

# BioLines

Where Nature and Science Meet

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## CONTENTS:

- ◆ **Fonterra to research GM dairy products (1)**
- ◆ **Co-Existence case study of maize grown in Spain (2)**
- ◆ **Alarm at pesticide levels in organic produce (2)**
- ◆ **Where are the 'organic' chemists? (3)**
- ◆ **Organic toxin levels put consumers at risk (3)**
- ◆ **The Bio-Economy (5)**
- ◆ **Research into vaccine producing cows (6)**
- ◆ **Swiss GM wheat trial approved (7)**
- ◆ **Norway pumps \$400 000 into GMO detection (7)**
- ◆ **ISB announces new and enhanced databases (8)**
- ◆ **Vatican concludes GM conference (8)**
- ◆ **New Kenyan biotech law for hi-yielding GM crops (10)**
- ◆ **Publications (10)**
- ◆ **Meetings (10)**

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## Fonterra to research GM dairy products

NZPA, 31 Oct 03, LSN 31 Oct 03, <http://www.lifesciencesnetwork.com/news-detail.asp?newsID=5187> (shortened)

Dairy giant Fonterra has been given permission to genetically engineer fruit enzymes into bacteria, and yeasts to see if they can produce "novel and desirable" flavours in dairy products. The small-scale experiments, designed to prove the concept on a laboratory bench, are being funded by the Government. The results will not be taste-tested.

Chief executive of Environmental Risk Management Authority, Bas Walker, approved the application for development in laboratory containment on Sept 17, two weeks after it was lodged by Fonterra. A dozen dairy bacteria, and 3 organisms commonly used for experiments by molecular biologists, non-pathogenic forms of the gut bacterium *E. coli*, bakers' or pudding yeast, and a yeast that feeds on methane, *Pichia pastoris*, will be used in the experiments. They will be engineered with DNA from apple, kiwifruit, blueberry, and a wildcress weed often used for gene experiments, *Arabidopsis*.

A spokesman for Fonterra said today the experiments were not aimed at producing flavoured milks or cheeses, but at increasing its scientists' understanding how the natural flavours in dairy products could be modified. The technology could be used to make the natural flavours of cheese more or less intense. The application for research said flavour was a critical factor in sales of dairy foods, and that Fonterra "wishes to test whether GM bacteria or yeasts can express cloned fruit enzymes in fermentations that can make new flavours that can be used in dairy systems". Compounds produced this way would be considered for use to flavour new dairy products, the scientists said.

Following the experiments at Fonterra's enzymology and genetics lab at Palmerston North, the materials would be sterilised, although some dairy products from the experiments might be released to containment in other Fonterra labs at Palmerston North, or to Hortresearch's laboratories in Auckland. Fonterra, which processes and sells more than 90% of the nation's milk, has repeatedly said it does not plan to produce GM products unless it believes they are acceptable to customers. It announced in 2000 it was boosting research spending by up to \$150 million over the next five years to investigate the potential of biotechnology, including not only GE products, but also use of technology such as DNA sequencing and cloning in production of non-transgenic animals and plants.

### **Co-Existence case study of maize grown in Spain**

GBS News. 6 Nov 03, [http://www.bioportfolio.com/pgeconomics/spain\\_coexist.htm](http://www.bioportfolio.com/pgeconomics/spain_coexist.htm)

A new study on co-existence entitled, "Co-existence of GM and non GM crops: case study of maize grown in Spain," by Graham Brookes is available. Since 1998, the only EU country where Bt maize has been grown commercially has been Spain. Biotech maize is in its 6<sup>th</sup> year of cultivation in Spain and out of the current area planted to maize in Spain (about 460,000 hectares), about 32 000 hectares (7%) is insect-tolerant (Bt) varieties, less than 1 000 hectares (0.2%) is organic and the majority is 'conventionally produced.' These and other factors provide unique case study evidence of the Spanish maize production sector. According to the study, these 3 types of maize production have co-existed without economic and commercial problems. The report also states that for the future, the likelihood of co-existence problems arising is fairly limited even if there is a significant expansion in both the areas planted to biotech crops and to organic maize for a number of reasons. The full report is available at: <http://www.bioportfolio.com/pdf/Coexistencecasestudyspain.01.pdf>

### **Alarm at pesticide levels in organic produce**

Sydney Morning Herald, 3 Nov 03, LSN 4 Nov 03. <http://www.lifesciencesnetwork.com/news-detail.asp?newsID=5221>

Expensively-priced organic food sold in supermarkets has been found to contain pesticide residues equal to the maximum limit legally allowed in traditional food products, the Sydney Morning Herald reports. In some cases, organic products sampled by health department officers contained pesticide residues that should not be detected in any foods, Food Standards Australia has reported in its latest bulletin. The regulator's food surveillance unit says more consumers are buying organic as an alternative to traditionally-processed food, but they believe food labelled as organic will be free of pesticides.

