcomed the fact that the vote on labelling was rejected but also recognised that the debate around Proposition 37 “did put a spotlight on consumer interest in our US food system and added to the modern agriculture dialogue we at CLA and many stakeholders have actively been having in recent years…We look forward to widening the discussion and learning more from one another.”

DOW AND MS TECHNOLOGIES ANNOUNCE NAME FOR ENLIST SOYBEANS

Dow AgroSciences and MS Technologies have unveiled Enlist E3 soybeans as the brand name for the industry's first-ever, three-gene herbicide tolerant soybean. This advanced technology was submitted for US regulatory approval in August 2011 and is anticipated to be launched in 2015 pending US and import country approvals. Enlist E3 soybeans will be brought to market in high-yielding varieties, widely available in multiple brands for farmers who want improved weed control and high yields. The Enlist E3 soybean event developed by the companies includes, for the first time, three herbicide tolerance genes stacked together as part of a single genetic event in the soybean genome. These genes provide tolerance to Dow AgroSciences' new 2, 4-D product, glyphosate, and glufosinate. Enlist E3 soybeans will be another product offering in the Enlist Weed Control System.

MONSANTO TO RESUME COLLECTION OF ROYALTIES

The Court of Justice of the State of Mato Grosso has decided that Monsanto can resume its collection of royalties for *Roundup Ready* soybeans in Mato Grosso. Monsanto will collect and temporarily place the royalties into an escrow account pending the outcome of the appeal process as well as the full case which will be heard in due course. In addition, royalty collection in other states will resume. The company's appeal will now continue as a part of the ongoing process at the state and federal levels. Monsanto's collections for first generation *Roundup Ready* soybeans had been temporarily suspended by a prior state court ruling in October. "This action reinforces our confidence in our ongoing legal position and highlights that the company's first-generation *Roundup Ready* soybean products are protected by various intellectual property rights under Brazilian law," said Todd Rands, legal director for Latin America. Monsanto says these rights have been upheld by state and federal courts and are in place until 2014.

OTHER NEWS AND MARKETS

ARYSTA INTRODUCES AMICARBAZONE IN THAILAND

Arysta LifeScience has introduced its herbicide *Dinamic* (amicarbazone) to sugar cane growers in Thailand. Used by Brazilian sugar cane growers for years, the product has proven to be drought resistant and non-phytotoxic. "Sugar cane growers who have used *Dinamic* know that it provides excellent control of broadleaf weeds and could be applied on dry soil just after harvesting," said Songpun Kuldilokrat, business manager, Arysta LifeScience Thailand. "It has very good residual when compared to competitive herbicides, and it is safe on the crop. In addition, the herbicide offers flexible application timing, which is helpful to cane growers in Thailand where weather conditions can be erratic." The formulation available in Thailand is co-packed with pendimethalin, a selective herbicide used to control most annual grasses and certain broadleaf weeds.

BAYER SEEKS NEW APPROACHES TO WEED CONTROL

Increased research in weed control is urgently required to address the severe agricultural problems of today and tomorrow. This was a fundamental consensus among all participants of a two-day symposium in Frankfurt and Monheim organised by Bayer CropScience. Sixteen external participants, among them the Nobel Prize-winners in Chemistry, Professor Robert Huber and Professor Hartmut Michel, discussed possible solutions and ways forward with some 40 experts from Bayer CropScience.

Dr Hermann Stübler, head of Research Frankfurt and Weed Control Research at Bayer CropScience, said: "For over 25 years no herbicide for broad acre crops with a new mode of action and commercial relevance has been discovered and brought to market by the global crop science industry." "There is tremendous selection pressure for herbicide resistance in weeds in all major row crops, and options are shrinking. Weed resistance is a growing problem that is changing agronomic practices and threatening the long term viability of economical weed control," added Professor Stephen Powles, director at the University of Western Australia.

The objective of the symposium was to discuss options for an urgent turnaround in weed control research. For this purpose, the participants worked in groups on different topics such as how to increase understanding of plants as whole systems, focusing on new ways to discover new herbicide modes of action and improve chemical lead discovery, and defining collaboration opportunities with leading institutes.

