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international news, comments, features and conference reports

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CONTENTS

LEAD ARTICLES

POLICE RAID GREENPEACE OFFICES IN AUSTRALIA

Police shut down the Sydney offices of Greenpeace after activists destroyed a GM wheat trial located outside Canberra on 14 July. The activists, wearing mock hazard suits, were reported to have scaled the fences of an experimental farm and destroyed the wheat crop with brush cutters. The trial was aimed at producing wheat with a reduced glycaemic index, with potential health benefits such as improving blood glucose levels and lowering cholesterol. A police spokesman said that an amount of property was seized as evidence during the Sydney raid and it will undergo forensic analysis. No arrests were made.

The trial was part of a programme conducted by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) over three years to evaluate genetically modified wheat and barley. Greenpeace opposed the trial, on the basis that there had been no laboratory trials on the safety of the modified crops for human or animal consumption. They also cited an example, where contamination occurred due to human error, with genetically modified canola seeds having spilled from trucks driving down roads near an experimental farm in southern NSW. Greenpeace food campaigner, Laura Kelly, said the protesters had no trouble accessing the site, suggesting security was too low:" We had no choice but to take action to bring an end to this experiment."

The CSIRO reported that the various gene combinations in the trial were subject to commercial-in-confidence agreements to protect the interests of various government research agencies and the US company, Arcadia Biosciences. In all 14 separate strains of wheat and barley are being tested or planned. Some will test the viability of enriching the crops with extra nutrients, and others will focus on using nitrogen from the soil more efficiently.

Following the announcement about the trials there was considerable criticism from environmental lobby groups, notably Greenpeace, and some organic farmers. The latter expressed concern that the altered wheat and barley could 'contaminate' a large part of Australia's wheat crop. The CSIRO indicated that it was following the safety requirements set down under the conditions of the licence. Matthew Morell, a researcher with the CSIRO's Future Food Division, said: "They will be separated from other crops by 200 metres, and wheat pollen travels about one metre, so it is highly unlikely any will be found beyond that".

The break in led to a number of leading scientists expressing their concern. Professor Mark Tester, a plant scientist at the University of Adelaide, said the protest was deeply disappointing: "GM technology is not a magic bullet but it does offer new opportunities to improve the quality and quantity of wheat." Professor David Schubert, a neurobiologist from the Salk Institute for Biological Studies in San Diego, California, had co-signed an open letter on 27 June to CSIRO Chief Executive Megan Clark, criticising proposed human trials of GM wheat. However after the Greenpeace action he declared that their action was counterproductive in addition to being illegal (s*ee page 15 for more information on the status of GM crops in Australia*).

MAKHTESHIM SHAREHOLDERS APPROVE DEAL WITH CHEMCHINA

Makhteshim Agan Industries has announced that its deal with ChemChina has been approved at a Shareholders' General Meeting unanimously. The approval is a significant step in the merger process that the company announced in January this year, and follows the announcement by ChemChina that it had received all the required authorisations from the Chinese governmental authorities to carry out the transaction. To complete the transaction an additional approval is required from the Anti-Trust Authority of the European Union. ChemChina will eventually have a 60% stake in Makhteshim and Koor Industries will retain 40%. Ami Erel, Makhteshim's chairman, stated: "We welcome the broad support expressed by the company's shareholders for the merger deal with ChemChina. It was approved by a huge majority and we can now proceed to closing the transaction, which is expected this October. We are convinced that the commercial combination with ChemChina will provide Makhteshim Agan with a very strong infrastructure that will enhance its competitive position and let the company achieve profitable growth in the future."

EUROPEAN NEWS AND MARKETS

SIPCAM AND SUMITOMO FORM EUROPEAN ALLIANCE

Sipcam and Sumitomo Corporation have announced a new alliance that will develop, market and distribute agrochemical products throughout Europe. The companies say that the alliance will provide a significant boost in developing a stronger product portfolio, obtaining a range of molecules and reinforcing both companies' sales activities in the European market. Under the terms of the Letter of Intent both Sipcam and Sumitomo will take a minority stake in their respective European networks. They will also co-operate across a number of business areas, including product development, registration and distribution, creating synergies in key markets. Minority stakes will be offered to other agrochemical companies interested in participating in this unique multi-cultural European distribution platform.

VANDALS DESTROY GERMAN GM TRIALS

Vandals in Germany have destroyed two experimental sites growing genetically modified (GM) wheat and potatoes. On the night of 9 July, half a dozen masked attackers overpowered the security guard watching over experimental sites in Gross Lüsewitz, near Rostoc. They then destroyed a field of wheat resistant to fungal diseases and a field of potatoes modified to produce cyanophycin, an amino acid polymer that could potentially be used to make plastics. The trials were funded by the German government to develop a more-efficient testing system for GM crops.

Two nights later, a dozen attackers threatened guards with pepper spray and bats at a demonstration garden in Üplingen, in the state of Saxony-Anhalt. They destroyed a field of potatoes and trampled wheat and maize. Police estimate the damage from the attacks at more than €250,000 ($354,000). No suspects were arrested.

BROWN RUST RESISTANCE ON WINTER WHEAT

The NIAB [National Institute of Agricultural Botany], Cambridge is investigating the possibility of at least one new race of brown rust on UK winter wheat following this year's severe disease epidemic. The UK Cereal Pathogen Virulence Survey (**www.niab.com/pages/id/316/UKCPVS**) has received an unprecedented number of brown rust samples. Although it is early to assess the epidemic's impact, most winter wheat varieties were affected at some level. "Brown rust appeared in mid-June and developed explosively over just a few weeks in some areas," says Dr Rosemary Bayles, plant pathologist at NIAB.

