Bio News

This section puts together news about the recent and key developments related to Rice in the Asian region.

IRRI and CIMMYT to work jointly for 'Asian Crops'

The International Rice Research Institute (IRRI) and the International Maize and Wheat Improvement Center (CIMMYT) have formed an Alliance to coordinate research efforts on rice, wheat, and maize aimed at improving the lives of poor farmers. The Boards of Trustees (BOT) of the two international centers who met in Shanghai, China recently identified four research priorities for potential first programmes of the new Alliance:

- Intensive crop production systems in Asia – specifically, rice-wheat and rice-maize – and research on crop and resource management, crop genetic improvement, and socio-economics. Cereals information units to provide information for researchers and partners working on genetic improvement and the management of cropping systems involving the three staples.
- Training and knowledge banks for the three crops that would take advantage of modern technologies to provide training events, the development of learning materials and education methods, distance learning, Web-based knowledge systems, library services, and logistical support.
- Climate change research directed at both mitigating and adapting the three crops to global changes that are affecting temperature, water, and other factors having crucial effects on them.

The IRRI-CIMMYT Alliance will also share a range of support services like management and regulatory affairs for intellectual property rights and biosafety, information and communication technologies, public awareness, scientific publishing, library services, and external auditing.

Philippines targets to be a top rice producer, goes for GM Rice Field-testing

The Philippines will start a multi-location field test of a genetically modified rice variety that is resistant to bacterial-leaf-blight disease. They will try to commence the testing during the wet season when the disease is prevalent. They will do it in plots first. The Philippine wet season falls in the months of May through September. BLB disease is prevalent during the rainy season and affects flood-prone rice areas in the country. Though results of the field test will be reviewed in the initial testing done on the variety has shown it is resistant to the BLB disease.

The Philippine government's massive propagation of the hybrid rice known as "Gloria rice" has spawned a rice revolution in the countryside and caught the interest of major rice importing countries, especially after the United Nations General Assembly (UNGA) declared the year 2004 as the International Year of Rice. Japan, Malaysia and Indonesia are among the countries which have expressed their interest in importing the hybrid rice and seeds being produced in the Philippines.

The Philippines has been noted by the FAO as one of the countries bent on solving its poverty and hunger problems. The Philippines increased its palay (unmilled rice) production by 13.27 million metric tonnes in 2002 resulting in a 93 percent self-sufficiency level and is expected to be fully self-reliant in the next two years because of the massive planting of the hybrid rice by local farmers.

China considers GM rice approval

The Biosafety Committee of the Chinese Ministry of Agriculture is considering the approval of at least four varieties of genetically modified (GM) rice and is expected to make a decision on the approval of their commercialization. If approved, it will be the first time that GM rice is approved anywhere in the world and also the first time Chinese have approved a GM crop for human consumption. Even if approved, however, the Chinese government has indicated that it would conduct additional field trials and tests about the safety of the crops for at least two years, setting 2006 as the expected date when the crop would be available for planting and harvest. Hopes have been riding high on the potential for GM rice to solve the challenge of feeding China's booming population, with one Chinese study suggest that adopting GM rice could result in an annual increased profit to China's agricultural

sector of "roughly $5 billion in 2010". China is a centre of origin of rice. The biggest danger is the contamination of wild and conventional rice varieties with GM rice, which can encourage more troublesome weeds and will lead to the loss of wild species. There is a criticism of the approval process that the ministry's "behind closed doors process" was "scientifically and ethically flawed". It is warned that scientists "still know too little about the unintended impacts of genetic modification."

However, China's rice woes demonstrate that ongoing food security cannot be taken for granted - even in one of the world's most dynamic economies. Harvest shortfalls induced by global warming would likely be much more widespread and persistent. Left unchecked, they could undermine global food security and political stability. The poor suffer first and foremost when a succession of meager harvests causes rice shortages and price hikes like those now making headlines in China. The shortfall in the world's largest rice producer and consumer has many apparent causes, and government-orchestrated restoration of planted area will likely revive the Chinese rice sector before it upsets the calm and predictability with which the international rice trade has been blessed for the past couple of decades.