In his presentation of the results Professor Lothar Willmitzer, director of the Max Planck Institute (MPI) for Molecular Plant Physiology said: "The need for new herbicides with alternative modes of action and/or resistance breaking capabilities is more urgent than ever. This could be achieved by increasing the efforts towards research into plant systems biology and systematically screening for novel in vivo phenotyping technologies followed by elucidating the underlying molecular targets and pathways. This scientifically challenging task could be addressed via innovative collaboration models, for example by setting up science hubs at scientific hot-spots with resources shared with public research organisations, such as the MPI. We have to look at new sources for novel compounds, including natural products, and engage in further dialogue with health care colleagues. Another innovation source would be the development of truly synergistic formulations combining herbicides with novel modes of action."

BASF COMPLETES BECKER UNDERWOOD ACQUISITION

BASF has completed the acquisition of Becker Underwood from Norwest Equity Partners, a US-based private equity investment company, for $1.02 billion. The acquisition makes BASF a leading global provider of technologies for biological seed treatment as well as seed treatment colorants and polymers. BASF has also expanded its product portfolio in the areas of biological crop protection, turf and horticulture, animal nutrition and landscape colorants and coatings.

"The acquisition fits very well with our long-term growth strategy and will provide our customers with an even broader range of innovative solutions for agriculture," said Dr Andreas Kreimeyer, member of BASF's board of executive directors responsible for the Agricultural Solutions segment and research executive director. In the coming months, a detailed integration plan will be developed by a joint team

of BASF and Becker Underwood employees. Most of the businesses of Becker Underwood will join the newly established global business unit Functional Crop Care as part of BASF's Crop Protection division. Within this new unit, BASF will merge its existing research, development and marketing activities in the areas of seed treatment, biological crop protection and plant health, as well as water and resource management with those of Becker Underwood. Becker Underwood's animal nutrition business will be integrated into BASF's Nutrition & Health division.

The newly formed global Functional Crop Care unit will become effective 1 January 2013. It will be headed by Dr Juergen Huff, senior vice president. Dr Peter Innes, currently CEO of Becker Underwood, has accepted the position of global senior advisor to the Crop Protection division. He will support the integration of Becker Underwood into BASF and the implementation of the Functional Crop Care unit.

AMVAC FORMS JOINT VENTURE WITH TYRATECH

Amvac Chemical Corporation (AMVAC) has formed a new joint venture with natural life science company TyraTech (**www.tyratech.com**). The joint venture will develop and commercialise pesticide products featuring TyraTech's Nature's Technology which harnesses the synergy of natural ingredients to deliver products with good levels of efficacy and safety.

The joint venture will commercialise these pesticide products and technologies in the global consumer household and lawn and garden retail markets. Additionally, it will develop and commercialise products and technologies in global commercial, institutional, professional, crop protection and seed treatment markets. Using TyraTech's *Extend Technology*, the joint venture will also develop new combinations with synthetic compounds to both improve efficacy and environmental impact on a range of crops, which will give AMVAC access to a range of new global market opportunities.

Under the terms of this agreement, TyraTech will retain all rights to use its technology in the human and animal health markets together with certain other consumer markets. As part of this collaboration, AMVAC will have access to TyraTech's patented screening platform that is utilised to identify synergistic combinations of natural compounds that display efficacy in controlling insect and parasitic infestation. The joint venture will be jointly owned by AMVAC and TyraTech, with AMVAC owning the majority interest. The new company will be led by TyraTech's current vice president of commercial operations, Shayne M Wetherall, who will serve as CEO. The business will be headquartered in the Research Triangle Park area of North Carolina, giving it direct access to TyraTech's R&D, production, and supply chain teams.

MAKHTESHIM AGAN GROWS

Makhteshim Agan has reported its financial results for the third quarter and first nine months of 2012. In constant currency terms sales grew by 4.2% and 7.2% in the quarter and the first nine months respectively. Commenting on the results, Mr Yang Xingqiang, Makhteshim Agan's chairman of the Board, said:| "We are pleased to report a strong quarter…We continue to implement the company's strategic initiatives, including the integration of MAI with ChemChina's agrochemicals activities. In parallel, we are executing our operational work plan that will allow us to strengthen our ability to create simplicity in agriculture for farmers around the globe."