Samples were received from many of the most highly-rated varieties for brown rust resistance. This suggests the emergence of one or more new races of the rust, warned Dr Bayles. NIAB are now analysing fungal isolates from various resistant varieties to check for new races. On the variety Stigg, Dr Bayles confirmed that an isolate collected in the field was able to overcome the variety's resistance in seedling tests. "This is evidence that we are dealing with a new race on this variety. Further tests are in progress to fully identify the race and assess which other varieties may be at risk," said Dr Bayles.

RESEARCH ESTABLISHES THAT BEETLES REDUCE WEED SEED

Researchers funded by the UK's Biotechnology and Biological Sciences Research Council (BBSRC) and the French Institut National de la Recherche Agronomique (INRA) have established that ground beetles reduce the amount of weed seeds in the soil. The research confirms a long-held belief by scientists that ground beetles play a role in weed control. Dr David Bohan, Rothamsted Research, who led the research, said: "Seed predation by naturally occurring beetles in farmland does have a beneficial effect, reducing weed numbers in fields and potentially improving agricultural productivity."

The study, to be published in the August edition of *Journal of Applied Ecology*, used data from 257 conventionally managed fields throughout the UK to determine the effect that ground beetles have on the number of weed seeds in the soil of sugar beet, maize, and spring and winter oilseed rape fields. The researchers found that grass weeds were reduced more than other weeds, which is important because many UK farms have severe grass weed problems. Some of these species are increasingly resistant to herbicides and have a major impact on productivity as they compete with the crop for

resources, leading to lower yields. Policy-driven reduction in herbicide use could lead to higher numbers of weeds in fields, so alternatives to herbicides have the potential for significant impact.

Ground beetles appear to eat a significant proportion of the weed seeds that would otherwise go into the soil. With the right management, ground beetles could be used to replace some herbicide applications and significantly reduce weed populations. 'Beetle banks', which involve leaving an area of a field as a wildlife habitat, are already supported under the Environmental Stewardship schemes available to farmers. Professor Douglas Kell, chief executive, BBSRC said "We have a challenge to feed nine billion people by 2050 and to do so we must engage in research now that will underpin improvements in yield and sustainability of farming in the future. By studying whole biological systems such as farm ecosystems we can spot the various contributions made by different aspects of a system, including these beetles. This project shows that the balance of farm ecosystems can be vital to ensuring sustainability in farming in the future. It also makes the link between biodiversity and food security very clear."

EFSA UPDATES MONITORING GUIDANCE FOR GM PLANTS

The European Food Safety Authority (EFSA) has published updated guidance on the post-market environmental monitoring (PMEM) of GM plants. The document expands on previous EFSA guidance provided in this area, further strengthening the requirements that applicants must fulfil for the environmental monitoring of GM plants authorised for placement on the EU market. It also makes recommendations for risk managers to improve the way PMEM data are collected and reported in the EU. As with all EFSA guidance documents on genetically modified organisms (GMOs), the Authority is engaged in consultation at different stages during its development with member states and a broad range of stakeholders.

Under EU legislation, applications for the cultivation of GM plants must contain a detailed PMEM plan demonstrating how the GM plant will be monitored for possible adverse effects on human health and the environment. This monitoring is a key feature of the legislative framework on GM plants and, taken together with environmental risk assessment and risk management, forms an important part of the cycle of measures in place to detect and limit possible adverse effects, including those that may occur over a long period of time. EFSA assesses the results of PMEM for GM plants on a yearly basis and makes recommendations to the European Commission to improve the PMEM plan for future years and to draw conclusions about the GM plant's ongoing safety.

Post-market environmental monitoring of GM plants is comprised of two components. The first is 'General Surveillance' and must be carried out in all cases where a GM plant is approved in the EU. It intends to detect unanticipated adverse effects of GM plants and focuses on different aspects of environmental protection such as the conservation of flora and fauna, soil quality and the sustainability of agro-ecosystems. EFSA's updated guidance document outlines the different tools to be used for General Surveillance, including comprehensive advice on the design and analysis of farmer questionnaires and recommendations on the use of existing biodiversity monitoring networks at member state level that are relevant for monitoring of GM plants.

The second component of PMEM is 'Case-Specific Monitoring' (CSM) and must be carried out when, in the original Environmental Risk Assessment (ERA) of a GM plant, EFSA identifies a potential risk or level of uncertainty (or both) that can be mitigated during cultivation but nevertheless needs to be monitored on an ongoing basis. For example, in carrying out the ERA, an applicant may identify a potential risk from the exposure of a species of insects to a certain toxin produced by the GM plant that cannot be fully predicted or determined from existing studies or scientific literature. In this instance, specific monitoring is required to confirm assumptions made in the ERA and to assist in the evaluation of the ERA throughout the life-cycle of the GM plant. EFSA's updated guidance document on PMEM outlines requirements for the statistical design of CSM plans and gives examples of objectives and approaches to monitor identified risks or uncertainties (or both).

AMERICAN NEWS AND MARKETS

SEC INVESTIGATES MONSANTO

The US Government Securities and Exchange Commission (SEC) is investigating Monsanto's incentive programmes for glyphosate, sold under the *Roundup* brand, in 2009 and 2010. This was the period when the company's herbicide business was suffering from the impact of generic imports from China. A statement relating to the inquiry and released by the company on 30 June stated: "This investigation relates to financial incentives Monsanto offered to distributors who carry its glyphosate products and the financial reporting of those incentives. It does not, however, involve marketing programmes associated with seed sales. Monsanto has received a subpoena for documents from the staff. We are cooperating fully with the SEC."

Coinciding with the SEC investigation announcement Monsanto also released its very good third quarter financial results. The company said that historically the third quarter is a strong indicator of annual performance and went onto add: "The strength of the seeds and traits business in the US and Latin America combined with the well-received implementation of the agricultural productivity strategy, which includes crop protection products, drove a successful third quarter for the company." Total sales for the first nine months were $9.5 billion up from $8.5 billion for the same period in 2010. The company claims to be well positioned to end the fiscal year 2011 with earnings growth in the high teens percentage and to be able to translate that growth into greater free cash flow. Hugh Grant, chairman and CEO, was quoted to have said that the company is "back on track after a disastrous year in which it was forced to scrap profit targets and abandon its premium pricing model as its higher-cost corn seeds failed to deliver hoped-for yields and as sales of *Roundup* plunged."

