

crop protection monthly

international news, comments, features and conference reports

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BOOK DISCOUNTS

LEAD ARTICLES

BAYER INVESTS IN WHEAT

Bayer CropScience has recently made some further significant investments in the wheat crop. The company says that some 25% of global agricultural land is under wheat cultivation. Wheat is the second most-produced cereal crop after corn with more than 650 million tons produced every year. It is the largest cereal crop in terms of acreage and one of the world's most important staple foods. However, wheat productivity is increasing at less than 1% annually, while the annual global demand is growing at approximately 2%.

One of the main wheat growing areas is the Black Sea Region where Bayer CropScience has recently acquired the wheat breeding programmes from two Ukrainian breeding companies, Sort and Eurosort, based in Mironivka close to the capital Kiev. With this agreement, Bayer says it will gain access to wheat lines with excellent winter hardiness and drought tolerance. The company has already established wheat-breeding programmes at the renowned Mironivka Institute. "Wheat is a strategic crop for Bayer CropScience and the company is putting significant resources into research and development to raise productivity. The acquisition of this germplasm pool will significantly enhance our wheat breeding efforts globally," said Hartmut van Lengerich, head of Crop Strategy Cereals, Oilseeds & Sugar Beet at Bayer CropScience. "Our objective is to become the partner of choice to wheat growers and the wheat industry and to offer superior integrated solutions to improve sustainable cereal production. Our first in class varieties will complement our already leading portfolio of crop protection, seed treatment and service solutions allowing us to serve wheat growers from seed to harvest", added Mr van Lengerich.

Bayer CropScience has also entered into a five year collaboration with Israel-based Evogene Ltd to accelerate the development and introduction of improved wheat varieties. Improvements will be pursued for yield, drought tolerance, fertiliser use efficiency and certain other wheat traits utilising a combination of advanced breeding and state of the art genetic modification methods. Bayer will have exclusive rights to commercialise the traits in wheat. In a separate agreement, Bayer will also make an equity investment of \$12 million in Evogene. The collaboration will utilise Evogene's *Athlete*, *RePack* and *EvoBreed* computational genomic technologies for the identification of genetically modified and native traits.

Bayer will utilise its capabilities in breeding and product development to incorporate the traits identified by Evogene into its wheat pipeline for developing elite varieties displaying improved performance. The resulting improved wheat varieties will be commercialised by Bayer CropScience. Evogene will receive approximately \$20 million in the form of upfront fees and annual research payments over the term of the agreement. The company will also receive development milestone payments and royalties on the commercialisation of any resulting products. "The wheat industry is facing challenges such as changing climate, the decline of mineral resources used for fertiliser and the need to increase crop yields. We look forward to working together with Evogene in the area of wheat research to help tackle these issues," said Lykele van der Broek, chief operating officer of Bayer CropScience.

In the US, Bayer CropScience has reached a licensing agreement with NUtech Ventures, the former Office of Technology Development at the University of Nebraska-Lincoln (UNL), for joint research to improve wheat crops. The partnership created last year to link public and private research will also make \$2 million available for an endowed professorship at the university. Under the agreement, Bayer will establish the first North American wheat breeding station near Lincoln and support research and education programmes at UNL. Bayer plans to bring 20 to 30 plant scientists to work at what is expected to be a 300 acre (120 ha) complex, where they will focus on better yields, disease resistance and other challenges.

UNL wheat breeder Stephen Baenziger, a faculty member at UNL since 1986, will be the first to hold the chair. Joachim Schneider, who heads Bayer's bioscience business group, said the agreement will strengthen both parties' wheat improvement efforts toward a goal of sustainable cereal production and a greater selection of varieties for wheat growers. The agreement gives Bayer CropScience non exclusive access to wheat germplasm and varieties developed by UNL researchers. A Bayer official said the agreement will open the door to the kind of innovative trait development that is already being seen in corn,

soybeans and rice. "Like other crops that have benefited from investment in innovation, we would like to make a similar investment in wheat."

In a 2009 policy statement, the National Association of Wheat Growers and four other US wheat industry organisations described biotech wheat as "essential to address the competitiveness problem facing wheat production and the wheat industry itself." Mr Baenziger added: "The vast majority of the seed Nebraska farmers use to grow corn, soybeans and other prominent grain options already carries genetically engineered traits such as disease resistance and herbicide resistance."

PIONEER'S ACQUISITION BLOCKED

South African activists say they have successfully persuaded regulators to block the bid by DuPont's seed business, Pioneer Hi-Bred, to buy South Africa's largest seed company, Pannar Seed Ltd (*September CPM*). They are now planning to push for a regulatory investigation of the dominant position global seed leader Monsanto holds in the genetically modified seed sector in South Africa. They argue that allowing foreign corporate control of South Africa's seed supply would erode availability of traditional conventional seed varieties, hurt export business with countries opposed to GM crops, and force farmers deep into debt to pay for expensive seeds that are the patented properties of US corporations. "This is only the beginning of the battle over the control of seeds in South Africa," said Mariam Mayet, environmental attorney and director of the Africa Centre for Biosafety (ACB).

The South African Competition Commission has confirmed that it is rejecting Pioneer's proposed acquisition of Pannar Seed due to concerns about market concentration. The deal would have doubled Pioneer's seed sales on the continent to \$200 million, and would have given it access to a broad base of local germplasm. The companies have filed a request for the South African Competition Tribunal to review the submission for Pannar to sell a majority share of its business to Pioneer. Five of six other competition authorities in Africa have already approved the partnership.

