

BUSINESS

Challengers in the field

The agricultural biotechnology industry is ten years old, and the story of its first decade has largely been about one company selling crops with single transgenic traits. Monsanto, based in St Louis, Missouri, still dominates the sector — but that could be about to change.

A deal struck last month between Monsanto's two fiercest rivals will, they hope, presage a second era characterized by a more even spread of market share and the production of multiple traits 'stacked' into single plants.

Syngenta, based in Basel, Switzerland, and Pioneer Hi-Bred of Des Moines, Iowa — a subsidiary of DuPont — last month formed a 50–50 venture which, they believe, will give Monsanto a run for its money.

The venture, GreenLeaf Genetics, is based in Omaha, Nebraska, and plans to license traits from both Syngenta and Pioneer to the host of small, long-established local companies that supply many farmers with corn (maize) and soya-bean seeds.

"For the farmer, this means he'll be able to get the benefit of technology from both of these companies from his local seed company," says Ron Wulfkuhle, GreenLeaf's president.

The approach is a change of direction for Pioneer, the world's oldest and largest seed company, which until now has sought to sell its transgenic seed directly to farmers. Plant strains with stacked traits will follow as new traits become available over the next few years. "GreenLeaf will allow us to present a broader suite of products," says Pioneer's president, Dean Oestreich.

About one-third of America's \$2.8-billion corn-seed market is supplied through independent companies, and Monsanto has scored major success by licensing its transgenic technology to them. It also sells direct and licenses genes to rivals, including Pioneer — with the result that up to four-fifths of all transgenic corn and soya beans contain Monsanto traits.

GreenLeaf's challenge is to break this



Growth industry: transgenic crops with multiple traits are catching on in North America.

dominance. Its initial emphasis will be on corn for North America, which accounts for more than half of the total area of genetically modified (GM) crops planted worldwide, according to the ISAAA, a Philippines-based organization that promotes the technology in developing countries.

GM seed now produces about 60% of the world's soya beans and 16% of its corn. The technology has yet to make substantial inroads in wheat or rice and, although genetic modification has spread rapidly (see graph), consumer resistance has held it back in places. There is no cultivation of GM crops in Japan or Britain, very little in the rest of Europe, and the only transgenic crop grown in China is cotton.

Clive James, a prominent plant scientist and chair of the ISAAA, predicts that the total planted area of GM crops will grow from 90 million hectares this year to at least 200 million hectares in ten years' time. If transgenic rice takes off in Asia, he suggests, that alone could add 250 million hectares or more.

But perhaps the most significant development is the increasing spread of multi-trait crops. Most of these seeds currently have two traits, although future plants could incorporate resistance to weedkillers and to drought with insecticides, for example, and with specific nutritional benefits.

GreenLeaf will make multiple traits available to seed companies, says Wulfkuhle. One such trait will be higher-yield herbicide resistance based on Pioneer's Optimum GAT technology, which makes plants resistant to the weedkiller glyphosate and will be ready in 2009.

James also expects to see the commercial arrival of traits that are more useful to farmers in poor countries. That would answer critics who say early traits only addressed the demands of the world's richer farmers. ■

Colin Macilwain

IN BRIEF

COPYCAT RIGHTS Two firms that make generic drugs have received a windfall courtesy of a US district court. Teva Pharmaceutical Industries in Israel and Ranbaxy Laboratories in India were granted exclusive sales rights for six months to generic versions of Zocor (simvastatin). Made by Merck, Zocor is the world's second-largest cholesterol drug in terms of sales — and it comes off patent next month. The court in the District of Columbia ruled that the Food and Drug Administration (FDA) acted unlawfully when it denied the two firms six months of exclusivity on the drug. The FDA may appeal.

INDUSTRIAL SLOWDOWN

Industrial support for research at US universities dropped for the third successive year in 2004, falling by almost 3% to \$2.1 billion, according to the National Science Foundation. For every \$20 spent by academics in science and engineering that year, industry provided \$1. The drop is a result of industry becoming "much more short-term and development-oriented" after the US economy dipped in 2001, says Kei Koizumi, an analyst at the American Association for the Advancement of Science.

LILLY THINKS SMALL A division of drugmaker Eli Lilly has signed a collaborative agreement with Altair Nanotechnologies, a Nevada-based company that supplies ceramic nanomaterials and technologies. In exchange for undisclosed milestone and royalty payments, Indiana-based Elanco Animal Health will get exclusive rights to use Altair products to develop and deliver animal drugs. Altair's materials have already been used to develop RenaZorb, a drug for kidney dialysis patients, which it licensed to Spectrum Pharmaceuticals in January.

RIGHT TO TRY A US patients' rights group is making progress in its fight to win dying patients the right to try drugs still under development. The Abigail Alliance, which lobbies for patients with terminal diseases, sued the Food and Drug Administration in 2003, claiming that the terminally ill have the right to use experimental drugs that have passed initial human-safety trials. A lower court threw out the case in 2004, but a higher court last week reinstated it.

SOURCE: ISAAA

GLOBAL AREA OF BIOTECH CROPS

