

Precaution Before Profits

GE field trials put our environment, food and fields at risk

Field trials of genetically engineered (GE) crops in Thailand threaten irreversible environmental harm, increasing the risk of GE contamination in our food and in our fields.

Keeping the Ban on GE Field Trials

In recent months the Agriculture Ministry and the Science & Technology Ministry have called on the Cabinet to lift the ban on field trials of genetically engineered (GE) crops in Thailand. The ban was imposed in April 2001 in response to evidence that field trials of *Bt* cotton had caused contamination of farmers' fields. Agriculture Ministry and Science & Technology Ministry officials now insist that GE field trials no longer present environmental risks or a threat to farmers. However, there is no evidence to support their claims. On the contrary, over the past two years there is even *more* evidence from overseas that contamination through cross-pollination and seeds is *inevitable and uncontrollable*.

Equally worrying is the fact that calls to lift the ban on GE field trials appear to be motivated by commercial interests. This includes foreign corporations that are seeking the removal of all restrictions on the release of GE crops in Thailand. Under such pressure, it is essential for the Government to put precaution before profits.

The Ban Must Extend to All GE Field Trials

Despite the existing ban, open field trials of GE crops exist in certain government experimental stations or 'restricted areas' operated by the Agriculture Ministry. Although officials from the Agriculture Ministry claim that the ban does not apply to land in government restricted areas, the legal grounds for this are still being debated. Meanwhile, these open field trials are continuing, posing a serious GE contamination threat. Since they are *open-air* field trials, the pollen from these GE crops can be carried outside government-restricted areas by wind or insects. The seeds of these GE crops may also be transported out of the area. The result is that GE

organisms are being released into the environment and *cannot be recalled*.

For example, corn plants are wind-pollinated and an average corn plant produces between 4.5 and 25 million pollen grains over a period of two to 14 days. With this level and intensity of pollination even significant isolation distances between GE and non-GE corn plants cannot guarantee prevention of cross-pollination. That is why a recent report by the European Environment Agency (EEA) concludes that the likelihood of GE corn cross-pollinating with non-GE corn presents a "medium to high level risk".¹

In a recent study of the potential for contamination of non-GE rice and wild varieties by GE rice, scientists at China's Ministry of Education Key Laboratory for Biodiversity and Ecological Engineering and the Institute of Biodiversity Science at Fundan University concluded that the ecological risks are high. They observe that outcrossing from GE rice is likely to impact on conventional, wild and weedy rice varieties, and that the "dispersal range of rice pollen grains increases with the increase of wind speed."² These and similar studies raise serious questions about the threat that GE rice field trials – if permitted in Thailand – would pose to traditional and wild rice varieties.

The fact is that even today open field trials in government restricted areas are usually only enclosed with barbed wire fences and rows of banana trees. But barbed wire and banana trees cannot stop tens of millions of grains pollen carried in the wind, or carried by insects such as bees. So when the Agriculture Ministry assures farmers that these field trials are 'safe' because they are isolated, this guarantee depends on uncontrollable factors such as wind velocity, wind patterns, and the behaviour of bees!

¹ Eastham, K. and J. Sweet. 2002. Genetically modified organisms (GMOs): The significance of gene flow through pollen transfer. A review and interpretation of published literature and recent/current research from the ESF 'Assessing the Impact of GM Plants' (AIGM) programme for the European Science Foundation and the European Environment Agency. *The Environmental Issue Report No 28*. Zurich: European Environment Agency (EEA). p.41.

² Lu Baorong, Song Zhiping and Chen Jiakuan. January 2003. Can transgenic rice cause ecological risks through transgene escape? *Progress in Natural Science* 13 (1), p. 22.

GE Field Trials Pose Real Risks

The threat of contamination resulting from GE field trials has already been demonstrated in Thailand with the case of *Bt* cotton. In other countries contamination from GE field trials has also inflicted harm on the environment and on farmers' livelihoods. In Hawaii, GE papaya seeds were found to be growing in farmers' fields even before it was commercialised. The Papaya Administration Committee was unable to explain how seeds from GE papaya field trials escaped into the commercial seed supply.