UPL ACQUIRES 51% STAKE IN DVA AGRO

United Phosphorus Ltd has acquired a 51% stake in DVA Agro Brazil from the Germany-based DVA Group and other shareholders for $150 million. With a net revenue of $130 million in 2010, the company is engaged in the production and marketing of crop protection products. It has a formulation plant in Brazil and is undergoing expansion. Commenting on the acquisition, UPL's global CEO Jai Shroff said that this is the company's second such acquisition in Brazil. In March this year, the Mumbai-based UPL acquired a 50% stake in Sipcam Isagro Brazil, a 50:50 joint venture between Sipcam-Oxon group and Isagro. "This marks our second entry into the Brazilian crop protection market and gives us access to a much larger market," Mr Shroff added. According to DVA Agro Brazil General Manager Carlos Pellicer, the company intends to grow faster than the overall market over the next few years with the help of UPL.

FMC FORMS NEW DISTRIBUTION COMPANY IN ARGENTINA

FMC's Agricultural Products Group has entered into a joint venture agreement to form a new Argentine agrochemical distribution company named Ruralco Soluciones SA. FMC's partners in Ruralco are well-established agrochemical dealers previously associated with Argentine distributor Agropecuaria del Litoral. An FMC subsidiary will own 50% of the joint venture company, which recently commenced commercial operations.

"Ruralco fits well with our Vision 2015 strategy to expand our reach in rapidly developing economies, and will allow us to accelerate our growth and market access in Argentina's $1.7 billion crop protection market, the second largest in Latin America," said Milton Steele, president, FMC Agricultural Products Group. Ruralco will be based in Rosario, Santa Fe province, Argentina, with plans to expand geographically within Argentina. FMC will manage the financial operations of the joint venture. FMC products will also continue to be sold through the company's current distributors in Argentina.

DOW EXPANDS WHEAT PORTFOLIO

Dow AgroSciences is expanding its wheat portfolio with its recent acquisition of assets from Northwest Plant Breeding Company based in Pullman, Washington. "This is a tremendous opportunity for Dow AgroSciences to build upon Northwest Plant Breeding and Hyland programmes in the Pacific Northwest region," said Kay Kuenker, vice president of Dow AgroSciences, New Business. "The resources of Hyland Seeds, Dow AgroSciences and Northwest Plant Breeding Co will support the development of new varieties, traits, and technology that can benefit the wheat industry." The addition of Northwest Plant Breeding assets will provide a research station, germplasm, several active patents,

and plant variety protections to Dow AgroSciences. Dow will also open a cereal breeding station in Pullman that will be fully operational by March 2012.

MAKHTESHIM TO COMBINE ITS US NON-CROP BUSINESSES

The Makhteshim Agan Group is to combine the activities of two of its US-based environmental solutions affiliates. Quali-Pro which focuses in the turf and ornamental segments will combine its activities with Control Solutions Inc. (CSI) currently operating in the pest control, lawn and garden, and animal health segments. Control Solutions will now offer its customers an expanded portfolio including both CSI and Quali-Pro-branded products. With additional market expertise and product development capabilities, the combined business intends to accelerate and expand its launch of new products. Shaul Friedland, head of MAI's Americas region commented: "This move, much like the launch of fipronil based products earlier in the year, complements our overall efforts to strengthen Makhteshim's presence in the Americas and provides us with a stronger platform for further growth."

Mark Boyd, president and CEO of CSI, added: "This business combination is a true 'one-stop-shop' in the non-crop segment that offers superior solutions, leading market expertise, and second-to-none service to customers throughout the US. To assure continuity and customer satisfaction, we will be keeping our sales teams intact, even after the merger is completed, with each customer continuing to work with the same sales people as before."

SYNGENTA TO MARKET SPINOSAD SEED TREATMENTS

The US EPA has approved spinosad for use as an onion seed treatment and the product will now be made available by Syngenta as a component of *FarMore F1500* an insecticide/fungicide seed treatment containing separately registered products. Featuring two insecticides, spinosad (*Regard*) and thiamethoxam (*Cruiser 70WS*), as well as three fungicides, mefenoxam (*Apron XL*), fludioxonil (*Maxim 4FS*) and azoxystrobin (*Dynasty*), the combination marks the latest evolution of the *FarMore* technology platform.

FarMore FI500 technology protects onion crops from the damaging effects of seedcorn and onion maggots, which can cause a 25% loss of crop if onion seeds are left untreated. In addition, thiamethoxam, one of the insecticides included has also shown suppressive activity on thrips that attack young onion seedlings early in the season. The registration of spinosad as a seed treatment for protection against onion maggots marks the first commercially available product offer derived from the 2008 agrochemical research and development collaboration between Syngenta and Dow AgroSciences. "The family of *FarMore* technology brands is constantly evolving, which is critical to our continued commitment to the small-seeded vegetable market," said Chad Shelton, crop manager, Syngenta.

USDA EVALUATES SAPONINS AS INSECTICIDES

Detergent-like compounds called saponins, best known for their cleaning properties, are being evaluated by the US Department of Agriculture (USDA) for their potential to help protect plants from insect attack. In studies at the National Centre for Agricultural Utilisation Research, operated in Peoria, Illinois by the Agricultural Research Service (ARS), scientists Pat Dowd, Mark Berhow and Eric Johnson are 'spiking' laboratory diets fed to corn earworms and fall armyworms with saponins from soybeans, switchgrass, yerba mate and other sources to determine exactly what effects the compounds have on the caterpillar pests' growth and survival.

