



Office of Agricultural Affairs
U.S. Embassy, Paris

Agricultural Biotechnology in the United States Newsletter - February 2009

To our readers: We in the Office of Agricultural Affairs of the U.S. Embassy in Paris would be happy that you inform us of your visits to the United States, so that we can help you organize your meetings and your administrative procedures. Please do not hesitate to share any questions with us on these issues as we are here to facilitate these exchanges!

1. U.S. Policy:

January 15, 2009: USDA reopens public comment period on proposed rule for biotechnology regulations¹

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) will be extending the public comment period for another 60 days on a proposed rule to revise existing regulations regarding the importation, interstate movement and environmental release of certain genetically engineered (GE) organisms. APHIS is extending the public comment period to allow more time for interested parties to prepare and submit comments. APHIS will consider all comments received on or before March 17, 2009, including any comments received after the close of the original public comment period on Nov. 24, 2008, and the date of this notice. In order to provide additional opportunities for the public to comment on the proposed rule, APHIS intends to hold one or more additional public meetings on the proposed rule. APHIS held three public meetings on the proposed rule during the initial comment period. The proposed rule was originally published on Oct. 9, 2008. Notice of the extended public comment period is scheduled for publication in the Jan. 16, 2009, *Federal Register*.

Towards the authorization of Pioneer Hi-Bred-developed GE corn tolerant to glyphosate herbicides and acetolactate synthase-inhibiting herbicides; and Syngenta Seeds-developed GE corn facilitating ethanol production^{2 3}

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) seeks public comment on a petition to deregulate corn genetically engineered (GE) for tolerance to glyphosate herbicides and acetolactate synthase-inhibiting herbicides. APHIS has regulated the corn variety, designated as line 98140, through its biotechnology notification and permitting process since 2005. The petition for deregulation, submitted by Pioneer Hi-Bred International, Inc., is in accordance with APHIS' regulations concerning the introduction of GE organisms and products and is available for the public's review and comment. As part of the decision-making process, APHIS also has prepared a draft environmental assessment (EA) for review and comment.

¹ <http://www.aphis.usda.gov/newsroom/content/2009/01/biotecreg.shtml>

² http://www.aphis.usda.gov/newsroom/content/2008/12/ge_corn.shtml

³ <http://www.aphis.usda.gov/newsroom/content/2008/11/deregcorn.shtml>

On November 24, 2008, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) announced that it is seeking public comment on a petition to deregulate corn genetically engineered (GE) to produce a microbial enzyme that facilitates ethanol production. APHIS has regulated the corn through its notification and permitting process since 2002. The petition for deregulation, submitted by Syngenta Seeds, Inc., is in accordance with APHIS' regulations concerning the introduction of GE organisms and products and is available for the public's review and comment. As part of the decision making process, APHIS also has prepared a draft environmental assessment (EA) for review and comment.

Following the comment period, APHIS makes a determination of nonregulated status if it can conclude that the subject organism does not pose a plant pest risk. If APHIS grants Pioneer Hi-Bred and/or Syngenta Seeds, Inc., petition for deregulation, the GE corn and their progeny would no longer be regulated articles. The products could then be freely moved and planted without the requirement of permits or other regulatory oversight by APHIS. The scientific evidence indicates that there are unlikely to be any environmental, human health or food safety concerns associated with either of these varieties of GE corn.

November 24, 2008: USAID Awards \$3.6 Million to Develop Rice and Wheat Varieties⁴

The U.S. Agency for International Development announced on November 24, 2008 the establishment of a new public-private partnership to produce rice and wheat varieties that will support feeding 1.5 billion people. Partnering with Arcadia Biosciences, this initiative will work to develop Nitrogen Use Efficient (NUE), Salt-Tolerant and Water Use Efficient rice and wheat varieties capable of growing in a variable climate which increases the difficulty of providing these staple crops. USAID will grant \$3.6 million to Arcadia Biosciences, an agricultural technology company based in Davis, CA. Arcadia will work with its partner in India, Maharashtra Hybrid Seeds Company Ltd., on product development and implementation for the program. The three year project will leverage over \$18 million of additional private sector investment.