California Rice Commission Approves biopharm rice

The California Rice Commission has approved planting guidelines proposed by Sacramento-based Ventria Biosciences to begin commercial production of plant-made pharmaceuticals derived from a bioengineered rice variety. The Rice Commission is charged with approving protocols of all new varieties of rice in the state that may have commercial impact. Ventria's biopharm rice has been genetically engineered to produce two pharmaceutical proteins, *lactoferrin* and *lysozyme*, commonly used as antimicrobials and antidiarrheals.

However, some farmers have expressed their concerns that Ventria's biopharm rice would contaminate the crops of other rice farmers and ultimately the food supply. They feel that though the approved guidelines restrict production to regions that do not currently grow rice (e.g. Los Angles, Orange, San Diego and seven other Southern California cities) they do not limit how far away the rice is transported for milling, or the location of research fields. These farmers have also charged Ventria for not adequately testing either the human health or environmental effects of their pharmaceutical rice and that the firm has also failed to publicly disclose how they plan to market the rice.

Rice Productivity affected by climate change

Field studies conducted at the International Rice Research Institute (IRRI) have confirmed predictions from theoretical studies that global warming will make rice crops less productive. Combining a quarter century of climate data collected at IRRI with yield trends in adjacent fields over the past dozen years, researchers further discovered that simulation models underestimated the problem by half because they overlooked the pernicious effect of high minimum nighttime temperatures. The results of this study highlight the need for greater fundamental understanding of the effects of night temperature on physiological processes governing crop growth and yield development. The challenges now is to get the financial resources needed to develop new rice varieties that can still yield well despite any increase in temperatures in rice growing areas.

The proceedings of the National Academy of Sciences of the United States of America, found that rice yields at IRRI declined by 10 per cent for every 1ºC increase in seasonal mean minimum temperature. Temperatures are projected to rise globally by 1.5-4.5ºC in the coming century - or 3 to 9 times more than in the past century. Global warming thus threatens to erase the hard-won productivity gains that have kept the rice harvest in step with population growth. Since the dawn of the Green Revolution - which began in Asia with IRRI's release in 1966 of IR8, the first modern, high-yielding semi-dwarf rice variety - the global rice harvest has more than doubled, racing slightly ahead of population growth. This achievement not only averted the mass famine that four decades ago appeared poised to engulf much of Asia, it has also made rice more affordable and so helped unshackle many Asian communities from the treadmill of subsistence agriculture.

The study recorded that the mean minimum nighttime temperature during dry season at IRRI has risen since 1979 by 1.13ºC, or 3 times the 0.35ºC rise in mean maximum daytime temperature. This difference is an expected consequence of increased greenhouse gas concentrations in the atmosphere, and IRRI's climate records are consistent with warming trends found elsewhere in the Philippines and globally. The news is that high nighttime minimum temperatures clearly and strongly suppressed rice yields in the seasons in which they occurred, while high daytime temperatures had no measurable effect. Yields fell by 10 per cent for every 1ºC increase in mean nighttime minimum temperature. Because the increase in night temperature was 3-fold greater than the

increase in daytime temperature, rice yields declined by 15 per cent for every 1ºC increase in daily mean temperature - double the 7 per cent decline that emerged from theoretical models. Most studies of temperature and global warming effects on crop growth and grain yield are based on daily mean air temperature, which assumes no difference in the influence of day versus night temperature. This direct evidence of decreased rice yields from increased night temperature associated with global warming. The scientists attributed more than 70 per cent of the year-to-year variation in rice grain yield to nighttime temperature but could do little more than speculate on the mechanism involved.

Concerns expressed as GMO rice trials on in Asia

As Asian countries face growing shortages of essential agricultural resources such as water, land and the labour, the region's rice industry will ultimately be adversely affected. The problems facing Asia is further compounded because rice yields would have to increase at an annual 1 per cent rate over the next 30 years just to keep up with population growth. The people living in Asia makes up 60 per cent of the world's population. Rice is the staple food for most people in Asia but the grain consumes two to three times more water than wheat or maize. This poses massive problems for a region with scarce resources, with water already scarce in some major rice-growing areas in Asia. Currently, about 55 per cent of rice fields are irrigated and account for 75 per cent of production. It is projected that by 2025, the number of rice consumers will double to 4.6 billion.