The request for review includes the business position that the transaction will increase, not lessen, competition in the maize seed industry. Pannar and Pioneer say that together they will be able to significantly increase investment and innovation in product development, and this would have substantial economic benefits for farmers and consumers in South Africa. The transaction will also strengthen Pannar's South African operations. Without a strong partner, Pannar has determined that it will be increasingly difficult to meet the future demands of its maize seed customers in South Africa and Africa. "Agricultural productivity in Africa has for a number of decades flatlined. If you can triple the productivity it will have a great impact," said Pioneer president Paul Schickler. "We need access to Pioneer's complementary maize seed genetics and advanced technologies to get the maximum benefit from our proprietary germplasm. Together with Pioneer, we can give South African farmers the benefit of stronger research and the choice of better seed varieties," added Brian Corbishley, chairman of Pannar.

Pannar has a number of operations throughout Africa and internationally. It has its own seed businesses in nine countries in Africa, including South Africa, and sells through established marketing networks into nine other African countries. In addition to its extensive research infrastructure in Africa, it also conducts research and commercial activities in the US and Argentina and has a genetics licensing business in Europe. Together, Pannar and Pioneer intend to establish a regional research hub in South Africa for Africa.

EUROPEAN NEWS AND MARKETS

EU DROPS GLYPHOSATE ANTI-DUMPING TARIFF

The EU will not renew its 29.9% glyphosate tariff on Chinese glyphosate that was suspended late last year and is set to expire in January 2011. The European Glyphosate Association, which represents manufacturers in Europe, withdrew a 2009 request for another five years of import protection in September and the EU is closing its anti-dumping investigation as a result.

The EU introduced a five-year anti-dumping duty of 24% on glyphosate from China in 1998 and raised the levy to 48% in 2000. In 2002, the EU extended the duty to Taiwan and Malaysia after concluding that Chinese exporters circumvented the measure by shipping via those two countries. The 2004 decision to prolong the import protection for five years lowered the rate to 29.9% and exempted Taiwan's Sinon Corp. and Malaysia's Crop Protection (M) Sdn. Bhd. The biggest beneficiaries during the decade long trade protection were the European divisions of Monsanto and Syngenta. After extremely favourable glyphosate prices in 2008, oversupply of the active forced prices to historically low levels in 2009. The supply glut is still working its way through the distribution chain, keeping prices depressed and forcing multinational manufacturers to reduce their pricing structures to compete in global markets.

Industry analysts widely considered the tax unnecessary as over-capacity has effectually commoditised glyphosate in global markets. Additionally, EU is considered a mature agricultural market, and the bloc's pesticide value fell almost 8% this year after adjusting sales for inflation and currency exchange. For many manufacturers growth markets for glyphosate still exist in the Americas and Asia where farmers are integrating other, often older, actives into their glyphosate programmes to help combat glyphosate resistance.

ARYSTA TO MARKET CHEMINOVA PRODUCTS IN CENTRAL EUROPE

Arysta LifeScience and Cheminova have signed agreements by which Arysta LifeScience Czech, based in Prague, and Arysta LifeScience Slovakia, based in Nove Zamky, will distribute a number of products from Cheminova. Arysta LifeScience Slovakia will take over the existing distribution of products from Cheminova and its affiliate Staehler. This agreement includes established products such as *Herbaflex* and *Nexide*. Arysta LifeScience Czech will distribute certain products from Cheminova and Staehler including *Envision*, *Pertus*, *Nexide*, *Bolton Duo*, *Somero*, *Trioflex* and *Aland*. "The agreement reinforces the support for Cheminova's product portfolio in these two markets," said Jaime Gómez-Arnau, regional president for Cheminova activities in Europe. "It also provides a platform for Cheminova's development products to be launched in the coming years for these important markets in Central Europe through the Arysta LifeScience sales organisation."

CPA WELCOMES UK GOVERNMENT'S POSITION ON RESPONSIBLE USE

The Crop Protection Association (CPA) has welcomed the Government's confirmation that UK pesticides safety standards are already among the highest in Europe, and that only minor changes are needed to meet the requirements of new EU legislation on the sustainable use of pesticides. In its initial response to the consultation on UK implementation of requirements set out under the EU Directive on the Sustainable Use of Pesticides and associated measures under the EU Regulation on the Marketing of Plant Protection Products, the Department of Environment, Food and Rural Affairs (Defra) concluded that no compelling evidence had been provided to justify further extending existing regulations and voluntary controls.

Defra also indicated that the objective of the new legislation, part of the EU Thematic Strategy on Pesticides, was to "bring all member states up to comparable high standards, like those in the UK, to create a level playing field across Europe." Dr Anne Buckenham, CPA director of policy, said: "The UK leads the way in Europe on responsible pesticide use through stewardship programmes such as the Voluntary Initiative and Campaign for the Farmed Environment. The Government clearly recognises the success and cost-effectiveness of our approach, and we will continue to work with partners across Government, industry and the NGO community to maintain and build on the high standards achieved. Our overriding objective is to ensure that pesticides can continue to be used safely for people, wildlife and the environment, while safeguarding their vital role in food production by preventing crop losses due to pests,

diseases and weed competition. We certainly welcome the new legislation as a means of raising standards across the EU to those already in place in the UK.”

BASF RELEASES RESULTS ON EUROPEAN BEE TRIALS

BASF and NOD Apiary Products (www.miteaway.com), a Canadian company run by beekeepers committed to organic ideals, have released the first results from official registration trials conducted in Europe to control the parasitic varroa destructor mite, a primary cause of bee mortality. From July 2010 to October 2010, BASF tested two different product formulations in Europe. All trials were conducted in partnership with local institutes. In Germany, BASF and NOD partnered with the State Institute of Apiculture (University of Hohenheim). In the UK and France, the trials were conducted with the Food and Environmental Research Agency (Fera) and ITSAP (Institut de l'abeille)/Testapi (bee testing and consultancy), respectively. One of the formulations showed prominent product efficiency and as a result BASF expects a consistent efficacy at above 90%.

