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international news, comments, features and conference reports

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MAJORS REPORT GOOD START TO 2011

Four of the major agribusinesses have reported their first quarter sales this month and all recorded double digit increases in what has been an extremely good start to 2011. Dow AgroSciences said that its sales rose to a record level, $1.6 billion, up 17%. Volume increased 14%, with prices up by 3%. Earnings before interest, taxes, depreciation and amortisation (EBITDA) for the segment was $406 million, which compares with $384 million for the same period in 2010. All geographic areas reported sales gains versus the same period last year. Dow says that growth in agricultural chemical sales was led by Europe, Middle East and Africa with double-digit volume gains resulting from new product sales and favourable climate conditions which led to early applications of cereal herbicides. Globally, new agricultural chemical product sales were up 16% versus the same quarter last year, led by strong early season demand for range and pasture herbicides in the US and Brazil, and strong insecticide and cereal herbicide sales.

Dow's Seeds, Traits and Oils business reported growth of more than 25%. The continued ramp-up of *SmartStax* hybrids in North America and strong demand in Latin America led to significant volume increases in corn. Cotton seed sales also rose significantly, driven by an increase in planted acres in the US and increasing market penetration by the company's *PhytoGen* cottonseeds. In addition, Dow announced significant developments from its innovation pipeline. The business recently received regulatory approval in Brazil for its *Powercore* technology, the first five-gene trait stack technology in that country, and received registration in the US for *Refuge Advanced (see page 6)*, the world's first single bag solution that removes the need for growers in the Corn Belt to plant insect refuge.

Sales of the Bayer CropScience subgroup climbed by 15.6% in the first quarter compared with the previous year to €2.257 billion ($3.34 billion). The company says its increase was partly attributable to the very favourable market environment and referred to the early and particularly good start to the season in the northern hemisphere. The Crop Protection business saw sales advance by 13.6% to €1,676 million. Business improved substantially in all regions, driven mainly by new products. While sales of herbicides, fungicides and seed treatments expanded Bayer's insecticide revenues, in contrast to Dow, were down slightly. Sales in the company's Environmental Science and BioScience segment grew by 22% to €581 million. At Environmental Science, sales of products for professional users increased, while sales of consumer products showed a slight decline. In the BioScience business unit, which specialises in seeds and plant traits, there was a substantial increase in sales and a positive trend for canola, cotton and vegetables. EBITDA rose by 40.3% to €745 million, the growth in earnings being mainly due to good business development in both Crop Protection and BioScience.

Syngenta reported that its sales in the first quarter of 2011 were 14% higher at $4.02 billion, a 13% increase at constant exchange rates. Volume expanded by 14% and represented the fourth consecutive quarter of double digit growth for the company. In Europe, Africa and the Middle East, sales increased by 20% with strong growth in both Crop Protection and Seeds. A favourable business environment encouraged early investment by wheat growers across the region. In Eastern Europe there was a recovery from the difficult conditions encountered in the second half of 2010 and as a result an increased demand for crop protection products and widespread adoption of high value sunflower seeds, where Syngenta is the market leader. In North America, sales increased by 6%, reflecting a strong performance in Seeds. Crop Protection sales were, however, flat. Volume growth in the US compensated for lower prices as well as for lower sales of cereal herbicides in Canada. Latin America grew by 16%, driven by fungicides, insecticides and corn seed. Sales in Asia Pacific increased by 6% with declining sales in Japan more than offset by continuing expansion of crop protection usage in emerging markets. Combined sales of new crop protection products reached $185 million in the first quarter, an increase of 31% over the same period in 2010.

Mike Mack, Syngenta's CEO said: "Our first quarter sales performance demonstrates our ability to achieve significant growth across a business that is unrivalled in its breadth and reach. At the same time, we have made rapid progress in the implementation of our new commercial strategy, which is building on the combined strength of our Crop Protection and Seeds businesses to develop a fully integrated offer on a global crop basis" (*February CPM*).

DuPont's Agriculture and Nutrition segment achieved sales of $3.8 billion in the first quarter, up 18% to $586 million. There was 13% growth in volume, 4% coming from higher selling prices and 1% from portfolio changes. The company said that its seed sales growth primarily reflected strong North American performance from both its *Pioneer* brands and *PROaccess* products and a strong, early start to the European season. Pretax operating profit (PTOI) of $1.1 billion was up 21% on higher volumes.

EUROPEAN NEWS AND MARKETS

NEW EU PROJECT FOCUSES ON IPM

A new EU Seventh Framework Programme project, PURE (Pesticide Use-and-risk Reduction in European farming systems with integrated pest management), has been launched. It is a research project that aims to provide field-tested IPM solutions, new knowledge and an IPM research toolbox. PURE will involve researchers from universities and institutes and a wide range of food supply chain stakeholders including industry and advisory organisations from 10 European countries. The total investment amounts to more than €12 million over four years. The project will focus on the key European farming systems. The main crops researched will be wheat, maize, field vegetables, pome fruits, grapevines and protected vegetables. Dr Graham Begg of the Scottish Crops Research institute (SCRI), one of the partners in PURE, said: "With the reduction in available pesticides, growers will have to look to different and more innovative methods of managing crops and the PURE project will support that move."

CONSORTIUM TO DEVELOP PEST CONTROL SYSTEM FOR GREENHOUSES

Wageningen UR (University and Research Centre) in the Netherlands is the 'lead partner' and co-ordinator of a new 'Healthy Greenhouse' programme. A consortium of Dutch and German research organisations and companies in the border region between Germany and the Netherlands will be developing a sustainable pest and disease management system for modern greenhouse horticulture. German and Dutch governments and the industry along with Interreg, an EU programme designed to help European regions work together on common projects, are jointly making over €10 million funding available. Interreg has identified the significance of greenhouse horticulture and wishes to stimulate innovation in the horticultural supply industry in the Dutch-German border region.