Asian countries are getting good responses from the field trials of genetically modified rice, but the first commercial crop may be at least three years away. Field trials were going on in China, India and the Philippines and the governments were studying the benefits closely before taking the plunge. But it could be three years on the lower side and five years on the higher side to see the first genetically modified rice crop. Rice yields would have to rise at least one per cent annually over the next 30 years to keep up with an expanding population. IRRI projects the number of people eating rice will almost double to 4.6 billion by 2025. On the genetically modified variety of rice that is being currently tested in the Philippines, the feedback so far has been that the resistance to diseases is good and it will have an impact on the productivity.

However, a lot of anxiety in Europe is spilling over to Asia. The debate surrounding biotech grains has intensified, with non-governmental organizations mounting protests worldwide as they argue such crops pose health hazards. They help boost productivity and lower production costs in addition to boosting nutritional content. Earlier biotech giant Monsanto shelved plans to introduce the world's first biotech wheat it had developed over six years. Studies showed consumers and food companies were skeptical about embracing biotech wheat in their bread and cereals.

IRRI helps Bangladesh grow better rice

About 2,000 resource-poor Bangladesh paddy farmers have been trained to raise the crop sans use of insecticides and with reduced application of nitrogen fertilizer, but without lowering the yield in anyway. Taken up at the initiative of Manila-based International Rice Research Institute (IRRI), the unique experiment has brought financial benefits to paddy growers as they have saved money on inputs such as insecticides and fertilizers. Importantly, the success of the experiment is expected to set off a chain reaction.

Paddy is an important field crop for Bangladesh as the majority of the population eats rice. The landholding is fragmented. Rice production is in the 24-26 million tonnes range. Following its success, the experiment is being replicated within the country on a much larger scale. Close to 12 million farmers are engaged in paddy cultivation. Because of indigenous output trails demand, the country is forced to resort to imports at an enormous cost to the exchequer.

From 0.3 million tonnes in 2002, Bangladesh's rice imports jumped to 1.1 million tones in 2003. For 2004 and 2005, projected imports are 5 million tonnes each year. More important, lower production cost without any compromise on yields means higher farm income for growers and improved living standard. Not only financial gain, the experiment is bound to deliver ecological benefits too.

Reviving Red Rice Variety

Scientists in the northern Indian state of Himachal Pradesh are trying to revive an exotic Himalayan variety of rice ("red rice") that is on the brink of extinction. The "red rice" was traditionally grown in a few remote pockets along riverbanks in the Shimla and Kulu districts of the state. Besides being tasty, red rice made the Himalayan countryside

picturesque. Villagers are worried that the production of this traditional grain has dropped because of the non-availability of new seeds, and rice blast, a fungal disease that is pushing the grain to extinction. In recent years, poor seed quality and diseases have affected the production of other traditional varieties of rice like *Chwartoo, Shanti, Ram* and *Javaeen*.

A team of scientists from Palampur Agriculture University visited the Pabbar valley in the Shimla district and interacted with farmers. The team has developed new varieties of the rice and distributed them to farmers. Although the yield has gone up, farmers say the taste does not match up to that of the traditional variety. They are now working on the new varieties so that they have the same taste, currently under research at Palampur University. If it is a success, they could consider marketing the rice in the international market, including in Bhutan, where similar varieties are grown. It is difficult to procure "red-rice" from farmers, unlike a decade ago when it was easily available in small towns. Producing this variety of rice is a highly labour-intensive operation and costs up to Rs. 40 kg.