David VanderDussen, CEO of NOD Apiary Products, said: “We were certain that *Mite AwayQuick Strips* (MAQS) were effective in the US and Canada, but we have now tried the product under different conditions in Europe as well and are now confident of gaining registration there.” MAQS is an easy-to-use strip, filled with formic acid in a saccharide formulation, known to control mites. The formulation penetrates the brood cap, preventing the mite from reproducing. The main advantages of this solution are the easy application and the short treatment period, around seven days.

The strips are soon to be on the market in some states in the US (Montana and Hawaii). BASF and NOD are working with the registration authorities in Europe to make MAQS available to European beekeepers by 2012. According to the terms of the agreement, BASF will provide substantial support to facilitate a global product launch, including on-going technical and regulatory assistance over a five year period. Both companies currently co-own the patent, with BASF committed to providing support for product registration and distribution within the EU.

AMERICAN NEWS AND MARKETS

BAYER TO ACCESS HEAD UP SEED TREATMENT

Bayer CropScience, Triangle Park, US has finalised a licensing agreement with Heads Up Plant Protectants Inc (www.sar-headsup.com) to access the *Heads Up* seed treatment. The product contains a naturally occurring substance extracted from *Chenopodium* species. When applied to soybean seed, it triggers at germination the crops' defence systems against diseases. Product development manager Jennifer Riggs said: "It effectively creates an early warning system so the crop produces naturally occurring disease-defence mechanisms before infections can get a head start." Growers will have an innovative natural seed treatment solution that can safeguard their crops and potentially increase yields. When used with seed-applied fungicides, *Heads Up* brings an additional mode of action to protect young soybeans from soil diseases.

By enhancing a crop's defences, *Heads Up* limits damage from seedling disease pathogens, including *Rhizoctonia*, *Pythium* and *Fusarium*. More than 30 replicated trials in 2007-08 demonstrated a 1 to 3 bushels/acre (67 to 200kgs/ha) yield advantage in soybeans over base seed treatment systems. "Such biological-based seed treatments are potential game-changers," said Bayer's product manager Paul Hewitt. "*Heads Up* is the newest product in our biological seed treatment portfolio."

NOVOZYMES ACQUIRES EMD/MERCK

Novozymes (www.novozymes.com), a global leader in enzyme technology, has acquired EMD/Merck Crop BioScience from Merck KgaA for \$275 million. This is the company's third acquisition in the agricultural biologicals sector in as many years. The deal complements Novozymes' existing agricultural biologicals products and markets, and offers additional potential for the combined company. Headquartered in Milwaukee, US the majority of EMD/Merck's activities are in North and South America. The company has some 165 employees and has generated average annual sales growth of around 15% during the last seven years. It is expected to generate sales of \$60 million in 2010 and will support Novozymes' long-term sales growth expectation of more than 10%. "The acquisition strengthens our global position in the growing industry for biological products that enhance the natural growth and yield of crops," says Steen Riisgaard, CEO of Novozymes. "EMD/Merck has a strong strategic fit with our existing BioAg business. It has a complementary product range and geographical scope, a strong R&D pipeline, and very talented people."

The EMD/Merck product portfolio focuses on biological growth enhancers and nitrogen inoculants primarily used in the production of soybean and pulses. These supplement Novozymes' existing nitrogen and phosphate inoculants business. Inoculants, also known as biofertilisers, are microorganisms that can significantly improve the ability of plants to fix nitrogen and utilise phosphate. The global biofertility market is currently estimated to be worth around \$250 million. Novozymes entered the market in 2007 with the acquisition of Philom Bios in Canada and has gradually increased its activities, most recently with the acquisition of Turfal in Brazil in August this year. The activities of EMD/Merck Crop BioScience will be integrated into Novozymes' BioAg organisation, which is part of Novozymes' BioBusiness division.

AMVAC GAINS THREE SOIL INSECTICIDES FROM BAYER

Bayer CropScience has divested three of its soil insecticide products to Amvac Chemical Corporation (Amvac), a wholly-owned subsidiary of American Vanguard Corporation, Newport Beach, US. The divestment includes fenamiphos (*Nemacur*), ethoprophos (*Mocap*) and tebupirimfos (*Aztec*). The decision, says Bayer CropScience, is in line with the company's strategy to further streamline its crop protection portfolio. For Amvac, the acquisition of Bayer CropScience's divested products is in line with the company's strategy of enhancing its product portfolio with the intention of offering a broad range of solutions to its customers

Mocap is a global acquisition and the product is registered in 50 countries where it is used to combat nematode species in a wide range of crops. *Nemacur* is also global but excludes Europe and Argentina. It is registered in 30 countries for use primarily as a nematicide with additional efficacy against above-

ground sucking insects. *Aztec* is registered in the US and Mexico where it is used to combat rootworm, cutworm, wireworm, seedcorn maggots and beetles, and white grub in a variety of corn crops. It is also registered in South Korea, and sold under the trade name *Capinda*, for use primarily in vegetable crops such as Chinese cabbage and ginseng. The acquisitions include registrations and data rights, rights relating to manufacturing and formulation know-how, inventories, the *Ultima* packaging system and the trademarks *Mocap*, *Nemacur*, *Ultima*, *Aztec*, *Azteca* and *Capinda*.