Mr Erez Vigodman, president and CEO of Makhteshim Agan, commented: "I am pleased with our ability to significantly grow our operating profit, EBITDA and net income for both the quarter and first nine months of the year, despite the quarter's unfavorable foreign exchange environment and challenging weather in the US, Russia and Eastern Europe. We continued to introduce new differentiated off-patent solutions in many of our territories while compensating for higher raw material prices. Our strengths in market reach and product registration allowed us to cement our market positioning and will continue to play a pivotal role in our strategy going forward."

Revenues for the third quarter of 2012 totaled $643.5 million compared with $638.5 million in the third quarter of 2011. The increase derived from higher selling prices and increased quantities sold in Asia and Europe compensated for negative exchange rate fluctuations and higher raw material and active costs as compared to the third quarter of 2011. For the nine month period sales totaled $2,255 million, a 5% increase of compared with $2,142.1 million for the first nine months of 2011.

The third quarter's strongest sales growth was delivered by Asia Pacific and Africa, where revenues increased by 11% to $130.2 million compared with $117.6 million in the third quarter of 2011. This reflected increased quantities sold and a rise in selling prices partially offset by the erosion of local currencies, primarily the Indian rupee. Sales in Europe increased by 2% from $207 million to $212 million despite the erosion of European currency rates and poor weather across the continent. This reflected increased sales and higher selling prices in the region, together with the success of currency hedging transactions that provided partial compensation for the erosion of currency exchange rates. Sales in North America decreased by 7.5% from $96 million to $89 million, reflecting the decreased quantities sold in light of the drought experienced in the US. Sales in Latin America decreased by 2% from $192 million to $188 million, reflecting reduced quantities sold as compared with the third quarter of 2011, countered partially by higher selling prices, mainly in Brazil.

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortisation|) for the third quarter of 2012 increased by 14% to $90 million (13.9% of sales), compared with $83 million (13.0% of sales) for the third quarter of 2011. For the nine month period, EBITDA totaled $389 million (17.2% sales), compared with $346 million (16.2% of sales) in the first nine months of 2011.

MAKHTESHIM AGAN EUROPE APPOINTS NEW CEO

Makhteshim Agan Industries (MAI) has appointed Dr Anders Harfstrand as president & CEO of its Europe Region. The appointment is effective as of 1 January 2013. Dr Harfstrand, who will be based in the company's headquarters in Switzerland, has also been appointed a member of MAI's senior management team. In his new role, he will work closely with MAI's European Leadership Team, as well as promote cooperation between MAI's Europe Region and its other regions to better facilitate the company's holistic business approach. He replaces Ignacio Dominguez, who is taking over the position of the company's chief commercial officer and head of its Products & Marketing Division.

Dr Harfstrand brings to MAI two decades of experience as a senior business executive at leading pharmaceutical companies. Most recently, he was president and CEO of Humabs Biomed SA, a Swiss-based company engaged in the discovery of human monoclonal antibodies and CEO of NITEC Pharma AG. Commenting on the appointment, Mr Erez Vigodman, president and CEO of Makhteshim Agan, stated: "I am delighted to welcome Anders Harfstrand to MAI. He is a strong business leader who brings to our company deep, hands-on managerial experience in the pharma industry, especially in strategic sales and marketing, business development and mergers and acquisitions.

CHEMINOVA REPORTS ON Q3 RESULTS

Cheminova has reported that revenue in Q3 2012 increased by 2% (4% at constant exchange rates (CER)) to DKK 1,469 million (€197 million) corresponding to a combined growth of 9% for the first nine months of the year. Cheminova's agrochemicals sales increased by 4.6% compared with last year to DKK 1,400 million in the third quarter of 2012. Sales of agrochemical in the first nine months rose by 11.8% to DKK 4,545 million.