On July 23, 2001, the French Government's Food Inspection Agency (AFSSA - Agence Française de Sécurité Sanitaire des Aliments) presented the results of analyses of GE contamination in conventional seeds, including soya, corn and canola. Once source of this seed contamination were GE field trials.³

In December 2002, the US Environmental Protection Agency found that *Bt* corn field trials conducted in the state of Hawaii by Pioneer Hi-Bred, the largest seed company in the world, had caused contamination of nearby fields. Following the EPA investigation, the company was fined for causing GE contamination. The US Department of Agriculture has also launched a new investigation into the incident.⁴⁴

In November last year Greenpeace Southeast Asia called for a permanent ban on all open field growing of GE crops following the news that the US government found 500,000 bushels of soybeans contaminated by GE corn. The corn was genetically engineered to produce pharmaceuticals or industrial proteins to be used for vaccination of pigs. The 'pharm' crop in question comes from a Texas-based biotechnology company, ProdiGene, which has mishandled its 'pharm' crops twice in three months, resulting in contamination of the food supply with unapproved, drug-producing crops. The GE drug that contaminated soybean stocks is a protein that is intended to vaccinate pigs. Anthony Laos, CEO of ProdiGene, admitted that no human health tests had been conducted on the vaccine.

³ AFSSA - Agence Française de Sécurité Sanitaire des Aliments. July 23, 2001. de l'Agence française de sécurité sanitaire des aliments relatif à l'évaluation, en termes de santé publique, de la signification d'un signal positif à 0,2% par une sonde 35S et du risque éventuel lié à la présence de semences de maïs OGM non identifiés, au regard notamment des taux de présence observés et de la fréquence des cas.

⁴ Emily Gersema. April 23, 2003. Pioneer pays fine in biotech corn mix-up; USDA begins new investigation. The Associated Press; Justin Gillis. April 24, 2003. Firm Fined for Spread Of Altered Corn Genes; Government Wasn't Told Soon Enough. *The Washington Post*: E04; Elizabeth Weise. April 24, 2003. Biotech traces found in regular corn. *USA Today*: 11.

In response to the ProdiGene contamination scandal, Varoonvarn Svangsopakul, Genetic Engineering campaigner of Greenpeace Southeast Asia, called on the Thai government to recognize the real risks posed by field trials: "These cases have demonstrated that a government may promise to regulate the new technology but in reality it cannot completely rule out any unforeseeable dangers the GE experiment could bring. The release of GMOs into the environment can pose harmful irreversible effects."

GE Contamination is Inevitable

When the Cabinet re-examines the ban on GE field trials it is obliged to take into account the scientific evidence concerning GE contamination and its long-term ecological risks. Increasingly, scientists both in government and academia recognise that GE contamination is inevitable once GE organisms are released into the environment.

For example, in January 2003, an international conference of over 250 scientists and researchers organised by the European Science Foundation recognised that GE contamination caused by outcrossing between GE crops and wild species is increasingly common. Focusing on increased weediness and agricultural problems, the conference participants also recognised the need for 'global risk assessment' in the face of seed contamination.⁵

In December 2002, the UK's Department of Environment, Food and Rural Affairs (DEFRA) released a report on GE crops based on research conducted from 1994 to 2000. The report showed that GE contamination of non-GE crops – including crops in fields adjacent to GE field trials – was widespread. For example, genes from herbicide resistant GE canola contaminated non-GE canola nearby. The report also found that GE crops interbred with a weed (a wild relative of canola), giving it resistance to herbicides and thus raising the prospect of the development of super weeds.⁶

The inevitability of GE contamination is ignored by those who are calling for an end to the ban on GE field trials in Thailand. This is despite the fact that

⁵ A conference organised by the European Science Foundation. Assessing the Impact of Genetically Modified Plants (GMP): Introgression from Genetically Modified Plants (GMP) into Wild Relatives and its Consequences, 21-24 January, 2003, University of Amsterdam, The Netherlands.