NEW GLYPHOSATE-TOLERANT TECHNOLOGY AVAILABLE IN 2011

New *GlyTol* glyphosate-tolerant technology, a proprietary trait from Bayer CropScience, will be commercially available to US cotton growers in 2011. The technology provides season long in-plant tolerance to glyphosate and gives growers the option to choose any brand of glyphosate registered for use on cotton. It will be available in two high quality, high yielding *FiberMax* varieties, FM 9101GT and FM 9103GT. Extensive laboratory, greenhouse and field trials across the Cotton Belt have evaluated the crop tolerance and agronomic performance of cotton varieties with *GlyTol* technology and they have proven to be excellent performers in the field. The new technology is the first of many high performance traits in the Bayer CropScience pipeline. The company will be stacking the technology with other current and future Bayer CropScience cotton traits. These include *LibertyLink*, the only non-selective alternative to glyphosate-tolerant systems and *TwinLink*, a proprietary two gene *Bt* plus *LibertyLink* technology that, pending regulatory approval, Bayer hopes to have available by 2013.

BAYER SUING DOW OVER PATENT INFRINGEMENT

Bayer CropScience is suing Dow AgroSciences in a federal court in Delaware, US alleging infringement of a patent for herbicide-resistant crops. 'Dow has developed, manufactured, used and announced its plans to sell' transgenic corn, soybean and cotton plants and seeds in violation of the patent, Bayer contends in court papers. Dow said in a statement that it is pursuing an application to patent a 'new class of herbicide tolerant traits,' including resisting the 2,4-D herbicide which Bayer claims infringes its patent. Dow AgroSciences was previously granted patents for crops containing the 2,4-D herbicide tolerant trait in New Zealand and South Africa, and may use it in US corn in 2012, and soybeans and cotton later.

US EPA APPROVES BASF'S VINE FUNGICIDE

BASF's fungicide *Vivando* has received full registration from the US Environmental Protection Agency (EPA) and the California Board of Pesticide Regulation. The company says that new fungicide is highly effective for control of powdery mildew in wine, table and raisin grapes. "*Vivando* will be an important addition to the grape growers's disease control arsenal," said William Strickland, BASF marketing manager. "The active ingredient, metrafenone, is the first fungicide to be developed from the benzophenone chemical class. It is lipophilic and is very easily absorbed into the waxy cuticle layer that surrounds the exterior cells of a plant."

Research has shown that *Vivando* does not exhibit cross-resistance to any of the known fungicide modes of action. The active ingredient disrupts normal distribution and functioning of actin in powdery mildew cells, destabilising the growth process. Although it works best when applied preventively before powdery mildew infections occur, *Vivando* also works to slow epidemic development by disrupting the lesion expansion and the development of new mildew spores. Rotational treatments continue to be an important factor in managing resistance.

Vivando provides growers the flexibility to apply any time from pre-bloom to pre-harvest. It helps to safeguard the yield and quality of grape crops when applied preventatively and in rotation with other modes of action such as the strobilurin and carboximide in the fungicide *Pristine*. BASF says that using a rotational plan including both *Vivando* and *Pristine* provides unmatched control of powdery mildew and control of diseases such as Botrytis, Phomopsis cane, leaf spot, downy mildew and black rot.

DOW TO BUILD NEW SEED R&D FACILITY IN THE US

Dow AgroSciences has announced the construction of a new Seeds Research and Development expansion in Olivia, Minnesota, US. Research on corn and soybeans will be conducted at the site for Mycogen Seeds and other Dow AgroSciences seed affiliates. The 11 acre site, approximately 90 miles

(144 kms) west of Minneapolis, will have an office and seed processing building and an equipment storage and shop building.

“The construction progress at Olivia symbolises Dow AgroSciences getting one step closer to achieving its goals for its seeds, traits and oils business,” said Jeff Posch, Dow AgroSciences northern regional breeding leader. The facility is scheduled to be completed by the middle of 2011. The company’s plan calls for some 25 full time employees at the site by 2015. The research site is part of Dow AgroSciences’ long-term plan to increase its seed and biotechnology capabilities.

OTHER NEWS AND MARKETS

BAYER AND BASF COLLABORATE TO IMPROVE RICE PRODUCTIVITY

Bayer CropScience and BASF Plant Science have announced a long-term collaboration agreement to improve rice productivity through plant biotechnology. The companies aim to develop and commercialise hybrid rice seeds with traits which give yield benefits of 10% or more over conventional hybrid rice seeds. BASF Plant Science will license yield-increasing technologies to Bayer CropScience for commercialisation in Bayer CropScience's *Arize* hybrid rice. The non-exclusive agreement encompasses all major rice growing geographies, with first products expected to be launched by 2020.

BASF Plant Science will be responsible for the research and development activities leading to the selection of higher-yielding rice traits, and for obtaining the regulatory approvals needed for commercialisation. Bayer CropScience will integrate these higher yielding traits into leading *Arize* rice hybrids. The companies will communicate and work closely with key rice stakeholders as the products near commercialisation. The final products will be brought to farmers by Bayer CropScience. "With Bayer CropScience, we now have a partner that will enable us to bring higher yielding rice to farmers around the world," said Marc Ehrhardt, senior vice president at BASF Plant Science.

According to a forecast by the International Rice Research Institute (IRRI), an additional 8–10 million tons of rice needs to be produced each year to maintain sufficient quantities to feed people and keep rice prices at an affordable level. Today, the global rice production amounts to about 685 million tons. Hybrid rice seeds are gaining in popularity and market share over traditional varieties due to their ability to produce higher yields.

CIBUS TO PARTNER WITH ROTAM ON CANOLA HERBICIDES

Cibus Global is collaborating with Rotam to offer farmers a more environmentally friendly, single pass weed control system for canola (oilseed rape). Cibus has developed protection and performance enhancement traits using its patented Rapid Trait Development System. Rotam will provide herbicides aligned to the value-added canola traits Cibus is developing. The North American market for canola traits covers approximately 16 million acres with an annual trait value of \$240 million. This same trait will be marketed in Europe with other seed partners; the European market for oil seed rape traits has a value of €450 million annual revenue on 6.5 million hectares, according to the companies. "This agreement with Rotam provides high quality herbicides for our non-transgenic, value-added canola. We now have a complete system and the requisite distribution channels to bring it to market," said Keith Walker, president of Cibus Global.