Carolien Zijlstra of Plant Research International (PRI) at Wageningen UR will be coordinating the Healthy Greenhouse project. She stressed the importance of establishing links between technologies: "Modern greenhouses are large and detection and control of pests and diseases is becoming increasingly difficult. The project will therefore be focusing on combining and matching technologies." It is hoped that the work will yield a crop protection system that enables growers to better control their pests and diseases with fewer chemicals. There are plans to set up a demonstration greenhouse in the region.

BEE EXPERT PRESENTS FINDINGS IN THE UK

Jeffrey Pettis, head of the Bee Research Laboratory of the US Department of Agriculture, recently presented in the UK the findings of studies he carried out to try and explain the collapse in bee populations. Speaking to the All-Party Parliamentary Group on Science he suggested that a new generation of pesticides might be leaving honeybees vulnerable to disease and could explain the collapse in bee populations. He said that the systemic neonicotinoid pesticides appear to make bees more susceptible to nosema gut mites, which have been linked to poor bee health. His findings are likely to strengthen calls for tighter regulations on the use of the chemicals, which have been restricted in France, Germany and Italy but are used widely in the UK and the US. Previous research has shown that neonicotinoids are not generally found in high enough concentrations in pollen samples to be implicated as the direct cause of colony collapse. However, Dr Pettis' work suggests that even at tiny doses the chemicals appear to lower bees' defences against infections.

In his study, bees were first exposed to low levels of the pesticide imidacloprid in the field and then introduced to nosema mites in the laboratory. Bees that had been exposed to the neonicotinoid had three to four times the level of nosema spores 12 days later than bees in a control group that had not been exposed to the insecticide. Dr Pettis has stopped short of calling for further restrictions on neonicotinoids, saying that while raising concerns, the newer generation of insecticides also had advantages over traditional chemicals, which tended to be used in much higher quantities. He added that pesticides were just one part of the picture, and that changes in land use and the move towards more intensive farming had also been demonstrated to have a significant impact on bee health.

A recent UN Environment Programme concluded last month that "more than a dozen factors" were behind declining bee populations, including air pollution, new fast-spreading fungal diseases and

varieties of parasites such as the varroa mite, the loss of habitat for wild flowers as well as the increased use of pesticides.

INTERFARM TO DISTRIBUTE BAYER HERBICIDE

Interfarm UK (**www.interfarm.co.uk**) has entered an agreement to distribute *Warrant,* fenoxaprop-p-ethyl wild oat herbicide, on behalf of Bayer CropScience. *Warrant* is an 83 g/l formulation of fenoxaprop. The dose rate of the herbicide increases as the weed size increases, but reduced rates can be used if *Warrant* is mixed with an appropriate mineral or methylated rapeseed adjuvant oil. “Per individual plant, wild oats are the most competitive annual grass weed in cereals and in experiments just one plant per metre squared can reduce wheat yields by up to one tonne/ha in winter cereals,” says Dr David Stormonth technical manager for Interfarm. “Wild oats also contaminate grain which is costly to remove and they act as host for some damaging viruses, insect pests and nematodes. We are pleased to be able to offer UK growers one of the best wild oat products available.”

EU MEMBER STATES HAVE THE RIGHT TO BAN GM CROPS

On April 12 the European Parliament's environment committee voted in favour of the proposal drafted by French MEP Corinne Lepage (Alliance of Liberals and Democrats for Europe) to give member states a choice of whether to ban cultivation of GM crops on their territory, adding environmental impacts to a list of grounds on which restrictions could be imposed. At present, EU member states are only able to restrict GM crop cultivation under strict conditions, as authorisation licenses are valid across the 27-country bloc in accordance with the principles of the EU’s single market.

The proposal was passed with 34 votes in favour, 10 against and 16 abstentions. It adds to the already existing potential conflict between the European Parliament and the Commission. The EC ideally wants restrictions by national authorities on GM crop cultivation removed in order to keep in line with WTO rules (*March CPM*). The environmental reasons listed as grounds for banning the crops are enhanced pesticide resistance, biodiversity protection and the invasiveness of the GM crops. Some MEPs argued that these environmental grounds would help to provide greater legal protection against possible WTO challenges.

The reaction to the vote demonstrated once more the polarisation that still exists on the subject. The UK’s National Farmers Union (NFU) chief scientific advisor, Dr Helen Ferrier, was reported as saying that the MEPs were ignoring sound science and jeopardising food security. She considered that the fact that some member states want to do their own scientific assessment seems to be less for scientific and more for political reasons, particularly when the European authorisation procedures are already the toughest in the world.

Greenpeace's European Unit welcomed the vote arguing that the inclusion of environmental grounds to the proposal is “crucial if national bans are to be legally robust.”

ACTIVE INGREDIENTS CLEARED FOR EU ANNEX 1 INCLUSION

During April a number of important active ingredients were published on the EC register as having been included in Annex 1 of Directive 91/414/EEC. This follows the positive opinion from the Standing Committee on the Food Chain and Animal Health (SCoFCAH) which met on March 11.Under EU rules where the original data, when reviewed, was found to be inadequate a period of time is permitted for the registrant to add to and re-present data. The actives now included have all satisfied SCoFCAH. They included the herbicides carbetamide and diclofop, the fungicides carboxin, cyproconazole, dithianon and pencycuron, and the molluscicide metaldehyde. Also on the list were the soil fumigant dazomet and the rodenticide bromadiolone.

AMERICAN NEWS AND MARKETS

GOWAN TO MARKET RICE HERBICIDE

Gowan has reached an agreement with SDS Biotech KK to develop, register and exclusively market benzobicyclon for the US rice market. Benzobicyclon is a novel rice herbicide, developed and discovered by SDS, which controls sedges, grass and broadleaf weeds in flooded rice. In field studies conducted in the US, the product has shown good activity against sulfonylurea-resistant weeds and has given long residual control. Under the agreement, Gowan, in cooperation with SDS, has already started the registration process and initiated an extensive development programme.