Queensland Health examined 96 organic products, both imported and locally made. Pesticide residue was found in 15%, of which, 78% had been "certified organic". Food Standards says 6 products contained residues that are not prescribed under the food code "and therefore should not be detected in any foods". Andy Monk, chief executive of the Biological Farmers of Australia, which runs the largest Certified Organic programme, has responded to the report by asking the food producers named to "please explain". However, Mr Monk said that consumers should realise that the term "certified organic" refers only to a guarantee of chemical-free production, and not the end product. "We live in an environment where there are persistent chemicals. The organic industry never makes the claim that a product is pristine," he said.

The survey found a bottle of organic sesame oil from the US had residues equal to the maximum allowed in the food code. All Australian products found with pesticide had residue levels of less than 10% of the safety standard, Mr Monk said. He said that the Queensland report, which is still being finalised, is based on testing conducted 2 years ago, and a more recent Victorian survey had given an almost clean bill of health to the industry. Random auditing by the Certified Organic programme has since increased as the organisation moved from a voluntary to a professional footing, he said. The Biological Farmers of Australia estimate the organic retail market to be worth \$250 million, growing at over 20% a year. Food Standards labelling codes do not cover the use of the term organic, potentially allowing it to appear on produce that has not been certified. Food makers that do so risk legal action for false claims, however. Coles and Woolworths had taken a "firm stance" and require the food they sell to be certified, Mr Monk said.

## Where are the 'organic' chemists?

The National Business Review (New Zealand), 31 Oct 03. From AgbioView 3 Nov 03.

Some readers thought my claims of organic maize being potentially more dangerous than regular or GM food were written tongue in cheek. Not so. Food scientists had actually predicted that GM maize would have lower levels of mycotoxins than both regular and organically grown maize. The recalls of organic maize came as no surprise to the GM scientists. Here are some extracts from relevant scientific papers:

- \* GM maize "has a distinct health benefit of discouraging the build up of mycotoxins in corn, potentially dangerous human and animal toxins produced by fungi that cause plant disease. Insect larvae chew on stalks and kernels, creating wounds where fungal spores can enter the plant. Once established, these fungi often produce mycotoxins" (APSnet, 1999).
- \* "The fumonisins are associated with *Fusarium* ear rot, the most common ear rot disease in the Corn Belt; it can be found in nearly every cornfield at harvest" (Munkvold & Hellmich, 1999).
- \* "European maize borer larvae carry spores of *Fusarium* species from the plant surface to the surfaces of damaged kernels or to the interior of stalks, where infections are initiated." (Munkvold & Hellmich, 1999)
- \* "*Aspergillus flavus* and *A. parasiticus* produce the most notorious mycotoxins in maize, the aflatoxins, and can be passed into milk when the infected grain is eaten by the cows, making the economic impact of aflatoxins even greater than that of other mycotoxins in maize" (Munkvold & Hellmich, 1999).

So we were warned. The organic lobby took no notice. You may have noticed it is not demanding appropriate labelling of organic maize, or its other toxic produce. Where are the organic scientists who should be writing papers warning us of these risks? The organic lobby keeps telling us that GM food is not properly researched and tested. I await their own "organic" chemistry with interest. GM maize has the health benefit of discouraging the buildup of mycotoxins, potentially dangerous human and animal toxins produced by fungi that cause plant disease.

## Organic toxin levels put consumers at risk

LSN 4 Nov 03, The Times Higher Education Supplement, London via Agbioview, 3 Nov 03

<http://www.lifesciencesnetwork.com/news-detail.asp?newsID=5220>

High levels of a fungal toxin have been found in organic maize products sold in British shops, prompting top scientists to question the safety of this increasingly popular approach to agriculture. Experts have called for research into the possibility that organic foods may be more prone to contamination by potentially harmful substances produced by moulds.