Rice gene to enhance tolerance in other crops

A serious challenge today is to sustain and improve crop yields to feed the growing world population. Rice is a staple food in much of the world and hence increasing its production is of special interest. Though rice production has increased over the years, it will need to increase another 60 per cent by 2025 to feed the growing population. Traditional breeding strategies have been used to exploit natural genetic variation in improving crop varieties, but until now, very few plants showing enhanced tolerance to stresses and better yields have actually made it to the fields. Several genes have been reported to be up- or down-regulated in response to different stresses. These genes might generate products either directly involved in protection against environmental stress or that play a role in stress regulation. The first category would constitute genes coding for osmoprotectants, scavengers of reactive oxygen species, or stress proteins such as COR or LEA with an undefined mechanism of action. In the latter category would be genes that code for regulatory proteins such as transcription factors or components of signal cascades. These proteins would regulate the expression of a set of genes involved in stress.

The OSISAP1 gene was cloned via the differential screening of an *indica* rice cDNA library in an attempt to identify genes that show organ-

specific and/or stress inducible expression. OSISAP1 was expressed at a higher level in the root and the prepollination stage spikelet as compared to shoot. Further, expression analysis of OSISAP1 revealed that the gene is expressed in response to several abiotic stresses like cold, salt, drought, submergence, mechanical wounding, and heavy metals. The gene was overexpressed in tobacco under the control of a constitutive CaMV35S promoter to understand its function, and especially to determine whether the gene has a role to play in stress response. Transgenic lines were analyzed for cold, dehydration, and salt stress tolerance in the T1 generation. OSISAP1 could be a promising target for producing stress tolerant crops because it is inducible by different kinds of abiotic stresses and, upon ectopic over expression the transgenic show improved tolerance to cold, dehydration, and salt stress. It is quite possible that the gene may have a role in imparting tolerance to other stresses, which causes an increase in its transcription in rice.

Gene-altered rice

A handful of anti-biotech activists descended on Ventria Bioscience last week with an "eviction notice" and a moving van, bluntly inviting the Sacramento company that grows pharmaceuticals in rice to leave the state. Ventria's proposal to grow its novel product is scheduled for review again Tuesday morning by a rice industry panel in Yuba City. But the street theater signaled that the company's plans to ramp up production are catalyzing concerns about manufacturing drugs in food crops. This has provided a really graphic wake-up call. It's such a sci-fi thing.

Not just the activists are concerned. In Japan, the influential Rice Retailers' Association said it would seek a ban on California rice imports if genetically modified, or GM, rice is grown commercially in the United States. The industry group think it is practically impossible to guarantee no GM contamination in non-GM (rice). Californians also have taken notice. Many Sacramento Valley rice farmers are wary, even though Ventria promised to grow its rice only in counties where no commercial food rice is grown.

San Luis Obispo was one of 10 counties Ventria could target for its "pharma" crop, which has been engineered to produce two common human proteins, lactoferrin and lysozyme. The company envisions using them in anti-diarrheal treatments. After reading newspaper reports about the possibility of the novel crop in San Luis Obispo, an unsettled county

Board of Supervisors ordered a review of what it could mean. The county had no say in a plan that affects its top industry, farming. They should certainly have major involvement in what goes on here. At the state level, there is a request for an environmental review before the California Department of Food and Agriculture decides whether Ventria can ramp up production beyond its current test plots.

All are concerned that action on this is being contemplated before the potential environmental impacts have been adequately considered. Sher has yet to get a response. The agency would follow applicable environmental laws when it takes up the Ventria plan. That could be soon, if meeting of the 12-member rice industry panel goes smoothly. The panel, set up by state legislation to keep rice varieties separate, in March approved a strict set of procedures that would allow Ventria to become the nation's first commercial-scale producer of plant-made pharmaceuticals. The goal was to ensure the company's rice doesn't mix with food rice. Next, the plan went to the CDFA, which was inundated with more than 1,400 letters - many of them form letters, and virtually all of them wary about growing drug compounds in open fields.

In vietnam, rice is the web of life

It is befitting that the United Nations declared 2004 the International Year of Rice. Rice is a staple food for more than half of the world's population. It is the principal source of income for more than 1 billion people, most of whom are farmers.

The promotional year, under the auspices of the Food and Agriculture Organisation, hopes to encourage greater access to rice and increased production. It also aims to reduce hunger and poverty, and promote environmental preservation in rice-producing countries.