SYNGENTA LAUNCHES SEED TREATMENT COMBINATION FOR SUGAR BEET

Syngenta Seedcare has launched *Cruiser Maxx Sugarbeets*, the first insecticide/fungicide seed treatment combination for sugar beet. The launch follows approval by the US Environmental Protection Agency (EPA) of *Cruiser 5FS* (thiomethoxam) seed treatment insecticide for use on sugar beet CruiserMaxx Sugarbeets, is a combination of separately registered *Cruiser 5FS* insecticide seed treatment and *Apron XL* (mefenoxam) and *Maxim 4FS* (fludioxonil), both seed-delivered fungicides. It provides defence against early season insects and diseases while increasing plant stand, vigour and yield potential. Commercially applied by seed companies at low use rates, *CruiserMaxx Sugarbeets* provides protection from sugarbeet root maggot, sugarbeet leaf hoppers, springtails and wireworms as well as early season seedling diseases such as Pythium and Rhizoctonia.

EPA GRANTS APPROVAL FOR BAYER HERBICIDE

Bayer CropScience's non-selective herbicide *Alion* (indaziflam) has been granted regulatory approval in the US by the EPA. *Alion* was developed primarily for use in perennial crops such as citrus, tree nut, grapes, pome and stone fruit. The market launch of the product in the US is planned for later this year. Bayer anticipates global annual peak sales of products based on indaziflam of more than €150 million. Further registrations are expected in Central and South America in 2011.

Alion controls a broad spectrum of weeds and provides good crop safety. It can be used preemergence and can be applied alone or in a tank mix with other herbicides. Its long-lasting action and the broad spectrum of activity means that the number of herbicide applications can be reduced. Bayer says that *Alion* will be an effective tool in the management of weed populations that are resistant to other modes of action.

NEW 2,4-D CHOLINE PRODUCT GAINS EPA ACCEPTANCE

The US EPA has accepted Dow AgroSciences' submission for a new 2,4-D choline product. *Colex-D Technology* will be featured in the 2,4-D choline herbicide solution for Dow AgroSciences' *Enlist Weed Control System*. Various components of the system are currently pending US regulatory approvals. The herbicide, based on the innovative choline salt of 2,4-D, is a quaternary ammonium salt which is different from 2,4-D amine or ester formulations. Dow says the technology retains the positive attributes of traditional 2,4-D products, such as the same weed control efficacy and favourable environmental profile, while providing growers with new advantages such as the management of resistant and difficult to control weeds.

The *Enlist Weed Control System* will help growers manage the trend of increasing prevalence of difficult to control weeds, including glyphosate-resistant species. Enlist will be the first new tool to build on and improve the glyphosate-tolerant cropping system and provide control of problematic weeds like waterhemp, an aggressive yield-robbing weed found in many corn and soybean growing areas. Waterhemp has been recorded both as glyphosate-resistant and resistant to the HPPD mode of action. In addition to exceptional weed control provided by the new 2,4-D choline, the company says that *Colex-D Technology* will have several beneficial attributes. These will include reduced volatility, minimised potential for drift, decreased odour, plus improved handling and tank-mixing characteristics.

EPA CLEARS REFUGE ADVANCED

Dow AgroSciences *Refuge Advanced* powered by *SmartStax* has received registration from the US EPA. The company says that this completes federal regulatory authorisation in the US. Commercialisation is now pending individual state authorisations. The product is the outcome of the collaboration between Monsanto and Dow. It is a combination of each company's leading corn traits that provide farmers with multiple modes of action for broad spectrum control of above- and below-ground

insects, and also offers two herbicide tolerance traits for flexible weed management. *Refuge Advanced* is described as a single-bag refuge solution for corn.

Casey Onstot, traits marketing manager for Dow AgroSciences says: "*Refuge Advanced* is a blend of 95% SmartStax corn seed and 5% refuge (non-*Bt*) seed that farmers can plant across their entire field. It provides an effective refuge management strategy, preventing the development of insect resistance." This means farmers who plant *Refuge Advanced* products no longer need to plant a separate, structured refuge for above- or below-ground pests. In the past, growers planting *Bt* corn hybrids have been required to plant a separate structured refuge of non-insect-traited seed to protect the traits from potential insect resistance. *SmartStax,* planted for the first time in 2010, allows farmers in corn-growing areas to reduce refuge acreage from 20% to 5%. With *Refuge Advanced* the required 5% refuge is in the bag. The product will only be offered through Dow AgroSciences seed brands, including Mycogen Seeds, Brodbeck Seeds, Dairyland Seed, Pfister Seeds, Renze Seeds, and Triumph Seed. Dow AgroSciences expects a full commercial launch with a broad range of hybrids to be available for sale for 2012 plantings.

GLYPHOSATE RESISTANT FLEABANE FOUND IN CANADA

Researchers from the University of Guelph, Canada have confirmed that they have found populations of Canada fleabane in southwestern Ontario that are resistant to glyphosate. This is the second weed species with confirmed resistance to glyphosate to be found in Canada. Glyphosate-resistant giant ragweed was confirmed in the same region in 2008. Canada fleabane, also known as marestail or horseweed, was also the second species to develop resistance to glyphosate in North America after Rigid ryegrass. It has since been confirmed in 18 states in the US and has been documented in other world areas including Brazil, China, Czech Republic and Spain. However, glyphosate-resistant fleabane has only been found in agricultural crops in the US and Brazil, and now Canada. In the other countries, resistance was found in orchards and alongside railroads.