A mycotoxin called fumonisin was detected in maize meal and flour tested by Food Standards Agency scientists in September. All contaminated products were voluntarily withdrawn from sale. The case has stoked fears that the spread of farming practices eschewing modern pesticides and fungicides may lead to a rise in mycotoxin poisoning. Some scientists have even suggested the cereal crop fungus ergot, which killed thousands in medieval Europe, might make a comeback as a result. Ian Crute, director of Rothamsted Research, the government-funded agricultural research institute, warned: "The lack of control of plant pathogenic fungi, such as ergot, that have the potential to produce toxic metabolites is definitely an 'achilles heel' for organics and is a food scare waiting to happen."

A spokeswoman for the Soil Association (which regulates and campaigns for organic farming) backed the call for research, but dismissed the scientists' concerns. "Comparison of the levels of these compounds and the possible risks associated with them is of great importance, particularly when compared with the possible effects of the cocktails of fumigants and fungicides that may be detectable on non-organic products," she said. She added: "There is no real reason or evidence that organic farming has higher levels of mycotoxin."

Consumption of fumonisin, which is produced by the mould fusarium, has been linked to liver cancer and immune system damage in laboratory animals. Fumonisin was found in minute quantities in all 32 maize products screened. But the 8 organic brands, as well as 4 conventional ones, exceeded limits being considered for the mycotoxin.

A working document produced this month by the European Commission's agricultural contaminants expert committee suggests a maximum level of fumonisin in food of 500mg per kg for adults and 100mg per kg for infants. One organic maize meal tested by the FSA contained 20 435 mg per kg - 200 times the level thought safe for children. The FSA stated this was "unlikely to be any immediate risk to health". But a spokeswoman admitted there might be problems "if eaten at high levels over a long period of time". She noted FSA screening had not found heightened levels of mycotoxins in any other organic foods. "There is not enough information available at present to say that organic foods are significantly different in terms of their safety and nutritional content to those produced by conventional farming," she added. The FSA is consulting over a research programme to compare pesticide residue and nutrient levels in organic and conventional foods.

Some scientists felt this should be extended to include mycotoxin levels. Michael Wilson, chief executive of government-funded Horticulture Research International, said: "We don't have a proper grasp on the problem because no systematic analysis has been undertaken." He said many factors could influence mycotoxin levels, such as growing-season climate and insect damage to a crop. He called on the FSA to conduct research into the potential problem, adding: "If any GM product had the levels of toxin (found in the organic maize), it would be the end for GM." The FSA is midway through a 5-year investigation into the environmental factors that prompt the production of fumonisin and other toxins in both conventionally and organically farmed oats, wheat and barley.

Jim Duncan, a senior scientist at the Scottish Crop Research Institute, said: "By not applying normal plant protection measures, such as fungicides, organic food would appear to be more at risk from mycotoxin contamination." But Ray Coker, professor of food safety at Greenwich University, insisted a full survey was needed. "I've heard such concerns raised before but the jury is still out on whether, for example, not using fungicide could lead to higher levels of mycotoxins," he said.

Tony Trewavas, professor of applied biochemistry at Edinburgh University, has written to the FSA calling for an investigation into the potential problem. "No one knows what fumonisin levels are dangerous," he said. Richard Mithen, head of plant foods for health protection at the Institute of Food Research, said: "I have been concerned that more widespread adoption of organic systems will lead to a resurgence of diseases such as bunt in cereals and, with important implications for human health, a resurgence of fungal diseases that produce toxins for consumers."

Peter Goodenough, principal research fellow at Reading University and editor of the International Journal of Food Science and Technology, said: "If growers in some climatic regions regularly grow their crops without fungicides, sooner or later ergot poisoning will occur again." But the Soil Association spokeswoman said anecdotal evidence suggested organic crops were less susceptible to fungi than conventional crops, as they possessed thicker plant-cell walls. She said fungal infections were best controlled through crop rotation, lower applications of nitrogen and the selection of resistant crops.

**GM (Bt) maize has the health benefit of discouraging the build up of mycotoxins, potentially dangerous human and animal toxins produced by fungi that cause plant disease.**

The Times Higher Education Supplement, London via Agbioview, 3 Nov 03  
<http://www.lifesciencesnetwork.com/news-detail.asp?newsID=5220>

## The Bio-Economy

Dr Stan M Davis, Economic Times General Management Review, From AgBioView 3 Nov 03. (Shortened)  
<http://www.etgmr.com/gmrjul-sep03/art6.html>.