The saponin experiments are part of a broader research effort at Peoria to identify novel sources of resistance that can be incorporated into corn. Ultimately, this could bring in new corn varieties that sustain less caterpillar feeding damage, are less prone to toxic moulds or require fewer pesticide applications. Most grain crops, including corn, do not have saponins in them, according to Mr Dowd, however, ongoing studies of switchgrass, a distant relative, may reveal dormant genes or biochemical pathways that could be activated in corn using plant breeding or genetic engineering methods.

One lead the Peoria researchers are investigating came from geneticist Ken Vogel and his colleagues at the ARS Grain, Forage and Bioenergy Research Unit in Lincoln, Neb. In studies there, Vogel's team identified two saponins in switchgrass, a steroidal type called diosgenin, and a related form called protodioscin that they suspect helped several germplasm lines of the promising biofuel crop to resist fall armyworms. Dowd's team conducted follow-up experiments in which diosgenin and protodioscin were fed to the pests and compared to saponins from mate, soap bark tree and soybeans and other

sources. Protodioscin, like the others, showed activity against fall armyworms, but the most effective ones seemed to be those containing a sugar molecule. Soyasaponin B, for example, reduced the growth of corn earworms by more than 50%. Smaller caterpillars, in turn, can mean less crop damage and easier pickings by predators.

EPA APPROVES SYNGENTA'S AGRISURE TRAIT STACK

The US Environmental Protection Agency (EPA) has granted registration approval for Syngeta's *Agrisure 3122* trait stack. The stack offers growers dual modes of action against both corn borer and corn rootworm with a structured refuge of only 5% in the Corn Belt region of the US. "With this approval, we now offer growers a reduced-refuge trait stack featuring dual modes of action for both corn rootworm and corn borer," said David Morgan, Syngenta's regional director of North America and president of Syngenta Seeds, Inc. "Not only do growers enjoy greater productivity through reduced refuge, they can also help safeguard trait technology and efficacy into the future."

The *Agrisure 3122* trait stack includes the *Agrisure CB/LL* trait, which has been helping to protect corn from European corn borer for more than 10 years, the *Agrisure RW* trait, which protects against corn rootworm, the *Herculex I* trait for corn borer, the *Herculex RW* trait for corn rootworm, and the *Agrisure GT* trait for glyphosate tolerance. The *Agrisure 3122* trait stack is designed for geographies where corn rootworm management is a significant concern for growers. This product will be marketed as the *Agrisure 3122 Refuge Renew* trait stack as it includes the added benefit of a 5% structured refuge. Syngenta has also submitted a 5% blended refuge-in-a-bag (RIB) version of the *Agrisure 3122* trait stack for EPA approval. Pending receipt of all regulatory approvals, this RIB product will be marketed as the *Agrisure 3122 E-Z Refuge* trait stack. In cotton-growing regions, this trait stack will require a 50% refuge.

Syngenta anticipates hybrids with the *Agrisure 3122* trait stack will be available for planting in the 2012 growing season from the Syngenta seed brands Garst, Golden Harvest and NK, pending receipt of remaining key import market approvals.

AGRAQUEST FUNGICIDE APPROVED IN BRAZIL

AgraQuest Inc has announced that its fungicide *Sonata* has been approved for use on apples, onions and strawberries in Brazil. The product will be launched for the 2011 crop season and sold through the company's distribution partner Iharabras. AgraQuest and Iharabras will collaborate to add more crops to the label over the next several seasons. *Sonata* is an effective treatment for control of common fungal diseases such as alternaria and botrytis. The active ingredient, the patented strain *Bacillus pumilus* QST 2808, has been used in other global agriculture markets since 2004.

"We are excited by the potential of *Sonata* and the efficacy that it has shown against target diseases in Brazil," said Julio Borges, president of Iharabras. "It is the first product to be distributed through our newly created Eco-Division and we expect that growers will be pleased with the results they get using the fungicide." In addition to being labeled for apples, onions and strawberries, *Sonata* has also been approved for agricultural research on soybeans.

With the entry into this important agriculture market, AgraQuest has also increased its sales team, appointing Manuel Dieguez as business manager for southern Latin America. Mr Dieguez will work together with the rest of the AgraQuest's Latin American team, which includes dedicated technical and regulatory personnel, to grow the demand and use for its proprietary biopesticides across the region.

BRAZIL SETS NEW RECORD IN THE ADOPTION OF TRANSGENIC CROPS

A study carried out by the consulting firm Celeres in Brazil indicates that 82.7% of the area for soybeans, 64.9% of the area for corn and 39.7% of the area for cotton will be using GM seeds. The area in Brazil planted with transgenic seeds is now growing at a faster pace than the growth of the entire planted area for crops of soybeans, corn and cotton – the three with genetically modified varieties that have been approved.

The area planted with transgenic soybeans for the next harvest will be 13.4% greater than it was in the 2010/11 harvest, occupying 20.8 million hectares. With the approval of a new event in 2010, there are now four technologies that have been released in Brazil, including herbicide tolerance (TH), insect resistance (RI) and combinations. "This growth is the result of constant improvement of the varieties,

which are increasingly becoming well adapted to the different productive regions of the country," observed Anderson Galvao, managing partner at Celeres and coordinator of the study. He emphasises that for the first time in the history of Brazilian agriculture, with 8.8 million hectares, the Central Western region - the traditional producer of conventional soybeans – has exceeded the Southern region in absolute terms for area allocated to transgenic soybeans.

GM cotton, for its part, which had three new events approved in the past year, will occupy 606 thousand hectares, equivalent to 39% of fields under cultivation (an increase of 62.7% over the previous cycle). Cotton seeds with RI, TH and combined technologies are currently available to growers. "The growth in the adoption of biotechnology for cotton crops shows that certain gaps that existed in the supply of technologies are beginning to be filled, supplying the real needs of cotton growers. When the producer sees competitive advantages in the technology, he adopts it immediately," Mr Galvao added.