"We have seen the presence of glyphosate-resistant Canada fleabane moving north in the past decade so we are not completely surprised that we found this glyphosate-resistant weed in fields in Ontario," said Dr Francois Tardif, Department of Plant Agriculture at the University of Guelph, who along with his colleague, Dr Peter Sikkema, undertook the research. "Glyphosate-resistant Canada fleabane can be problematic since it has windblown seeds," explained Dr Sikkema. "Currently, Canada fleabane is primarily a problem in no-till crop production systems." Monsanto is working cooperatively with the researchers at the University of Guelph to develop and communicate management strategies for the control of the resistant weed. There are economical and readily available control options registered for use in corn and soybeans based on saflufenacil, dicamba and cloransulam-methyl. Further work including the testing of dicamba tolerant soybeans is also anticipated.

OTHER NEWS AND MARKETS

BASF SELLS DIRECT IN AFRICA AND MIDDLE EAST

BASF Crop is to sell its products directly to customers in the Middle East and Nile regions. This fits the company's long-term strategic plan to increase its support for the professional agricultural markets in this area. The company's goal is to triple revenues in Africa and the Middle East by 2018. These markets are currently valued at approximately €300 million. According to Gabor Mehn, BASF's director of Business Development Crop Protection Africa and the Middle East, the company's more intensive sales and marketing programme during 2010 has already delivered a 50% increase in revenues. In addition, the company has announced plans to establish a hub for agricultural products in Cairo, Egypt, and will also offer tailored services and training programmes to local farmers and technicians.

MAKHTESHIM TO ACQUIRE DUPONT'S NON-MIXTURE DIURON BUSINESS

The Makhteshim Agan Group (MAI) is to acquire DuPont Crop Protection's global non-mixture diuron business. According to the purchase agreement, MAI will receive rights, registrations and supporting regulatory data for all of DuPont's non-mixture diuron herbicides, including its *Direx* and *Karmex* brands. The acquisition will enhance the company's global product offering and broaden its market reach in the North America, Brazil and Asia Pacific regions. Excluding potential synergies, the acquired products are expected to generate additional annual sales of around $35 million to MAI in the first year.

"We are excited about this transaction, another strategic move that expands our product offering and global reach through add-on acquisitions," commented Dr Yoav Zeif, MAI's VP Global Products and Marketing. "DuPont *Karmex* and *Direx* are premium products that are preferred by farmers and applicators globally. We have had vast experience in manufacturing and marketing diuron, a key active ingredient which we continue to support. We can now deliver it to more customers through this acquisition," he added.

Diuron is the leading urea herbicide used in agricultural and IVM (Industrial and Vegetation Management) applications to control a wide variety of annual and perennial broadleaf and grassy weeds. Diuron's major markets include sugarcane, fruit, vegetables and cotton, as well as non-crop sectors.

VALENT BUILDS NEW FERMENTATION MANUFACTURING FACILITY

Valent BioSciences Corporation (VBC), a leading company in the development, commercialisation and manufacturing of biorational products, is to construct a new state-of-the-art fermentation manufacturing facility in Osage, Iowa. The company says that the facility will be the largest single investment by any company in the world to support the manufacturing and formulating of biorational products. Michael Donaldson, VBC president and chief executive officer, said the facility represents an estimated $150 million investment. He expects that work will begin in 2012 and that full-scale commercial operations would start in 2014. Until then, manufacturing will continue at the company's current facility in North Chicago. "We have been working on plans to relocate our manufacturing operations for some time," Mr Donaldson said. The 73 acre campus will include a 130,000 square-foot building along with associated processing and purification equipment, offices, warehouses and quality assurance laboratories. Fermentation is a critical process in the manufacturing of biorational products and uses naturally occurring microorganisms to produce low risk, environmentally compatible products. The new facility will have annual fermentation capacity in excess of 15 million gallons. It is expected that 89 jobs will be created.

"The success of VBC has been based on maintaining strict manufacturing, formulation and packaging standards, as well as on our marketing and business management approach. The new manufacturing facility will support not only the growth of our base businesses, but also the innovative new products in our pipeline, which include emerging market segments such as crop stress management and physiological seed enhancement," Mr Donaldson added. VBC is a subsidiary of the Tokyo-based Sumitomo Chemical Company.

PIONEER TO LICENSE BAYER'S CANOLA HERBICIDE TOLERANCE TRAIT

Bayer CropScience and DuPont have entered into a global licensing agreement for a canola herbicide tolerance trait. Bayer has licensed its proprietary herbicide tolerance technology, *LibertyLink,* to DuPont's subsidiary seed business Pioneer Hi-Bred for use in canola (*Brassica napus*) hybrids. Pioneer will provide Bayer access to certain proprietary juncea (*Brassica juncea*) genetics. "As a result of the agreement, growers will have a broader choice of *LibertyLink* canola hybrids and the option to use the successful Bayer herbicide *Liberty* (glufosinate) in their weed management programme," said Joachim Schneider, head of the BioScience business unit of Bayer CropScience. "The agreement will expand Pioneer's canola portfolio while the addition of *Liberty* herbicide tolerance will enable growers to rotate herbicides with different modes of action," said Ian Grant, Pioneer business director for Canada.

Canola is grown primarily in Canada, the US and Australia on about 10 million hectares (24 million acres) while juncea is primarily grown on seven million hectares (17 million acres) in India and has potential in other parts of the world. "Access to juncea germplasm will strengthen our long-term global Brassica oilseeds breeding programme," said Mr Schneider. Hybrid products bred from this germplasm have the potential to provide excellent yield and agronomic qualities like drought, heat, and disease-tolerance.

SCIENTISTS DISCUSS WHEAT STRIPE RUST

More than 100 scientists and policymakers from 31 countries met at the International Wheat Stripe Rust Symposium 18-20 April at ICARDA (the International Centre for Agricultural Research in the Dry Areas) in Aleppo, Syria, It was reported that aggressive new strains of stem rust and stripe rust have decimated up to 40% of farmers' wheat fields in recent harvests. Areas affected are North Africa, the Middle East, Central Asia and the Caucuses, including Syria, Egypt, Yemen, Turkey, Iran, Uzbekistan, Morocco, Ethiopia, and Kenya. Delegates discussed wheat rust surveillance and monitoring, development of rust-resistant wheat varieties, and crop diversity strategies to slow the progress of rust across large areas of Africa, the Middle East and Asia. "These epidemics are increasing the price of food and pose a real threat to rural livelihoods and regional food security," said Mahmoud Solh, director general of ICARDA. "In most of the countries in Africa, the Middle East, and Central Asia and the Caucuses, where wheat can contribute more than 40% of people's food calories and 20% of the protein, the epidemics cause economic hardship for farmers and their families."