RESEARCHERS MAKE PROGRESS ON STEM RUST RESISTANCE

Researchers at the University of California-Davis, Kansas State University, and the USDA Cereal Disease Laboratory in Minnesota have mapped and characterised a gene Sr35 resistant to the stem rust race known as Ug99 and its derivatives. Previously developed stem rust resistant genes were no longer effective against Ug99, which was discovered and identified in Uganda in 1999. The scientists identified molecular markers closely flanking the gene on the long arm of one of the gene's chromosomes, and then used comparative genomics to identify a small set of candidate genes among the collinear genes in rice and the model grass species. These candidate genes and molecular markers can be used to accelerate the deployment of Sr35 in wheat breeding programmes.

Having a precise genetic map of Sr35 is the first step towards potentially cloning the gene. Cloning Sr35 provides a perfect tool for understanding the resistance mechanisms against Ug99. However, certain genetic imperfections need to be reduced before it is introduced to commercial wheat varieties. While Sr35 is effective against Ug99, its derivatives, and another broadly virulent strain of stem rust originally found in Yemen, it cannot counter all the known forms of the disease. Since stem rust is airborne, outbreaks can spread in very little time. The scientists, therefore, say that Sr35 should be deployed with other stem rust resistant genes to successfully defend wheat production. Results of the study have been reviewed in the November-December 2010 issue of *Crop Science*.

SYNGENTA LICENSES INSECT RESISTANCE TRAIT TO PIONEER

Syngenta has granted Pioneer Hi-Bred a non-exclusive, global licence to the corn rootworm trait MIR604 (*Agrisure*). The trait provides protection from below-ground coleopteran insects, including corn rootworm. The licence which took effect on 1 January 2011, gives Pioneer full stacking rights of MIR604 with other traits. The value of the deal could exceed \$400 million in cumulative payments. "This rootworm trait provides Pioneer with additional product options for our customers continuing our momentum in the marketplace," said Paul E Schickler, Pioneer president. "Pioneer is creating unique trait combinations to offer next generation insect protection products. The new products will deliver growers additional choice in the *Optimum AcreMax* family of products." Davor Pisk, chief operating officer Syngenta Seeds, added: "The creation of value through trait out-licensing, as well as through the incorporation of leading proprietary technology in our own branded offer, will contribute to the growing profitability of our seeds business."

UNITED PHOSPHORUS ACQUIRES RICECO

United Phosphorus Limited (UPL) has acquired Tennessee-based RiceCo LLC, US along with its subsidiaries. RiceCo does business in more than 20 countries with significant revenues in the US, Mexico, Thailand, Nigeria and Sri Lanka. The company caters for the rice market and has a wide range of product offerings based on the herbicide propanil, a selective post-emergence foliar applied, non-residual herbicide for the control of many important annual grasses, broadleaf and sedge weeds. RiceCo will benefit from UPL's global sales and marketing network in broadening its geographic spread. It will also provide farmers with direct access to UPL's portfolio of rice products. This is the second acquisition UPL has made in 2010 following the acquisition of the global mancozeb business and the brand *Manzate* from DuPont in June. UPL, India's largest agrochemical company, is engaged in research, manufacturing, selling and distribution of agrochemicals and specialty chemicals across the globe. The company's revenue for the year ending in March 2010 was around \$1,142 million.

ARYSTA PARTNERS SOUTH AFRICAN DISTRIBUTOR

Arysta LifeScience has entered a partnership agreement and an equity position with Novon Protecta, a leading summer grain, cereal and potato crop protection distributor in the Eastern Free State region of South Africa. "This is the culmination of a relationship built over many years, and it will ensure a consistent supply of high quality products to our customer base," said Protecta managing director Johann Smit. For Arysta LifeScience, the agreement reinforces the company's commitment to agriculture in South Africa. Previously, Arysta had purchased the sugar-focused company Volcano AgroScience as well as an equity position in the leading fruit and vine distributor in the Cape, Nexus AG. In addition, in January 2010, Arysta LifeScience announced the acquisition of the Tsunami Crop Protection and Tsunami plant protection businesses. "Arysta LifeScience is committed to establishing preferred regional distribution networks to ensure long-term recurring business to both parties," said Jan Botha, commercial manager, Arysta LifeScience South Africa. "Distribution partnerships with strong local collaborators allow us to access more growers with our crop protection solutions."

SUMITOMO EXPANDS ITS INDIAN OPERATIONS

Sumitomo Chemical Co. Ltd has expanded its Indian operations for crop protection products by acquiring a 100% shareholding in New Chemi Industries, an established agrochemical manufacturer based in Mumbai, India. Established in 1961, New Chemi has been the partner of Sumitomo Chemical's manufacturing joint venture company in India since 2000, and has a large portfolio of crop protection products which would complement Sumitomo Chemical's product lines currently distributed in India. The acquisition is also expected to further strengthen Sumitomo Chemical's operations in crop protection products and enhance its presence and growth in India.

SUMITOMO AND NUFARM SET UP A TOLL MANUFACTURING AGREEMENT

Sumitomo Chemical and Nufarm have reached a toll manufacturing agreement in Australia as part of their ongoing cooperation programme. The agreement covers six of Sumitomo Chemical's proprietary products including *Admiral*, an insect growth regulator, *Shield*, a systemic insecticide and *Sumi-Alpha Flex*, a synthetic pyrethroid insecticide. Nufarm Australia, a wholly owned affiliate of Nufarm Limited, and Sumitomo Chemical Australia Pty Ltd (SCAL), will formulate and package these for SCAL to distribute. The arrangements will be put in place immediately and will involve Nufarm's manufacturing facilities at Kwinana in Western Australia and the specialist insecticides plant at Lytton in Queensland.