The growth is largely volume-driven, although sales prices saw a slight increase. An improved product mix boosted the gross margin to 27.4% in Q3 compared to 25.2% in 2011 despite higher raw material costs. In the first nine months of the year, an EBITDA margin of 11.6% (9.2% in 2011) and an EBIT margin of 9.1% (6.2% in 2011) were realised.

Herbicides grew 5.1% to DKK 1,434 million during the first nine months of the year and accounted for 30% of revenue. Sales of glyphosate accounted for approximately 10% of revenue, and the growth is largely generated by the selective herbicides, based on active ingredients such as pethoxamid, fenoxaprop and the sulfonylurea herbicides.

Insecticides increased by 14.8% to DKK 1,853 million during the first nine months of the year and accounted for 39% of revenue. The growth has been achieved by several new products based on the active ingredients gamma-cyhalothrin and abamectin, as well as strong demand for several of the traditional products based on dimethoate and chlorpyrifos.

With growth of 17.8%, fungicides saw marked growth during the first three quarters of 2012 and now account for 20% of revenue. Earlier this year, flutriafol was introduced in cotton in the USA and together with other fungicides is helping to strengthen Cheminova's position in the North American

market. Fluazinam has obtained registration for use against potato blight in Germany, while azoxystrobin has been registered in several countries.

The company says that crop prices remain high and have triggered a good season start in Latin America. The market for crop protection products is also expected to grow in Q4. As part of the restructuring of Stähler, which became part of the Cheminova Group in 2008, an agreement was made to divest a small, non-strategic company, Chauvin SAS, which is engaged in the grafting of vines.

CONFERENCES AND FEATURES

CROP PROTECTION IN SOUTHERN BRITAIN

This two day conference, which is organised by the Association of Applied Biologists (AAB) and held jointly with the BCPC (British Crop Production Council) and supported by the Agricultural Industries Confederation (AIC) and the Association of Independent Crop Consultants (AICC), was held in Peterborough on 27-28 November and attracted around 150 advisors and researchers. Issues relating to agrochemical resistance management were the focus on the first day, with 18 short papers presented. Bruce Knight reports.

The first session focused on blackgrass control. Results from a number of experiments based on different cultural techniques were presented by several speakers. Stephen Moss, Rothamsted Research, showed that spring drilling of wheat could help to reduce resistant blackgrass populations although herbicide choice is more limited and gross margins are less favourable than with winter sown crops. Dick Neale, of UK distributor Hutchinson's, covered the different cultivation options. Delaying sowing of winter wheat to late autumn, can help to reduce viable blackgrass populations provided sufficient cultivations are possible before drilling. However, there is the risk that inclement weather will intervene – as has been the case in 2012. Inversion ploughing as opposed to direct drilling generally helps to bury blackgrass seeds so they do not germinate. However, in dry autumns soil moisture loss is a disadvantage.

Syen Shah of Agrii, the UK's largest provider of agronomy services, reported on six different cultural and chemical programmes from an experiment in Cambridgeshire. He concluded that ploughing and delayed drilling or shallow tillage with glyphosate application before drilling were the most effective. The use of herbicide programmes based on six active ingredients performed better than with fewer active ingredients.

Richard Hull, Rothamsted Research, addressed the question of whether the increasing reliance on residual blackgrass herbicides is sustainable. Over a six year period glasshouse and container assays compared resistant blackgrass control with pendimethalin and flufenacet. A 7% decline per year in pendimethalin effectiveness was recorded and 5% with flufenacet. But this trend was not repeated at field level. Data was also collected from 352 trials generated by agrochemical companies. These showed an average control of 69% between 2001 and 2012 and an average decline of 2% per year. The decline had been most noticeable when comparing years with dry autumns.

Two papers described results with clethodium for the control of herbicide resistant blackgrass in oilseed rape. Clethodium from Arysta Life Sciences is not yet registered for use in the UK but is registered for use in a number of European and other markets. It is a 'dim' ACCase inhibiting herbicide. Stephen Moss showed from trials at Rothamsted that control of blackgrass with target site resistance conferred by ACCase was very good.