This crop improvement project will contribute to increasing the productivity and sustainability of rice and wheat systems in South Asia. Drought, salinity and nitrogen availability are constraints to rice and wheat production in South Asia, a region with almost 1.5 billion people and high rates of poverty and malnutrition. Most climate change scenarios furthermore indicate that climatic conditions will become more variable in the future, making it increasingly difficult for farmers to meet demand for these staple crops.

2. Economic Perspectives :

Study of U.S. Consumer Attitudinal Trends and biotechnology in 2008⁵

The International Food Information Council commissioned Cogent Research to conduct the 13th in a series of quantitative assessments of consumer attitudes toward food biotechnology. One thousand adults living in the U.S. were surveyed from July 29th through August 18th, 2008. The survey data were weighted against the latest U.S. Census projections on education and marital status to ensure the final results were nationally representative. Results of the survey were the following:

⁴ http://www.usaid.gov/press/releases/2008/pr081124_2.html

⁵ <http://www.ific.org/research/biotechres.cfm>

- **Confidence in the Food Supply:** Despite continuing media attention and focus on food concerns, consumers' overall confidence in the U.S. food supply remains high at 68 percent;

- **Animal Biotechnology:** The majority of Americans (55 percent) have neutral impressions of animal biotechnology; 22 percent are favorable and 23 percent not favorable. 62 percent stated that safety and quality benefits (for example, improved animal health or improved nutritional quality) associated with animal biotech have a positive impact on their impression.

- **Plant Biotechnology:** Awareness and perceptions of plant biotechnology are stable, with concerns about usage in food production low. The majority (53 percent) of consumers continue to have neutral impressions of plant biotechnology, with 31 percent holding favorable impressions. Consumers are most likely to purchase foods produced through biotechnology that provide more healthful fats like Omega-3 and that require fewer pesticide applications, each with 78 percent likely to purchase. Finally, 67 percent responded they would be likely to purchase foods produced through biotechnology to taste better or fresher.

- **Food Labeling:** Satisfaction with current food labels remains high, with only 14 percent of Americans able to think of information they would like to see added to food labels. Those mentioning a desire to see foods produced through biotechnology labeled remains at less than 1 percent.

October 23, 2008: New York Times Article: Drought Resistance Is the Goal, but Methods Differ (by Andrew Pollack)⁶

“To satisfy the world’s growing demand for food, scientists are trying to pull off a genetic trick that nature itself has had trouble accomplishing in millions of years of evolution. They want to create varieties of corn, wheat and other crops that can thrive with little water. (...) Monsanto (...) says its first drought-tolerant corn will reach farmers in only four years and will provide a 10 percent increase in yields in states like Nebraska and Kansas that tend to get less rainfall than eastern parts of the Corn Belt. (...) A small California company called Arcadia Biosciences is trying to develop crops that need only half as much nitrogen fertilizer as a conventional plant. (...) Researchers at the University of California and the International Rice Research Institute in the Philippines are developing rice that can survive flooding,

Many of these advanced crops are being developed using genetic engineering. The technology (...) has spurred worldwide controversy. But in an era in which people are marching in the streets of many countries to demand more food at lower prices, low-water crops might win over areas that now shun biotech crops, such as most of Africa. (...) How much could be gained by use of these new crops is not yet clear. (...)

Many experts say the situation is grave enough that all approaches must be tried simultaneously. Poor growing conditions can reduce crop yields by 70 percent or more below their potential. (...) In many areas, lack of water is the biggest limiting factor (...). Global warming is also expected to lead to drier conditions and more frequent droughts in some parts of the world. Scientists at Stanford, for instance, have projected that corn yields in southern Africa could drop 25 percent by 2030 because of warmer, drier weather. (...)