In the case of corn, GM hybrids will be present on 9.1 million hectares, or 64.9% of the area under cultivation, including summer harvests (4.5 million hectares, or 54% of the area under cultivation) and winter harvests (4.6 million hectares, equivalent to 80.4% of the area under cultivation). Brazil now has 16 GM events approved (including RI, TH and combined technologies), five of them having been approved by the National Technical Biosafety Committee (CTNBio) in the last 12 months.

Mr Galvao says that corn cultivation has been the most successful by far in adopting biotechnology in Brazil: in four years, it already occupies more than half of the land where corn is grown. He also notes that a substantial portion is planted with materials thought of as low-tech, especially in the Northern and Northeast regions. "Considering only the hectares planted with high-tech materials, transgenic hybrids account for more than 70% of the area planted," he underscores.

LAWSUITS ALLEGE THAT DUPONT HERBICIDE IS DAMAGING US TREES

DuPont is reportedly planning to recall its herbicide *Imprelis* (aminocyclopyrachlor), amid multiple class action lawsuits alleging that the product is damaging and killing thousands of shallow-rooted trees at parks, golf courses and other properties throughout the US. Since *Imprelis* was approved for sale in October 2010, the company has received a growing number of complaints that suggest the product was doing more than just controlling weeds and was causing mature trees to die. Last month, the first *Imprelis* class action lawsuit was filed in Delaware on behalf of several Michigan-area country clubs and property owners. Since then, at least two other *Imprelis* lawsuits have been filed on behalf of Iowa residents who allege that the herbicide killed or damaged trees on their property. "Beautiful Norway Spruce and White Pine trees are dying," said Robert C Gilbert of Grossman Roth, a trial law company based in Miami, Florida. "And *Imprelis* is to blame."

According to a report by Reuters, the US Environmental Protection Agency (EPA) is preparing to issue a “stop sale” order and issued a letter to DuPont strongly encouraging the company to release thousands of confidential documents involving the problems with *Imprelis*. While DuPont promoted *Imprelis* as a herbicide to control broadleaf weeds, such as dandelion, clover, plantains, wild violet and ground ivy, the company advised consumers in June 2011 not to use the herbicide near Norway spruce and white pines. DuPont is currently in discussions with the EPA on the most effective way to implement an *Imprelis* recall, including a product return and refund programme.

OTHER NEWS AND MARKETS

MAKHTESHIM OPENS NEW FORMULATION PLANT IN INDIA

Makhteshim Agan Industries (MAI) has opened a new formulation plant in India. The company says that it will serve the needs of the company's fast growing plant protection business in India, as well as other markets served by the company in the APAC and Africa region. "The launch of our new formulation and packaging plant in Dahej marks an important milestone in the development and evolution of MAI as a whole and especially in our Asia Pacific, Africa and Middle East region, commented Erez Vigodman, president & CEO of MAI. "The plant will enhance our presence in India, which also includes an R&D centre in Hyderabad. The addition of local formulation and packaging capabilities will simplify our supply chain in India and allows us to be even closer to our customers in this strategic market. This launch of the formulation plant is one of the measures we have taken in Asia over the last two years and will support our continued profitable growth in Asia as a whole and in India specifically."

The company says that the plant's advanced production capabilities and stringent quality control mechanisms have been designed to meet its global quality standards. The plant will focus on fulfilling the needs of Indian farmers specialising in market specific formulations and small packages. Josef Goldshmidt, CEO of MAI India, said: "Thanks to our ability to provide comprehensive solutions to farmers, we have become a leading crop protection player in India. The addition of formulation and packaging capabilities will enhance our flexibility and customer service." Makhteshim Agan India provides local farmers with MAI's broad portfolio of crop protection products through an extensive logistics infrastructure that includes over 35 warehouses located throughout the country.

INCOTEC TO DEVELOP MYCONATE TECHNOLOGY

Incotec and Plant Health Care, a leading provider of naturally derived products to the agriculture and horticulture industries, have announced that they have signed a nonexclusive, multi-year agreement to develop and market Plant Health Care's *Myconate* in combination with Incotec's proprietary seed treatment packages. Plant Health Care will contribute its *Myconate* technology and introduce its current customers to Incotec seed treatments. The two companies will work together to develop new and novel uses for the technology around the world. The board of Plant Health Care believes that this deal further validates the potential of *Myconate* to deliver yield increases and plant health benefits.

"This is an important breakthrough in our strategy to gain market penetration for *Myconate,*" said John Brady, CEO of Plant Health Care. "Incotec is an excellent partner and a major player in seed treatment with a worldwide customer base, with whom we look forward to working closely." Myconate is a patented, synthetic compound which encourages plant growth by stimulating existing mycorrhizal fungi in the soil and creating a bigger root mass. More than five years of successful field trials provide product efficacy with increased yields during tests of up to 30%, depending upon crop and location. It is intended that *Myconate* will become a standard element of farmers' seeding and planting programmes on a global basis.

CHINA PLANS TO SET UP STRICT REGULATIONS ON PESTICIDE USE

A draft of proposed changes to the regulation on the use of agrochemicals in China was posted on the website of the Legislative Affairs Office of the State Council on 20 July, with public comments requested by the end of August. According to a report in *China Daily* this is a consequence of the increased frequency of cases of misuse of chemicals in recent years and nationwide concern about the safety of agricultural products (www.chinadaily.com.cn/cndy/2011-07/25/content _12971966.htm). In February 2010, according to *China Daily*, many provinces banned the sale of cowpeas that had been grown in South China's Hainan province because high levels of isocarbophos were detected. In April 2010, nine residents in Qingdao, East China's Shandong province, were poisoned after eating toxic garlic that had been polluted with organo phosphates.

