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If you are interested in making a contribution in the project newsletter and for further information, please contact:

Elsa J. Sattout, PhD
National Project Coordinator
Initiative for Biodiversity Studies in Arid Regions (IBSAR)
American University of Beirut
P.O.Box 11-0236
Beirut –Lebanon
Phone: ++961 1 340460 Ext: 4416
E-mail: Elsa.Sattout@aub.edu.lb



NBFP@LEBANON



BULLETIN OF THE NATIONAL BIOSAFETY FRAMEWORK PROJECT - LEBANON.

LEBANESE NATIONAL BIOSAFETY FRAMEWORK

AN UPDATE

At the end of July – the closing date for the third phase of the project - the NBF document will be handed to UNEP, UNDP and MOE ready for stakeholders’ discussion meetings. Prior to the finalization process, a meeting was held at the end of May in the United Nations Environment Programme Bureau in Geneva to discuss the NBF draft. International experts affiliated to the Center for International Sustainable Development Law (CISDL) have joined Lebanese experts from IBSAR-AUB and MOE working on the NBF project to discuss the framework and its scopes to ensure that a complete perspective has been drawn for the implementation of the provisions of the Cartagena Protocol (CP). The framework proposes the Ministry of Environment to be the National Competent Authority. A National Biosafety Commission (NBC) gathering experts and representatives from various sectors and research institutes will handle the review of information required to be handed to importing countries with the Advanced Informed Agreement. The Commission will assume full responsibility in reviewing the documents and giving the authorization for import, passage in transit and use of GMOs. Other mandate of the NBC is the classification of the GMOs crops and products in three levels of risk. The NBF includes guidelines for the interim measures (IMs) to be adopted for the implementation of the CP articles while a biosafety law will be drafted and developed at a later stage. The IMs will be drafted and fine-tuned in the next extension period and the Ordinance will be presented to Ministers for approval. The extension phase started mid-August and will end in December. Members of the National Coordinating Committee (NCC) on Biosafety will be invited for a first meeting to be held in September. Regular meetings for the NCC are planned for the next phase as well as two national workshops and stakeholders’ discussion meetings to finalize the NBF and integrate defined criteria for its applicability. You will be posted for future events... ♦



INFORMATION BOOKLET ON GMOs

NBFs & WORLDWIDE DEBATES

Being clearly important that citizens must understand and be involved in national decisions on GMOs, the NBFP project has worked on the production of an information booklet during the last 10 months of the project execution. In its original objectives and scopes, the CP calls for the cooperation on promoting public awareness of the safe transfer, handling and use of GMOs. The CP highlights the need for education, which will increasingly have to address GMOs as biotechnology becomes more and more part of our lives. Being a bit complex to transfer the basic information related to GMOs and biotechnology to the public, the information booklet was developed to be used as a tool to understand the history of plant breeding and biotechnology.

Being a controversial issue, the second part of the booklet present the various opinions on risks associated with GMOs and the position of diverse countries in the world in relation to biosafety policies and regimes. In the last part of the booklet, the NBF project is presented and snapshots on the developed NBF for Lebanon are given ♦



CP RATIFICATION

AROUND THE WORLD

To date 119 countries have ratified and/or signed the CP. These are:

Africa: Algeria, Benin, Botswana, Burkina Faso, Cameroon, Democratic Republic of the Congo, Djibouti, **Egypt**, Eritrea, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Liberia, Madagascar, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, South Africa, Togo, **Tunisia**, Uganda, United Republic of Tanzania, Zambia, Zimbabwe (32 Countries)

Asia & Pacific: Bangladesh, Bhutan, Cambodia, **Cyprus**, Democratic People's Republic of Korea, Fiji, India, Indonesia, **Iran (Islamic Republic of)**, Japan, **Jordan**, Kiribati, Lao People's Democratic Republic, Malaysia, Maldives, Marshall Islands, Mongolia, Nauru, Niue, **Oman**, Palau, Samoa, Solomon Islands, Sri Lanka, **Syrian Arab Republic**, Tajikistan, Tonga, Viet Nam (28 Countries)