"Some of the countries affected by rust epidemics have invested very little in agricultural research and development," said Hans Braun, director of the Global Wheat Programme at the International Maize and Wheat Improvement Centre (CIMMYT) in Mexico. At the meeting, he challenged policymakers to recognise the link between scientific research and food security and to invest more heavily in agricultural research. Climate change, in terms of rising temperatures, and the timing and increasing variability of rainfall, is contributing to the spread and severity of rust diseases. Emerging races of rust are showing adaptations to extreme temperatures not seen before. Scientists around the globe are working on monitoring and surveillance of stem rust and stripe rust to insure rapid detection and reporting so farmers, policymakers, and agricultural research centres can respond more quickly to initial outbreaks. "To combat the problem of wheat rusts, farmers in these regions need to adopt new varieties of wheat that have durable resistance to both stem and stripe rust," said Ronnie Coffman, vice chair of the Borlaug Global Rust Initiative. It was reported at the symposium that new rust resistant varieties are in the pipeline at international and national agricultural research centres. Breeders are also selecting for other important characteristics including improved yield performance, drought tolerance, and regional suitability.

BASF TAKES ON STARCH POTATO

BASF Plant Science has assumed ownership for *Modena,* the genetically enhanced amylopectin starch potato developed by AVEBE (www.avebe.com), the Netherlands-based potato starch manufacturer. *Modena* is currently in the approval process for commercial use in Europe. Marc Ehrhardt, senior vice president of BASF Plant Science, said: "This decision is a logical next step within our cooperation with AVEBE. *Modena* is an innovative and competitive variety, which complements our existing portfolio of amylopectin starch potatoes perfectly. It will make a contribution to strengthen the competitiveness of the European starch potato farmers, because it will make amylopectin potato starch more broadly available for the entire industry." In December 2010, both companies had already announced their plan to bundle their competencies for the development of amylopectin starch potatoes. The cooperation started with the development of a late blight resistant variety.

MONSANTO SEEKS INVESTMENT OPPORTUNITIES

Monsanto and Atlas Venture, an early-stage venture capital firm based in Cambridge, Massachusetts, US, have entered an alliance to explore investment opportunities in early-stage life sciences technology companies. Under the agreement, Monsanto will work with Atlas to identify strategic investments in a number of technology areas within agriculture that will complement Monsanto's interests and potential growth areas, including genomics, informatics and biology.

“As we work with farmers to help meet the needs of our growing planet, continued innovation is critical,” said Steve Padgette, Monsanto's research and development investment strategy lead. “Our collaboration with Atlas will provide a great opportunity for us to get an early look at promising new technologies that could potentially be introduced into our biotechnology, breeding and agronomic practices work to drive yields even higher.”

CONFERENCES AND FEATURES

REGISTRATION OF AGROCHEMICALS IN EUROPE

The 18th International Conference on the Registration of Agrochemicals in Europe *took place in Brussels from 6-7 April 2011. Topics discussed included the transition to the Council Regulation 1107/2009, updates from EFSA (European Food Safety Authority) and DG SANCO (European Health and Consumer Directorate General) and zonal authorisation. Peter Chapman of the regulatory consultancy company, JSC International Ltd, reports.*

In opening the conference, the chairman, Terry Tooby, suggested that the EU was out of synchronisation with the rest of the world in moving to a more hazard-based system for the regulation of plant protection products. He contended that Regulation 1107/2009 would not provide any additional assurance of safety for humans and the environment over and above that already afforded by Directive 91/414.

Council Regulation 1107/2009

Wolfgang Reinert from DG SANCO provided a summary of the changes coming in to effect when Regulation 1107/2009 applies on 14 June 2011. The 'big' changes were already well documented including approval ('cut-off') criteria, zonal authorisation, data protection and data sharing, procedural timelines, division of approval types (low risk, basic, normal), comparative assessment and substitution, and with safeners, synergists and co-formulants added to the scope of the regulation.

A range of other changes are being brought about with regard to integrated pest management, parallel trade, minor uses, additional approval criteria (efficacy, biodiversity), national provisional approvals, advertising, record keeping, provision of information, monitoring and control and fees and charges.

Transitional measures allowed Directive 91/414 to continue to apply in certain situations, including active substances submitted under the first renewal procedure (Regulation 737/2007), withdrawn and resubmitted active substances (Regulation 33/2008) and new active substances for which the completeness check was established before 14 June 2011.

As far as product authorisations were concerned national law would continue to apply to applications which were pending on 14 June and for authorisations which were to be amended or withdrawn by 14 June.

Data requirements

On the topic of the revised data requirements to be applied under Regulation 1107/2009, Francesca Arena of DG SANCO confirmed that the new revision of the data requirements had been prepared and would be circulated by the end of April 2011. There would not be any further commenting rounds. It was anticipated that discussion of the new revision would take place in the May 2011 meeting of the Standing Committee and that there would be a vote in June or July 2011. Publication was expected in either December 2011 or January 2012. In the interim, the existing Directive 91/414 data requirements would be transferred to the new regulation. Publication of this transfer was expected before the end of April. There would be a two year transitional phase before the new data requirements were implemented, meaning that they were expected to apply from December 2013 or January 2014

At present the revised data requirements only relate to chemical active substances and relevant plant protection products. There were currently no plans to revise the data requirements for micro-organisms. In future the Commission planned to announce changes to data requirements via Commission Communication rather than by issuing revised regulations.