The revised draft is intended to improve the current regulation, introduced in 1997, in information covering production processes, quality control, marketing, and the use and administrative management of pesticides. The legislation will require pesticide manufacturers to set up systems to record the raw materials and quality of products to ensure that every process in the production conforms to quality standards. The draft also requires local authorities to conduct reviews of the

registered pesticide products and to ban or limit their use in cases where there are risks to product safety, people's health or the environment.

The annual usage of pesticides in China is reported to be 1.3 million tonnes. Some 27,000 products are registered, up from about 9,700 in 1999. There are more than 2,000 companies manufacturing agrochemicals in China. In 2010 there had been a farmer backlash on pricing.

CHINA ENCOURAGES BIOPESTICIDES

China's Ministry of Agriculture is also taking steps to improve and encourage agrochemical companies to produce biopesticides, according to China Chemicals Market (CCM). The Ministry of Agriculture recently drafted the Programme for the Elimination and Prohibition of Highly Toxic Pesticides that names 22 pesticides which were deemed unsafe for humans. In addition, the Ministry has also taken steps to draft a policy which encourages the R&D of biopesticides. The list of 22 pesticides deemed highly-toxic includes fenamiphos, terbufos, methidathion and phorate. At least 10 of those pesticides have been or will be banned in 2011, and the remainder will no longer exist in the market once less toxic alternatives are found.

The government began revoking the registration of omethoate and isocarbophos on citrus, the registration of methomyl on citrus, apples, teas and brassica vegetables, the registration of cadusafos on citrus and cucumbers, the registration of endosulfan on apples and teas and the registration of bromomethane on strawberries and cucumbers, according to CCM. Since the 1980s, China has continuously banned 23 highly toxic pesticides and limited the use of 19 pesticides on vegetables and fruits. There are 400 pesticide companies involved in the production of 900 products in China containing the 22 highly toxic pesticides and the output was 50,000 tons in 2010, according to the Ministry of Agriculture.

DUPONT FIRST HALF SALES UP 15%

DuPont has reported on sales revenue in its Agriculture & Nutrition business for the second quarter. It says that sales were up $264 million or 10% to $3 billion and that this represented 6% price gains and 4% volume gains. Pioneer seed growth was driven by strong market performance in North America that included volume, price and portfolio gains. Crop Protection sales increased across all product lines more than offsetting the impact of divested businesses. Pre-tax operating income (PTOI) for the quarter was $826 million, up 11% on higher sales, partly offset by the impact of portfolio changes.

First-half year sales of $6.5 billion grew 15% with 9% higher volume, 5% price gains and 1% favourable impact of portfolio changes. Pioneer seed business delivered volume and price gains in North America and Europe. Crop Protection sales growth was underpinned by continuing strong sales of the insecticide *Rynaxypyr*, solid herbicide and picoxystrobin fungicide growth, partly offset by the impact of divested businesses. PTOI for the first half of $1.9 billion grew 16% on higher sales.

MONSANTO TO FOCUS ON BRAZIL AND CHINA

Monsanto has presented board members with a new five-year strategic plan which includes an outlook for strong international revenue growth, with Brazil a key contributor. Monsanto's sales in Brazil totalled $1.066 billion in 2010, about 10% of total company revenues, and the company is aiming for strong growth there. Chairman and CEO Hugh Grant said in a Reuter's interview that to achieve the targeted growth Monsanto has been enlarging its Brazilian research teams, adding sales staff there and developing products aimed specifically at Brazilian farmer needs, investing more than $2 billion in fiscal 2010 in Brazil and Argentina. The company is planning to launch a new GM soybean seed, Monsanto's first product developed uniquely for a non-US market - in 2013. *Intacta* soybeans are designed to resist caterpillar pests common in Brazil and tolerate treatment of herbicide. The country is currently the second-largest exporter of soybeans, after the US and the opportunity for production increases through yield enhancements is high, added Mr Grant.

Rising incomes and increasing demand in China makes that country a top growth target for Monsanto as well, though over the longer term, according to Jesus Madrazo, leader of Monsanto's global commercial seeds and traits business. Monsanto says it is deepening its ongoing alliance with Chinese chemicals conglomerate Sinochem Corp. The two companies have a hybrid corn seed joint venture, and Monsanto wants to strengthen its reach into the rapidly growing Asian corn market.

SYNGENTA SALES REVENUE UP DESPITE DECLINING PRICES

Syngenta reported that its first half year sales were up 14% to $7.7 billion. Sales at constant exchange rates (CER) increased by 12%. Crop Protection sales were up 10% (CER), with 12% volume growth and a 2% reduction in price. Seeds sales registered volume growth of 15% with prices 2% higher. At constant exchange rates, EBITDA increased by 10% to $2.1 billion with a margin of 28.3% compared with 28.6% in 2010. The gross margin was maintained at constant exchange rates despite lower prices in Crop Protection and operating costs that reflected further investments in growing the business.

Mike Mack, CEO, commented: "In the first half of 2011, growers in the Northern hemisphere faced familiar challenges, with unfavourable weather and volatile crop prices. However growing demand meant that the overall level of crop prices was high, encouraging increased investment in technology. Our sales showed sustained volume momentum in all regions and were, in addition, driven by the breadth of our portfolio and our strong emerging market presence. An improved price environment for Crop Protection was reflected in stable pricing in the second quarter. In Seeds, strong growth across crops and the further enhancement of our US corn portfolio resulted in a substantial improvement in profitability.

He went on: "In February we announced our new strategy based on three core objectives: Integrate, Innovate and Outperform. We have already made rapid strides in execution and are ahead of schedule in the process of commercial integration. The response from our customers has been positive and is a recognition of their need for innovation in an increasingly complex environment. Their support is an endorsement of our continued investments in research and development and in the expansion of our footprint in key growth areas, notably the emerging markets. These investments are being made with a clear focus on our over-arching objective, the development of an integrated offer on a global crop basis."