The next economy is gestating right now. What will it be about? The bets have already been placed and the results are in: biotechnology will be the great wave after information technologies. It will begin in areas like pharmaceuticals and agriculture and, ultimately, spread throughout every economic sector, just as computers did before. This article gives you a feel for what this next economy, the true economy of most of the twenty-first century, will be like.

Lesson from the future: Biotechnology today is where computer technology was in the 1960s. Its impact will be enormous and, unless you plan to retire within the next decade, start to understand it now. We did not realize that we were no longer living in an industrial economy for about 20 years, from the early 1950s to the early 1970s. When we finally figured out the old economy had exited, we did not know what to call the new one. Post-industrial? Service? Shopping and gathering?

Information won the title. Get ready for *d'ejà vu* all over again. Like everything else, all economies have beginnings and endings and we can already see the end of this one a few decades hence. Hunting-and-gathering economies ruled for hundreds of thousands of years before they were overshadowed by agrarian economies, which ruled about 10 000 years. Next came the industrial ones. The first began in Britain in the 1760s and the first to finish unwinding in the USA in the early 1950s. We are halfway through the information economy and, from start to finish, it will last 75 to 80 years, ending in the late 2020s. Then get ready for the next one: the bio-economy.

Life circles for people and plants, for businesses, industries economies, and entire civilizations have 4 distinct quarters: gestation, growth, maturity, and decline. The internet is the main event of the information economy's mature quarter, the last phase of it being marked by the widespread use of cheap chips and wireless technology that will let everything connect to everything else. Life circles overlap. So the information economy will mature in the years ahead as the bio-economy completes its gestation and finally takes off into its growth quarter during the 2020s.

The bio-economy opened for business in 1953, when Francis Crick and James Watson identified the double-helix structure of DNA. The bio-economy has been in its first quarter ever since and completion and publication of the decoded of the human genome marks the end of this gestation period. We are halfway through the information economy and, from start to finish, it will last 75 to 80 years, ending in the late 2020s. We are heading into the 2<sup>nd</sup> or growth quarter, when hot new industries appear, much as semiconductors and software did in the second quarter of the information economy. Thus, biotechnology will pave the way for the bio-economy era. During the next 2 decades, organic biotechnology will overlap with inorganic silicon infotechnology and inorganic composite materials and nanotechnologies.

During the overlap of infotechnology and biotechnology, we will be digitizing many biological processes. Up until now, 4 kinds of information have dominated: numbers, words, sounds and images. But information comes in many other forms, such as smell taste, touch, imagination and intuition. The problem is that our technologies for smell, taste and other new information forms are not yet developed enough to make them commercially viable. By the 2020s, they will be. Smell, for example, perhaps the most primal of senses, is being digitized the way sight and sound have been. The basics of what makes a smell can be captured molecularly and expressed digitally on a chip at a reasonable price. Companies like DigiScents of Oakland, California and Ambryx of La Jolla, California have already developed digital odors. Cyrano Sciences of Pasadena, California, is developing medical-diagnostics technology that can "smell" diseases.

Imagine sending a greeting card that incorporates the smell of flowers with a written and graphic message. By the 2020s, digital movies will have their own distinctive smell prints. (You can watch Haley Joel Osment in a remake of *The Beach* and smell the coconut oil!) Why stop there? How does a bank smell and how does Chase smell different from Citigroup? How about retailers? This is only a tiny example of what will come. More fundamentally, the first 4 industries to be infused by the bio-economy era will be pharmaceuticals, health care, agriculture, and food.

Best known are the dozens of bio-engineered drugs already on the market. Most of these save lives by treating existing problems. One of the biggest shifts of biotechnology in the decades to come then will be the way it transforms the health care paradigm from treatment to prediction and prevention. Health care today is really sick care. The sick care business model made money by filling hospital beds. Currently, we are in the managed care model. It is transitional, lasting 1 to 2 decades. Here, you make money by emptying beds. In the bio-economy, health care will work on a preventive model, making money by helping people avoid having to enter the hospital in the first place. Basic needs are met in every economy by using the latest technologies available. In the bio-economy of the 2020s, the farm will be a super-bio-engineered place with multimillion-dollar manufacturing plants instead of fields.