Ray Nishimoto, executive officer of Sumitomo Chemical said: "This is one of the many opportunities to arise from cooperation since Sumitomo Chemical's strategic investment in Nufarm was completed in April 2010. The toll manufacturing arrangements will combine Nufarm Australia's superb manufacturing and formulation technology with Sumitomo Chemical's high quality products." He added: "We are also extremely positive about our on-going discussions with Nufarm as a partner for our seed protection range of products in New Zealand and Australia, and further discussions continue in relation to label expansions and possible mixture products on a country by country basis."

INCOTEC TO MARKET FBSCIENCES ACTIVES AS SEED TREATMENTS

Incotec and FBSciences, Inc. have reached a global agreement to test, develop and commercialise new seed treatment and coating technologies for the seed industry. Under the agreement FBSciences' active ingredients for seed treatment will be combined with Incotec's seed coating and application technologies as pre-mixed packages to be marketed to growers for use in field crops, ornamentals and vegetables. Incotec will then be responsible for marketing and distributing the pre-mixed product packages to the global seed industry.

The new partnership enables both Incotec and FBSciences to enter and market in a new business segment where crop nutrition and root development can complement crop protection. JanWillem Breukink, CEO Incotec Group, said: "We are investing heavily in searching for and testing actives to apply to all kinds of seeds. We are looking for actives that can protect the plant from external factors and also stimulate its growth under conditions which are not always optimal. We are delighted to join forces with FBSciences to combine the unique expertise of both companies. We see this partnership as the beginning of a new phase in the further development of Incotec. This new development focuses on stacking multiple actives into unique product market combinations". FBSciences is currently finalising the development of a plant growth regulator (PGR) that benefits plant growth, particularly plant germination, emergence, and rooting.

KOOR AND CHEMCHINA REACH AGREEMENT ON MAKHTESHIM

Koor Industries Ltd has reached agreement with ChemChina over the Chinese company's purchase of a stake in Makhteshim Agan. It is anticipated that the transaction will be closed during the second or third quarter of 2011. However, there is no assurance yet that the transaction will be completed. ChemChina will hold all of the shares held by the public shareholders of the company and another 7% of the shares will be purchased from Koor. The Makhteshim Agan business has now been valued at \$2.4 billion for the deal. So as part of the agreement, the public shareholders will receive approximately \$1.272 million for the sale of approximately 53% of the shares, and Koor will receive around \$168 million for the sale of their 7% of the shares. It is anticipated that following the completion of the merger, the company will be owned 60% by ChemChina and 40% by Koor.

EDEN RESEARCH SIGNS DEVELOPMENT AGREEMENTS

Eden Research plc, a UK agrochemical development company, has signed two development agreements with French agrochemical business SBM Developpement SA based in Lyon. The agreements grant SBM the rights to use Eden's terpene encapsulation system to co-encapsulate two of SBM's important crop protection molecules with blends of synergistic terpenes to create new products that will exhibit a wider spectrum of activity and be less prone to resistance development.

Eden's strategy is focused on the development and commercialisation of its terpene-based encapsulation technology for agricultural and non-agricultural uses through appropriate regional or global partnerships. This means that Eden's encapsulation technology can reach wider markets where products are already

being sold, not just with its own proprietary formulations and products. SBM has two facilities in France, at Marseille and Beziers, where it manufactures crop protection products for a wide range of multi-national contract customers, as well as its own ranges for agriculture and hobby gardening applications.

MONSANTO ADVANCES NINE R&D PROJECTS

Monsanto has announced details of its projects which have moved forward in the company's R&D programme. It highlighted, in particular, key projects in its yield and stress pipeline collaboration with BASF Plant Science, which last year was expanded to include wheat. Yield and stress projects advancing phases this year include Nitrogen-Utilisation Corn, Second-Generation Higher-Yielding Soybeans and Higher-Yielding/Stress Tolerant Wheat.

"Our competitive R&D advantage comes because we identify needs in the marketplace and turn research into great products for farmers, and that allows us to create value," said Robb Fraley, Monsanto chief technology officer. "We continue to invest in significant crop opportunities with a balanced approach in our breeding and biotech platforms. This approach puts us in the best position to extend our leadership and continue to deliver commercial products that benefit our farmer customers."

"The advances in development show that we chose the right path in our partnership with Monsanto," said Peter Eckes, president of BASF Plant Science. "We are confident that our genes will result in crops that produce significantly better yields and that we will be able to make these available to farmers in the future." Agronomic traits projects that have been advanced include *Roundup* Hybridisation Systems for corn, Second-Generation Insect Protected Soybeans and dicamba-tolerance in soybean and canola.

MONSANTO'S FIRST QUARTER SALES UP 8%

Monsanto's net sales increased 8% in the company's first quarter to \$1.8 billion. Gross profit for the total company increased 11%, and gross profit as a percentage of sales improved 1% to 45%, driven by increases in seeds and traits revenue across all major crops particularly corn and soybeans in Latin America and cotton in Australia.

Sales for Monsanto's Seeds and Genomics segment increased 13% in the first quarter, reflecting increases across the corn, soybean, cotton and vegetable platforms. Corn seed and trait sales increased 8%. The primary driver was the company's Latin America seed business, with increased acres in Argentina and the mix benefit from increased overall trait penetration in Brazil. Volume increases brought soybean seeds and trait sales up 12% compared to last year, and cotton sales saw growth led by an increase in planted acres in Australia.