⁶ http://www.nytimes.com/2008/10/23/business/23drought.html?_r=2&hp=&oref=slogin&pagewanted=print

3. Scientific Research:

November 24, 2008: Non-target insects probably affected more by insecticides than by Bt crops⁷

Non-target insects are probably affected more by conventional insecticides than by crops that contain genes from the soil bacterium *Bacillus thuringiensis* (Bt), according to the findings of a study by [Agricultural Research Service](#) (ARS) scientists and cooperators. The findings were published recently in [Public Library of Science ONE](#). The scientists compared the abundance of groups of non-target insects. They first compared the abundance of these insects in Bt crops and non-Bt crops without any insecticides. They also compared the insect populations in both types of crops treated with insecticides. And they compared the non-target insect populations in Bt crops without insecticides versus the populations in non-Bt crops treated with insecticides. The toxins examined included Cry1Ab and Cry3Bb in maize, Cry3A in potato and Cry1Ac and Cry1Ab in cotton. Collectively, insecticides such as pyrethroids, organophosphates, carbamates and neonicotinoids had larger negative impacts on non-target insects than did the Bt crops. The researchers concluded that when it comes to killing non-target insects, no treatment at all has the least impact. Bt crops have considerably less impact on non-target insects than do conventional insecticides. Also, insecticides affect insect populations uniformly, regardless of whether they're in Bt or non-Bt crop fields.

November 3 : Times Article: GM soya bean could help prevent heart attacks (by Mark Henderson, Science Editor)⁸

The first genetically modified foods with direct benefits for human health should be available within four years after successful experiments in the United States. A GM soya bean that can help to prevent heart attacks has passed the first phase of trials, clearing the way for its use in foods such as spreads, yoghurts, cereal bars and salad dressings. The research, at the University of South Dakota, has shown that oil from the GM soya can raise blood concentrations of long-chain omega3 acids, which are found chiefly in oily fish such as salmon, trout and fresh tuna. They protect against cardiovascular diseases and diabetes and help the growth of brain cells in the young. Omega3 acids are regarded as so important that the Food Standard Agency (FSA) recommends a portion of oily fish every week, although 70 per cent of adults ignore the advice. Efforts to promote fish consumption have raised concerns about fragile marine stocks, but the GM soya offers a sustainable, fish-free way in which people can maintain a diet rich in omega3 fatty acids.

(...) Monsanto expects the US Food and Drug Administration to clear it as a food by 2011, allowing it to reach American supermarket shelves by 2012. If it is approved by the European Food Safety Authority and the FSA's novel foods committee, products containing the omega3 oil could then be exported to Britain. Any product would be clearly labelled as GM, in the US and Europe. "We'll want to label it," said David Stark, Monsanto's vice-president for consumer traits. "Consumers will have a choice: some may choose not to try it, but others will." (...)The study, published in the journal *Lipids*, found that the GM soya oil increased the "omega3 index" in the participants' blood from an average of 4 per cent to 5 per cent. (...)

⁷ <http://www.ars.usda.gov/is/pr/2008/081124.htm>

⁸ <http://www.timesonline.co.uk/tol/news/uk/science/article5068437.ece>

October 27: NSF Awards 20 New Projects for Plant Genome Research; Includes Collaboration with France⁹

The National Science Foundation (NSF) has made 20 new awards totaling \$57.3 million during the 11th year of its Plant Genome Research Program (PGRP). These awards, which cover two to five years and range from \$350,000 to \$6.8 million, support research and tool development to further knowledge of genome structure and function. They will leverage sequence and functional genomics resources to increase understanding of gene function and interactions between genomes and the environment in economically important crop plants such as corn, soybean, wheat and rice. Projects include:

- Research led by the University of Southern California to study how *Medicago truncatula*, a small legume, and associated soil bacteria co-adapt to high salinity conditions. This project will be done in collaboration with scientists in Tunisia and France.
- Research led by the University of Minnesota, Duluth to identify the molecular mechanisms of nectar synthesis and secretion in the *Brassicaceae*, an agriculturally important family of flowering plants.
- An interdisciplinary effort led by Pennsylvania State University to define the regulation of maize shoot growth and development by the plant hormone auxin.
- A multi-institutional effort led by the University of California, Davis to develop genomics resources that will support the physical mapping of wheat chromosomes; this project will complement ongoing national and international efforts to sequence the wheat genome.
- Research led by the University of Georgia to generate populations of mutant plants that will advance our understanding of the functions of agronomically important genes in soybean.