It goes without saying that this decision greatly interests Viet Nam, where 80 per cent of the population lives in rural areas and essentially survives on rice farming, and also where during the double rule of the Japanese and the French in 1945, a famine took a toll of 2 million lives. The *doi moi* (renewal) policy has put an end to the perennial food shortage and turned Viet Nam into the world's third largest rice exporter.

Six thousand years ago in what is now northern Thailand, rice grew like weeds before it was cultivated by man. Today, 90 per cent of rice is grown in Asia and its production feeds 40 per cent of the world's population. In Viet Nam, the first record of rice dates back to the

Mesolithic culture of Hoa Binh-Bac Son (10,000-8,000 BC). What is certain is that by the dawn of the Vietnamese identity in the valley of the Hong (Red) River in the first millennium of the Bronze Age (BC), rice growing had become culturally ingrained in this country, as well as in neighboring Southeast Asian countries.

Rice is the web of life in Viet Nam. In the Vietnamese language, it is translated into different designations: *lua* is the rice plant, *thoc* is raw and unhusked rice, *gao* is raw and polished rice, *com* is ordinary rice, cooked, while xoi is glutinous rice, steamed. In the old days, a woman who was unable to breast feed her child would give it rice porridge, and when it was old enough, she would feed it with chewed *com*. When a person dies, he is said to have taken *xoi*, probably because this type of rice is commonly part of the votive offerings for the dead.

Viet Nam practices both dry rice culture (in mountainous areas) and wet rice culture (in irrigated fields on the plains). The country has benefited greatly from measures proposed by the Green Revolution of the 1960s. These included greater productivity, like the use of high-yield seeds, mineral fertilisers, plant sanitary products, and improvements in irrigation. It also successfully put to use various short-stemmed plant varieties developed by the International Rice Research Institute in the Philippines that had the advantage of concentrating energy generated from photosynthesis on the ear and not on the stem of the rice plant.

In the countryside following the August Revolution of 1945, mutual aid groups were set up for farmers to help one another in production. When the resistance to the French ended in 1954, a land reform to return land to the tillers was conducted in the liberated North. In the 1960s, such household plots were regrouped into village-sized co-operatives. During the American war, these agricultural co-operatives were deprived of the local workforce of men and boys. The co-operatives filled the void left by the departing soldiers by providing rice, food and other labour to villagers and the families of soldiers. They shared the work collectively, with women taking a greater role in food production. After the war, unfortunately many co-operatives became ineffective because of bureaucratic management and the egalitarian distribution of produce. Gradually, the co-operatives became moribund: in the early 1980s many farmers refused to harvest co-operative fields.

The new policy of *doi moi* was instituted in 1986 to curb a prolonged economic crisis that lasted for many years, and to revive agriculture by giving farmers the full scope of production. The success was spectacular;

rice export in 1989 totalled 2 million tonnes and now the country ranks third in the world for that particular export line. For Vietnamese rice to have its place in the world market in this era of globalization, agricultural co-operatives should be reorganized in a way that suits the interests of farmers.

Vietnam implements seven year biotech development plan

Vietnam will be aiming to develop its biotech industry over the next seven years – with the refurbished biotech industry expected to deliver new plant varieties and animal breeds with increased productivity, quality and competitiveness and become a biotechnology leader by 2010. The biotech sector will also focus on developing artificial reproductive technologies, producing disease free plant varieties, and animal breeds, cleansing the aquaculture environment, and controlling epidemic diseases. Biotechnology is expected to generate jobs for about 700,000 rural workers, and the Ministry of Science and Technology in Vietnam hopes to train an additional 2,000 scientists between now and 2010. The ministry suggested that the government devise specific policies aimed at attracting foreign scientists to increase the professional capacity of the local biotech industry, and also in order to encourage Vietnamese researchers residing abroad to return to their homeland to work.