Central & Eastern Europe: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Republic of Moldova, Romania, Slovakia, Slovenia, Ukraine (17 Countries)

Latin America & Caribbean : Antigua and Barbuda, Bahamas, Barbados, Belize, Bolivia, Brazil, Colombia, Cuba, Dominica, Ecuador, El Salvador, Grenada, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Trinidad and Tobago, Venezuela (22 Countries)

Western Europe & Other Groups : Austria, Belgium, Denmark, European Community, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, **Turkey**, United Kingdom of Great Britain and Northern Ireland (20 Countries) ◆



EU MINISTERS VOTE

KEEP GM FOOD BANS

Luxembourg 24 June 2005

Environment Ministers from across Europe voted to allow countries to keep their safety bans on genetically modified (GM) foods. The Ministers rejected by a qualified majority all the proposals by the European Commission to lift the bans in Austria, Luxembourg, France, Greece and Germany. The Commission's move follows a dispute over GM foods at the World Trade Organisation (WTO), where the United States is claiming national bans are a barrier to trade. Over 70% of the European public are against GM foods.

The GM products national bans are:

▪ **Germany**

Syngenta's Bt176 maize (banned 31/03/2000)

Reason:

1. Effects on non-target insects,
2. Insects could develop resistance to the Bt.

3. Transfer of antibiotic resistance genes to humans and animals,

▪ **France**

Bayer's oilseed rape Topas 19/2 (banned 16/11/1998)

Reason:

1. Impact of genetic escape and spread of herbicide tolerance Bayer's oilseed rape

MS1xRf1 (banned 16/11/1998)

Reason:

1. Impact of genetic escape and spread of herbicide tolerance

▪ **Austria**

Syngenta's Bt176 maize (banned 13/02/1997)

Reason:

1. Effects on non-target insects such as butterflies
2. Transfer of antibiotic resistance genes to humans and animals

Bayer's T25 maize (banned 28/4/2000)

Reasons:

1. Protection of sensitive areas,
2. Lack of monitoring plan,
3. Concerns about the herbicide used Monsanto's.

MON810 maize (banned 10/06/1999)

Reason:

1. Effects on non-target insects

▪ **Luxembourg**

Syngenta's Bt176 maize (banned 07/02/1997)

Reason: Transfer of antibiotic resistance genes to humans and animals

▪ **Greece**

Bayer's oilseed rape Topas 19/2 (banned 08/09/1998)

Reason: impact of genetic escape.

More information is accessible online at:

http://www.foeurope.org/ban_risky_gm_food/index.php & on the EU commission proposal at: www.foodlaw.rdg.ac.uk/news/eu-05037.htm ◆



UPDATE ON LAST PHASE PROJECT ACTIVITIES

- **Awareness Material**
.....under production/Ready for distribution
- **National Biosafety Framework for Lebanon**
.....Reviewed with International Experts at
.....UNEP, Geneva
.....Ready for stakeholders group discussion
.....meetings
- **Communication Strategy**.....
.....Work initiated
.....Ready after July

You will be posted on follow up project activities!

GM CROPS

USED IN ANIMAL FEEDS

The GM crop species used as a source of livestock feed components include canola (rapeseed), maize (corn), soybean, cottonseed, and potato. These species have been modified to express, either singly or in combination, various traits:

- Insect resistance,
- Herbicide tolerance,
- In the case of potatoes, resistance to virus infection (Table 1).

Many of the proteins that have been expressed in GM plants in order to confer these so called **"input" traits** are already present in plant products or in other agricultural products.

Bt Proteins

The cry gene encoded delta-endotoxins that have been expressed in many transgenic crops to protect against lepidopteran or coleopteran pests, such as the European corn borer (ECB) or the Colorado potato beetle, are the same proteins that are present in strains of *Bacillus thuringiensis* that have been registered for use as microbial insecticides since 1961 (Frankenhuyzen 1993). Delta-endotoxins, such as the Cry1Ab, Cry1Ac, Cry9C, or Cry1F proteins expressed in lines of ECB resistant maize, act by selectively binding to specific receptors localized on the brush border midgut epithelium of susceptible insect species.