December 3: USDA Honors California Researchers for Work in Developing Flood-Tolerant Rice¹⁰

USDA presented the National Research Initiative (NRI) Discovery Award to Julia Bailey-Serres at the University of California-Riverside, Pam Ronald at the University of California-Davis and Dave Mackill at the International Rice Research Institute. The team received the honor for their genetics research on flood-tolerant rice. Most rice varieties will die if fully submerged more than four days, costing producers an estimated \$1 billion in annual crop losses. The trio identified a gene that enables rice to survive complete submergence. The discovery allows for development of a new rice variety that can withstand flooding. The NRI Discovery Award highlights exceptional scientific and economic impacts of NRI-funded projects and recognizes outstanding researchers in agriculture who have supported the Cooperative State Research, Education, and Extension Service (CSREES) mission.

4. Biotech Industry Perspectives:

December 4: Syngenta and Dow AgroSciences Jointly to Develop Dow Compounds for use in Syngenta Seed Care¹¹

⁹ http://www.nsf.gov/news/news_summ.jsp?cntn_id=112545&org=NSF&from=news

¹⁰ http://www.csrees.usda.gov/newsroom/news/2008news/120511_discovery_award.html
http://www.news.ucdavis.edu/search/news_detail.lasso?id=8889

¹¹ <http://www.dowagro.com/newsroom/corporateneews/2008/20081204a.htm?filepath=&fromPage=BasicSearch>

http://www.syngenta.com/en/media/mediareleases/en_081204.html

Syngenta and Dow AgroSciences announced a research and development agreement to evaluate current and future Dow AgroSciences compounds for incorporation into Syngenta's market-leading seed treatment portfolio. Dow AgroSciences and Syngenta will target opportunities to maximize crop vigor and yield in field crops and vegetables through synergies between the two companies' chemistries. Joint projects will aim to accelerate the delivery to market of high performance seed treatment and seed enhancement technologies. Dow AgroSciences' compounds will be used in combination with Syngenta's portfolio; products arising from the collaboration will be commercialized by Syngenta.

December 5: Monsanto Annual Field Event: Monsanto Describes its Biotech Soybean and Corn Projects ^{12 13}

Soybean products:

Roundup Ready 2 Yield soybean technology is on track for a controlled commercial release on 1 million to 2 million acres in 2009. Investors will see a seed production field of Roundup Ready 2 Yield soybeans that will support more than 1,000 acres of commercial seed to be sold in 2009, one of dozens of seed production fields planted this year as Monsanto gears up for the release. At current commodity values, Roundup Ready 2 Yield soybean's 7 percent to 11 percent yield advantage versus first-generation Roundup Ready varieties creates approximately \$35-to-\$65 of incremental yield value to farmers for the trait alone.

In addition to Roundup Ready 2 Yield soybeans, Monsanto highlighted a number of other key soybean pipeline products that are under development that would be stacked with the Roundup Ready 2 Yield trait. These soybean products include: dicamba tolerant soybeans; soybeans containing an intrinsic yield trait that would provide additional yield on top of the Roundup Ready 2 Yield trait; a soybean product which produces omega-3 fatty acids; and a soybean product that produces a high stability soybean oil that eliminates trans fats and reduces the saturated fat content of soybean oil.

Corn products:

Farmers in the United States planted approximately 28 million acres of Monsanto's triple-stack corn in 2008, above original projections of 25 million to 27 million acres. For 2009, Monsanto expects triple-stack acreage will grow to 34 million to 35 million acres, reflecting more than 65 percent penetration in the DEKALB and ASI brands. In June, Monsanto announced it had submitted its SmartStax product to the U.S. Environmental Protection Agency for regulatory approval, making it the first-ever stacked product with multiple effective genes against both lepidopteran and corn rootworm pests to reach this important regulatory milestone. The product remains on track for commercial launch in 2010 pending appropriate regulatory approvals. Monsanto's next generation of biotechnology traits are drought-tolerant corn and corn with enhanced nitrogen use efficiency.

¹² <http://www.monsanto.co.uk/news/ukshowlib.phtml?uid=13320>

¹³ A copy of Monsanto's field guide is available at: <http://www.monsanto.com/monsanto/layout/investor/financial/presentations.asp>.

5. Background information:

- U.S. regulatory framework: <http://usbiotechreg.nbio.gov>
- List of regulated and deregulated products:
http://www.aphis.usda.gov/biotechnology/brs_main.shtml
http://www.aphis.usda.gov/brs/not_req.html
- Adoption of biotechnology and its production impacts:
<http://www.ers.usda.gov/Data/BiotechCrops/>

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