"As we enter the second half of the year, a positive outlook for the main Latin American season starting in September is underpinned by favourable fundamentals. We also expect further expansion in Asia Pacific and look forward to continuing strong growth in volumes with further gains in market share across the business. We expect to generate 2011 full year free cash flow in excess of $1 billion. In addition, the outlook for pricing for the rest of the year is positive and we expect stable pricing for the full year. For the 2012 season, we are currently raising prices across the business with the aim of achieving an overall increase in the mid single digits. This will enable us to offset the impact of inflation and to make further investments in the development of our integrated offer. "We continue to target above-market growth while expanding the size of the market through crop-based innovation. Our proven ability to manage manufacturing costs and to leverage our global presence will contribute to us maintaining a high level of profitability. PTOI for the first half of $1.9 billion was 16% up on higher sales.

SYNGENTA RECEIVES MORE IMPORT APPROVALS

Syngenta has received import approval from the Japanese and Mexican regulatory authorities for the *Agrisure Viptera 3220* trait stack which allows the importation of US corn grown with the trait stack for food or feed use. "Japanese and Mexican import approvals provide US growers access to a highly valuable market and is a major step toward *Agrisure Viptera 3220* trait stack commercialisation for the 2012 growing season," said David Morgan, Syngenta regional director for North America and president of Syngenta Seeds, Inc. "Soon growers will be able to reap the benefits of record commodity prices, achieving higher yield potential with an unprecedented level of corn pest control and reduced refuge requirements."

RESEARCH CENTRE TO ACCESS DOW'S GENE EXPRESSION TECHNOLOGY

The Donald Danforth Plant Science Centre (**www.danforthcenter.org**) has entered into a non-exclusive sublicense agreement with Dow AgroSciences to access gene expression technology. The technology, developed at the Scripps Research Institute, is exclusively licensed to Dow. It will improve the Danforth Centre's research capability to develop cassava that can better withstand virus diseases and improve the productivity of subsistence farmers in Africa.

Founded in 1998, the Donald Danforth Plant Science Centre is a not-for-profit research institute with a mission to improve the human condition through plant science. Under the agreement the Centre will

be able to use a promoter, or DNA regulatory element, that permits disease resistance genes to be introduced and function in the cassava plant thereby blocking viral replication.

The agreement with Dow AgroSciences allows an important addition to the crop improvement tools already in place at the Centre. Dr Claude Fauquet is developing the disease resistance technology, which is targeted at reducing the impact of Cassava Mosaic Disease (CMD) and Cassava Brown Streak Disease (CBSD). Along with the completion of the cassava genome sequence, many pieces are coming together that will contribute to fulfilling the Centre's mission of enhancing food security for millions of malnourished people living in developing countries. The research collaboration on cassava between the Danforth Center and Dow AgroSciences began in early 2010. "Dow is pleased to be able to provide the technology to the Centre so that this important humanitarian work can proceed toward commercial development," said Kay Kuenker, vice president, New Business global business unit for Dow AgroSciences.

CONFERENCES AND FEATURES

INNOVATION IN EU AGRICULTURE

The findings from a 12 month study published on 7 July, Innovation in EU Agriculture *has been presented by Lord Carter of Coles who chairs the UK's House of Lords sub-committee on Agriculture, Fisheries and Environment. The presentation, summarised by Bruce Knight, was made at a half day conference on food security and innovation, organised by Westminster Food & Nutrition Forum, in London on 12 July (**www.parliament.uk/business/committees/committees-a-z/lords-select/eu-environm entt-and-agriculture-sub-committee-d/inquiries/innovation-in-eu-agriculture/**).*

Lord Carter opened the conference with a strong message on what has to be done to address the EU's food security challenges: "We must act quickly," he said. "We cannot just dawdle along as we have been doing." He explained that over the last decade, the trend in agricultural policy in Europe has been to limit production. The House of Lords report now calls on European governments to recognise that the prime focus of agricultural policy must be to raise productivity, while supporting environmental sustainability. Lord Carter added: "We are in no doubt that innovation must be at the heart of this effort."

The recently published OECD-FAO Agricultural Outlook 2010-2019 predicts that agricultural output in Europe will increase over the period by 4%, much lower than that projected for the Americas where agricultural productivity is starting from a much lower base.

Lord Carter quoted the recent statement by Georg Haeusler, the head of the EC's Cabinet of the Agriculture Commissioner: "Agriculture is the old economy, in what I call an innovation-hostile environment." There is a strategic debate. Does Europe rely on providing food for 500 million rich Europeans while importing what is not available or does it play a key role in feeding nine billion people, including the one billion people in China and India who are starting to eat meat?

The report concluded that existing attitudes are a major obstacle to the transformation of EU agriculture into a consistently innovative sector. The report calls for national and EU-level strategies for food production. It is necessary to override the conflicting priorities between national government departments and within the European Commission, which will otherwise prevent effective innovation.

Involving consumers

Attitudes across society as a whole are also an obstacle to innovation. The situation with GM crops is a case in point. Its failure to be accepted by consumers is a consequence of having neglected their role. There is a legacy of mistrust towards GM technology which can all too easily colour consumer attitudes towards other innovations.

One of the recommendations of the report is to call on the European Commission to help share best practice in communication with consumers: "We look to national and regional authorities to help facilitate public participation in discussions about innovation in agricultural and food systems. And we consider that scientists, industry, retailers, media and civil society should all play a full role in getting the message across".

Lord Carter said that it has to be doubted whether consumer preferences are formed on the basis of sufficient information about the sustainability of products. So there is a need for much better communication about new agricultural technologies and about the issues surrounding the sustainable intensification of agriculture. But his communication will only work if it involves listening to consumers as well as directing information at them.