Herbicide Tolerance Proteins

In plants, the enzyme 5-enolpyruvylshikimate-3-phosphate synthase (abbreviated EPSPS) plays a key role in the biochemical pathway that results in the synthesis of the aromatic amino acids phenylalanine, tyrosine, and tryptophan.

Table 1. Expressed traits and associated genes that have been incorporated into crop species usually used in animal feeds.

Trait	Genetic Element(s)	Gene Source
Insect resistance	cry1Ab, cry1Ac, cry9C, cry3A, cry1F	<i>Bacillus thuringiensis</i>
Glufosinate herbicide tolerance	phosphinothricin N-acetyltransferase	<i>Streptomyces hygroscopicus</i> or <i>S. viridochromogenes</i>
Glyphosate herbicide tolerance	5-enolpyruvylshikimate-3-phosphate synthase (EPSPS)	<i>Agrobacterium tumefaciens</i> strain CP4; or modified endogenous maize enzyme
Male sterility	bar gene	<i>Bacillus amyloquelificans</i>
Sulfonyl urea herbicide tolerance	variant form of acetolactate synthase	<i>Nicotiana tabacum</i> (tobacco)
Oxynil herbicide tolerance	nitrilase	<i>Klebsiella pneumoniae</i> subsp. <i>ozaenae</i>
Modified seed fatty acid profile	delta-12 desaturase	<i>Glycine max</i> (soybean); coordinate suppression of endogenous gene
Virus resistance	coat protein helicase/replicase	potato virus Y potato leafroll virus

This enzyme is only present in plants and microorganisms, such as bacteria and fungi, and is not present in animals and humans (Levin & Sprinson 1964; Steinrücken & Amrhein 1980). Thus, EPSPS is normally present in food and feeds derived from plant and microbial sources.

Virus Resistance

Varieties of transgenic papaya, squash, and potato have been produced that display resistance to infection and subsequent disease caused by plant viruses. In the case of potatoes, the only one of these crops used as livestock feed, resistance to potato virus Y (PVY) and potato leafroll virus (PLRV) has been introduced by inserting DNA sequences corresponding to the virus coat protein or the viral replicase, respectively. Plants expressing viral coat proteins exhibit "pathogen-derived resistance" through a process that is related to the natural phenomenon of viral cross-protection. In non-transgenic potatoes, the presence of viral CPs is due to natural viral infection. This is a common occurrence and there is a long history of safe human and livestock animal consumption of these proteins.

You can access more technical and detailed information online at:
<http://www.agbios.com/cstudies.php?book=COMM&ev=GMFEEDS&chapter=GM>

Source: *AGBIOS-Accessed July 21,05* ♦



NEW EU MORATORIUM

ON GM CULTIVATION

"Avoiding GM contamination of non-GM crops and the environment is a key concern for communities and farmers across Europe. The European legislations gives member states the power to introduce coexistence matters... Coexistence measures should aim to prevent the avoidable contamination of non-GM crops and not to merely minimise such contamination to (acceptable) tolerance level." as per the Friends of the Earth Document.

According to the article, the EU Environment Commissioner Stavros Dimas has ordered a temporary halt on all new applications for genetically modified (GM) crop cultivation until the issues of coexistence and adventitious presence are addressed at the European level. The temporary hold has the potential to last a long time, as it looks unlikely that either issue will be resolved this year. EU Agriculture Commissioner Mariann Fischer Boel has yet to decide on possible new measures regarding the coexistence of GM and non-GM crops. The issue of GM "contamination" of non-GM grain seems to be a long-running dilemma for the European Commission with "no solution in sight." There has been no new approval of a GM crop for cultivation in the EU since the beginning of the bloc's de facto moratorium on genetically modified organism (GMO) approvals in 1998.

You can access the full article online at:

http://www.foeurope.org/GMOs/publications/Biotech_July_2005.pdf

Source: *Friends of the Earth Europe* ♦

"THE WAY FORWARD TO STRENGTHEN NATIONAL PLANT BREEDING & BIOTECHNOLOGY CAPACITY"

FAO WORKSHOP

The Crop and Grassland Service at the UN Food and Agriculture Organization (FAO) discussed the major issues and problems associated with the decline in plant breeding and the application of biotechnology in the public sector in developing countries at a workshop held on February 9-11, 2005. The workshop entitled "The way forward to strengthen national plant breeding and biotechnology capacity" took place in Rome, Italy, and was attended by participants from Africa, Asia, and South America.