Dr David Stormonth, Interfarm UK Ltd, a subsidiary of Sumitomo Chemicals, outlined trials with clethodium on sites with blackgrass known to be showing ACCase resistance. It out-performed tepraloxydim, a herbicide with a similar mode of action, by about 30%. In practice sustained use of clethodium will require tank mixes with herbicides working with different modes of action. Trials with propyzamide, *Kerb*, show promise.

In response to a question from the floor seeking guidance on the most appropriate cultural or chemical strategy to control resistant blackgrass it was conceded that there is no simple answer. Seasonal factors have to be considered leaving the farmer and his advisor to choose the best option year by year.

Looking at cereal disease control Nick Watson, NIAB TAG (**www.niab.com**) reported on fungicide performance in monitored trials in different regions of England in 2012. Preliminary results from the nationally organised CropMonitor survey (**www.cropmonitor.co.uk**) showed that incidence of Septoria, brown rust and Fusarium ear blight in 2012 considerably exceeded the 1998-2007 average. 2012 was a test for all fungicides with the number of spray days severely limited. Nonetheless the average yield response from the application of fungicides in the annual recommended list trials was 38%. In the NIAB TAG monitored trials good responses were recorded from all T1 (growth stage 31-

32/33) T2 (growth stage 37-39) applications during May, with strobilurins plus triazoles and SDHIs (succinate dehydrogenase inhibitors) giving the best yield response. T3 (growth stage 59-65) applications in June showed positive but less pronounced responses.

Rosemary Baylis, NIAB TAG, described how new races of yellow and brown rust, first noted in 2011, are occurring on varieties of wheat previously resistant. Their presence was confirmed in 2012 and isolates are being distributed to breeders.

Neil Havis, Scotland's Rural College (SRUC), Edinburgh (formerly SAC), presented a paper on the occurrence of a new cereal leaf stripe disease, *Cephalosporium gramineum*. This is described as an emerging threat to continuous cereal production. It is known to occur in much of Northern Europe, North America and Japan. An HGCA (**www.hgca.com**) funded project is aiming to define the potential yield implications of the disease and to indicate potential control measures. Wheat appears to be more sensitive than barley or oats. Variety susceptibility trials carried out in East Lothian, Scotland suggests a wide variability in susceptibilities. The most susceptible variety Timber showed a 2 tonnes per hectare yield loss. There is reasonable evidence to show that infection can spread from the seed and the pathogen may remain in the soil. This obviously is a potential problem if continuous cereal production is planned. Trials with different seed treatment chemicals show marked variations although from limited data fluquinconazole offers good protection.

CROPWORLD GLOBAL

This month we continue our coverage of the CropWorld Global conference held in London at the QE II Conference Centre on 6/7 November.

Sustainable agricultural intensification: making it happen

This plenary session included a number of interesting case studies from around the world. Trevor Nicholls CEO of CAB International (CABI – formerly Commonwealth Agricultural Bureaux), explained that there were a number of 'quick wins' that could be adopted to help meet global food needs. Improvements in agricultural productivity in developing countries is the most important and it simply has to 'lose less' food from better control of weeds, pests and diseases; less losses during transport and storage and better use of water. He quoted the example of rice production in the Philippines. Currently the country consumes one million tonnes more than the 15.8 million tonnes that it produces. CABI have estimated that halving pest and disease losses and adopting hybrids could turn this deficit into three million tonnes surplus for export.

Dr Pedro Machado is responsible for rice and bean crops in Embrapa (Brazilian Agricultural Research Corporation). He described schemes aiming at improving productivity sustainably in the Cerrado, the Savannah area which accounts for 42% of agricultural GDP in Brazil. Much of the area is poor arid pasture land with cattle suffering low reproduction rates and high mortality rates. In a 400,000 hectare area a six year programme of soil structure improvement has involved rotations with soya beans, eucalyptus trees, brachiaria grass and pastures. This has provided profit from soya beans and eucalyptus and significantly enhanced livestock productivity.