Europe's strength in research

The report emphasises that Europe has great strengths in knowledge generation. One contributor to the report spoke of Europe as an 'intellectual powerhouse', which produces top-quality research relevant to the agri-food sector.

There is huge scope for innovative agricultural knowledge at public sector level to be shared, and for duplication in different countries to be eliminated. Some examples are underway such as the Joint Programming Initiative on agriculture, food security and climate change, which is being spearheaded

by the UK's Biotechnology and Biological Sciences Research Council (BBSRC) and the French Institut National de la Recherche Agronomique (INRA). But there is a need for much more and the EU has to promote such collaborations.

Lord Carter welcomed much of the thinking that has come out of the EU's commitment to becoming an Innovation Union by 2020 and, in particular, the proposal that it should set up a European Innovation Partnership on sustainable and productive agriculture. He did, however, add a note of caution that these were just words rather than commitment to deeds.

Budgets for innovation

Lord Carter referred to proposals released by the European Commission in June covering plans for the EU budget over the next period, 2014-2020 (*June CPM*). While there is a slight decrease in the CAP budget, he welcomed the fact that there is an increase in research funding, up to €4.5 billion for research and innovation on food security, the bio-economy and sustainable agriculture. However, he described this as "still tinkering at the edges". The House of Lords report is looking to the Commission to produce forward-thinking proposals for Common Agricultural Policy (CAP reform and research funding towards the end of the year, with innovation at their heart.

Application in practice

An important output of the report was the need to improve the transfer of innovation knowledge to the farmer. The report covers this in relation to the UK but the requirement applies to many other regions of the EU.

Generally farms are small businesses which are inherently less likely to take on the risks of developing and adopting innovation. The report suggests that farm advice services need to be significantly improved. The quality of farm advice varies considerably between member states. It is recognised that the financing of farm advice is a decision for individual member states, but greater resources could be made available under Pillar 2 of the CAP to support the provision of advice. There is already a requirement, under the CAP, for member states to operate a Government led farm advisory system, but so far its role has been limited to advising farmers on 'cross-compliance' with a number of environmental requirements. The conclusion now is that the role of farm advice should be expanded in order to stimulate innovative practice in agriculture.

Over the last decade, notably in England, the provision of advice to farmers has become too fragmented. The UK's Department of Environment, Food and Rural Affairs (Defra) has launched a year-long pilot to test the provision of integrated advice to farmers. While at EU level, the European Commission will receive a report next year from a working group on agricultural knowledge and innovation systems. Lord Carter expressed the hope that the findings from the UK study would also benefit other member states.

Lord Carter concluded by emphasising that transferring innovation into agriculture is not just about a top-down relationship between researchers and farmers. That relationship should be interactive. The wider aim is to adopt an agricultural knowledge and innovation system, which encompasses farmers and researchers, but also processors, retailers, other industries and consumers.

STATUS OF GM IN AUSTRALIA

Australia has a substantial risk assessment based regulatory framework for dealings with gene technology and genetically modified organisms, as well as a process for assessment and approval of genetically modified foods. The Gene Technology Act of 2000 established Australia's regulatory scheme for dealings with gene technology and genetically modified organisms (GMOs). The Commonwealth's Gene Technology Regulator serves the key role in assessing, regulating and licensing GMOs and enforcing license conditions. Genetically modified foods must also be assessed, determined to be safe, and be approved before being sold for human consumption. The standards for such foods are developed by Food Standards Australia New Zealand (FSANZ) and are contained in the Food Standards Code. There are labelling requirements for genetically modified foods containing modified genetic material and/or novel protein, and for foods with altered characteristics. Imports of viable GMOs and food products containing genetically modified ingredients need to meet these same regulations.

The biotech debate is very important in Australia. The federal government is very supportive of the technology, has committed considerable long-term funding to research and development, and has approved genetically modified (GM) canola varieties for general release. The state governments have also committed funds for research and development, but most were more cautious about the introduction of the technology and most Australian states initially put in place moratoria on new plantings of biotechnology crops.

The moratoria on the planting of canola varieties which were in place for a number of years after GM canola was approved for commercial release in Australia were lifted in 2008 in NSW and Victoria and the first commercial plantings of canola took place that year. Western Australia (WA) lifted its moratoria on GM crops in November 2008 to allow GM cotton to be grown in the Ord River region and in April 2009 allowed trials of GM canola. In early 2010, WA passed legislation to allow commercial plantings of canola. This led to a more than trebling in area planted to GM canola in Australia in 2010 to 133,330 hectares, representing 8.3% of the total Australian canola crop. Total plantings of GM varieties in 2011 will be approximately 141,000 ha with another large increase in Western Australia. The moratoria, however still remain in place in South Australia, Tasmania and the Australian Capital Territory (ACT).

Major farm groups and the Commonwealth government's science organisations do not support this position and have argued openly for acceptance of biotech crops. Currently in Australia, about 95% of the cotton planted is from biotech varieties, which were approved for release prior to the state moratoria. Although GM cotton varieties dominate the cotton industry in Australia, the state moratoria slowed the commercialisation and adoption of the technology for food crops.

The US has substantial interest in Australia's policies and regulatory framework regarding agricultural biotechnology and products derived thereof because of the impact this has on the ability of the US to export to Australia. Unprocessed whole biotech corn and soybeans have not received regulatory approval in Australia and, thus, cannot be imported without further processing. Foods with biotech content of over 1% must receive prior approval and be labeled.

For GMOs that have not received regulatory approval in Australia, US export opportunities are obviously restricted. For the US, the commercial impact of this constraint is most pronounced for feed grains, eg whole corn, and soybeans as these products have not yet received regulatory approval. In addition to this market access restriction, Australia does not allow the importation of any grains and/or grain products for phytosanitary reasons, citing the need to limit exotic weed seeds.

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