Sales in the first quarter of fiscal 2011 for Monsanto's Agricultural Productivity segment remained flat, with sales of *Roundup* and other glyphosate-based herbicides meeting expectations following last year's strategic repositioning. Sales of *Roundup* and other glyphosate-based herbicides increased 3%, reflecting the early Latin American sales and application season, leading an increase in volume offset by a lower selling price.

SYNGENTA CLOSING ACQUISITION OF MONSANTO'S SUNFLOWER BUSINESS

Syngenta has announced that it has closed the deal to acquire Monsanto's global hybrid sunflower seeds activities. This follows merger filing procedures with the European Commission and Syngenta's commitment to divest certain physical assets, intellectual property rights and contracts. Syngenta announced on 6 August, 2009, the signing of an agreement to acquire from Monsanto its global hybrid sunflower seeds activities for \$160 million, on a cash and debt-free basis. The asset deal includes germplasm and related IP rights, all sunflower breeding activities, certain activities in field production as well as the global distribution rights for all Monsanto sunflower hybrids. The acquisition further strengthens Syngenta's leading sunflower business.

BASF ENTERS R&D ALLIANCE TO DEVELOP GM STARCH POTATOES

The potato starch manufacturer AVEBE (www.avebe.com) and BASF Plant Science have entered a research and development alliance in plant biotechnology. The companies are combining their competencies in biotechnology discovery and genetically modified potato breeding with the aim of bringing

farmers fungal resistant starch potato varieties. They will start by developing a late blight resistant amylopectin starch potato. The companies expect the first varieties to be available on the market by 2019 onwards.

"Innovation is of major importance to AVEBE and is a crucial part of our strategy. The use of biotechnology offers new possibilities for the development of crops with better composition and starch content as well as resistance against diseases," said Gerben Meursing, managing director of commerce for AVEBE. "Higher yields per hectare and a better control of fungal diseases will lead to a more sustainable production of starch potatoes and starch processing," he added. "This cooperation ensures that European potato farmers will have access to the best traits," said Marc Ehrhardt, senior vice president, BASF Plant Science. Both companies will bring in their know-how in the field of developing GM amylopectin potato varieties. They complement each other with BASF Plant Science providing the regulatory approval experience and AVEBE contributing its breeding and starch application development expertise.

CONFERENCES AND FEATURES

THE VALUE OF CROP PROTECTION

As spiraling development costs and restrictive new legislation threaten EU farmers' access to vital pesticide products, a new economic impact report by leading economist Sean Rickard of Cranfield University, UK examines the true value of crop protection to the food chain and living standards. The report, discussed at the Chatham House conference *Making Food Security Work* in December, concludes that without pesticides to keep weeds, pests and diseases in check, crop yields would fall to half their current levels and food prices would rise by 40%, an increase to UK consumers of some £70 billion (\$109 billion) per year in food costs.

In developed countries such as the UK, the report warns that higher food prices would create pressures on disposable incomes with adverse inflationary impacts on the economy, while consumers would also suffer a reduction in the health benefits associated with a wide choice of affordable fresh fruit and vegetables. In developing countries, higher food prices would threaten the pace of development and in the world's poorest regions they would lead to increased hunger and malnutrition. Mr Rickard also argues that the contribution of modern crop protection products extends beyond the higher living standards and health benefits resulting from lower food prices and more efficient food production, with benefits ranging from the discovery of new knowledge through to safeguarding the quality and enjoyment of the countryside.

At a time of heightened concern over the impact of population growth, climate change and declining natural resources on global food security, the report, entitled *The Value of Crop Protection – an Assessment of the Full Benefits for the Food Chain and Living Standards*, was commissioned by the UK Crop Protection Association to highlight the risks of failing to support innovation and investment in crop protection technology.

The report's headline conclusions are that in world without pesticides:

- crop yields would fall to around half their current levels, with severe implications for employment, efficiency and profitability in farming and related food businesses;
- security of food supply would be severely reduced and the cost of food would rise by at least 40% - an increase of some £70 billion per year in the UK;
- not only would this place a burden on household budgets but this sum of money would also be withdrawn from expenditure on other sectors of the economy leading to the loss of businesses and employment;
- to offset the loss of output, arable farmers would need to double their prices and livestock producers would need to increase prices by a third to cover the higher costs of feed. These higher prices represent the net value of plant protection products to the farming industry: in the UK the net value is of the order of £12 billion;
- the supply of raw materials from UK farms to the domestic food processing and food manufacturing industry would fall and prices would rise. The industry would be forced to import a much larger proportion of its inputs and at much inflated prices, hitting the UK's trade balance. For the UK's food processing and manufacturing industry the additional cost would be of the order of £40 billion, approximately doubling its existing costs of raw material procurement;
- as well as adding £70 billion to the nation's annual food bill, consumers would also suffer a reduction in the health benefits associated with a wide choice of affordable fresh fruit and vegetables; this particularly affects the poorest members of society for who spend a larger proportion of their disposable income on food;

- social and recreational benefits associated with the use of plant protection products to maintain the turf on sports pitches, parks and golf courses would be affected, as well as the enjoyment afforded by well-kept domestic gardens.

Commenting on the report's conclusions, CPA chief executive Dominic Dyer said: "This study sends a clear message that access to the most advanced farming technologies is essential, not only to maintain the quality, consistency and affordability of our food supply, but also to keep UK agriculture competitive and to safeguard jobs, growth and wealth creation within the rest of the food chain. The report's central conclusion is that without effective crop protection tools to control the many pests and diseases which reduce yields and damage food quality, crop production would fall by 50% and the nation's food bill would increase by £70 billion, hitting household budgets and severely constraining expenditure in other sectors of the economy. But the study also highlights other important benefits of pesticides to our economy and quality of life, from the discovery of new scientific knowledge through to our enjoyment of sports and leisure activities, gardening and the countryside."