The workshop document reported that plant breeding has supplied adapted crop varieties to many countries across the globe, with the principal exception of a number of African countries. The "Green Revolution" improved varieties have raised production levels, provided food security, and generated income for many developing country farmers. It expresses concern, however, that public sector investment in plant breeding and biotechnology, and the research that supports them, has been in decline over recent times. As a result, there are many "vitaly important" crops that have not received adequate attention from scientists and plant breeders. The report highlights that both rural and urban societies, and national economies of the developing world, are "largely reliant" on the agricultural sector. Therefore, nations with weak agricultural sectors, and particularly those without or with only poor plant breeding support, are at a disadvantage in comparison with those that are able to provide their farmers with improved crop varieties and appropriate technologies.

The recommendations reported included the convening of future workshops for the development of a strategy for strengthening national plant breeding capacities, followed by meetings to be held with donors to discuss funding. It also suggests the possible establishment of a fund to support plant breeding activities. The report says that biotechnology techniques, ranging from relatively straightforward and cheap tissue culture, through marker assisted selection and genetic engineering, are an "integral feature" of modern plant breeding research and practice. At present, however, inadequate infrastructure, inadequate funding, and a lack of trained staff are preventing the uptake of biotechnology-based techniques. It also points to a need for greater collaboration with the private sector and the importance of plant genetic resources for food and agriculture (PGRFA). **You can access the workshop report online at:**

<http://www.fao.org/ag/AGP/AGPC/doc/themes/pb-workshop.pdf> ◆



RISK ASSESSMENT & RISK MANAGEMENT

CLOSURE OF RARM WORKSHOP SERIES

The series of workshop on risk assessment and risk management has been closed by the fifth workshop held at the University Holy Spirit of Kaslik on May 18, 2005. The workshop was hosted at the Faculty of Agricultural Sciences and opening speech was given by Dr. Hosri, USEK. As in previous workshop, participants were representing private and public Sectors. Few farmers have been part of this workshop and have raised various concerns on the needs for awareness. As usual the workshop presented the CP objectives as well as the project activities. Introductory and informative presentations were given on risk assessment and risk management concept being one of the key components of the Cartagena Protocol on Biosafety. Presentations were given by Drs. Ussayran, Tarraf and Sattout and Ms. Klaimi. Debbane representative, Eng Toni Demiane, shared his long-term experience with field trials for new varieties and Dr. Hassan Mashlab (Debbane) gave the presentation entitled "Genetic Engineering, its benefits to Agriculture and risks to Environment & biodiversity" ◆



Dr. Hassan Machlab, Debbane- Lebanon.



To know more about our project activities, check the project fact sheets online at:
<http://www.undp.org.lb/programme/environment/factsheets/index.html>



Source: agbios, 2002.

EVENTS

- Ad Hoc Technical Expert Group on Risk Assessment under the Cartagena Protocol on Biosafety
Italy, 15 - 18 November 2005
- Coordination meeting on biosafety capacity building initiatives & Liaison Group on Capacity-building for Biosafety
Tromso, Norway, 18-19 - 20 January 2006
- Second meeting of the Compliance Committee under the Cartagena Protocol on Biosafety
Montreal, Canada, 6 - 8 February 2006
- Third meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety
Brazil, 13 - 17 March 2006



FOR FURTHER INFORMATION

Dr. Salma N. Talhouk, Director
Initiative for Biodiversity Studies in the Arid Regions (IBSAR)
American University of Beirut
P.O.Box 11-0236
Hamra - Beirut.
Tel: 01 3500000 Ext: 4508
E-mail: ntsalma@aub.edu.lb

Ms. Diane Klaimi
Biosafety Focal Point
Service of Conservation of Nature
Ministry of Environment
Lazarieh Building-Beirut.
Tel: 01/976555 Ext:410
E-mail: dklaimi@moe.gov.lb