John Reifsteck farms in Illinois, US and is a board member of Truth about Trade and Technology (**www.truthabouttrade.org**) The organisation is described as a non profit advocacy group led by American farmers which supports free trade and the adoption of agricultural biotechnology. He explained how now virtually all of US soya bean production is GM and how corn production has spread north and west within the US in response to demand from biofuel plant investments.

From the floor a number of issues were highlighted. Keith Norman, from the UK farming company Velcourt sought assurance that EU policy makers recognised that the farming industry was under threat due to regulatory delays and potential withdrawal of agrochemicals such as triazole fungicides. Peter Kendall, the UK's National Farmers Union (NFU) president, shared his concern but claimed some success in having been able to put a case to the scientific adviser of EU president Barroso.

Phil Bloomer, Oxfam, spoke out strongly against the use of corn for bioethanol production at the expense of feed and food. Keith Kemp, United Soybean Board, and John Reifsteck argued that not all corn for bioethanol production was negatively impacting on feed markets. Consumption by the livestock feed industry of dried distillers grains with solubles (DDGS), coming from the ethanol plants was proving a success and is gaining share at the expense of soya bean meal.

New product showcase

Shradha Singh, Syngenta Jealott's Hill, is team leader of the SYield project. The £2.5 million (€3.1 million) three year project commenced in 2010 and is 50% funded by the UK Government Technology Strategy Board. Syngenta is the leader of the project which involves a number of scientific and industrial collaborators. The objective is to develop a continuously operating sensor system for detecting sclerotina in oilseed rape. Sclerotina spores can remain in the soil for up to 10 years, consequently disease outbreaks can be irregular and not easy to predict. Existing monitoring methods all have limitations. The principle is based on the placement of an automatic spore sampler in the field, which is fitted with a sensor specific to sclerotina. With the spore data in combination with environmental data and satellite images of the crop it is hoped to be able to provide a risk prediction model to growers. An initial trial at Rothamsted Research has demonstrated that the sensor is effective in detecting sclerotina spores but not other fungal spores.

Dr Pam Marrone, CEO and founder of Marrone Bio Innovations, California, described developments with existing biopesticides and new products in the pipeline. Marrone Bio Innovations was founded in 2006 and currently employs 101 people of whom over half are in R & D. The first product to be marketed and introduced in 2009 was *Regalia* for disease control. The active is an extract from giant knotweed. *Regalia* is applied as a root drench or foliar spray and induces disease resistance and

enhanced root growth. Dr Marrone showed some positive results based on straight *Regalia* for the suppression of fusarium, pythium and rhizoctonia in tomatoes, peppers and potatoes. In combination with azoxystrobin, *Quadris*, yield benefits were demonstrated in corn and soya beans. *Regalia* is being marketed internationally.

Grandevo bio-insecticide was launched in the US in 2011. It is based on chromobacterium, a soil bacterium isolated in Maryland forests and patented by the Agricultural Research Service, US Department of Agriculture (ARS USDA). It is claimed to be effective on chewing and sucking insects and mites. Results on psyllid, lygus, thrips and spider mite were presented for selected crops. Performance generally matched or exceeded that of the commercially recommended chemical insecticide.

A new bacterial species of burkholderia has been identified through Marrone's extensive screening programme. This is expected to be registered as a bio-insecticide in the US in 2013 and will be marketed as *Venerate*. It shows promise for the control of thrips, citrus rust mite and pepper weevil. Also derived from a bacterial strain of burkholderia is a potential bio-herbicide. The strain was identified from an extensive screening programme and testing activity on the specific plant enzyme, glutamine synthetase. Several herbicidal compounds are apparently produced by the bacteria which are xylem mobile. A photograph showed how treatment to one leaf of amaranthus stunted growth of the whole plant. Marrone has taken out patents on the strain and chemistry and are hopeful of achieving registration in the US in 2014.

Formulation trends

Outside of the main conference arena a series of R & D papers were presented in the exhibition hall. Trevor Blease, Research and Technology specialist, Croda, gave an informative overview of the trends in formulation developments.