UK ADVISORY COUNCIL ON PESTICIDES

The 11th Annual Open Meeting of the UK Advisory Council for Pesticides (ACP) was held in York on 15th November and covered a number of topics – an update on scientific advice to Government, the work of the Pesticides Forum, pesticide use in amenity areas, and the Sustainable Use Directive. About 100 delegates from all sections of the industry attended and after the four papers were presented the speakers dealt with a number of previously tabled questions, many of which related to pesticide registration for minority crops in the UK. Robin Jenkins reports.

ACP to continue

Since the last ACP annual open meeting the Pesticide Safety Directorate, the ACP's sponsoring body, has been transferred to the Health and Safety Executive (HSE) and renamed the Chemical Regulatory Directorate (CRD). In addition, the UK Coalition Government had reviewed the future of all Government 'quangos', of which the ACP is one, and abolished a number. Despite a leak in September 2010 suggesting otherwise, the ACP will survive but will be reconstituted as an Expert Scientific Committee.

Professor Jon Ayres, Chairman of the ACP, opened the meeting by reviewing the amended principles covering the provision of scientific advice to Government – academic freedom and independence of operation. The Committee would remain independent and would continue to provide advice much as before; the only potential change is there may be some decline in its regulatory activities, which mainly relate to new actives, as the EU becomes more dominant in this area.

Pesticide use is not adversely affecting public health or environment

The chairman, James Clarke of agricultural consultants ADAS (www.adas.co.uk), then introduced the Pesticides Forum and reviewed its recent activities and reports. Sponsored by the Health and Safety Executive (HSE) the Forum was originally set up in 1996 to bring together a range of organisations with an interest in how pesticides are used and their impact. Major stakeholders are the Pesticides Action Network UK, the Crop Protection Association, the Royal Society for the Protection of Birds (RSPB) and the National Farmers Union (NFU).

The Forum oversees work under the UK Pesticides Strategy and monitors the effects of policies, laws and other initiatives that affect or are affected by the use of pesticides and offers advice to stakeholders and Ministers as appropriate. It also provides a forum for exchanging views and wherever possible reaching consensus. Key topics for the Forum in 2010/2011 are minimising the impact of pesticides by promoting best practice, container management and the reduced availability of pesticides following the impact of recent EU legislation.

Mr Clarke went on to highlight some of the key points in the Forum's 2009 report on the impact and sustainable use of pesticides in the UK. 85% of sprayers and operators are now tested in the UK and out of 1,200 on-farm checks there were only 29 non-compliances. Human health complaints are dropping steadily and less than 1% of food samples tested in the UK had pesticide levels in excess of the MRL's. In relation to the protection of water, there is an 11.7 % risk of non-compliance in surface water drinking water protected areas, a 5% risk for ground water and a 0.75% risk for surface water (all from sheep dips or factories). Having said that the report states that "actual compliance for drinking water is extremely high because of treatment at water works." In summary Mr Clarke stated that, whilst pesticide use in the UK was not adversely affecting public health or environment and that training of operators was increasing, one area for improvement was to reduce the risks to water bodies.

Glyphosate dominates amenity use

The Amenity Forum, an independent body that receives no government funding, is the collective body for the amenity industry. It was formed in 2003 to support the Voluntary Initiative, an industry-led project agreed with Government to reduce the environmental impact of pesticides. The chairman, Professor John Moverley, reviewed the use of pesticides by the Forum members. Amenity accounts for about 4% of the tonnage of pesticide use in the UK and the bulk of that is herbicide, principally glyphosate. The Forum is following the rest of the pesticide industry and actively creating a framework for the training and registration of operators. One of the major challenges for the amenity industry is the increasing

importance of invasive species – Japanese knotweed, Himalayan balsam, ragwort, giant knotgrass and rhododendron.

Sustainable Use Directive to be implemented by end 2011

Grant Stark of the CRD Policy Implementation Team reviewed the implementation of the EU's Sustainable Use Directive (SUD), the aim of which is to encourage the development of National Action Plans to reduce the risk of pesticide use and to encourage other means of controlling pests. The key deadline is to make all of this happen by November 2011 to ensure that the new legislation required is in place by December 2011.

CRD issued a consultation document in February 2010 that generated 300 submissions. In June these were discussed initially with UK Ministers and detailed policy will be developed by the end of this year. In general a minimalist approach is favoured. Draft legislation for consultation is timed for first quarter 2011 and legislation will be established, together with industry agreements, from June 2011. In fact many of the initiatives required by the SUD are already well established in the UK, albeit with some being on a voluntary basis. However some legislation will be necessary that requires the Government to have a National Action Plan. This will include some changes to the training and certification regime, a statutory regime for spray equipment testing, and a statutory regime restricting the sale of professional products to certified users.

Minority crops registration procedure continues to disadvantage UK growers

From the floor Derek Hargreaves, technical officer of the Cucumber Growers' Association, raised the problem of minority crop registration, citing the non-availability of imazalil to UK growers for cucumber mildew whilst it is still available in the Netherlands. CRD representatives stated that the problem was now being addressed through a new project known as the SCEPTRE scheme. This is a Defra Horticultural LINK Programme project coordinated by the Horticultural Development Council to facilitate registration of new products; control of cucumber mildew will be the first topic. The meeting was reminded that agchem companies cannot be forced to market a product for minor use if the company considers the market too small. It was also made clear that whilst EU harmonisation is achieved through the application of the 'uniform principles', member states are allowed to undertake risk assessments locally as exposure times and application practices may vary between countries; consequently the Mutual Recognition process does not necessarily apply.

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