Today bio-engineered milk, meat and produce are already on our supermarket shelves. Numerous varieties of maize are biogenetically altered, albeit not without challenge. One study showed that pollen from some strains of altered maize killed the larva of the monarch butterfly. Fears of Frankenfoods have caused enough of a furor to disrupt Monsanto's life sciences strategy and help topple its chief executive officer. Such incidents will certainly multiply.

Beyond 2025, when we move into the mature bio-economy the effects and applications of biotechnology will spread into sectors seemingly unrelated to biology. In the 1950s and 1960s it was difficult to comprehend that computers would change every industry-from manufacturing to hotels to insurance, just as it is now tough to see how biotechnology will alter non-biological businesses. By the 3<sup>rd</sup> quarter of the next economy, somewhere in the mid-century, bio-applications will seep into many of the nooks and crannies of our non-biological lives. Problems will spread as much as benefits do. Each era produces its own dark side. The industrial era was accompanied by pollution and environmental degradation. The major problem of the information age is privacy. In the bio-economy, the issue will be ethics. Cloning, bio-engineered foods, eugenics, genetic patenting and certainty about inherited diseases are just a few of the many developments that are already creating a storm. And the storm will intensify in the USA. All this will make baby boomers a unique generation. They will be the first in history to span 3 distinct economies. Born at the end of the industrial period, they will have spent their entire careers in the information age and will end their days watching their grandchildren negotiate the bio-economy.

Generation Xers, born after 1964, will be different. During their working years, they will experience 2 major economic shifts: first, from the crunching to the connecting halves of this information economy and, second, from a microwave-based connected universe to the cell-based world of biologic and bionomics. Those of you in generation Y may have to go through 3! However long you will spend in it, the bio-economy is the next one to be born and, of all economies past, present, and future, it will exert an impact that will make the info-economy look like the runt of the litter.

Dr. Stan Davis is the world-renowned guru and futurist on business in the future. He is the author of 12 books, including the best sellers *Blur*, *2020 Vision*, and *Future Perfect*. He has a working relationship with Innovative Media and is scheduled to address Indian CEOs later this year on coming together of technology, biology and business and how to gain from this future.

*(Ed: For more background, read Koch, Webster, Meyer and Nunneley, 1999. "Bioeconomy...the next big thing?" Transnet Production House, South Africa <http://transnet.co.za/InterAct>).*

## Research into vaccine producing cows

Animalnet, 11 Nov 03. From LSN 12 Nov 03

Research to help defend against diseases that could be spread by bioterrorists is, according to this story, being carried out in the pastures of northwest Iowa. The story says that calves have been genetically engineered to produce human antibodies, their immune systems reacting to infection as a human's would, to defend against diseases such as smallpox, botulism and anthrax.

Trans Ova, a Sioux Centre animal embryo transfer company, working with Hematech, a biotechnology company based in Westport, Conn., hopes to produce antibodies that can be used in humans. The US Department of Defense and the National Institutes of Health have given more than \$6 million to Hematech to encourage the research.

## Swiss GM wheat trial approved

Checkbiotech, 30 Oct 03, LSN 31 Oct 03. <http://www.lifesciencesnetwork.com/news-detail.asp?newsID=5175>

Scientists have received permission from the government to begin an outdoor trial of GM wheat. The environment agency green light allows the Federal Institute of Technology in Zurich to begin field trials in Lindau, near Zurich. The head of the agency, Philippe Roch, said the tests, at the centre of an intense legal battle for over a year, would be strictly controlled. He described the risks associated with planting the crops as acceptable, while acknowledging that the agency did have serious doubts about the trials. However, since parliament had approved laws regulating the use of GM organisms the trials had to be allowed, he said.

Greenpeace, which has led a 2-year campaign against the trial, says it will appeal against the decision. The main arguments of opposition groups, which include farmers, consumer bodies and Greenpeace, centre around the potentially harmful effects on the soil and concerns that GM plants might cross-pollinate with other crops. Greenpeace said it would appeal against "irresponsible" testing of GM crops and accused the agency of giving in to pressure from research groups and industry.

But the Federal Institute of Technology welcomed the decision, saying it opened the way for GM research. It also praised the agency for what it called its competent and responsible handling of the issue. A video camera will monitor the trials to ensure the crops are not sabotaged and address other safety concerns, the agency said. To avoid cross-pollination, the plants are to be covered when they flower and measures will be taken to keep birds and rodents away from the crops.