In summarising the main changes Ms Arena explained that the data requirements had previously been developed in a somewhat un-coordinated manner within individual disciplines. The revision exercise had enabled a more consistent approach to be adopted. Accordingly there had been a number of horizontal changes to establish common underlying principles together with various specific changes, principally in the areas of toxicology, residues, fate and behaviour and ecotoxicology.

For toxicology there would no longer be a need for the one year dog study; the long term mouse study would be optional; more toxicokinetic data would be required; there would be future evolution in respect

of studies relating to neurotoxic and immunotoxic effects and changes in hormonal system and there would be a need to take account of cumulative and synergistic effects.

As far as residues were concerned there would be new studies required in respect of fish (including metabolism and feeding studies) and for honey and pollen. There would continue to be two EU residue zones for Maximum Residue Levels (MRLs), however, trials from just one growing season would be acceptable.

For fate and behaviour there would be a stronger link applied to the Water Framework Directive. Data would be required on the aerobic mineralisation of surface water. The potential for ozone depletion, formation, global warming and acidification would also have to be addressed. There was also a need to develop guidance for POP (Persistent Organic Pollutants), PBT (Persistent, Bioaccumulative and Toxic), vPvB (Very Persistent, Very Bioaccumulative) criteria.

In the area of ecotoxicology some vertebrate studies have been dropped, however new aquatic vertebrate studies will now be required. The issue of endocrine disruption needs further consideration in the light of existing data and developing guidance. For soil effects there will be a need to move from a structural to a functional assessment. Also for ecotoxicology there would be additional EC10 and EC20 endpoints. The risk to amphibians and reptiles will have to be addressed but as yet there are no specific data requirements. For bees, chronic risk, honey bee brood test, sublethal effects and risk from drift or dust would all now need to be addressed.

As well as the changes outlined there was still a need to work on uniform principles. This was not expected to start until 2012. Future changes to data requirements could not be ruled out depending on the development of new criteria and guidance including POP, PBT, vPvB, endocrine disruption, operator/bystander and risk assessment for bees.

Update from EFSA

Herman Fontier provided an update on changes to the structure of the EFSA scientific directorates and on progress with EFSA's workloads. Currently there are two scientific directorates in EFSA, the Risk Assessment Directorate,that includes the PPR (Plant Protection Products and their Residues) Unit and the Scientific Cooperation and Assistance Directorate that includes the PRAPeR (Pesticide Risk Assessment Peer Review) Unit. In future there will be three scientific directorates: Scientific Strategy and Co-ordination; Scientific Evaluation of Regulated Products (SERP); and Risk Assessment and Scientific Assistance. Pesticides will come under the responsibility of SERP which will essentially bring together the PPR and PRAPeR Units within a single body. The expectation is that working methods can be harmonised, there will be more flexibility in distribution of workload and in coping with peak periods,improved client focus by creating a front office function in the form of an Application Desk and that there will be a better focus on science by centralising certain administrative tasks.

The changes will be brought about during 2011 with the creation of the Pesticides Unit from 1 May 2011. Mr Fontier reported that during 2010 EFSA had delivered 72 reasoned opinions on MRLs together with 73 conclusions on active substances. These included 61 resubmissions, one new active substance, three 'green track' substances, seven Annex I renewals and one confirmatory data referral. A total of 37 PRAPeR meetings had been held, with the majority of these meetings held in the form of telephone conferences. This had enabled meeting costs in 2010 to be reduced to half that incurred in 2008.

Looking ahead EFSA was expecting that a major part of its work in 2011/12 would consist of preparing conclusions for new active substances, with a total of 71 to be completed. In addition 58 conclusions on 'green track' active substances are required by the end of 2012. However, priority will be given to new active substances with 'green track' substances put on hold where necessary.

Mr Fontier reported that the EFSA guidance on scientific peer-reviewed open literature had just been published. The guidance would apply initially to new active substances submitted under regulation 1007/2009. The guidance would not be applied to the second group of active substances for renewal. However in order to gain experience companies were being asked to volunteer to apply the guidance and to report on their experience.

Zonal authorisations

In a session on zonal authorisations representatives from each of the three zones gave feedback on the current progress with implementation of the zonal systems of authorisation being introduced under Regulation 1107/2009. For the northern zone Gunilla Ericson of KEMI, the Swedish Chemicals Agency, reported that some experience had already been gained from voluntary work sharing. A northern zone guidance document had been developed to ensure a consistent approach across the zone. In allocating work to the zonal rapporteur, consideration was given to which country was the original rapporteur for the active substance, the number of products on the market, available resources and any proposal made by the applicant. In order to maximise efficiency it was expected that the rapporteur would produce a core risk assessment that would cover all the national requirements in the zone, this would avoid the need for submitting individual national addenda. One key area that needed to be developed was the harmonisation of risk assessment methods to ensure consistency of approach. To this end the northern zone countries were planning to hold a workshop to include discussion in the areas of operator exposure, PEC modelling, refined risk assessment for birds and mammals, higher tier risk assessment for aquatic organisms and non-target arthropods and requirements for non-professional uses.

Thierry Mercier of ANSES (French Agency for Food, Environmental and Occupational Health and Safety) reported that some useful experience had been gained from the operation of the voluntary zonal work sharing scheme in the southern zone**.** In particular it had been noted that although member states in the zone often provided many comments on the evaluation carried out by the zonal rapporteur, these usually had little impact on the final outcome of the evaluation. It was also apparent that risk mitigation measures differed considerably across the zone. In a similar way to the other zones it was clear that there was still much work to be done to harmonise risk assessment and risk mitigation measures. Mr Mercier said that the important thing was to now gain experience in the zonal procedures. In conclusion the point was made that there needed to be an EU database of plant protection product registrations.

