

October 2001

Monsanto resolves Bt dispute with DuPont and Dow AgroSciences

Monsanto and DuPont have resolved a dispute relating to the use of Monsanto's MON810 Bt YieldGard insect-protected trait in maize hybrids sold by DuPont's wholly-owned subsidiary, Pioneer Hi-Bred International. The resolution includes the dismissal of several lawsuits in US District Courts in Rockford and St. Louis regarding the development, licensing and sales of YieldGard products. Financial terms of the settlement were not disclosed. Pioneer will continue to sell maize containing the YieldGard trait under a royalty-bearing licence from Monsanto.

The dispute stemmed from a July 1993 agreement between Monsanto and Pioneer, which granted Pioneer the right to produce and sell Monsanto's MON810 Bt maize under the YieldGard trademark. Under the agreement, Pioneer made a one-time payment of \$38m for access to the Bt gene, a sum far more favorable than that which Monsanto subsequently charged other companies. Monsanto sought to terminate the agreement in December 1999, alleging that Pioneer violated the terms of the 1993 contract and that the acquisition of Pioneer by DuPont in October 1999 rendered the original contract inoperable. The St. Louis court agreed in August 2000 that five contract breaches by Pioneer were material and terminated the licence agreement on 2nd January 2001, although it also ruled that Monsanto was not entitled to any past damages for the alleged breach. Separately, in 1996, DeKalb Genetics filed a number of patent infringement lawsuits in Rockford alleging the YieldGard maize sold by Pioneer infringed its patents. Monsanto, who already had a substantial equity in DeKalb at this time, later wholly acquired the company. Pioneer argued that it has an implied licence under the DeKalb patents by virtue of Monsanto's acquisition and control of DeKalb and the 1993 agreement between Monsanto and Pioneer granting Pioneer the right to produce and sell YieldGard maize.

The 1996 DeKalb litigation also alleged patent infringements by Mycogen Plant Science (later acquired by Dow AgroSciences) relating to the use of Bt technology in maize. DeKalb alleged that the Mycogen/Dow AgroSciences' developmental Bt maize products, including the recently US EPA approved Herculex I, violated multiple patents held by DeKalb. On 10th October 2001, the companies announced that they had reached an agreement under which Dow AgroSciences will make royalty payments to DeKalb to license their Bt patents for Herculex I maize and the developmental corn rootworm resistant maize. Financial terms for this agreement were not disclosed. Herculex I maize was developed in collaboration with Pioneer and is expected to be commercialized in 2002.

Monsanto and Pioneer are continuing other legal disputes, include a lawsuit involving the use of Monsanto's Roundup Ready (glyphosate-tolerant) trait in soybean sold by Pioneer.

CC Benoist wholly acquired by Syngenta

Syngenta Seeds has acquired the remaining shares of its 44%-owned cereal breeding joint venture, CC Benoist. Originally started in 1998 as a collaboration between the Benoist family-owned company and the former Novartis Seeds, the company will now be integrated as a wholly-owned unit of Syngenta. CC Benoist is a well-known French seed grower, with expertise in the production of wheat and barley seed through selection and application of newer technologies. Syngenta will continue to use the reputed "CC Benoist" brand name, which is respected throughout Europe. This decision is based on CC Benoist's strategically researched and developed seed products as well as their market presence. The present management will be integrated into the Syngenta Seeds organisation. Financial terms for the transaction were not disclosed.

FMC acquires American rights to Ishihara's flonicamid insecticide

FMC has entered into an exclusive agreement to develop, market and distribute Ishihara Sangyo Kaisha's (ISK) new insecticide, flonicamid (IKI-220), in the Americas, the UK, Spain and Portugal. However, in Latin America, ISK will retain the rights for Argentina, Chile, Paraguay and Uruguay because it already has an established distribution network. The partnership gives ISK access to these key insecticide markets through FMC and adds a complementary insecticide to the FMC Agricultural Products group portfolio.