The institute's most recent application to hold outdoor trials has been in and out of the Swiss courts since it was submitted last December. In March, following an appeal by Greenpeace, Switzerland's Federal Court halted outdoor trials of GM crops shortly before they were due to go ahead. The decision overturned a ruling by the environment agency one month earlier.

Judges said the agency had not taken into account the opinions and concerns of those opposed to the tests. The issue of GM plants remains a controversial one throughout Switzerland. In September environmental groups, consumers and farmers stepped up pressure to introduce a moratorium on GMOs in Switzerland. They handed in more than 120 000 signatures calling for a nationwide vote on the issue. The proposal calls for a 5-year ban on GM plants for commercial and agricultural use.

## Norway pumps \$400 000 into GMO detection

The Times of Zambia (Ndola). 12 Nov 03. Posted to the web 12 Nov 03. (shortened)  
<http://allafrica.com/stories/200311120641.html> From AgBioView 13 Nov 2003.

The Norwegian government has given Zambia US\$400 000 for the advancement of biosafety technology to help detect GM foods (GMFs) entering the country. Science and Technology Minister Abel Chambeshi announced the bounty yesterday after he opened a capacity-building workshop on the national biotechnology and biosafety policy in Chisamba. Mr Chambeshi said Zambia did not have the capacity to detect GMFs being brought into the country because of lack of qualified manpower and equipment. He said Zambia was surrounded by 8 countries and it was important for it to have the capacity to detect GMFs that were bound to enter the country.

The minister said the initial help from the Norway would be directed to capacity building and acquiring equipment to upgrade the laboratories. He urged participants drawn from various ministries and stakeholders to work hard to ensure that the assistance did not go to waste because Government wanted to maximise donor support in reducing poverty. Government would also not take kindly to any misuse of donor resources because it understood what suffering and poverty was. He said although Cabinet had approved the bio-technology and bio-safety policy the subject was diverse and would take time to be properly established.

"Government recognises that issues pertaining to biotechnology and biosafety should not be addressed in a quick-fix manner but long-term effects should be considered as well," he said. He added that the workshop had come at a time when the steps to ratify the Cartagena Protocol on biosafety had reached an advanced stage and that participants should ensure that the deliberations match the national biotechnology and biosafety strategic policy. And delegation leader of Norwegian consultants at the workshop Svein Mehli said his country was interested in the bio-technology exchange programme with Zambia. Mr Mehli said Norway wanted to find a way of agreeing on similar goals for the project that would help Zambia improve on its bio-technology. He said Norway would next year invite a Zambian delegation to visit that country's scientific institutions.

### **ISB announces new and enhanced databases**

<http://www.isb.vt.edu/news/2003/news03.nov.html#nov0306>

Information Systems for Biotechnology has created and enhanced several of the databases available through the ISB web site (<http://www.isb.vt.edu>).

#### **1. Group Reports from the Workshop on Future Directions and Research Priorities for the USDA Biotechnology Risk Assessment Research Grants Programme**

Group Reports from the USDA BRARG workshop held in June, 2003 are now available through the ISB web site. The reports were compiled by each of the breakout groups: Plants–unintended effects, Plants–resistance management, Plants–gene flow, Microorganisms, Fish, Shellfish and Insects, and Animals. The six group reports identify research needs and priorities for future funding through the BRARG programme. The reports are available at

[http://www.isb.vt.edu/brarg/brarg\\_wshop/brarg\\_meeting.htm](http://www.isb.vt.edu/brarg/brarg_wshop/brarg_meeting.htm).

#### **2. Annotated Bibliographies for Environmental/Ecological Impacts of Transgenic Organisms**

To increase awareness and accessibility of peer-reviewed journal articles with data addressing environmental and ecological impacts of transgenic organisms, Dr. LaReesa Wolfenbarger has compiled an annotated bibliography with abstracts. Abstracts are sorted into 3 categories: data papers (empirical or theoretical), issue papers (no data), and papers on other topics. Abstracts that indicated the paper contained original data (and those where it was ambiguous) are sorted into 5 topics corresponding to the breakout group topics from the BRARG Workshop above: Plants–unintended effects, Plants–resistance management, Plants–gene flow, Microorganisms, and Animals.

(The bibliographies are available in 5 formats: Acrobat™, MS-Word™, Rich Text, HTML, and Endnote™ .enl files for direct importation into bibliography management programmes. The bibliographies will be updated on a regular basis and are accessible at [http://www.isb.vt.edu/eeito\\_bibs/eeito\\_bibs.cfm](http://www.isb.vt.edu/eeito_bibs/eeito_bibs.cfm) or through the Risk Assessment menu option).

