

World Food Prize goes to a Belgian for the first time: the scientist Marc Van Montagu

WASHINGTON, Wednesday June 19, 2013 - The Flemish plant scientist Marc Van Montagu (born 1933) is being awarded the “World Food Prize 2013”, jointly with the American scientists Mary-Dell Chilton and Robert T. Fraley. This was announced in Washington DC on Wednesday by the US Secretary of State, John Kerry. The World Food Prize - the “Nobel Prize for food and agriculture” - gives the award annually to one or more people whose work has been of exceptional social importance for the quality, quantity or availability of food. This is the first time that a Belgian has won this prestigious award.

Marc Van Montagu and the Americans **Mary-Dell Chilton** and **Robert T. Fraley** are sharing the prize “for their individual, independent breakthroughs as founders of modern, green biotechnology and their contributions to its development and application”, according to the chairman of the World Food Prize foundation, Kenneth M. Quinn. “Thanks to the research carried out by these scientists, farmers today can grow crops that are resistant to insects and tolerant to herbicides. This GMO technology can however also ensure a greater variety of crops, combined with higher yields or built-in disease resistance,” continues Mr. Quinn. “Moreover, this technology allows crops to be developed in short time frames that can also grow in unfavorable climatic conditions, such as extreme drought or heat, for instance.”

The three winning names have just been announced. The prize of 250,000 US dollar will be shared between this year’s three winners. It will be handed over to them at a grand award ceremony in Iowa, US, on October 17.

For Marc van Montagu, the prize means recognition for his contribution to contemporary agriculture and a step towards acceptance of GMO technology as one element in sustainable food production.

“The World Food Prize honors achievements that are extremely important for society, and I am therefore much honored to be able to receive this award,” says Marc Van Montagu, former Director of VIB Department of Plant Systems Biology, UGent. “For me, it emphasizes the importance of GMO technology as a contributing factor to sustainable food production. And although I am much honored, I am well aware that there is still a long way to go before this technology is fully established to produce the orphan crops and varieties essential to food security of smallholder farmers in less developed countries. I hope that this recognition will pave the way for Europe to embrace the benefits of this technology, an essential condition for global acceptance of transgenic plants.”

Marc Van Montagu is currently a scientific advisor to VIB, running the Institute of Plant Biotechnology Outreach (IPBO).

“Based on the scientific discovery of the DNA double helix by Watson and Crick in 1950, **Van Montagu, Chilton** and **Fraley** have each carried out pioneering molecular research into how a plant bacterium can be modified to act as a mail service for taking genes inside plant cells and thereby creating genetically modified plants with specific favorable characteristics. Their work has led to 170 million hectares (420 million acres) of modified crops being grown by 17.3 million farmers,” continues Mr. Quinn. “More than 90 percent of those are small resource-poor farmers in developing countries.”

Estimates by the FAO, the Food and Agriculture Organization of the United Nations, suggest that the world population will keep increasing, reaching 9 billion by 2050. Currently, 870 million people - one in eight - suffer from hunger. Scientific developments will therefore play an essential role in the challenges of the 21st century for sustainable higher levels of food production.

“Through their work, from the laboratory through to applied biotech innovations in the field,” concludes the chairman of the World Food Prize foundation, Kenneth M. Quinn, “the laureates of the 2013 World Food Prize have made significant contributions to increasing the quantities and availability of food.”

Previous World Food Prize laureates have included presidential candidates Bob Dole and George McGovern. In 2011, the prize went to the president of Ghana, John Agyekum Kufuor, and the president of Brazil, Luiz Inacio Lula da Silva, for their efforts for poor farmers. In 2012, the Israeli scientist Daniel Hillel was honored for his micro-irrigation techniques that resulted in increased agricultural production in Israel.

The Story in Ghent

At the end of the seventies, researchers at Ghent University led by professors Jeff Schell and Marc van Montagu were working with the soil bacterium *Agrobacterium tumefaciens*. These bacteria infect plants in nature and the scientists were able to determine that the bacterium transfers a piece of its hereditary material to the DNA of the plant. That DNA turned out to be located on a plasmid, which acquired the name ‘Ti-plasmid’ (tumor-inducing). The transfer of this DNA causes the cells to divide in an uncontrolled way and to produce substances that the bacteria can feed on. In other words, the bacterium forces the plant to make food for it. Professors Jeff Schell and Marc Van Montagu realized at once that they had found a messenger that would allow them to modify plants genetically. By replacing the piece of bacterial DNA that is normally transferred to the plant with a different piece, it was possible to transfer additional characteristics to the plant. In January 1983 (30 years ago now), they presented the first genetically modified plant - a tobacco plant - at a scientific congress in Florida (US). The Ghent lab was not alone, though. A research group at the University of Washington (**Mary-Dell Chilton**) and scientists at Monsanto (**Robert T. Fraley**) had both been using the *Agrobacterium* system, based on what Jeff Schell and **Marc Van Montagu** had learned, to make genetically modified plants with particular favorable characteristics. **Those scientists are being recognized today with the award of the World Food Prize.**

Van Montagu's work underpinned two Flemish biotech companies: Plant Genetic Systems (founded in 1982, now part of Bayer CropScience), known for early pioneering work on insect-resistant and herbicide-tolerant crops), and CropDesign (founded by VIB in 1998, now part of BASF), which uses rice as a model crop in a search for genes that can increase the yields of crops such as corn, wheat and rice.

The Impact of Green Biotechnology

The ISAAA (International Service for the Acquisition of Agri-biotech Applications) report for 2013 states for 2012 that, 16 years after the start of GMO cultivation, 170.3 million hectares (421 million acres) of GMO crops were being grown worldwide in about 30 countries. In Europe, the figure is just 0.13 million hectares (0.32 million acres) in 5 countries.

For the first time since the introduction of genetically modified crops, developing countries and emerging economies had a greater area of GM crops in 2012 than the industrialized countries. This is contributing to the security of food supplies and further reduction of poverty in some of the world's most vulnerable regions.