Speaking at a biotech conference held in Hanoi, Vietnam's Deputy Prime Minister Pham Gia Khiem called for a strengthening of training and international cooperation in the industry. He urged the industry to rationalize the management of biotechnology and increase the use of information technology. Laws to regulate intellectual property rights and genetic modification were currently being made in Vietnam. While the country has previously concentrated its biotech efforts on plant breeding, fertilizers and bio-pesticides, Vietnam is now edging towards a more systematic technology-based approach to biotech at the same time. With six national biotech laboratories already planned to open by 2006, the Vietnamese government is also making vast investments to generate opportunities for companies in the biotech-IT field.

Vietnam has already used advanced gene technologies to create novel vaccines and insect-resistant plants, and Vietnamese scientists are starting to study the cloning of animals. Facilities are being set up to store genetic material from a variety of plants, animals and micro-organisms, which will provide up to 500 species for biotech research use.

ACD agriculture ministers adopt joint initiative in Beijing

A two-day Asia Cooperation Dialogue (ACD) workshop in Beijing had attracted agriculture ministers or vice ministers from 20 countries. Participants agreed to cooperate in the areas of development policy, practical technology, sustainable development, and rural development and poverty alleviation. Chinese Vice Minister of Agriculture Zhang Baowen reportedly promised that China would organize two follow-up activities: an ACD agricultural policy forum to discuss development strategy and policy measures and to mark International Year of Rice, a rice-development workshop and technology exhibition.

Food and Agriculture Organization (FAO) of the United Nations declared that rice plays and would continue to play a crucial role in the sustainable agricultural development of the Asia-Pacific region. The release of the report coincided with FAO's annual Regional Conference for Asia and the Pacific, held in Beijing. The report was not optimistic, however, about the future of the international rice trade, which it projected to increase at a modest 1.5 per cent per year in the current decade to 29.3 million tonnes in 2010, much below the explosive growth of the 1990s. The report called for radical changes in rice-trade policy.

INGER provides viable options

A certain cooperative bank generates resources for agricultural development by pooling its member countries' assets. The countries deposit these assets without taking them out of circulation at home. India, the largest depositor, has withdrawn 10 times as much as it has deposited. Many countries, most recently Cambodia and East Timor, have made withdrawals without first making a deposit. This marvelous "bank" is the International Network for Genetic Evaluation of Rice (INGER), soon to celebrate three decades of sharing elite rice germplasm - seeds and the genetic material they contain – across Asia and the rest of the world. Called the International Rice Testing Network when the International Rice Research Institute (IRRI) and its national agricultural research and extension system (NARES) partners, INGER, launched it in 1975 has served as the recruiting office of the Green Revolution.

The main role of INGER over the years has been to assemble and distribute rice germplasm and to analyze, interpret and disseminate the results of varietal evaluation and use, both as breeding material and in farmers' fields. INGER receives the best rice varieties and advanced breeding lines developed by NARES, IRRI and three of its sister centers

in the Consultative Group on International Agricultural Research (CGIAR): the West Africa Rice Development Association (WARDA) – the Africa Rice Centre; the International Centre for Tropical Agriculture (CIAT by its Spanish acronym); and, until it discontinued its rice-breeding programme in the mid 1990s, the International Institute for Tropical Agriculture (IITA). The INGER programme at IRRI assembles nurseries both for global use and to meet the special needs of Asian countries. INGER Africa, led by IITA from the mid-1980s to the mid-1990s and now by WARDA, establishes specific nurseries for Africa. INGER Latin America and Caribbean, at CIAT, has looked after the particular needs of that region, in cooperation with Fondo Latinamericano para Arroz de Riego, a public-private partnership for international research on rice.

Australian and New Zealand GM food labelling standard one of the most comprehensive in the world

A review of labelling of genetically modified (GM) food, conducted by Food Standards Australia New Zealand (FSANZ), has found that Australia and New Zealand have one of the most comprehensive labelling regimes for GM food in the world. The final report of the Review of Labelling of Genetically Modified Food, commissioned by the Australian and New Zealand Food Regulation Ministerial Council, is now publicly available.