#### **3. Field Tests Currently in Effect**

In addition to the other search criteria available, users may now view only those field test permits that are currently in effect. The field test database is available at

<http://www.isb.vt.edu/cfdocs/fieldtests1.cfm>.

### **Vatican concludes GM conference**

Vatican Conference on Biotech Foods, The Associated Press, 11 Nov 03, Agbioview, 13 Nov 03 (shortened)

The Vatican concluded a 2-day conference on GMOs with a discussion of the moral implications of tinkering with creation by splicing genes to make new plants and animals. Supporters of the new technologies said they offer great promise to mankind and deserve to be encouraged, while critics said biotech foods will not alleviate world hunger. The 2 camps clashed at a Vatican-sponsored conference entitled "GMO: Threat or Hope." The Vatican is expected to make a pronouncement on GMOs in the future, based on the data gathered during the seminar. Some participants have questioned whether the Vatican was getting a balanced view, since speakers in the pro-biotech camp dominated the discussions, reflecting the views of its organizer, Cardinal Renato Martino. Martino has spoken out about the potential benefits of GM foods in alleviating world hunger - a prime concern of the Vatican.

Martino has said the Vatican's aim was to find some common ground for the benefit of mankind, particularly the poor. The issue of poverty and hunger is a major concern for the Vatican, which rejects arguments that limiting family size by using contraception is one way to improve food security in the developing world. But 2 Jesuits, the Rev. Roland Lesseps and the Rev. Peter Henriot, said in a joint paper to the conference that endorsing the use of GMOs disturbed "the awesome goodness of God's creation."

Lesseps and Henriot, who both are based in Zambia, said church teachings requiring respect for human rights and the natural world mandated that the Vatican take a precautionary approach concerning GMOs. "Nature is not just useful to us humans, but is valued and loved in itself, for itself, by God in Christ," Lesseps and Henriot said in prepared remarks. Lesseps, who has a doctorate, is a senior scientist at the Kasisi Agricultural Training Center in Lusaka. Henriot is director of the Jesuit Center for Theological Reflection.

A Vatican endorsement of biotech foods likely would draw praise from the US, where biotech companies have been at the forefront of extolling the virtues of GMOs, which can be made to resist insects or disease. But it would no doubt ruffle feathers in Europe, which has imposed a moratorium on growing or importing GMOs because of fears about their environmental and health risks, and in African countries such as Zambia, which has rejected biotech food aid.

Greenpeace science adviser Dr. Doreen Stabinsky also challenged Martino's argument, telling the conference that GM crops were not alleviating world hunger and posed environmental risks. For example, Argentina harvested enough wheat during its 2001 economic crisis to meet the needs of both China and India, but many of its own people still went hungry, she said. "There is no direct relationship between the amount of food a country produces and the number of hungry people who live there," Stabinsky said in prepared remarks. Rather, political and economic issues over hundreds of years have contributed to world hunger, she said. The problem will be solved only by addressing inequalities in land distribution, improving access to markets and dealing with cheap imports of staple foods, she said.

Italy's health minister, Girolamo Sirchia, told a press conference that the technology offers hope to mankind. "There is no data that shows that transgenic foods are harmful to one's health," Sirchia said. "Four-fifths of humanity doesn't have enough food or medicine. Science favours the development of humanity and health." Dr. Harry Kuiper, a food safety expert at Wageningen University in the Netherlands, said current methods adequately ensured the safety of GM foods, even if questions remained about the "unexpected effects" of modification. "Scientists and colleagues, we think we have the methods to identify unexpected effects using new technologies," he said. "And although I must say there is no 'zero risk' in life, everything is risky, we can provide with our methods a very high level of safety assurance."

Thandiwe Myeni, a small-scale SA farmer and chairwoman of the Mbuso Farmers' Association, said she had a positive experience with GM cotton. The GM seeds cost more than regular ones, but she saves money by using less pesticide and harvesting bigger crops. "We need this technology," she told a press conference after speaking to the symposium. "We don't want always to be fed food aid." "We want access to this technology so that one day we can also become commercial farmers."