Flonicamid is a novel systemic aphicide belonging to the new trifluoromethylnicotinamide group and is highly active against both the larval and adult stages of aphids. It also has activity against some other species of sucking pests such as whitefly, yellow tea thrips, tea green leafhopper and rice brown planthopper. The mode of action of flonicamid is novel and has not yet been determined, although it rapidly inhibits the feeding behaviour of aphids when ingested. Its aphicidal activity is similar to that of imidacloprid although superior to that of acephate. The compound has no cross resistance with other insecticides and shows good systemic and translaminar activity. Application rates between 50-100g ai/ha are recommended for crops such as fruits, vegetables, cereals, and cotton. Field trials have demonstrated that applications up to 400g ai/ha did not induce any phytotoxic responses in a wide variety of crops. The compound also shows favourable toxicological, environmental and ecotoxicological profiles and has no negative impact on beneficial insects and mites. According to FMC, flonicamid has an excellent fit in FMC's major markets, including cotton, maize, rice, fruit and vegetables, nuts, citrus and ornamentals. The company also says that flonicamid is synergistic to its current product line, which is strong in pyrethroid and carbamate chemistries. FMC expects the insecticide to generate significant sales at maturity, with a market launch in 2004/2005.

FMC and ISK recently increased their equity positions in Belchim, a Benelux distributor. The three-way joint venture will market the companies' existing and future products (including flonicamid) in France, Germany, Belgium and Holland.

Makhteshim-Agan's novaluron registered in the US

Makhteshim-Agan's first proprietary product, the insecticide Rimon (novaluron), has obtained its first registration in the US. The insecticide, which is classified as a reduced risk compound by the US EPA, has been approved for greenhouse-grown flowers. Rimon is a novel benzoylurea insect growth regulator licensed from Isagro Ricerca. Makhteshim-Agan estimates that by 2003, Rimon will be additionally registered for crops such as cotton, apples and vegetables. The compound is also expected to be registered in the public health sector under the brand name Oscar 100. Makhteshim-Agan estimates the annual sales potential of novaluron in the US, where it will be marketed exclusively by Uniroyal Chemical, will be more than \$10m when additional registrations are gained. In the EU, the company expects to begin receiving approvals toward the end of 2002. Global sales of Rimon totalled c. \$6m in 2000, with sales of \$10m expected in 2001. The product is now marketed in 20 countries worldwide, including Israel, Argentina, Bolivia, Paraguay, Brazil, Turkey, Romania, Poland, Morocco, South Africa and Mexico.

Eden Bioscience's Messenger (harpin) registered in China

Eden Bioscience's natural product insecticide, Messenger (harpin), has been temporarily registered in China for use on tomatoes and peppers. The registration is valid until September 2002, at the end of which full registration is expected to be granted. Additional approvals in China for canola, cotton, rice, tobacco and citrus are expected within the coming year.

Bt maize re-registered in the US

Following the re-registration of Bt cotton on 1st October, the US EPA announced on 16th October 2001 that it has also granted the re-registration of Bt maize for seven years until 16th October 2008. The decision, which excludes StarLink maize, follows a two-year in-depth scientific review. The EPA says that scientific studies and a history of successful use have demonstrated that Bt does not pose risks to human health or to the environment, and helps to protect the environment by reducing the amount of conventional pesticides used. Furthermore, scientific evidence demonstrates that Bt maize does not impact Monarch butterfly populations. However, the authority has mandated several provisions to strengthen insect resistance management, to increase research data on potential environmental effects, and to improve grower education and stewardship. The companies holding the five renewed registrations for Bt maize are Monsanto, Syngenta, Pioneer (DuPont) and Mycogen (Dow AgroSciences).

Trade name	Transformation event	Bt gene	Company
YieldGard	MON810	<i>Cry1Ab</i>	Monsanto
YieldGard	Bt11	<i>Cry1Ab</i> *	Syngenta
Attribute (sweetcorn)	Bt11	<i>Cry1Ab</i> *	Syngenta
Herculex I	TC1507	<i>Cry1F</i> *	DuPont/Pioneer Hi-Bred
Herculex I	TC1507	<i>Cry1F</i> *	Dow AgroSciences/Mycogen

* also contains the Liberty Link (glufosinate tolerance) gene.