Darren Flynn from CRD, the UK's regulatory authority, explained that it was expected that there would be new guidance on zonal authorisation at the May 2011 meeting of the Standing Committee. In order to co-ordinate and manage the work-loads there would be zonal steering committees for each zone and an inter-zonal steering committee. The inter-zonal committee would have a key role in allocating the zonal rapporteur for the 'single zone' dossiers for greenhouse use, seed treatmenst etc. Timelines for the operation of the zonal system were largely set out in the new Regulation, however the guidance document would provide clarification on the details of the procedure. The central zone faced the biggest challenge, being the largest zone comprising 13 member states, with a diverse range of geographical and climatic conditions, from Ireland in the west to Romania in the east. Mr Flynn concluded that while the basic processes have been clarified, further work was required to harmonise risk assessment and risk mitigation measures (and efficacy and fate and behaviour in particular), further development of the risk envelope approach, further clarification of the transitional arrangements and development of a standard format for authorisations.

PROSPECTS FOR GM CROPS

Dr Julian Little, Bayer CropScience, has now been chairman of the UK's Agricultural Biotechnology Council (abc) for three years. He agreed to share his thoughts with Crop Protection Monthly *on the current issues and prospects for GM crops in the UK and the EU as whole.*

The Agricultural Biotechnology Council (**www.abcinformation.org**) is the umbrella group for the agricultural biotechnology industry in the UK. It is not a trade association but its members, representing the main agbiotech companies, aim to ensure a better understanding of the benefits that agricultural biotechnology can offer. The Council contributes to policy development and acts as a regular commentator in the media.

The UK Government's position

There has been a turnaround in the approach to GM technology since the formation of the Conservative/Liberal Democrat Coalition Government in May 2010. Initially, ministerial statements made in the UK gave promise that a more supportive policy would be adopted but a policy gap meant that the UK abstained in voting on this subject at an EU level. To the rest of the EU this appeared in total contrast to the approach adopted by the previous Labour Government. However, nearly a year later, Dr Little is now seeing a more supportive stance at EU level and attributes the turnaround to the fact that the new Government took time to define its policy.

The EU position

Food security is clearly of greater significance now and its importance is beginning to have an impact on policy makers in most member states. As Dr Little explained: "It is not the potential for food shortages that will influence the politicians but the increasing price for food." A measure of its elevated importance, politically, is the fact that food security will feature in the G20 conference to be held in Cannes in November. However, the EU legislative process for GM crops is still largely driven by policies set several years ago when reduced agricultural production was the target.

A number of facts are beginning, albeit slowly, to encourage GM technology to be looked at more seriously by European policy makers, Firstly the global area of GM crops planted annually now matches the total surface area of the UK, Ireland, France and Germany. Secondly there are more farmers growing GM crops in the world than the total number of farmers in all Europe. Additionally two trillion meals containing GM food have now been eaten and not one case of GM food related illness has been reported.

Differences amongst the member states

The agricultural biotechnology industry is sympathetic to the proposal to leave an individual member state to decide on whether it will permit, or not, the production of specific GM crops. However, as seed can be moved fairly easily across borders there are a number of concerns about, for example, who accepts the liability if a farmer choses to plant imported seed when the crop is banned in his country. Dr Little described this as "a potential legal minefield and against the concept of the single market".

There are marked differences in the approaches adopted by the various member state governments. In general the UK argues that decisions on GM crops should be based on the science, with Scandinavian countries adopting a similar approach. France openly based its decision to ban the MON810 Maize on political reasons. Austria's negative position is also politically led. Germany, however, is now showing signs of being more supportive as a consequence of the Green Party no longer being part of the country's rainbow coalition. With a new government now in place Ireland could be in a similar situation.

The main EU production is in Spain, and although the area of GM maize does not represent a high proportion of the total crop it covers nearly all of the area where European corn borer is a problem. Within the UK, both Wales, and Scotland, have declared a no GM crop policy but Dr Little pointed out that it is relatively easy to ban GM crops if there are none available which will offer major agronomic benefits. He also commented that while Wales and Scotland were strongly against growing GM crops they were equally strong in supporting the importation of GM soya for feed, due to its importance in sustaining their valuable livestock industries.

Co-existence

The industry remains convinced that the proposed EU rules on coexistence of GM and organic crops, which stipulate a wide gap between crops, will not benefit either the GM crop producers or the organic producers. Dr Little argues that there is a clear roadmap for effective coexistence in the UK, and the organic movement in the UK would benefit from the introduction of GM crops as they would then be able to promote their crops as a distinct and separate choice. He said: “From their perspective, they could describe it as the best advert for organic produce and organic standards.” He also pointed out that the US is the largest producer of both organic and GM crops, both produced successfully side by side. In the EU the same applies in Spain.

The future for GM crops in the EU

The wheat crop presents the best real application for biotechnology in the EU. Drought resistance, improved fertiliser efficiency and resistance to disease are all traits being taken forward for winter wheat and spring wheat. Improved fungal disease protection is now of greater importance with the potential loss of active ingredients through legislation and the wider occurrence of fungicide resistance. Dr Little’s expectation is that the first major crop to be introduced in the EU will be the blight resistant potato. BASF may well apply for registration after the current season’s trials.

The place for stacked traits

In the US some GM crops are now based on as many as six or eight introduced genes. Furthermore through licensing arrangements the genes are coming from several companies. So the argument that one single company can control the market no longer stands up. With *Roundup Ready* maize shortly coming off patent the diversity of source for the genes will be extended even further.

The fact that there are so many trait options opens up new opportunities for farmers. Dr Little can see an exciting future where “the farmer is able to select his seed based on nominated specific traits which are important for his particular farm and management system.”