***Dr. Borlaug and Bill Gates say feed the people. Prince Charles says preserve the environment. Both high yield farming and genetic engineering also have preserving wild places, wildlife habitat, wild life and nature's resources as major objectives. The world can accommodate both, just as any modern grocery supermarket contains shelving enough to hold organic, conventional and GM foods. Prince Charles need not be an antagonist in the quest to feed the hungry. In fact all he needs to do is be a good neighbor, something the NGOs do not want to see in view of their ability to exploit Prince Charles' celebrity status to promote their own agendas.***

Of Princes, Prophets, Preserving the Earth & Feeding the Hungry,  
AgBioView 13 Nov 03.

<http://www.biotech.ifcnr.com/article.cfm?NewsID=436>

## New Kenyan biotech law for hi-yielding GM crops

CropBiotech Net, 14 Nov 03

Agriculture Assistant Minister George Khaniri stated recently that the Kenyan government is planning to introduce a new law for the effective governance of biotechnology in the country. He added that a new policy on biosafety issues is also currently in the offing. This was reported by The East African Standard which covered the biosafety framework workshop in Mombasa. One of the primary uses of biotechnology in Kenya will be in the development of high-yielding crops such as soya beans, cotton and canola. Khaniri said research shows that Kenya has some of the best crops in the world. The new law is also expected to benefit the agriculture, health, and environment sectors, and alleviate hunger, poverty and disease-related problems within the country. Khaniri further stressed that it is important that the new biotech law allow Kenyans to exploit new technologies. Kenyan scientists are qualified and should strive to develop improved crops – both for local consumption and for export. Among those present during the workshop were Bahari MP Joe Khamisi, Assistant Minister Andrew Ligale, and National Biosafety Framework Co-ordinator, Prof James Ochanda.

### Publications

Bennet, R., Buthelezi, T. J., Ismael, Y., Morse, S. 2003. Bt Cotton, Pesticides, Labour and Health. A Case Study of Smallholder Farmers in the Makhathini Flats, Republic of South Africa. *Outlook on Agriculture* 32(2): 123-128.

Fischer, R., Twyman, R. M., Schillberg, S. 2003. *Production of Antibodies in Plants and Their Use for Global Health*. *Vaccine* 21: 820-825.

Herbers, K. 2003. *Vitamin Production in Transgenic Plants*. *J. Plant Physiol.* 160: 821-829.

Stewart, C. N., Halfhill, M. D., Warwick, S. I. 2003. *Transgene Introgression from Genetically Modified Crops to Their Wild Relatives*. *Nature Reviews Genetics* 4: 806-817.  
([http://www.nature.com/cgi-taf/DynaPage.taf?file=/nrg/journal/v4/n10/full/nrg1179\\_fs.html](http://www.nature.com/cgi-taf/DynaPage.taf?file=/nrg/journal/v4/n10/full/nrg1179_fs.html))

### Meetings

**26-29 Nov 03: Ecological Impact of Genetically Modified Organisms**; Prague, Czech Republic;  
<http://www.entu.cas.cz>

**1-3 Apr 04: Assuring Food and Nutrition Security in Africa by 2020**; Kampala, Uganda;  
<http://www.ifpri.org/2020AfricaConference/index.htm>

**11-14 Oct 04** (tentative): Theoretical Course **“Evolution of Structure and Function in Biology”**.  
**Closing date for applications: 10 May 04**. Tel: +39 040 375 7333; Fax: +39 040 226 555;  
Email: [courses@icgeb.org](mailto:courses@icgeb.org)

**25- 28 Oct 04**: Theoretical and Practical Course **“Molecular Biology of Leishmania”** – Trieste, Italy. **Closing date for applications: 14 June 04**. Tel: +39 040 375 7333; Fax: +39 040 226 555; Email: [courses@icgeb.org](mailto:courses@icgeb.org)

**6-17 Dec 04**: Theoretical and Practical Course **“Molecular Biology Techniques in Malaria Research”** – New Delhi, India. **Closing date for applications: 1 Sept 04**. Tel: +91 11 2616 7356; Fax: +91 11 2616 2316; Email: [shubha@icgeb.res.in](mailto:shubha@icgeb.res.in)

**15-17 Nov 04**: International meeting on **“Emerging trends in Tuberculosis Research.”** New Delhi, India. **Closing date for applications: 30 May 04**. Tel: +91 11 2616 7356; Fax: +91 11 2616 2316; Email: [shubha@icgeb.res.in](mailto:shubha@icgeb.res.in)