The overriding requirement has been to move away from solvent based formulations to aqueous formulations for reasons of toxicity and flammability. The opportunity to use safer vegetable oils rather than mineral oils is limited as generally more carrier is required so solvent costs are higher. Oil emulsions in water (EWs) or suspension concentrates (SCs) are possible in some cases and for certain active ingredient co-formulations a combination of the two can be adopted. A more recent option for insoluble active ingredients is the use of a benign oil carrier and a dispersed active ingredient, an oil dispersion (OD) formulation. This is the oil equivalent of an SC. There are issues with oil carriers as sedimentation is a major problem.

Trevor Blease explained that seed treatment formulations create their own challenges with the need to avoid dustiness paramount. He also emphasised that the main drivers for all formulations are improving efficacy and meeting more stringent legislation. Asked by *Crop Protection Monthly* whether there would now be a rapid switch away from traditional formulations, Trevor Blease commented that he expected the trend to continue but at a relatively slow rate.

R&D funding

In this session it was reported that Bayer CropScience will invest in further research and development (R&D) to support the agricultural industry in addressing evolving challenges. The company also emphasised its commitment to sustainable crop solutions and said it expects strong growth for its biologics business. Bayer CropScience's global head for Research and Development, Dr C David Nicholson, noted that his company has one of the strongest pipelines of new products in the industry. "We are raising our overall R&D spending to more than € 850 million a year by 2015, and will increase our Seeds R&D budget to achieve a 50:50 ratio in R&D for Seeds/ Biologics and Chemistry," he said. In the period 1995-2010, the company introduced 35 products in the crop protection arena.

Biopesticides

Bill Stoneham, executive director of the Biopesticide Industry Alliance (BPIA), described biopesticides as partners to conventional pest control. He said IPM programmes represented an effective and environmentally sensitive approach to pest management that relies on a combination of cultural, biological and chemical means to control pests. The most effective IPM programmes include traditional chemicals used judiously in combination with biological pesticides. The advantage of using biopesticides are the short re-entry intervals, their exemption from tolerances, their kindness to beneficials and the help they give in the battle against resistance.

Dr Pam Marrone talked about the transformation of biopesticides from a niche industry focused on organics to a mainstream market which is expected to grow faster than conventional pesticides at 10% to 15% per annum. What could drive even greater adoption, she said, is formulation innovation. New inerts, formulations to extend the residual life of the products and improve their consistency are key along with premixes of chemicals and biopesticides and premixes of multiple biopesticide active ingredients, Dr Marrone said more education and training, and on-farm demonstrations are also needed.

Marcus Meadows-Smith, head of Biologics at Bayer CropScience, spoke about new technologies and the evolving role of biologics. “Today’s farmers face unique challenges, and increasingly seek solutions that span synthetic chemistry, molecular biology and biologics. At Bayer CropScience, we use our expertise and competencies in these different technology platforms to provide sustainable crop solutions,” Meadows-Smith said. Historically biologics over promised and under delivered. Today the demand for biologics, which are often effective in very small quantities, is growing, and the market is expected to triple to almost $4 billion by 2020, he noted.

Syngenta's Rob Neill, global head of Asset and Platform Management, reminded delegates that the demand for food was driven by population growth and land scarcity. He said that his company’s ambition was to bring greater food security to an increasingly populous world in an environmentally sustainable way. The company was seeking a step change in farm productivity and one of the tools was biologicals. The key drivers of the increased interest in biologicals were reduced chemical residues, less risky registration, resistance management, public perception and performance. The days of ‘spray and pray’ have passed and science has now arrived with a range of new technologies. More than 245 biopesticides were registered with the US Environmental Protection Agency (EPA). There are now more than 200 players in the sector and the major companies are getting involved too. He said biological control still lags behind in terms of performance but can play a key role when slotted into a complex programme. Syngenta now expects rapid product improvements – new strains and greater potency, improved formulations and lower manufacturing costs. Better performance will, he said, lead to improved user convenience and this will in turn attract more investment. Syngenta expects to see growth of 12 to 15% per annum and believes peak sales potential could be greater than $6 billion annually.

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