Three years ago Australian and New Zealand ministers responsible for food agreed to mandatory labelling for GM foods. These requirements came into force in both countries in December 2001. They require any food, food ingredient or processing aid produced using gene technology and containing novel DNA and/or novel protein or having altered characteristics to be labelled as 'genetically modified'. As Australia and New Zealand were among the first countries in the world to introduce GM labelling, in August 2003, Ministers requested that FSANZ conduct a review to compare our GM labelling requirements with international practice. In Australia and New Zealand all foods produced using gene technology must be safety assessed by FSANZ before they can be sold. The labelling requirements for GM food are not about safety; they are designed to enable consumers to make informed choices about what foods they eat.

The review found that although Australian and New Zealand were among the first countries in the world to adopt mandatory GM food

labelling, these requirements remain among the most comprehensive, both in scope and breadth of capture, of any country in the world. In Australia and New Zealand the majority of consumers welcome mandatory labelling of GM food so that they can make informed purchasing decisions. Consumers in other countries also hold these views. Two separate compliance surveys conducted by enforcement authorities in Australia and New Zealand and finalized in 2003 found a high level of industry compliance with the labelling requirements. Of the 168 products tested, all but one was considered to be compliant with labelling requirements. The non-compliant product was identified in the New Zealand survey and enforcement action was initiated with the product being recalled and the labelling rectified.

The surveys demonstrate that the labelling requirements can be effectively enforced using strategies which examine compliance plans and documentation held by manufacturers, and supplemented by product testing where appropriate. International regulations for the labelling of GM foods vary markedly from country to country. For example, the EU permits accidental contamination of foods with small amounts of unapproved GM commodities in the food supply while Australia and New Zealand does not permit any unapproved GM commodities for sale or use in the food supply.

U.S. expects biotech labelling stalemate to continue

The United States expects the issue of mandatory processed-based labelling of bioengineered foods to continue in "stalemate mode" at the Codex Committee on Food Labelling. Earlier it was hoped that the US could lay the issue aside, at least for a time. A work group appointed by CCFL chair Ann Mackenzie failed to agree last fall on how to handle the issue, but it refused to let the matter drop. The chair, and the (work group meeting) report, say there is no consensus to lay the issue aside. On the other hand, there is no consensus on going forward either.

Labelling of bioengineered foods has long been a bone of contention in Codex. Proposed biotech labelling guidelines have failed to advance beyond Step 3 in the eight-step approval process. Draft definitions of terms, which were approved by the committee but rejected by the full Codex Commission in 2001, are stuck at Step 6. Noting that the draft definitions of terms are at a more advanced stage of approval, it is added that we should not allow them to go

forward until we have a clearer picture of what comes out of the substantive labelling issues. The draft definitions are not consistent with definitions supported by the United States and agreed to by the Japanese chair of the now-expired Codex Ad Hoc Task Force on Foods Derived from Biotechnology.

Europe introduces labelling laws

Europe has introduced stringent rules for the labelling of food that contains genetically modified organisms. But in most countries the labells will take months to appear – and questions remain about how they will be implemented. The rules, which are imposed by the European Union, are intended to aid consumer acceptance of genetically modified food in Europe. They may help to defuse a US complaint to the World Trade Organization (WTO) that Europe is unfairly blocking imports of transgenic food.

Food containing more than 0.99 per cent genetically modified ingredients must be clearly labelled as doing so, the rules say. If the ingredients are awaiting final approval as being safe to eat, that threshold falls on 0.5 per cent. This is the biggest piece of legislation in the food industry for 20 years, a firm based in Fairfield, Iowa, is offering to test food for its transgenic content. Britain, Germany and the Netherlands are expected to implement the regulations in stores within a few months, but other nations may take longer.

The rules require food to be tracked from its source through manufacture to the point of sale. Manufacturers and packagers will also have to test food directly for traces of genetically modified organisms. A network of laboratories set up and operated by the European Commission (EC) has developed a series of standard tests. The Institute for Health and Consumer Protection, part of the EC's Joint Research Centre in Ispra, Italy, has led the development of these tests, which use polymerase chain reaction technology to search for modified DNA. But the tests do not work with the refined products, such as oil or sugar, of some genetically modified organisms because they may contain no transgenic DNA, so figures for food containing these will depend on manufacturers' supply-chain records. Many retailers doubt that customers will buy food products labelled as genetically modified, and some refuse to stock them. Analysts are unsure whether the new rules will make any difference to consumer acceptance- or to the United States' complaint to the WTO.