ENDURE PREDICTS PESTICIDE REDUCTIONS ON MAIZE

*The ENDURE Network of Excellence (**www.endure-network.eu**) was launched in 2007 with four-year funding under the European Commission's 6th Framework Programme. It provides a platform for the exchange of knowledge regarding all aspects of Integrated Pest Management (IPM). The Network has brought together more than 300 researchers from 18 different institutions committed to an ambitious and wide-ranging programme of activities. The activities were designed to create the Network of Excellence, tackle a multi-disciplinary research programme and ensure the results of the research reached all interested stakeholders.*

A team of ENDURE researchers has recently been examining the potential use of innovative technologies to reduce pesticide inputs on maize. They believe that reductions of 100% in the case of seed treatments, up to 85% for insecticides and 90% for herbicides are possible although not in the near future. The team hopes its conceptual innovative crop protection system (ICPS) for maize will serve as an inspiration for creating systems which are better for the environment, produce healthy products with no residues and put European agriculture in a stronger competitive position. While the ICPS will require substantial research and development before it can be implemented, the individual measures it employs, such as monitoring techniques, software tools and precision spray techniques are already available, say the researchers.

The ICPS follows a clear set of steps centred on monitoring before and during the growth period at both the macro (field) scale and micro (plant) scale. Crucially, this monitoring is conducted using techniques which can detect pests and diseases before the symptoms are visible. The data collected from monitoring is then analysed using what the researchers call a 'decision engine'. Whereas classical Decision Support Systems offer recommendations on control measures, decision engines are capable of providing advice on preventing or reducing attacks of weeds, pests and diseases ahead of crop establishment.

"A system whereby diseases, pests and weeds can be identified at a much earlier stage than is now the case would make it possible to limit the amount of chemicals that need to be applied," noted the researchers. "Earlier identification could also allow the grower to use biological control or take other localised measures." The system seeks to maximise the use of alternative control measures at all stages. These include crop rotation, early or very late planting, ploughing and biological controls. They say that some biological controls are already being used for the control of maize pests such as corn borers, and researchers note the potential of entomopathogenic fungi, viruses and *Bacillus thuringiensis* strains to reduce chemical insecticides in the future. Other options include mating disruption and the use of semiochemical-based insecticide baits.

Where the decision engine decides chemical treatment is necessary, it is conducted using precision application technology. Researchers note that better positioning of insecticide in the plant canopy, ensuring it is applied in the positions where the insects are mostly found, can improve efficacy and reduce application rates. For example, at the soil surface underneath high maize canopies, precision spraying can reduce insecticide inputs by 50%.

The team has identified the research required to complete the model for maize. Individual elements of the system are already available, they say, but will require improvement before they can be linked together in an innovative crop protection system, and more knowledge is required about damage thresholds, dose-response relations, biology, ecology and population dynamics.

More information about this work - A 'state of the art' conceptual innovative crop protection system (ICPS) for maize can be found at:

(**www.endure-network.eu/about_endure/all_the_news/long_term_propects_to_cut_pesticide_use_in_maize**).

There is also a paper based on this work, *Combining novel monitoring tools and precision application technologies for integrated high-tech crop protection in the future* in the March 2011 issue of *Pest Management Science***.**

BAYER IN INDIA

In a recent interview with Financial Express *Sandra E Peterson, chairman of the Board of Management of Bayer CropScience, said that she was very positive about the company's current position in India. She said Bayer is strengthening its commercial operations as well as enlarging its research and development effort in the country. It is also continuously upgrading its portfolio, substituting older chemistry with the latest innovations from its global pipeline and moving from being a classical supplier of crop protection products into a supplier of integrated solutions.*

In India, the agrochemicals industry is clearly aligning itself with the long term trends in agriculture. Good commodity prices, increasing demand for fruits and vegetables, shifting cropping patterns and improving farm incomes are encouraging the farmers to opt for better quality crop protection products. The introduction of new products based on novel chemistry is gaining rapid acceptance. The industry has witnessed a strengthening of the 'seed to harvest' trend with more companies opting for the integration of their crop protection and seed businesses. The entry of more international players has also increased the options for Indian farmers.

The Indian crop protection industry registered around 15% growth in 2010 over the previous year. Bayer CropScience has a market share close to 15% and is regularly launching modern products onto the market. In 2009-10, the company launched a number of products which have been well accepted by farmers because they were considered more effective and environmentally safer. These include *Confidor Super*, *Jump*, *Melody Duo* and *Oberon*, The new insecticidal product *Fame* (flubendiamide), which has blockbuster potential, also performed very well in India in 2010.

Ms Petersen said that India had been one of the most impressive growth stories within Bayer CropScience. "It is an important market for us, where we have successfully realigned our portfolio in recent years. We have gained market share in the last two years and are now striving for further business expansion with our integrated approach from seed to harvest solutions. We are reaffirming our call for a second green revolution; not just agricultural research and technology innovations, but also infrastructure, market and economic aspects, as well as social and political factors must be interlinked and coordinated. Only then can the global supply of affordable food and other agricultural products in a sufficiently high quality be safeguarded. Today, we are partnering with food chain companies to create value for all stakeholders in the value chain. Farmers will directly benefit from these initiatives, which will lead to adoption of better technologies to produce more food of high quality."

In India, rice is an important crop for Bayer. The company's hybrid rice business has continued to expand and has successfully launched a new umbrella brand *Arize*. Bayer CropScience is a leading company for hybrid rice in India, with a market share of approximately 40% and a leading position in rice hybrids with one million acres of Arize 6444 planted. The company has also recently launched a revolutionary rice hybrid, *Arize Dhani*, that not only assures yield advantage but also offers higher resistance to bacterial leaf blight, a disease causing considerable yield loss in the order of 20-60% annually especially in the kharif/monsoon season. Ms Petersen said that the company has built a strong expertise in hybrid rice breeding and production. A highly efficient breeding programme with a global presence and elite germplasm are the hallmarks of the company's cutting-edge R&D strengths. Ms Petersen said: "Our objective is to improve rice production include researching, developing, and marketing new insecticides, fungicides, herbicides and seed treatment products, as well as new generations of stress-tolerant, high-yielding rice hybrids."

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