⁶ Carol Norris C. and J. Sweet. 2002. Monitoring Large Scale Releases of Genetically Modified Crops (EPG 1/5/84) Incorporating Report on Project EPG 1/5/30: Monitoring Releases of Genetically Modified Plants. National Institute of Agricultural Botany (NIAB).

GE industry corporations themselves recognise that contamination is inevitable. The chairman of the National Biosafety Committee, Banpot Napompeth, was quoted in the *Bangkok Post* (April 5, 2003) as stating that: "Agencies and biotechnology companies like Aventis and Monsanto Co, should be allowed to carry out GM field trials on the condition experiments are strictly controlled and limited to a closed environment."⁷ The reality is that corporations such as Aventis and Monsanto are directly involved in GE contamination cases, and acknowledge that these risks are real. They know it gets out of control and *cannot be regulated*.

In 2000, Aventis' StarLink corn, a GE product not approved for human consumption, was found in many different food products in the US. Despite measures to recall food products and limit the contamination, Starlink was found in food imported into Japan and South Korea, and again in Japan in December 2002.

According to a new report by Innovest Strategic Value Advisors, a global environmental and social investment research firm, such cases "reflect the essential problem of GE crops – release into nature is inevitable and once released, GE materials cannot be recalled. So far, the StarLink disaster has cost Aventis nearly \$1 billion. Yet, StarLink contamination is still occurring and could occur indefinitely. As a result, it is impossible to predict the ultimate cost to Aventis. Contamination costs could put Monsanto and other firms into bankruptcy, leaving society to deal with GE contamination problems."⁸

The Innovest report goes out to point out that Monsanto clearly recognises that GE contamination is inevitable – which is why it is urging governments around the world to relax restrictions on GMOs in food products and to accept that contamination is a reality. In its annual report, the Monsanto notes that it is addressing the problem of contamination by, "...continuing globally to seek regulations that recognize and accept (contamination) and provide for approval and acceptance of trace amounts of (GE contamination)."⁹ This kind of corporate irresponsibility earned Monsanto a triple-C rating – the lowest possible environmental and strategic management rating.

This shows that corporations like Aventis and Monsanto should not be permitted to conduct GE field trials in Thailand, regardless of the "strictly

controlled" environment promised by advocates for an end to the ban. Such controls have failed repeatedly in the US and they will fail in Thailand. The only way to effectively control GE contamination is to prevent the release of GE organisms into the environment. By allowing corporations like Aventis and Monsanto to run GE field trials in Thailand, the Government would in fact be turning our environment, food and fields into a genetic experiment.

Biosafety Needs the Precautionary Principle

When the Cabinet considers the request to lift the ban of GE field trials, it should act to protect the environment and Thai people, especially farmers, against the very serious risks posed by GE crops. In doing so it must extend the ban to *all* field trials of GE crops and make it a *permanent* ban. Such a measure is necessary to ensure biosafety, and to protect the environment, farmers' livelihoods and the well being of the Thai people.

Securing biosafety in the face of the threat posed by GE requires the incorporation of the Precautionary Principle into Government policies and laws.

The Precautionary Principle is intended to be a general rule in situations where there is the potential for serious or irreversible threats to health and the environment and requires action to be taken to avoid such threats even where definite proof of harm does not yet exist. It stops the lack of scientific certainty being used to delay preventive action. A precautionary approach does not stifle progress but can encourage innovation more widely by stimulating the search for alternatives and valuing diversity.

Greenpeace demands

- ☒ That the ban on GE field trials be made permanent, as part of comprehensive legal measures to protect biosafety.
- ☒ The extension of the ban to *all* open field trials of GE crops, including those in government restricted areas and experimental stations.
- ☒ The incorporation of the Precautionary Principle in comprehensive biosafety legislation and its implementation in practice.

⁷ Kultida Samabuddhi. 5 April 2003 Ban on field trials maintained: Decision flies in face of ministries' wishes. *Bangkok Post*.

⁸ Innovest Strategic Value Advisors. April 2003. *Monsanto & Genetic Engineering: Risks for Investors*. New York, pp. 9-10.

⁹ *Monsanto & Genetic Engineering: Risks for Investors*, p.11.

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