FAO adopts new guidelines for risk assessment

New guidelines for determining if a living modified organism (LMO) poses a hazard to plants have been published by FAO. Some 130 countries adopted this unique international standard on how to assess the risks of LMOs to plants. With some LMOs there is a potential risk of introducing a gene that could cause a normal plant to become a weed. Internationally accepted guidelines will help countries to reduce the risks of releasing LMOs that are weedy and could seriously harm our crop and plant ecosystems. The guidelines also cover other LMOs that may be harmful to plants, such as insects, fungi and bacteria. The Interim Commission on Phytosanitary Measures, which adopted the Guidelines, is the governing body of the International Plant Protection Convention (IPPC). This international treaty helps to stop the spread of pests and diseases affecting plants.

The new guidelines will help countries assess the risks of LMOs and determine whether some should be considered as weeds or other organisms that damage plants. Their introduction could then be regulated in order to protect crops and ecosystems. The guidelines harmonize and standardize the way countries analyse risks that LMOs may pose to plant health. A country may now use the guidelines to determine which LMOs pose a threat and, if necessary, can subsequently prohibit or restrict their import and domestic use. This is of particular value to developing countries, which can now use the same risk analysis criteria as developed countries.

In the case of trade disputes concerning plant health, the World Trade Organization (WTO) refers to IPPC standards. Phytosanitary measures that conform to IPPC standards are deemed necessary to protect plant life or health. The IPPC, within its overall scope of preventing the spread and introduction of pests of plant products, covers LMOs as far as they are pests of plants; the Cartegena Protocol addresses, in general, the safe transfer, handling and use of LMOs, specifically focusing on transboundary movement.

Biotech firms abandon crop trials in UK

All the major biotechnology companies have abandoned trials of genetically modified (GM) crops in the UK this year, according to a report by *The Guardian* newspaper. Only one crop – a herbicide resistant GM pea that is being tested for drought resistance – has been given a license to be planted this summer. At the end of last month, biotech

giant Bayer caused a stir by abandoning efforts to market its Chardon LL maize variety, which had recently received government approval. The lack of planting applications shows a dramatic change in the fortunes of GM technology, which remains unpopular with the public, the paper comments. The number of applications peaked at 159 in 2000-2001 (inflated by the government sponsored three-year trials of rape, sugar beet and maize) and then fell to 140 the next year, 42 last year and only one this year.

All the big companies – Novartis Seeds, Aventis CropScience and Bayer CropScience – have told the government that they will not grow any GM crops. Also the largest British research centers have stopped GM trials. The failure to test further varieties of crop is interpreted by industry watchers as despair at ever getting the technology accepted in Britain. The GM slowdown was a sign of how the companies were giving up. "It is reflected across the rest of Europe. Research is now being directed elsewhere to other ways of improving crops which do not involve GM.

(Sources: *Checkbiotech*, January, 24, 2005; *Business Line*, January 25, 2005; *Viet Nam News*, June 3, 2004; *Bridges Trade BioRes*, Vol. 4 No. 23, December 20, 2004; *Food Chemical News*, April 8-9, 2004; www.irri.org, June 29, 2004; *Asia-Pacific Biotech News*, Vol. 8 No. 7, 2004; *The Hindu Business Line*, July 30, 2004; *Business Standard*, October 9, 2004; www.checkbiotech.org, June 1, 2004; www.checkbiotech.org, June 1, 2004 ; *Viet Nam News*, November 21, 2004; *Rice Today*, Vol. 3 No. 4, October-December 2004; *Rice Today*, Vol. 3 No. 4, October-December 2004; *Nature*, Vol. 428, April 22, 2004; *Food Chemical News*, Vol. 46, April 5, 2004)
Agra Europe, April 16, 2004; *and Asia-Pacific Biotech News*, Vol. 8, No. 4, 2004