Aventis inaugurates Chinese formulation plant

Aventis CropScience has inaugurated its new Regent (fipronil) formulation plant in Hangzhou, China. The facility is a joint venture 75%-owned by Aventis with the remainder owned by Hangzhou Qingfeng Agrochemicals Limited (formerly Hangzhou General Pesticide Plant). Initially, the plant will formulate Regent (fipronil) and Rovral (iprodione). In the near future, the plant will be expanded to manufacture fipronil, as well as formulate a range of other products.

FMC and Valent BioSciences collaborate on plant growth regulators

FMC FoodTech, a business of FMC Technologies, and Valent BioSciences, a subsidiary of Sumitomo Chemical, have entered into a collaborative research and development agreement in the field of post-harvest use of plant growth regulators. Under the terms of the agreement, Valent BioSciences will provide FMC FoodTech access to their library of plant growth regulator molecules and formulations for use in post-harvest applications on a variety of fruit crops. According to FMC FoodTech, the agreement will allow the company access to technology that improves the quality of produce and reduces post-harvest losses, thus saving grower/shipper money.

Paradigm receives US patent for potential herbicide target

Paradigm Genetics has received US Patent No. 6,303,365 for a gene that has potential use as a herbicide target. The gene was discovered in jointly with Bayer in their herbicide discovery collaboration. This represents the first patent granted to Paradigm, which has more than 100 patent applications pending.

SemBioSys obtains US patent on plant-based somatotropin production

The Canadian biotechnology company, SemBioSys Genetics, has been granted US Patent 6,288,304 covering the use of its oil body-based planted expression technology for the production of somatotropins. The patent broadly covers the production of any somatotropin including human, bovine or fish forms of the protein. SemBioSys is using genetic engineering to express proteins in the seeds of safflower. One embodiment of the technology involves the covalent attachment of proteins to oil bodies found in oilseed, thus making its extraction from the majority of other seed components relatively easy. A major use of somatotropin is in the animal health sector, where Monsanto manufactures a recombinant form of bovine somatotropin called Posilac, which increases milk production in cows. SemBioSys has a collaborative agreement with Syngenta's Torrey Mesa Research Institute to develop nutraceutical, cosmeceutical and pharmaceutical products using SemBioSys' proprietary oleosin technology based on the transgenic expression of proteins in oilseeds.

Isagro wholly acquires Isagro Italia

On 5th October 2001, Italian agrochemical company, Isagro, acquired Dow AgroSciences' share in their 50:50 Italian agrochemical distribution joint venture, Isagro Italia. Dow AgroSciences' 50% share in Isagro Italia was acquired along with the purchase of Rohm and Haas' agrochemical business earlier this year. The two companies decided that the joint venture is no longer operable since Dow has its own distribution network in the country. However, Isagro Italia will continue to distribute some of Dow's products in Italy. Financial terms for the deal were not disclosed. Isagro Italia recorded sales of approximately \$40m in 2000, and accounted for around one-third of Isagro's \$62m turnover. Following the acquisition of Isagro Italia and the purchase of Caffaro in June 2001, Isagro's turnover will jump to around €200m (\$178m) on a full year *pro forma* basis in 2001.

The acquisition of Isagro Italia was effected by Isagro Europe, a newly-established company which is now in charge of the coordination of the Isagro Group's distribution activities in Europe. Isagro Europe controls (directly or indirectly) Isagro Italia, Siapa, Isagro Espana, Isagro France and FitoFormula. FitoFormula carries out formulation activity through its plant in Aprilia, Rome.

Wood Mackenzie release updated Agrochemical Products Database

Following on from the successful release of the updated Agrochemical Companies Database in July, Wood Mackenzie's Crop Protection Team has now released the latest version of the Agrochemical Products Database (APD). The database is now fully updated with data and analysis from 2000. If you need product focused information such as sales and tonnage data on all commercially significant agrochemicals, who makes what ?, product portfolios, R&D pipeline, what pests affect crops and what products can be used to control them, etc., then please contact Kelvin D'Arcy-Burt (Tel: +44 (0)131 243 4217, e-mail : kelvin.darcy-burt@woodmac.com) for further information on how to purchase or upgrade the Agrochemical Products Database.

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