Bremen, March 26, 2010

GMLS 2010:
International Conference on Implications of GM Crop Cultivation at Large Spatial Scales

Summary and some Results of the Conference

Overview

From the 25th to the 26th of March 2010, the second International "Conference on Implications of Genetically Modified Crop Cultivation at Large Spatial Scales" was held at the University of Bremen. About eighty participants registered, who came from 18 countries. 34 presentations were held. Presenters from 11 European and overseas nations contributed new scientific findings on risk analysis of genetically modified organisms and large-scale assessments of environmental effects. As it was for the first GMLS conference in 2008, the results will be made available as a proceedings volume and additionally on the website www.GMLS.eu.

The conference emphasised the necessity of independent and publicly accessible research results for GMO investigations. In the following, we as the organisers summarise some of the scientifically new and important findings and contributions that were presented and discussed at GMLS II.

GMLS is part of the studies on systemic risks funded by the BMBF in the call on Social Ecological research. In this context, scientific findings are linked to social considerations on how nature and the human society mutually influence each other.

Some highlights and important advancements presented at the conference

On causes and effects – starting points for large scale implications

Gilles Eric Seralini from the University of Caën (France) explained the still existing deficits and shortcomings of food safety testing of genetically modified crop plants. Most of the data are still handled as confidential business information and not disclosed to the public or to independent scientists who could verify the conclusions drawn. In cases where developers were forced through court decisions to disclose food testing data, serious concern about the statistics were raised and published in peer reviewed scientific journals.

Jonathan Latham from the Bioscience Resource Project (USA) explained risks and safety implications of a new approach to produce GM organisms basing on the recently discovered

mechanism of RNA interference. The approach is in the stage of proof of concept and poses difficult safety concerns. No varieties using this approach are marketed yet but development is proceeding.

Dispersal and coexistence of GMO; Modelling approaches

In their talks, Chris Viljoen from South Africa and Denis Aheto from Ghana gave an impression of the conditions of agriculture in Africa. Not only because of the climatic conditions but also because the high importance of subsistence agriculture and partly very small fields the conditions for regulation differ considerably from the situation in Europe and other countries on the Northern hemisphere. In South Africa, several genetically modified varieties are commercially used; however, no regulations on segregation distances or identity preservation systems or labelling regulations are in place. Also data on actually existing geneflow between GM and conventional crops are widely lacking. This could impact on the development perspectives of conventional as well as organic agriculture.

For the northernmost German federal state of Schleswig-Holstein, Christiane Eschenbach from the University of Kiel and her co-workers presented the first extrapolation of maize gene flow to the regional scale. Using statistical location data for maize fields and calculations of field-to field cross pollination they supported the expectation that because of the small scale field structure, in a relevant percentage of cases, conventional fields would be contaminated by GM pollen to an extent that they might exceed the labelling threshold of 0.9 %. The results were obtained using two different extrapolation methods. Not only could this cause a financial loss for the farmers, it puts also a burden on the farmers in terms of test cost and neighbourhood organisation. In addition, the findings seriously question how efficient the rules of good agricultural practice would function as secure segregation measures in regions where smaller farm structures prevail.

Assessment and monitoring of GMO effects

Kathrin Pascher from the University of Vienna presented a biodiversity monitoring concept for Austria. In order to assess the effects of GM agriculture, it is necessary to monitor the environment. In particular the use of genetically modified insecticidal plants and herbicide resistant plants are known to affect biodiversity. It is an important goal of nature conservation policy to prevent further losses in species diversity.

Werner Kratz from the Free University Berlin and his co-workers spoke about a newly started research project in Brandenburg. In previous investigations it was found, that insect resistant maize could eventually harm aquatic organisms (caddisflies), some of which are endangered species and protected. Effects on these species have not been assessed during safety testing before admission. In the US, where the according GM plants have been used on large scales, sensitive fauna may be already reduced. In Brandenburg (Germany) it can be tested, whether the effects that were found in laboratory studies are encountered also under the existing field conditions. Before the ban of Mon810 maize in Germany, Brandenburg had a relatively higher percentage of the GM maize cultivation in Germany.

A bee-keeper from the Northern German City of Diepholz, Peter Wagner, explained the diffi-

cult situation GM plant cultivation brings for honey production and the availability of other bee products in a GM free quality. Every square kilometre has on average several bee hives, providing an agriculturally important pollination service. Through GM cultivation many bee keepers see the basis of their profession threatened.

Management and control of GM crops at large spatial scales

Mexico is the country of origin for maize. Francisca Acevedo from the CONABIO institute described the research that was executed to localise the number and spatial distribution of maize landraces which are to be protected from the introgression of genetic modifications. She presented data showing that the cultivation of many native maize varieties takes place inside the Central and Southern Mexican landscapes which harbour most of the Mexican biodiversity heritage, maize landraces and their wild ancestors. But also in the vast majority of other Mexican federal states there is a considerable cultivation of specific landraces.. Discussing the presentation, it seemed to be an unsolved question how GM cultivation could be organised in an enforceable way without contaminating the origins of maize domestication.

Gillian Banks from the Scottish Crop Research Institute and her co-workers presented new data on the dispersal of oilseed rape in Scotland outside cultivated areas. They could document, that over the last years more oilseed rape survived outside cultivation. This supports the concern that outcrossing and survival of trangenes could take place when GM oilseed would be admitted for cultivation, which is currently not the case.

Setting social ecological frames: Integrative interdisciplinary approaches

Vincenzo Pavone from the Spanish Institute of Public Policies presented a sociological study relating research investments and the opinion of the public. He stated that public research funding bodies as well as industry companies might save a lot of money if research would be concentrated towards options which find wide acceptance and appreciation in the overall society. This is currently not the case for GM.

Morten Gylling from the University of Copenhagen described the Danish approach to regulate the coexistence of GM crop cultivation and conventional agriculture. In Denmark, any GM grower must pay a certain amount per hectare into a fund. This fund is used for compensation if conventional fields of the neighbours are contaminated. Existing means for damage compensation was said to have contributed to a relaxation of the GM controversy.

How to improve risk assessment through a well organised step by step process was the topic which Angelika Hilbeck from the ETH Zürich addressed together with her co-workers. She showed that according to the scientific state-of-the-art there are considerable options to improve scientific risk assessment. In particular she outlined a more systematic way of handling enclosure measures during deliberate releases of GMO.

The conference illustrated that GMO risk assessment can build on relevant information, e.g. referring to biochemical characterisation, physiological and agronomic studies. However, considerable gaps exist in the assessment of biodiversity effects, and how non-target organ-

isms would be impacted by GM crop cultivation. Landscape and regional studies are even scarcer. Uncertainties and the possibility to come up with much more reliable test results exist also with regard to human health aspects. Considerable scientific work has to be done to solve the remaining open questions.

Further information

www.GMLS.eu
Richard Verhoeven: buero@richardverhoeven.de
Broder Breckling: bbreckling@iuw.uni-vechta.de